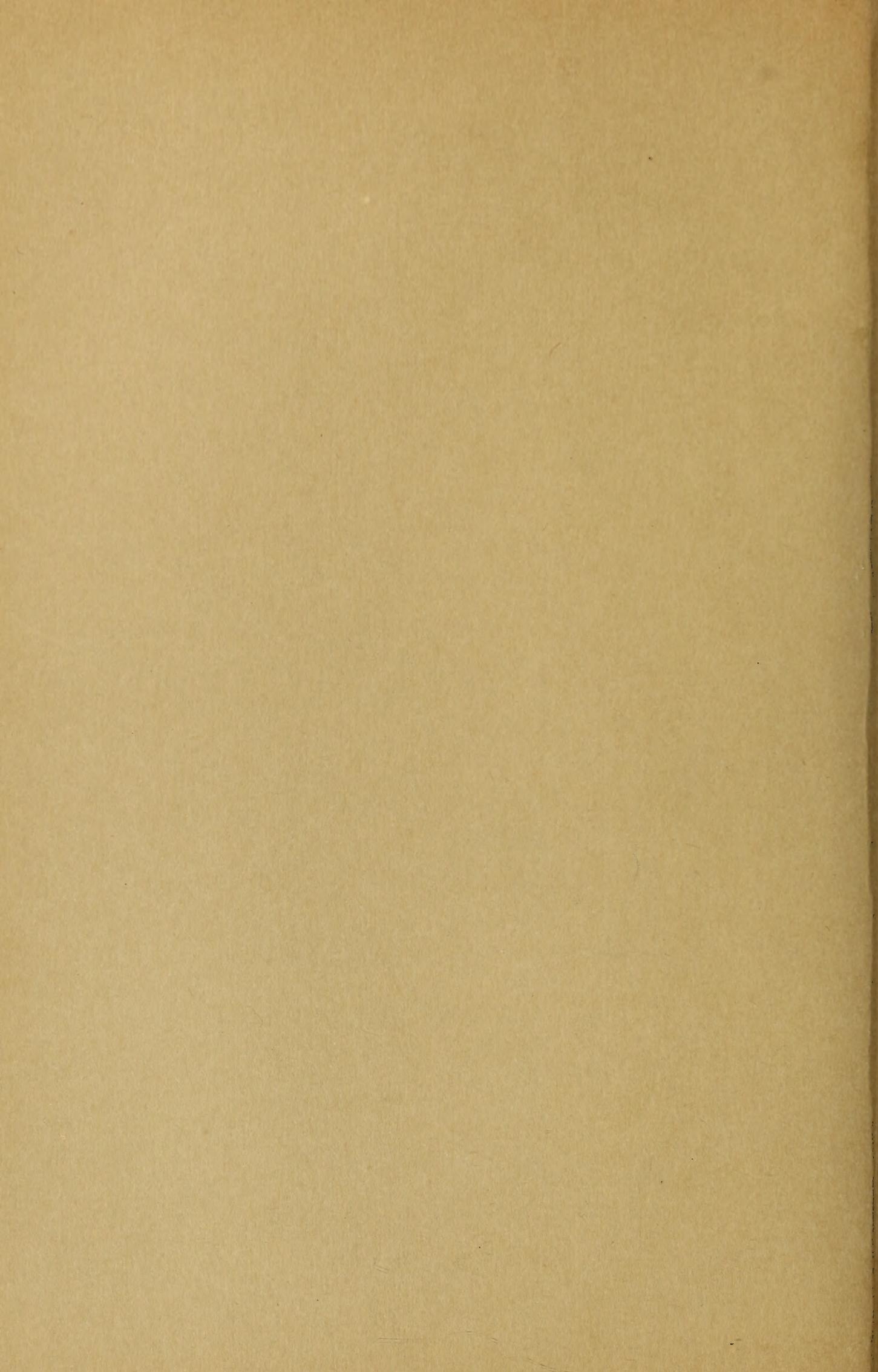


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No. 14: A FAUNAL INVESTIGATION OF WESTERN
RAINY RIVER DISTRICT, ONTARIO.

By L. L. SNYDER

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A FAUNAL INVESTIGATION OF WESTERN RAINY RIVER DISTRICT, ONTARIO*

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GENERAL INTRODUCTION

The papers which follow are a continuation of a series of reports based on collections and field studies made by the Royal Ontario Museum of Zoology in sections of the province from which specimens and other data were desirable. The field work for the present reports was accomplished between May 31 and August 10, 1929. The accompanying map circumscribes the area studied and on it the camps and collecting stations are indicated.

The portion of Rainy River District with which we are here concerned consists of approximately fourteen hundred square miles. It is bounded on the south by the Rainy River which constitutes the Minnesota-Ontario boundary; on the west by Lake of the Woods, which lies on the Manitoba-Ontario boundary; and on the east and north by Rainy Lake and the system of lesser lakes which mark the border of exposed pre-Cambrian rock in this region.

The underlying geological structure of the southern, central and western portion of this area consists of a schist complex essentially of volcanic origin (Map 266A, Dept. of Mines, Ottawa). These rocks, however, are largely covered by glacial drift and sediments. Coleman (1922) states that Lake Agassiz occupied parts of Saskatchewan, Manitoba and Ontario in Canada and parts of North Dakota and Minnesota in the United States. Lake Winnipeg in Manitoba, and Lake of the Woods and Rainy Lake in Ontario, are successors which occupy portions of this original basin. The physiography of the western portion of Rainy River District shows markedly the effects of glacial deposition and the levelling-off processes which were at work in the basin of Lake Agassiz.

Along the eastern and northern border of this area, granite and granite-gneisses, hard rocks of Archaean age, are exposed or lie near the surface. The irregular depressions on these are filled with water which spills from one to another thus constituting chains of clear lakes which find their drainage through Rainy River to Lake of the Woods and thence to Lake Winnipeg and to Hudson Bay via the Nelson River.

As a whole, the area with which we are concerned supports a

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considerable forest cover, although much arable land is under agricultural development, a point to be mentioned later. Lumbering, fires and clearing of the land has interrupted the forest cover here and there, especially in central and southern parts. Extensive "wild" plots of woodland and bog still exist along with cultivated lands and these areas are more or less linked to the continuous and primaeval hinterland.

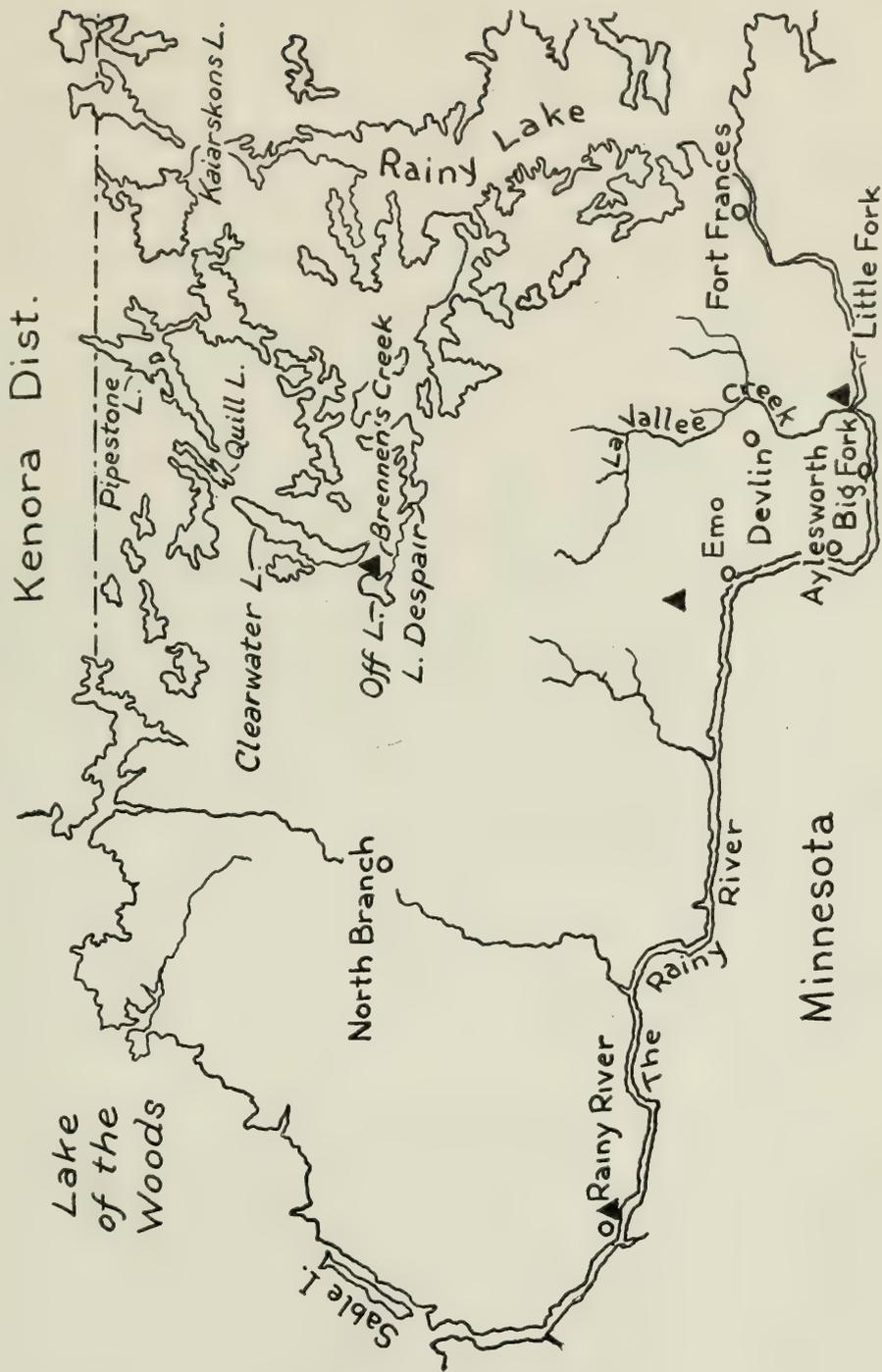
The earliest reference to the forests of the region appears to be that of Ballantyne (1848). In his account of a voyage by canoe from Lake of the Woods eastward on the Rainy River, made in September, 1841, he mentioned that "ash, poplar, cedar, red pine, white pine and birch" grew along the banks. The same trees would be identified on a similar journey to-day but continuous tree-growth does not now characterize this section of the district and pines have been largely cut out. In southern and central sections poorly drained areas still support stands of black spruce. Here and there aspen poplar woods predominate in the landscape. The heaviest stands of trees are to be found on Indian Reserves, of which there are several. On these one finds old stands of aspen poplar, balsam fir, balsam poplar, white spruce, black ash and American elm.

Creek bottoms are for the most part wooded with relic assortments and rather extensive woodlots and open wooded pastures are found on farms. Several species of trees of more than ordinary interest are not uncommonly met with. These are bur oak, box elder and hawthorns. Among the principal shrubs to be found are mountain maple, speckled alder, red-osier dogwood, beaked hazel, pin and choke cherry and species of *Salix*, *Viburnum* and *Amelanchier*.

The northern lake country which borders the area undergoing agricultural development, supports largely a mixed forest. Black spruce bogs and white cedar swamps characterize the lower ground. Lumbering has removed the larger white and red pines, although second growth of both species is to be found and jack pine occupies dry situations in extensive areas, especially to the north.

Sharpe and Brodie (1931) compare the forest of the Rainy River District with that of the Sudbury District in Ontario. Further, they state that the probabilities are that these two floras originated from the same centre following glaciation. Their description of the forest of Rainy River District will apply more particularly to the rough lake-country which constitutes the border of the area dealt with in this report.

It seems probable that the portion of the district bordering the Rainy River would yield a number of western and southern floral



Western Portion of Rainy River District, Ontario

▲ R.O.M.Z. Camps

elements not characteristic of the district as a whole, if it were investigated botanically.

Agriculture had its beginning along the Rainy River more than forty years ago. In 1890 only a few clearings had been made and these were located along the Rainy River which was the only highway for travel. In due course farms were established along a sixty mile front, from the town of Rainy River on the west to Fort Frances on the east. At the present time farms and roads extend inland for fifteen or twenty miles, especially in the central district north of the town of Emo. Small pioneer farms, made and occupied largely by immigrants from Finland, are found in the north bordering the lake country.

The clearing of extensive tracts of land in this region undoubtedly has had a considerable effect on the fauna now to be found there. The Ontario portion of the broad and flat basin of glacial Lake Agassiz, situated as it is close to native prairie (30 miles to Roseau, Minnesota), has become prairie in effect where the forest-cover has been removed. We were informed by residents of the district that in 1910 a great fire swept from the vicinity of Warren to Baudette, Minnesota. This tended to create a corridor which conceivably could have facilitated eastward extensions of range of prairie forms. Then too, railroad right-of-ways are important features in connection with recent dispersals.

The climate of the western portion of Rainy River District is one of considerable extremes because of its interior-continental location. The isotherm of 0°F. for January (like White River, Ont.) passes through the area, as does also the 67°F. average for July (like Toronto). Sharpe and Brodie (*loc. cit.*) give the frost-free period for the district as a whole as ninety-three days, which approximately corresponds to Parry Sound and Muskoka Districts in eastern Ontario. The annual precipitation is 23.74 inches, approximately half of which falls in the growing season.

PREVIOUS WORK IN THE REGION

So far as it is known no comprehensive studies or surveys have been made of the biota of the western portion of Rainy River District. A few papers dealing with the fauna of territories more or less adjacent to the area here considered may be mentioned. The earliest of these is on the birds of Itasca County, Minnesota, by Cahn (1920). A paper by Johnson (1920) deals with the summer birds of Lake County, Minnesota. This was followed by additions relative to the birds of Lake County by the same author (1921 and 1923) and by Cahn (1922). In 1921 Cahn published a paper on the mammals of Itasca County, Minnesota. Next in chronological order are two papers on birds from

Indian Bay, Lake of the Woods, Manitoba (and Ontario) by William Rowan (1922A and 1922B). In 1930 Johnson's paper dealing with mammals of northwestern Minnesota appeared. The next item is an illustrated descriptive account of the country "between Lake Superior and Lake of the Woods" by Jaques (1931). Another paper to be mentioned is that of Tanton (1935) which deals with a fresh water bryozoon found in the eastern part of Rainy River District.

The only published papers dealing with the fauna of the western portion of the Rainy River District, so far as the writer is aware, are those of Brimley (1929, a and b). These two papers deal with insects and were based on collections made there during 1924. A few specific records of animal occurrences in the region have been found in the literature. Where pertinent these will be cited in the following annotated lists.

LIFE ZONES AND FAUNAL AREA

The incidental gathering of data relative to the trees and shrubs occurring in the western part of Rainy River District was sufficient to show that the forest of the region is fairly typical of the eastern section of the Canadian life zone. The more complete record of vertebrate animals, which was the primary objective of our survey, demonstrates also that the composite association of forms in this region is largely characteristic of the Algonquin faunal area of the Canadian life zone. The peculiarities of this area, however, as compared with other sections of the province, regarded according to the life zone concept, were rather marked and require some mention.

In general the Rainy River fauna is similar to that of areas two to three degrees of latitude farther south, in southern Ontario. This is significant, since it indicates that the range limits of quite a number of vertebrate animals, particularly birds, swing northward in the west or toward the interior of the continent, thus paralleling summer isotherms. The following forms found in the Rainy River District substantiate this statement: Tree Toad (*Hyla versicolor*), Hooded Merganser (*Lophodytes cucullatus*), Cooper's Hawk (*Accipiter cooperi*), Piping Plover, (*Charadrius melodus*), Black Tern (*Chlidonias nigra*), Whip-poor-will (*Antrostomus vociferus*), Red-headed Woodpecker (*Melanerpes erythrocephalus*), Crested Flycatcher (*Myiarchus crinitus*), Eastern Wood Pewee (*Myiochanes virens*), American Rough-winged Swallow (*Stelgidopteryx ruficollis*), Purple Martin (*Progne subis*), White-breasted Nuthatch (*Sitta carolinensis*), Short-billed Marsh Wren (*Cistothorus stellaris*), Catbird (*Dumetella carolinensis*), Brown Thrasher (*Toxostoma rufum*), Wilson's Thrush (*Hylocichla fuscescens*), Common Shrike (*Lanius ludovicianus*), Baltimore

Oriole (*Icterus galbula*), Scarlet Tanager (*Piranga erythromelas*) and Grey Squirrel (*Sciurus carolinensis*). Additional species could be included as illustrating the above northward range penetration in the west but the cases cited are sufficiently numerous to illustrate the point. Also, it was found that many of the forms listed above were sufficiently numerous to suggest that their range extends northward beyond the western portion of Rainy River District in Ontario.

Some mention should be made of certain conditions observed which confuse the zonal picture in this region. The occurrence of low or poorly drained flats and troughs which support pure stands of black spruce (and an accompanying under cover of "oxylophytes") has been mentioned. These are ecologically similar to conditions prevailing in northern Canadian and Hudsonian zones. These "boreal islands" are especially common in the interior—Minnesota, Manitoba and adjacent parts of Ontario—and tend to confuse the zonal stratification in this region. Perhaps the most striking way to illustrate the point is to remark that the Red-headed Woodpecker was observed in a partial clearing near Big Fork while immediately opposite this situation in a black spruce forest an American Three-toed Woodpecker was collected. This might be interpreted as evidence of an overlapping of Carolinian and Hudsonian faunas, in terms of life zone representation.

In one other respect the western part of the Rainy River fauna is notably different from comparable faunal areas in the eastern part of Ontario. Because of the proximity to native prairie and because agricultural development has produced extensive tracts of treeless or pseudo-prairie conditions, a notable number of prairie forms has invaded the region. Some may have long since been established there. It seems probable that additional forms have since come to occupy the area. Some of these animals are certainly more characteristic of the Assiniboian faunal area. A significant assemblage of elements of this fauna has not previously been recorded for Ontario. The following species and subspecies comprise the more obviously western or prairie representatives in the Rainy River fauna: Northwest Swamp Tree Frog (*Pseudacris septentrionalis*), Mallard (*Anas platyrhynchos*), Green-winged Teal (*Nettion carolinense*), Poplar Sharp-tailed Grouse (*Pedioecetes phasianellus campisylvicola*), Western House Wren (*Troglodytes aedon parkmanni*), Western Palm Warbler (*Dendroica palmarum palmarum*), Western Meadowlark (*Sturnella neglecta*), Giant Red-wing (*Agelaius phoeniceus arctolegus*), Nevada Cowbird (*Molothrus ater artemisiae*), Prairie Savannah Sparrow (*Passerculus sandwichensis campestris?*), Western Vesper Sparrow (*Pooecetes gramineus confinis*), Clay-colored Sparrow (*Spizella pallida*), Dakota Song Sparrow (*Melospiza*

melodia juddi) and Franklin's Ground Squirrel (*Citellus franklini*).

Although the emphasis has thus far been placed on the irregularities and peculiarities of the fauna of the western part of the Rainy River District, reference to the complete list of animals recorded in the papers which follow will show that animals usually regarded as characteristic of the Algonquin fauna of the Canadian zone predominate. There is no doubt that the fauna of Rainy River District is the richest and most varied of any area visited so far during the prosecution of the Museum's surveys.

CAMPS AND ITINERARY

Observations and collecting in the western portion of Rainy River District was started by Mr. H. P. Stovell and the writer at a camp a few miles north of Emo. Arriving on May 31, 1929, work was carried on here until June 30. From the camp at Emo collecting and observation trips were made to other points, along the Rainy River immediately to the south, southeast to Big Fork and eastward to Fort Frances. On June 30 we were joined by Messrs. J. L. Baillie, A. R. Van and Chas. Tompkins. Camp was removed to Off Lake from which trips were made to adjacent territory—Clearwater Lake, Quill Lake, Lake Despair, etc. Completing the work here on July 13, camp was removed to near the mouth of La Vallee Creek where Messrs. Baillie and Stovell worked until July 27. After this they removed camp to near the town of Rainy River, completing field work on August 10. From the last camp trips were made along the Rainy River and on to Lake of the Woods as far as Sable Island.

ACKNOWLEDGEMENTS

The major portion of the work in connection with a faunal survey is in the collecting and preparation of specimens. In the ornithological work, the writer had the experienced aid of Mr. James L. Baillie, Jr., of the Museum staff. Mr. H. P. Stovell, at that time a member of the staff, did the major portion of the mammal work. Their cooperation and valuable assistance in this undertaking is especially appreciated.

Mr. A. R. Van of Toronto was a member of the field party for a short period during July. Although he was primarily concerned with adventures in wild-life photography, he contributed much towards camp routine and discovery work in the field.

Local persons who rendered valuable assistance in the field are too numerous to be mentioned individually but Mr. Edgar Sullivan of Emo who was, and has since been, most helpful to the Museum deserves our thanks in print. Then there is Mr. Charles Tompkins, who was then

only a boy but very successfully conducted the culinary duties in camp at Off Lake. To the Thompson family, the Tompkins, the Sullivans, the Halls, Mr. Fisher (agent for the Provincial Agricultural Board), Messrs. C. R. and R. B. Langstaff, W. M. Oglestian, D. Mair, F. Corigan, A. Hanson, Ronald Nichols, Pat Byrns, and many others our thanks are due for various acts of hospitality and contributions to the survey work of 1929.

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THE MAMMALS OF WESTERN RAINY RIVER DISTRICT,
ONTARIO

For the most part, the record of occurrence for the various forms of mammals tabulated in the following list is based on the Museum's collection made in 1929. A number of forms, however, particularly the fur-bearers and larger mammals, are included on evidence other than collected specimens.

In some of the taxonomic revisions of North American mammals the Ontario ranges of indigenous forms have been circumscribed on the basis of specimens examined, but even in the more recent literature the inadequacy of local collections from our province has left many details yet to be worked out. Inaccuracies of provisional conclusions become apparent as specimens from a wider field are secured, and a reinterpretation of the forms to be recognized and a restatement of the ranges they occupy in Ontario will eventually be necessary. It seems advisable here to allow final racial determinations to rest but in some cases differentiation is discussed briefly. For the purpose of this local list specific identity is sufficient.

In the following list, the linear measurements given for specimens collected are in millimetres, and the weight in grams. The total length is indicated by L., tail vertebrae by T., the hind foot by H.F. and the weight by Wt.

Condylura cristata. STAR-NOSED MOLE.—Mr. Douglas Mair, a farmer-naturalist near Emo, who was more especially familiar with animals in Scotland, informed us that he had caught, near Emo, a mole similar to the "old country mole" with a "sharp nose and big shovel fore-feet." There is considerable doubt as to what this might have been, but *Parascalops* or *Scalopus* are both possibilities. There is no doubt, however, about a second animal which Mr. Mair and other residents described. They told us of the capture of several moles which possessed "a fringe on the nose." Although we did not succeed in obtaining a specimen, Mair's record can be accepted as representing *Condylura* without doubt. The species has been recorded for south-eastern Manitoba (Miller, 1924) and Lake Nipigon, Ontario (Dymond, 1928).

Sorex cinereus. CINEREOUS SHREW.—Specimens of this shrew from Rainy River do not exhibit any significant difference in size or colour when compared with specimens from the province at large. Dr. Jackson has examined the series and refers them to the form *cinereus*. Specimen No. 29.9.9.333 was found to possess supernumerary

teeth (one on each side of the maxilla), which are situated between the fourth incisor and the canine.

Ten of the thirteen specimens preserved were secured in moist or wet situations well covered by plants, shrubs and trees but not a bog or muskeg association. Of the other three, two were taken in dry situations in a mixed forest and the third was secured on a high dry moss-covered rock in a balsam woods.

A female taken July 20th contained six embryos.

The average measurements of the thirteen specimens preserved are L. 96, T. 38, H.F. 11.5, Wt. 4.2.

Sorex arcticus. SADDLE-BACKED SHREW.—Although the Rainy River District falls within the border territory of *S. a. arcticus* and *S. a. laricorum* as outlined by Jackson (1928) our series of specimens has since been examined by Dr. Jackson who refers them to the race *arcticus*.

The tricolored pattern of this species is faintly apparent in all the specimens which are of course in summer coat. In comparing these specimens with representatives of *S. fumeus* and *S. cinereus* it has been noted that in addition to the cranial and size differences mentioned by Jackson, the upper surfaces of the feet of *S. arcticus* are distinctly more hairy than in either of the other species, a character which probably becomes more apparent in museum specimens, since the feet of both *S. cinereus* and *S. fumeus* are much paler when dry and therefore reveal their nakedness as compared with *S. arcticus*.

Like *S. cinereus*, this shrew was taken in moist situations in Rainy River District, usually bogs but there is some overlapping of habitat of the two species. Seven of the ten specimens preserved were definitely associated with bog or muskeg condition. The other three were secured in characteristic *cinereus* habitat, namely on moist or wet ground beneath alders etc.

The average measurements of the ten specimens are, L. 110., T. 41.5, H.F. 14, Wt. 7.

Microsorex hoyi. PIGMY SHREW.—Two specimens of this shrew were secured, one from beneath willows and black ash bordering a low section of the shore of Off Lake and the other from under birch saplings bordering a black spruce bog. A point of interest in connection with one specimen is that it was caught during the daytime.

The Rainy River area falls between the ranges of the two races *hoyi* and *intervectus*, according to Jackson's map (1928) but the two specimens have been since examined by Dr. Jackson, who refers them to the more northern form, *intervectus*.

The average measurements for the two specimens are L. 93.5, T. 33, H.F. 10.5, Wt. 4.

Blarina brevicauda. MOLE SHREW.—No opportunity was afforded to compare the Rainy River specimens of this species with adequate material from the Mississippi valley but no significant difference has been found when compared with specimens taken at various places in Ontario. The specimens have been examined by Dr. Jackson who accepts the form *talpoides* and so names the Rainy River material. Undoubtedly they are like specimens from the type locality of that form which is between Toronto and Lake Simcoe.

All of the specimens were secured in dry situations but where water, standing or running, had been present earlier in the year. Dense overgrowth characterized the immediate habitat where the specimens were secured, either poplar or mixed woods.

The average measurements of the five specimens, all of which appear to be fully adult, are, L. 116.5, T. 23.5, H.F. 15, Wt. 18.7.

Myotis lucifugus. LITTLE BROWN BAT.—During the second week of July at our camp at Off Lake small bats were seen on several evenings. Although three or four were shot, we were successful in recovering only one specimen. This proved to be a female of the Little Brown Bat, *Myotis lucifugus lucifugus*. The measurements of this specimen are as follows: L. 93, T. 39, H.F. 10, W.S. 259, height of tragus 6, Wt. 8.5.

Lepus americanus. VARYING HARE.—During the summer of our visit to western Rainy River District (1929) the Varying Hare was scarce and only two specimens were secured. A total of only nine individuals was observed during the entire summer. Residents informed us that the hare died off in the district between the winters of 1925-26 and 1927-28. The adult specimen secured was heavily infested with ticks about the head, and five cysts were found, four intermuscular on the hips and the hind limbs, and one attached to the intestine in the pelvic region.

Although the form *phaeonotus* has been attributed to this part of Ontario (Nelson, 1909), the material at hand does not confirm this. The general characters of this race were described as: "size of typical *americanus*, but in summer paler and more buffy". In comparing the one adult specimen from western Rainy River District with summer specimens from various northerly stations in Ontario, it might be said to differ from them in being darker and less buffy than the average. In size it is similar. The great individual variation of the American Hare in summer appears to make it impossible to classify the Rainy

River specimen racially. More material, taken in both winter and summer from this area is very desirable.

The measurements of the adult secured are: L. 430, T. 31, H.F. 132, Wt. (poor physical condition), 1345.

Lepus townsendii. WHITE-TAILED JACK RABBIT.—Residents of the town of Rainy River informed our party working there that enormous "Jack Rabbits" occurred in large numbers on Sable Island, ten miles north of the town, off the mouth of the Rainy River in Lake of the Woods. The island is composed of sandy soil, and though un-forested, it has a considerable growth of low scrub. Messrs. Baillie and Stovell visited this area on Aug. 8 but did not see any of the animals. The lighthouse keeper there informed them that "wolves" visited the island the previous winter and thinned them out. Substantiating specimens from the area are particularly desirable, and would constitute the first from the province.

Marmota monax. WOODCHUCK.—Not uncommon in farming districts and fairly common in the bordering lake country to the north and east.

The skull of a young Woodchuck taken at Emo in October, 1931, and forwarded to the Museum by Edgar Sullivan is a notable example of abnormal incisor growth. The upper incisors have decurved in their growth until the tips have reached the roof of the mouth, in fact, one has entered the bony structure immediately forward of the first upper premolar. The lower incisors are approximately 40 millimetres long. They have grown in an arc which, in life, would have been not only distal to the upper incisor but external to the fleshy upper lips, terminating well above the nostrils. The middle distal face of the curved upper incisors occlude on the basal lingual surface of lower ones.

This animal was shot. It had managed to live on with a dental condition which prevented gnawing and which must have greatly interfered with mastication.

Comparison of the Rainy River skin specimens, which are in summer coat, with comparable material from southern Ontario, *M. m. rufescens* shows the former to be less reddish ventrally and the hair of this surface more grizzled. One specimen particularly is similar to an Iowa taken example of *M. m. monax* on the ventral surface but not at all like it dorsally. Compared with specimens from central and northern Ontario the Rainy River specimens are not as bright reddish ventrally and are darker dorsally. One, however, closely approaches a Groundhog from Lake Nipigon. Because of the lack of sufficient comparable adult

specimens from numerous sections of the province, it is not expedient here to refer the Rainy River Groundhogs to a particular race.

The measurements of the larger of the two specimens secured are: L. 558, T. 108, H.F. 76. The second specimen is apparently not mature, since it was non-breeding and measured L. 501, T. 102, H.F. 75, Wt. 2220.

Citellus franklini. FRANKLIN'S GROUND SQUIRREL.—Early in our stay at the camp near Emo we made enquiries of residents as to the occurrence of ground squirrels in the region. We were told that, although they did not occur in that vicinity (which is more or less central to the region surveyed), they did occur to the west near the town of Rainy River. A camp in that region was a part of the summer's programme. In due time the section was visited by Mr. Baillie and Mr. Stovell and a series of Franklin's Ground Squirrels was secured. These constitute the first to be taken in the Province of Ontario. A sight observation of this species was made at Rainy River station prior to our visit to the area, and has been recorded by Green (1932).

Apparently this animal is a fairly recent arrival in the district—certainly it was not present when the area was opened up for agriculture. Mr. Michael Byrns, a resident of Rainy River, first saw it in June, 1925. As further evidence of its recent arrival it can be said that it is rapidly spreading eastward over cultivated sections. It now occurs at Emo (1936), which indicates an advance of some twenty-five or thirty miles in seven years.

A comparison of the Rainy River specimens with summer specimens from southern Saskatchewan (Indian Head and Dundurn) and Alberta (Dried Meat Lake) discloses some slight differences which, with more material at hand, may prove significant. The general dorsal colour of adults from Ontario is more greenish brown than is noted on summer adults from Saskatchewan and Alberta prairie. This general dorsal colour is of course derived from the tawny olive bands on the hairs; the black bands and tips of the hair tend to increase the greenish effect and to darken the tone. The light bands on the Saskatchewan specimens are noticeably paler. Although immature specimens from both areas are more richly coloured than adults, the comparative differences as pointed out for adults prevail in this coat also. Material from southern Manitoba (Aweme) agrees more closely with the Ontario specimens.

The average measurements of three fully adult females from Rainy River are: L. 367, T. 127.5, H.F. 51, Wt. 452.

Eutamias minimus. WESTERN CHIPMUNK.—This chipmunk was seen regularly throughout the summer but it was not as common as the

next species. It occurred in both agricultural districts and the wilder lake country bordering that area.

There seems little doubt that some refinement of our plotting of racial distribution of *E. minimus* is necessary, especially in the northern and eastern portions of its range. Adult specimens from Rainy River approach very closely comparable specimens (assumed *E. m. borealis*) from central Alberta (Camrose, Edmonton, etc.), south-central Saskatchewan (Lake Katepwa, Craven and Prince Albert), and southern Manitoba (Aweme). They are, however, considerably darker than specimens from Qu'Appelle valley, Saskatchewan, which do not appear to be referable to *borealis*. Further, the Rainy River specimens differ from material taken at various stations eastward in Ontario in being somewhat less tawny and slightly paler on the crown. This appears to be more strikingly the case when comparisons are made with northern specimens (Lake Nipigon, Lake Abitibi and Smoky Falls).

The average measurements of four female specimens which are adult are as follows: L. 210, T. 94, H.F. 33.5, Wt. 54.

Tamias striatus. EASTERN CHIPMUNK.—Common, somewhat more so than the smaller species and generally distributed throughout the area. Geographically the Rainy River specimens should represent the form *griseus*, which they probably do but, because of lack of material, it has not been possible to establish typical *griseus* in the province by comparisons. Certain variations in the Eastern Chipmunk over the province have been noticed by Mr. E. C. Cross, who has made preliminary studies on this animal from the northeastern part of its range. His observations, with which the writer is acquainted, dictate that it is inopportune to do more than specifically record the so-called Eastern Chipmunk from Rainy River.

The average measurements of the adult specimens collected are as follows: L. (four specimens), 258.5, T. (four specimens) 102.5, H.F. (five specimens) 36, Wt. (five specimens) 102.

Sciurus hudsonicus. RED SQUIRREL.—Common and generally distributed during our visit to the region.

Dr. R. M. Anderson has examined the specimens of red squirrels from Rainy River in connection with a broad survey of this species in Canada. In his opinion, the specimens are referable to the northern form, *S. h. hudsonicus*.

It is of interest to note, however, that the average measurements of the series of adults are slightly larger than the average for adults from any other area in northern Ontario. This fact may signify an approach toward the large form, *S. h. minnesota*. Although seventeen specimens

were preserved, only eight were mature. The average measurements of these are: L. 307.5, T. 119.5, H.F. 47.5, Wt. 199.

Sciurus carolinensis. GREY SQUIRREL.—On June 2, a specimen of this species was secured from the border of a woodlot on the Thompson farm near Emo. This record was especially surprising to local residents, who had never before seen the grey squirrel in this section of the province.

The specimen, a female in new summer coat, appears not to be an old individual, though certainly it is not a young of the year during which it was collected. It was not pregnant nor had it suckled young that year. The incisors however are heavy, approximating specimens known to be fully adult, and the general body measurements correspond well with sexually mature specimens.

The grey phase of the Northern Grey Squirrel (*S. c. leucotis*) is so variable in colour that it is difficult to select typical or average specimens for comparison. Further, there appears to be a colour and pattern difference between adults and immature specimens, a description of which has not been found in the literature. In the material examined, the known young (grey phase) specimens from southern Ontario have the white pattern of the ventral surface very restricted, the yellowish brown of the lateral areas encroaching on the belly and meeting anteriorly and posteriorly. Also, the lips and chin are dusky black. This in effect describes the Rainy River specimen and also describes in part one of the alleged characters of a western race of the species, *S. c. hypophaeus*. Altogether, it seems impossible to classify, racially, the grey squirrel from Rainy River material at hand. It seems probable that the specimen secured originated from stock inhabiting northwestern Minnesota. The distribution of the species is not continuous eastward to southern Ontario, north of the Great Lakes. Further, the novelty of the occurrence of the grey squirrel in Rainy River District suggests a recent arrival.

The measurements of the specimen secured are: L. 468, T. 212, H.F. 66, Wt. 537.

Glaucomys sabrinus. NORTHERN FLYING SQUIRREL.—Although we were not fortunate enough to obtain a specimen of the Flying Squirrel during our summer visit to the Rainy River District, an adult specimen was later forwarded to the museum from there by Mr. Edgar Sullivan. Reports indicate that this species is not uncommon there at least during some years, and that they are most in evidence in the

northern and eastern lake country in the trapping seasons, at which time they are attracted to baited traps set for fur bearers.

The specimen in our collection, a male, is indistinguishable in colour and tone from comparable material from Ontario, north of Lake Superior. Also, the size and conformation of the skull is like specimens from that region. The measurements of the specimen are: L. 280, T. 125, H.F. 37. On the basis of these comparisons, the single specimen is referred to the form *sabrinus*.

Castor canadensis. BEAVER.—The beaver has disappeared from the settled portion of western Rainy River District. It is still taken by trappers in the border country but the trapper must go farther afield for beaver catch as time goes on. We saw no beaver during our stay in the region.

Peromyscus maniculatus. WHITE-FOOTED MOUSE.—This species was common and generally distributed during the year of our visit to Rainy River District. No striking habitat choice was noted, beyond the fact that they occur in or near woods; dry situations or moist situations, dense cover or open woods, second growth or old forest-stands, all yielded a portion of the catch.

Twenty-nine sexually mature specimens were preserved. About twenty-five per cent of these are obviously quite young. The remainder, vary in colour (as nearly as can be determined under the difficulties of hair-coat texture) from "wood brown" to "sayal brown" from their dorsal aspect. Darkening along the median line of the back is very slight. Immaturity does not account for the greyer specimens, judging by size, since the largest specimen in the series is of this type. It measured L. 190, T. 98, H.F. 22, Wt. 22. The range of variation as regards both size and colour of the Rainy River series embraces the range of characters ascribed to both of the forms *gracilis* and *maniculatus*.

After making comparisons with series from throughout northern and central Ontario and noting the general variability of colour, size and proportions of northern representatives of this species, the writer has been unable satisfactorily to segregate, geographically, the two races supposedly involved. If both forms are valid, it would appear that their ranges overlap through most of the central and northern parts of the province, Rainy River included. Perhaps typical *maniculatus* which was described from "Moravian Settlements of Labrador" and further designated as occurring in the "Hudsonian Zone" is restricted to the far north. A comparison of skull material does not alter the confusion pointed out in connection with skin comparison.

The average measurements of a number of fully mature specimens

from Rainy River are, L. (seventeen specimens) 178, T. (eighteen specimens) 86, H.F. (seventeen specimens) 20.5, Wt. (nineteen specimens) 22.

Synaptomys cooperi. COOPER'S LEMMING MOUSE.—Specimens of this mouse were taken rather regularly but not commonly during the summer of 1929. Damp situations with moss, showing holes and runways, yielded the majority of the individuals but it is apparent that typical bog conditions are not essential to the species.

A sub-adult female taken on July 11 contained five embryos. One young male was carrying pieces of grass in its mouth when collected on July 17, and another, also a young male, was carrying moss when collected on July 30.

The occurrence of this species at Rainy River is a considerable extension of its known range westward from Lake Superior region.

Comparison of the series of skull and skin specimens indicates that the form represented is probably *S. c. cooperi*. The series is, on the whole, slightly paler than a series from central Ontario.

Seven of the nine specimens in the collection may be classified as sexually mature but only three are fully adult in size. The average measurements of these are, L. 112.5, T. 18.5, H.F. 18, Wt. 23.2.

Clethrionomys gapperi. RED-BACKED MOUSE.—The Red-backed Mouse was very common during our visit to Rainy River and a satisfactory series of specimens was secured. Although this mouse inhabited the heavier woods, suitable situations are still to be found in cultivated sections.

During the mid-forenoon on June 22, the writer observed a Red-backed Mouse transporting some material into a hole in the crest of a low rotten stump. The animal was watched while it made seven return trips over a distance approximately thirty-five feet. It traversed this distance in approximately 8 to 10 seconds. The course of the mouse was almost exactly the same for each trip. In going to the hole, its cheeks bulged with some material, either food for storage or fibre for a nest. It used the top of two horizontal logs as a right-of-way for most of the way when going to the hole but on the outward foraging journey it utilized a six-foot crevice or split in the log as a tunnel. When in motion it was particularly noticeable that the tail was bowed upward in a jaunty manner. Brief observations of this species were made several times during daylight hours.

The series of specimens of this mouse present certain points of interest. In comparison with the typical form, *gapperi*, from southern Ontario, the Rainy River specimens are notably smaller and rather

markedly more silvery grey in general aspect of the ventral surface. Dorsally they are very similar to typical *gapperi*. The chestnut colour of the back is like that of the typical form in tone and also the lateral region of most specimens is slightly washed with buffy brown. It would appear that the Rainy River specimens approach the form *C. g. loringi*. Individual specimens from the series might be so called without hesitation.

This type of Red-backed Mouse with silver grey belly can be traced eastward through the Lake Superior region. To the northeast, at Lake Abitibi, however, it has been noted that this animal becomes pronouncedly washed with buffy yellow on the ventral surface. It appears possible that in the northeast the species may merge with the form described specifically as *E. ungava* Bailey (= *C. ungava*). Like many of the small mammals in Ontario further general revision is necessary.

The smallest female secured, which was pregnant, measured as follows: L. 134, T. 35, H.F. 18, Wt. 29. Four embryos, approximately half way through the gestation period, were noted. This specimen was taken on July 1. Other observations of numbers of embryos concerned more fully mature specimens. They were as follows: June 3, six embryos; July 2, five embryos; July 3, five embryos; July 4, eight embryos.

The average measurements of twenty-four adults are: L. 138.5, T. 36, H.F. 18, Wt. 30.8. The largest specimen, a pregnant female, was L. 153, T. 42, H.F. 18, Wt. 46.

***Microtus pennsylvanicus*.** MEADOW MOUSE.—This mouse was taken commonly at all camps and on many trap lines. Although moist ground beneath alders and grassy treeless flats appeared to be favoured habitats, dry and wooded situations were occupied to a lesser extent, perhaps as marginal habitat during a period of great numbers. Many situations revealed a maze of runways of this mouse. It was while inspecting a runway beneath the side of a log in a brushy clearing that the writer witnessed a fierce combat between two of these mice. Two animals happened to meet in a runway at a point almost at my feet. They immediately clashed. Though the fight lasted but a few seconds, they rolled over and over on the ground and their squeaks seemed to testify the viciousness of the struggle.

Dissection of a female collected on June 27th disclosed seven fully-formed embryos.

It will be noted from the figures given below that the *Microtus* of this region averages rather small in most measurements. Many of the mature specimens tend in dorsal colour toward a yellow brown, peppered

of course with black hairs. The yellowish colour is particularly noticeable on the side of the nose and face. At least two specimens have a more reddish ground colour of the dorsal coat, tending toward cinnamon brown. Some specimens seem indistinguishable in colour from *Microtus pennsylvanicus* from southern Ontario.

Examination of the skulls shows that those of most mature specimens are ridged, some pronouncedly so. None of the adult skulls is much arched and they tend to be "flat-topped" in comparison with specimens from southern Ontario. Comparison of skulls of specimens of approximately equal gross size from Rainy River and southern Ontario shows that the skulls of Rainy River *Microtus* are relatively smaller.

Although most of the *Microtus* specimens from Rainy River are identifiable as *M. drummondi*, individual specimens suggest a close approach to *M. p. pennsylvanicus*. It is suggested that the Rainy River series of specimens indicates that *pennsylvanicus* and *drummondi* are conspecific.

One specimen secured was found to possess a curious dental pattern which is of interest. It is a young animal measuring, L. 140, T. 42, H.F. 20, Wt. 24. The second upper molar does not possess the posterior loop characteristic of the group to which it belongs within the subgenus *Microtus*. It shows a very similar pattern on this molar to that found in *Microtus chrotorrhinus*. Close inspection, however, discloses evidence that a loop might have developed with the growth and erosion of the molar. The other dental characteristics of this individual, however, are like those of *pennsylvanicus* or *drummondi*.

Of the forty-three specimens preserved, twenty-three can safely be regarded as adults. The average measurements of these are: L. 169, T. 43, H.F. 19, Wt. 43.9. The largest specimen a female, measured, L. 180, T. 56, H.F. 20, Wt. 52. The skull length of this individual, is 26.5 and the zygomatic breadth is 15.

Ondatra zibethica. MUSKRAT.—Although the Muskrat was observed by us a few times, it was not particularly numerous about any of our camps or trapping stations. It is generally regarded as not having been plentiful for many years: it is trapped regularly for fur throughout the region. Skull specimens only were secured by us.

Rattus norvegicus. HOUSE RAT.—The rat population of the Rainy River District is largely confined to the vicinity of habitations flanking the river to the south. In the central region near Emo it occurs about farms, penetrating several miles northward. We were informed by residents near Emo that rats were unknown in the region five years previous to our visit in 1929. The point of greatest interest

in connection with this animal is that the normal brown phase is (or was in 1929) outnumbered by representatives of a black phase. Our collection of ten specimens, secured without apparent selection, contains eight of the black phase, one normal brown and one brown-and-white. Recent reports from the region (1936) stated that "black rats" were still common there and that white ones occasionally occur.

Mus musculus. HOUSE MOUSE.—A common inhabitant of settled districts. No date of first occurrence was secured but this species found its way into the region at a considerably earlier period than did the house rat.

Zapus hudsonius. MEADOW JUMPING MOUSE.—This species was not common during the year of our visit to the region. The writer is unable to detect any significant colour, tone, or pattern differences between the specimens from Rainy River and examples of *Z. h. hudsonius*. Dr. R. M. Anderson, who has examined this material in connection with his studies, agrees with this determination. The average measurements of the three adults secured are: L. 205.5, T. 121.5, H.F. 29.5, Wt. 14.5.

Napaeozapus insignis. WOODLAND JUMPING MOUSE.—We were able to obtain only one specimen of this species during the summer's trapping. This specimen was secured in a rather unusual situation, namely a farmhouse. Comparison of the skin with material from Ontario generally, shows it to be similar to the jumping mouse from the north shore of Lake Superior. The measurements given below indicate that the specimen, a female, represents a large form: L. 236, T. 150, H.F. 32.

Erethizon dorsatum. PORCUPINE.—Seen occasionally and, according to reports of local residents, it is not uncommon in the region. Twice in June porcupines were observed in, or crossing, open fields. One was seen to make his way to a woods some three hundred yards distant. We were told by a local resident that porcupines sometimes raid chicken roosts, but we were not able to verify such behaviour. An albino specimen taken on Manitou Island, Rainy Lake, was captive in the Toronto Zoo. The measurements of a specimen collected are: L. 631, T. 160, H.F. 93, Wt. 4725.

Vulpes fulva. RED FOX.—Although we secured no first hand evidence of the occurrence of this species in the summer of 1929, trappers stated that it is one of the staple fur-bearers of the region. Apparently the 1929 period was not one of great abundance of the Red Fox.

Canis latrans. BRUSH WOLF.—A farmer (Mr. Wilson) near Emo informed us that he moved to the region in 1890, and early learned to

know the "coyote". At that time there were only a few small clearings along the Rainy River and there were no roads. "Coyotes" were the animals which gave him trouble in raising sheep, rather than timber wolves.

During our camp at Off Lake, we heard "wolves" which we assumed to be Brush Wolves. Judging by the information we secured in the field, these animals were not markedly numerous during the time of our visit. The last period of local abundance was in 1926 according to reports. A young female specimen taken near North Branch in Sifton Township on Oct. 20, 1930, the skull of which is in the R.O.M.Z. collection, measured $43\frac{1}{2}$ inches in length and the tail $13\frac{1}{4}$ inches.

Canis lycaon. TIMBER WOLF.—This animal is generally considered to be scarce in the Rainy River region. We were told that the Timber Wolf was more common to the south, in Minnesota. Mr. Albert Hanson informed us that these animals mate in February. He dug out a den containing four pups only a few days old on Apr. 27, 1929. Other dens he has seen have contained from two to eight pups. Dens are usually located on ridges of sandy soil.

Procyon lotor. RACCOON.—Residents who have lived in the district for many years reported that on two or three occasions, Raccoons have been trapped. All agree that it is a rare animal in this region.

Ursus americanus. BLACK AND CINNAMON BEAR.—Several residents informed us that the cinnamon variety of the Black Bear occurs occasionally in the region. A partial pelt of a cinnamon Bear shot September 24, 1936 at Hut Lake, Rainy River District, was recently presented to the Museum by Dr. H. M. Bowen. Although the locality is somewhat removed from the area with which we are here concerned, the specimen fortifies the general statement made above and incidentally, it apparently represents the first preserved material evidence that this colour variety occurs within the province. Trappers state that Black Bears are common in the region during certain years. We saw signs of these animals during the summer of 1929 and they were reported to be common that year.

Martes americana. MARTEN.—Mr. Albert Hanson, who traps in the Lake Despair region, secures Marten fairly regularly on his trap-line. Marten are not to be expected in the vicinity of settlements but occur in the hinterland to the north.

Martes pennanti. FISHER.—This is another important but none too plentiful fur-bearer of the region. Its occurrence is to be expected only in the wilder parts.

Mustela cicognanii. BONAPARTE WEASEL.—The number of weasels taken by trappers in the region varies from one period to another. We secured only skull specimens. A desiccated carcass of a weasel in winter coat, found during the summer, was measured but could not be sexed. Applying the questionable determination index of tail length and the relative amount of terminal black hair on the tail, this animal was regarded as representing the short-tailed form, *M. c. cicognanii* Bonaparte.

Mustela vison. MINK.—A regularly taken fur-bearer of the region, according to trappers. It was apparently not numerous during the summer of 1929, since we did not meet with it in any section visited. Reports indicated that 1927 was the last year of plentiful numbers.

Gulo luscus. WOLVERINE.—The inclusion of this animal in the list is based entirely on historic grounds, since trappers do not now secure or find trace of this animal. One resident recalled to us the capture of a specimen, apparently many years ago.

Lutra canadensis. OTTER.—This animal is regarded as very scarce in the region here concerned, but it occurs occasionally.

Mephitis mephitis. SKUNK.—A generally distributed and, periodically, a common mammal of the region. We secured three specimens during the summer of 1929. One had lost the terminal portion of its tail, but the other two are complete for study. The dorsal stripes on one of the specimens is quite narrow and discontinuous posteriorly. The other two are marked with pronounced and continuous dorsal stripes. In comparing these specimens with skunks from eastern and southern Ontario, the tails are noticeably thicker, with the broad ends black to the tip (in the two undamaged specimens). These characters, combined with the large size of the specimens, fulfil the characters of the plains race, *M. m. hudsonica*. The measurements of the undamaged male specimen are: L. 650, T. 215, H.F. 76, and those for the female are: L. 603, T. 205, H.F. 73.

Taxidea taxus. BADGER.—Mr. R. G. Dungey and Mr. D. R. Wilson informed us that a Badger was taken north of Emo in Carpenter Township a few years prior to our visit. Both of these men had seen the animal when captured, and they recalled that the pelt was marketed as fur by the trapper, netting him only sixty cents, since it was not prime. Mr. Dungey was very familiar with badgers, having lived on the prairie for six years, where he had shot many of them.

A second animal was trapped by Mr. Albert Kartino at "Crow Lake" [Kakagi] on the border of the general region here concerned in the early

fall of 1926, and a third specimen was taken at the same place in the early fall of 1927. We could not ascertain that the species had been long established in the region, though this is entirely possible. It seems likely that conditions in the western portion of Rainy River District are now more inviting to this prairie dweller than they would have been in earlier times.

Lynx canadensis. CANADA LYNX.—We were informed that this species is never numerous in the region but that it is taken sporadically in the wilder hinterland by trappers.

Lynx rufus. BOBCAT.—Mr. Douglas Mair, a local resident who is greatly interested in natural history, informed us that in the early winter of 1928, he trapped a peculiar cat, a description of which is here extracted from my notes made as he described the animal: "It was small, dapple spotted below, grey above, hair-pencilled ears, tail about nine or ten inches long with black rings about it." There would appear to be little doubt as to the identity of the animal from this description.

Odocoileus virginianus. WHITE-TAILED DEER.—This Deer was seen by us fairly regularly during the summer of 1929 and, curiously enough, it was met with more often in the cultivated sections visited than in the wilder lake country to the north. Farm fences are certainly not an impediment to their movements. A number of skulls and antlers of specimens about farms and camps were examined in an attempt to discover evidence of the occurrence of the so-called "Jumping Deer", *Odocoileus virgultus* (Hallock) which is generally recognized from Minnesota and Manitoba and which may appear in this section of Ontario. We were not successful in establishing a record and we did not meet with any one who recognized two deer in this region, but this does not close the question.

The white-tailed deer was first seen in the Rainy River country by Mr. Fisher, a resident there since 1890, in 1897. Other residents gave the same, or approximately the same, date for the arrival of this animal. It is said that they came in from Minnesota, after the land was partially cleared in the Rainy River District.

Alces americana. MOOSE.—Common in the region as a whole, and observed by us in both the settled and wilder sections. Residents told us that moose found in the settled southern Rainy River District were animals that had crossed the river from Minnesota. This seems entirely probable, since extensive wilderness areas are close at hand on the Minnesota side. The horn growth of a bull observed on June 11 had attained about one foot in length. Mr. Fisher informed us that the moose was present in the region when he moved there in 1890.

Rangifer caribou. WOODLAND CARIBOU.—The last caribou to be seen in the southern part of the region here considered according to Mr. J. Thompson Sr., a local resident, was in 1894. A more recent record was reported by Mr. R. G. Dungey, who stated that one was shot by Mr. W. R. Cooper about 1911 northeast of Emo on the town line, between Carpenter and Burriss townships. Mr. P. G. Byrns reported that the last to be seen at the south end of Lake of the Woods, in Spohn Township, was in 1916. The species is now scarcely to be expected in the region here considered.

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THE SUMMER BIRDS OF WESTERN RAINY RIVER
DISTRICT, ONTARIO

The following annotated list is based largely on a collection of 325 skins (and a few other specimens) representing 107 species and the field notes made during June, July and early August of 1929. The richness of the summer avifauna of this region is revealed by the total of 138 species here treated, out of which less than ten would not be expected to breed in the region, at least occasionally. Most of the species included in the list are based on specimens collected but some are admitted on sight records or other evidence deemed satisfactory. The text in each case will indicate the basis for inclusion.

It has been evident as this collection was studied that it was not feasible to give more than a tentative opinion as to the racial identity of several forms occupying the region. Specimens from all over the province and contiguous areas, to say nothing of topotypic material are often essential and lacking for comparisons. It seemed best in making this report, to regard it primarily as a contribution to our knowledge of the distribution of species in the province and to consider the collection as another stepping-stone toward a more complete basis for eventual study of racial variation in northeastern North America. It has been fitting therefore to use specific nomenclature. In this we have followed Mr. P. A. Taverner ("Birds of Canada") who had provided a useful, and apparently the only available, system of species names in English. The systematic order is that of the 1931 edition of the A.O.U. Check-list of North American Birds.

Gavia immer. COMMON LOON.—The Loon was observed regularly during our work in the lake country from our Off Lake camp. Several attempts were made to secure specimens from this region for racial study but without success. It was discovered that the curiosity of these birds can be excited by an observer, himself concealed, waving a handkerchief tied on a stick. Although loons were thus brought approximately within collecting range, either they were too cautious to come sufficiently close, or the collector, under stress of the occasion, misjudged the distance and the birds escaped. Loons were noted rarely at other camps. A pair flew over the farmland at Emo on June 3, three were seen on a small bog lake near camp at Big Fork and one observation of the species was made on Lake of the Woods from our Rainy River camp. We secured no breeding evidence but local observers informed us that they nest on several of the lakes in the region and Macoun (1900) recorded a Loon's nest from Crow [Kakagi] Lake which is just beyond the northern border of the area considered in our survey.

Colymbus grisegena. RED-NECKED GREBE.—Although we did not observe this species during the summer of 1929, a breeding record from Lake of the Woods has been published by Baillie and Harrington (1936). This record concerns a set of four eggs taken June 4, 1904 and now in the Museum's collection. The species is therefore, hypothetically, a bird of western Rainy River region.

Podilymbus podiceps. PIED-BILLED GREBE.—The Pied-billed Grebe was not certainly identified until well on in the summer when Mr. Baillie found it on La Vallee Creek. Suitable waters for this species, in the sections we were able to visit, were relatively few.

Phalacrocorax auritus. DOUBLE-CRESTED CORMORANT.—This species was not met with until August 8, when Mr. Baillie visited Sable Island in Lake of the Woods, off the mouth of Rainy River. Four birds were noted about fishermen's pound nets off shore and six carcasses of dead birds, probably caught and discarded by the fishermen, were found to have drifted ashore. Lewis (1929) lists two references which establish the fact that this species breeds on Lake of the Woods.

Ardea herodias. GREAT BLUE HERON.—From one to four individuals were seen daily during our stay at Off Lake camp. The species was also noted near camp at Rainy River but not regularly. Several local residents of Emo told us of a nesting colony on an island in Kaiarskons Lake: eight or ten occupied nests were found there, on May 27, 1929, in standing dead trees.

Botaurus lentiginosus. AMERICAN BITTERN.—Rarely met with and then only near our Emo and Rainy River camps. Mr. Douglas Mair told us of having found a nest of this species near Emo during the early summer of 1928.

Anas platyrhynchos. MALLARD DUCK.—A few Mallards were found inhabiting the grassy margins of Brennen's Creek and the quiet bay at its mouth on Off Lake in July. It undoubtedly bred in this vicinity since a flightless juvenile was secured there. The species was also found on a small lake near Big Fork and noted from camp near the mouth of La Vallee River.

Juv. (incomplete), July 4, Off Lake. 2 Imm. ♀ ♀ July 21, Big Fork.

Nettion carolinense. GREEN-WINGED TEAL.—Mr. Baillie first discovered this species on July 19 on the Canadian side of the Rainy River opposite the mouth of Little Fork River. On the following day he was successful in securing a specimen which proved its breeding status locally. The two young birds secured represent two transitional

stages between the downy and first winter plumages. This is one of the few established records of the breeding of this teal in Ontario and the first proved by specimen evidence. However, the summer's observations indicated that this species is a comparatively scarce summer duck of the region.

♀ July 19, Big Fork. 2 Juv. ♀ ♀ July 20, Big Fork.

Querquedula discors. BLUE-WINGED TEAL.—On July 23, at Big Fork, Mr. Baillie saw a small duck with a brood of six or seven young which were too far away to be positively identified but his opinion was that they were Blue-winged Teal. Since the species is known to occur sparingly in contiguous areas (Baillie and Harrington, 1936-1937), it is included here hypothetically.

Glaucionetta clangula. COMMON GOLDEN-EYE.—This duck was noted only about the lakes of the border country north of cultivation. Although it was not particularly plentiful it was noted fairly regularly. Broods of downy young with parent females were noted repeatedly at Off Lake from July 3 to the end of our stay there.

Juv. ♂ July 11, Off Lake.

Lophodytes cucullatus. HOODED MERGANSER.—Met with only once during the summer, at Off Lake, July 3. A half-grown flightless young secured, substantiates the breeding status of the species. A second specimen collected on July 3, a young male entering its second year, is in the first winter plumage.

Juv. ♂ July 3, Off Lake. Imm. ♂ July 3, Off Lake.

Cathartes aura. TURKEY VULTURE.—About the middle of July, 1929, a specimen of this species was taken alive on the shores of Rainy Lake. Mr. Ronald Nichols, a local resident who saw the bird which was held captive for some time, described it unmistakably to Mr. Baillie. The occurrence of this species in contiguous area (Lake of the Woods), is of special significance in recording the species for Rainy River (Baillie and Harrington, 1936).

Accipiter striatus. SHARP-SHINNED HAWK.—An uncommon summer resident in 1929 but observed near camp north of Emo and near Big Fork to the southeast.

Accipiter cooperi. COOPER'S HAWK.—Somewhat more common than the last species; observed near Emo, at Off Lake and at Rainy River. Although the young specimen collected is a fully developed bird out of the nest and was taken on August 5, all facts relative to it suggest that it was reared locally. Apparently the same individual

had been seen, in the immediate vicinity where it was collected, previously and also an adult was located there.

On July 11, during mid-forenoon, near our Off Lake camp, the writer was attracted by the alarm notes of several species of small birds including Least Flycatchers, Red-eyed Vireos, a Kingbird and a White-throated Sparrow. A Cooper's Hawk was then discovered under the bushy top of a fallen tree near at hand. Though watched for a moment or so it was not aware of my presence. By an occasional awkward jump the bird appeared to be reconnoitering the ground in search of prey. Subsequent stomach analysis showed that it had recently fed on a Hermit Thrush but its behaviour certainly indicated that a young bird discovered on the ground would also have been added to its fare. This method of hunting, if such was the case, is not, of course, usual.

♂ July 11, Off Lake. Imm. ♀ Aug. 5, Rainy River.

Buteo borealis. RED-TAILED HAWK.—A pair of these hawks was established near our camp north of Emo and one, or both were noted almost daily. The species was seen occasionally during our stay at Off Lake and near camp at Rainy River. The one immature specimen secured on July 31, is a young of the year in a fresh plumage without adhering down. In all probability it represents a locally reared bird. The date of collecting is several weeks in advance of the time when the first southward movement of red-tails would be expected in this region. The specimen exhibits a slightly more extensive amount of terminal white on the inner webs of the wing coverts and scapulars than does the average juvenile red-tail from eastern Ontario in the Royal Ontario Museum of Zoology collection. The tail has nine rather narrow exposed transverse bars and is considerably suffused with rusty red. The "flags" are but slightly marked. The bird appears most properly regarded as representing the eastern form *borealis*.

A nest found near Devlin on April 10, 1925, by Alfred Levrige has been reported to us.

Imm. ♀ July 31, Rainy River.

Buteo platypterus. BROAD-WINGED HAWK.—Next to the Marsh Hawk this species was the most common and regularly observed hawk of the region. It was noted at all camps and a nest was found on June 14 near Emo above which an adult bird circled anxiously. Alfred Levrige of Devlin reports that he has found the species breeding in his locality.

♂ June 13, Emo.

Haliaeetus leucocephalus. BALD EAGLE.—Although residents told us that "eagles" had been seen in the region in summer there was

little certainty as to the species concerned. We did not note this eagle during 1929. However, the species is included here, hypothetically, on the basis of a non-summer record reported by B. W. Cartwright in his regular newspaper article in the "Winnipeg Tribune." He states that, "An adult Bald Eagle taken about March 6 (1932) at Emo, Ontario has been sent into the Western Taxidermists for preservation."

[Since writing the above Mr. Edgar Sullivan has informed me of a nest with young which he found on the shore of Clearwater Lake in 1935.]

Circus hudsonius. MARSH HAWK.—A common hawk observed regularly in the farmland region about Emo. As many as eight were seen on one day, June 25, but this was after young were on the wing. The first young of the year were noted on June 21. We did not note the species during our stay in the lake country, but it was recorded regularly again at our camps at Big Fork and at Rainy River.

Pandion haliaetus. OSPREY.—As might be expected this species was not encountered until we visited the lake country. A pair was established somewhere in the vicinity of Off Lake or Clearwater Lake and we saw or heard one or both birds fairly regularly.

Falco sparverius. AMERICAN SPARROW HAWK.—Observed at all camps, not commonly but regularly. An occupied nesting hole was found near Emo but no opportunity for further examination was afforded. Alfred Levridge of Devlin informs us that he has found this species nesting locally.

♀ June 10, Emo.

♀ Aug. 5, Rainy River.

Canachites canadensis. SPRUCE GROUSE.—Although we did not observe this species in 1929 it is known to local hunters and trappers. Apparently it is never common, though its numbers vary from time to time. Among our miscellaneous records of birds at the Museum from correspondence and questionnaires there is a specific record of the Spruce Grouse seen north of Barwick in 1927 by Gustav Both.

Bonasa umbellus. RUFFED GROUSE.—According to reports the last period during which grouse died off in the western Rainy River District was 1924. There had been a fair replacement by the summer of 1929 when we visited the area though grouse were not at all common. Fairly large family groups were seen during July. Males were heard drumming until near the end of June.

One day the writer stalked a male grouse which was stationed on a mossy stump in heavy woods. An approach was made to within

fifteen feet of the bird by moving cautiously forward only when it drummed. Apart from the fascination in the performance as such, two impressions were gathered. First, that the sound produced by the drumming bird did not become distinctly louder as one approached more closely. It was easier to estimate the direction of the bird than it was the distance to it. Second, it appeared that the bird was somewhat oblivious to my approach during the brief period of drumming. It would seem that the drumming habit would be a great aid to certain predators (a Goshawk for example) if they were capable of making use of it.

2 ♂♂	June 14, Emo.	♀	July 18, Big Fork.
Juv. ♀	July 4, Off Lake.	Juv. ♀	July 18, Big Fork.
♀	July 10, Off Lake.		

Pedioecetes phasianellus. SHARP-TAILED GROUSE.—Mr. Wilson, a farmer near Emo, settled in that area in 1890 at which time there were only a few small clearings along the river. He informed us that Sharp-tailed Grouse (known locally as the prairie chicken) were generally more common then than now. There were no roads or railways at that time.

During the period of our visit to the region this species was far from plentiful. It was seen on two occasions, once near Emo and once at Aylesworth. Much open country and muskeg was reconnoitered in search of this species but it was found only adjacent to farmlands where scattered trees, clumps and thickets of saplings and shrubs, fallen trunks and brush, broke an otherwise open landscape. Subsequent inquiry reveals that this species reached a point of large numbers during the period of 1932-34. Dying off occurred in 1934-35.

A young bird collected has a wing measurement of 86 mm. and was capable of at least a 50 yard flight. A partial set of eggs (5), collected on June 9, 1929, near Emo, by Douglas Mair, is in the Museum's collection.

The Sharp-tailed Grouse of this region represent the characteristic "brown" type of bird for which the name *campisylvicola* has been proposed (Snyder, 1935).

Juv. ♀	June 24, Emo.	Juv. ♂	June 24, Emo.
♀	June 24, Emo.		

Porzana carolina. SORA RAIL.—This rail was noted fairly regularly while we were stationed at Off Lake. Mr. A. R. Van, who was with the Museum party during this period of the summer, was able to obtain a moving picture of the Sora while it was constructing its nest. The species was also found breeding near Emo. On June 21, a Sora was flushed from her nest (containing eight eggs) situated in a

small clump of cat-tails in a wet muskeg area. The bird instantaneously dived beneath the water and disappeared. A visit to the nest made after the lapse of twenty minutes or so, caused the bird to flush again but this time the rail flew from the nest for a distance of about three feet after which it skulked for cover.

♀ June 21, Emo.

Charadrius melodus. PIPING PLOVER.—Two female specimens were collected out of a total of six observed by Mr. Baillie on August 8, at Sable Island. These are obviously young of the year. Although the type of shore on Sable Island seemed suitable for the nesting of this species no proof of their having done so there is available. There are records of the breeding of this species on Lake Winnipeg (Rogers, 1937) and it is possible that these individuals are transients from that area.

2 Imm. ♀ ♀ Aug. 8, Sable Island.

Charadrius semipalmatus. SEMIPALMATED PLOVER.—Although this species is transient in the region here concerned, its occurrence in summer entitles it to inclusion here. Mr. Baillie saw five individuals on Sable Island, Lake of the Woods, on August 8.

Oxyechus vociferus. KILLDEER PLOVER.—A common breeding bird of the cultivated section of western Rainy River District. This species is undoubtedly more common now than it was prior to settlement because of the tremendous expansion of terrain suited to the species. We did not note the species while stationed at Off Lake where more unchanged conditions exist.

Juv. ♀ June 15, Emo.

Capella delicata. WILSON'S SNIPE.—This species was found to inhabit uncultivated spots in low, wet meadows and tilled fields. It was not common; three were the most seen in one day. A pair, established near our camp north of Emo, was observed regularly. On June 4, one of these birds was seen perched on the top of a fence post uttering its soft, slightly descending "kuck-kuck-kuck." Overhead another bird circled about producing, periodically, the pleasing vibrant sound which is slightly ascending in tone and accelerated in speed. It occurs to the writer that the frequent reference to this note, in North American bird literature, as a "bleating" sound is most inapt. It seems probable that this term has been copied from the European literature where it may be descriptive of the sound produced by a species there.

Actitis macularia. SPOTTED SANDPIPER.—A fairly common breeding species along the Rainy River, its tributaries and the lake

shores of more northerly sections. A set of four eggs collected near Aylesworth was situated a few feet from the bank of a small creek in a wooded pasture. The male bird was found to be incubating, the time being 3:00 P.M.

♂ June 25, Aylesworth. ♂ Aug. 1, Rainy River.

Tringa solitaria. SOLITARY SANDPIPER.—This species was not met with during the summer until July 24, when a female was collected at Big Fork. So far as the evidence goes this bird was probably a transient. It is typical of the form *T. s. solitaria*.

♀ July 24, Big Fork.

Totanus flavipes. LESSER YELLOW-LEGS.—Mr. Baillie found this species very common at Sable Island on August 8. It is a summer bird in the region here considered, though undoubtedly a transient.

Imm. ♀ Aug. 8, Sable Island.

Pisobia melanotos. PECTORAL SANDPIPER.—Five migrant Pectoral Sandpipers were observed on Sable Island on August 8. The specimen collected is an adult in worn breeding plumage showing no signs of replacement.

♂ Aug. 8, Sable Island.

Pisobia minutilla. LEAST SANDPIPER.—The species was found to be a common migrant at Sable Island on August 8.

Imm. ? Aug. 8, Sable Island.

Ereunetes pusillus. SEMIPALMATED SANDPIPER.—The visit made to Sable Island on August 8, established this species as a common migrant there at that time.

Imm. ♀ Aug. 8, Sable Island.

Crocethia alba. SANDERLING.—Three migrant Sanderlings were noted on Sable Island on August 8. The specimen collected is an adult in worn breeding plumage.

♀ Aug. 8, Sable Island.

Larus argentatus. HERRING GULL.—A fairly plentiful species about some of the larger lakes of the region. Herring Gulls were observed reconnoitering the Rainy River from various points. The species nests on a bare rock island in Kaiarskons Lake and there may be breeding colonies on Lake of the Woods within the territorial scope of the area here reported on.

The single specimen secured is an adult female. From an examination of the ovaries it appeared that this individual was a breeding bird. The beak measures 53 mm. in length and is unmarked with black. The tail is entirely white, the primaries are white-tipped but only the first is marked by a mirror which is confined to the inner web and well separated from the apical spot.

♀ July 2, Off Lake.

Sterna hirundo. COMMON TERN.—This species was not met with until July 29 after camp was established at Rainy River. It was noted regularly and commonly at this station. Roberts (1932) states that breeding colonies are to be found on Lake of the Woods.

♀ July 29, Rainy River.

Hydroprogne caspia. CASPIAN TERN.—A Caspian Tern was seen by Mr. Baillie on August 8 on Lake of the Woods. Aside from this record we secured no information on its status in the region. Roberts (1932) states that eight or ten were observed on Lake of the Woods in July, 1916.

Chlidonias nigra. BLACK TERN.—This tern was observed regularly and commonly by us while we were encamped at Off Lake and also at Rainy River. Although we did not locate a breeding colony the daily foraging of adults suggested that one, or more, existed somewhere along the marshy borders of rivers, near Off Lake and also the Rainy River. At the latter place, on August 1, Mr. Baillie saw several young birds, accompanied by adults. The young possessed short tails, a state of immaturity which suggests that they were not far from the place of their nativity.

♂ Aug. 1, Rainy River.

Zenaidura macroura. MOURNING DOVE.—During our stay in the Emo district we were told by several local residents that a pair of doves spent the summer of 1928 in the vicinity of the canning factory at the edge of the village. Mr. Douglas Mair described their call and referred to them as Mourning Doves. Although the species is probably not established as a regularly breeding bird as yet there is evidence that it is penetrating into the province in this region and beyond, as an occasional summer resident. The evidence at hand suggests that the eastern form *carolinensis* is to be expected here.

Coccyzus erythrophthalmus. BLACK-BILLED CUCKOO.—The status of this species in western Rainy River region probably varies from year to year since the limits of range are here approached. One noted on June 20 is our only record for the summer of 1929.

Otus asio. AMERICAN SCREECH OWL.—Mr. Hall of Emo described to us a small owl with ear-tufts which he has seen locally but rarely. Although we did not meet with the species in 1929 there seems no reason to doubt its occurrence. Thompson (1890) gives an early Ontario record on Lake of the Woods, specifically as Sabaskong Bay which bounds the area here considered. Specimens from this region would be of particular interest for racial study.

Roberts (1932) states that "some individuals from the north-western part of the state (Minnesota) are paler in colour and are regarded as Aiken's Screech Owl (*O. a. aikeni*)". A specimen in the R.O.M.Z. collection from Treesbank, south-western Manitoba seems clearly referable to this pale western race.

Bubo virginianus. GREAT HORNED OWL.—Heard fairly regularly throughout the summer but not commonly; seen rarely. We were not successful in securing summer specimens for study. Birds seen were pale in general effect, not of the *virginianus* type. Mr. Alfred Levridge of Devlin told us of having found the nest containing two very young Horned Owls on April 10, 1929.

Asio flammeus. SHORT-EARED OWL.—Not uncommon about the more prairie-like clearings of western Rainy River District. Near Emo, on June 24, a family of four variously-sized young was discovered in rough grazing land cluttered with clumps of young poplar, scattered mature trees, fallen logs and thickets of willow along a creek. None of the young had attained full power of flight. Mr. Baillie also secured a locally reared juvenile at Rainy River. These records add for the species, two new breeding stations, to the very few known in the province.

♂	June 19, Emo.	Imm. ♀	July 31, Rainy River.
Juv. ♀	June 24, Emo.		

Antrostomus vociferus. WHIP-POOR-WILL.—Heard only at Off Lake, on four nights between July 5 and 11. This region undoubtedly is on the northern periphery of range of this species and, as might be expected, it is scarce.

Chordeiles minor. NIGHTHAWK.—Observed regularly throughout the summer. The greatest number noted on one day was ten, on July 19, near the camp at Big Fork but seven had been seen on July 5 at Off Lake. A fresh egg was found at Clearwater Lake on July 1, situated on a bare rock denuded by fire.

The specimen collected, a female, has a wing measurement of 195 mm. and the tail measures 108 mm. Its dorsal surface presents a more variegated pattern of pale markings than is found on the average Night-

hawk from eastern Ontario and pale markings on the wing-coverts are extensive. The characters as described more or less combine the characteristics of *C. m. minor* and *C. m. sennetti*.

♀ July 1, Off Lake.

Chaetura pelagica. CHIMNEY SWIFT.—We rarely noted the Chimney Swift about farmland but it was observed fairly commonly in the more heavily forested region to the north and about the towns of the district. This distribution is consequent to the availability of nesting sites; original conditions for nesting in trees were undoubtedly present in the forest while chimneys in the villages, constituted suitable sites there.

♂ July 14, Big Fork.

Archilochus colubris. RUBY-THROATED HUMMINGBIRD.—Observed most regularly from our Off Lake camp, at which place the forest was more extensive and uninterrupted. As many as twelve were seen on one day, July 6. A nest containing two heavily incubated eggs was found at Aylesworth on June 25. It was situated on a horizontal limb of a bur oak approximately fifteen feet from the ground. The female bird attempted protection of the nest by making swift darts at the writer when he disturbed her.

♂ July 2, Off Lake.

Megaceryle alcyon. BELTED KINGFISHER.—This species was met with regularly at all stations on lakes and water courses but its territorial requirements are apparently too great to allow for more than a sparse population. An occupied burrow was found on Quill Lake on July 7. Young birds were not noted on the wing until July 20.

♂ June 25, Aylesworth.

Colaptes auratus. YELLOW-SHAFTED FLICKER.—Flickers were fairly evenly distributed throughout the region. From one to ten individuals were noted daily throughout the summer. It was the commonest woodpecker about areas under cultivation but one other species exceeded it to the north in the wilder parts, the Yellow-bellied Sapsucker.

Occupied nesting holes were discovered. The earliest observation pertaining to nesting was made on June 11 when a female was found working at a cavity in a dead tree.

♀ June 10, Emo.

♀ July 9, Off Lake.

♂ July 5, Off Lake.

Ceophloeus pileatus. PILEATED WOODPECKER.—The Pileated Woodpecker was recorded rarely from all our camps; one or two birds were noted on five occasions during the summer. It is fairly certain that the same pair was involved in two of these observations. It is therefore a widely scattered resident, perhaps not much scarcer now than at any former period. We did not find any occupied nests but nesting holes or winter roosts, unquestionably the work of this species, were seen.

♂ July 5, Off Lake.

Melanerpes erythrocephalus. RED-HEADED WOODPECKER.—The Red-headed Woodpecker was somewhat more generally distributed and numerous than might have been expected in this region which undoubtedly approaches the northern limits of its range. It seems probable that it is more numerous now than in earlier times. We saw the Red-headed Woodpecker at all camps but it was more regularly and commonly observed in districts where cultivated land was interspersed with woodland. Seven individuals were noted on June 25 near Emo. An occupied nest was found in a brushy pasture with scattered dead trees on June 20.

♂	June 3, Emo.	♂	June 20, Emo.
♀	June 10, Emo.	♂	June 27, Emo.
♀	June 20, Emo.		

Asyndesmus lewisi. LEWIS'S WOODPECKER.—The following record is included in this account of summer birds since the time of the observation, May 27, verges on a summer date. During our visit, to the western portion of Rainy River District in 1929 it was our pleasure to meet and become acquainted with Mr. Edgar Sullivan, a youth who was then interested in natural history and who has since continued that interest. On May 27, 1934, Mr. Sullivan wrote me as follows,—“I'm dropping you a line to let you know I saw a Lewis's Woodpecker to-day. According to 'Birds of Western Canada' this bird is a native of British Columbia and not known east of Saskatchewan. I can assure you of its being a Lewis's Woodpecker. I stopped the car within twenty-five feet of it, that we might observe it. It was sitting on a fence post, one-half mile south of Langtry's Bridge (near Emo)”. Incidentally there is an excellent figure of this species in the publication to which Mr. Sullivan refers.

This record constitutes the first for Ontario but since it does not rest on a collected specimen it is probably best to regard it as hypothetical for the present. Further support to the record is given by the fact that this species has been seen in recent years in the Winnipeg region. (Cartwright, 1931).

Sphyrapicus varius. YELLOW-BELLIED SAPSUCKER.—Comparatively scarce in cultivated sections but it was the commonest woodpecker of wilder parts. A nest found on July 1 contained young birds.

♂ June 17, Emo.

Dryobates villosus. HAIRY WOODPECKER.—Observed regularly at all camps, somewhat more commonly in wilder sections, but it was not plentiful in any part of the district. Three was the most observed on a single day. We established the record of it as a breeding species on June 15, when young of the year were secured. The juveniles collected proved on dissection to reveal their sex by crown markings; coloured on young males and black on young females. The adult females collected are not notably large representatives of the species. Their average measurements are, L. 246, cul. 31; W. 122.5; T. 80; Wt. 75. They may be regarded as somewhat intermediate between *D. v. villosus* and *D. v. septentrionalis*.

Juv. ♂ June 15, Emo.
Juv. ♀ July 3, Off Lake.
♀ July 4, Off Lake.

Juv. ♀ July 7, Off Lake.
♀ July 30, Rainy River.

Dryobates pubescens. DOWNY WOODPECKER.—The Downy Woodpecker was observed regularly at all camps. It was fairly common in wilder sections, somewhat less numerous near cultivated areas. On the average it outnumbered the Hairy Woodpecker for the region as a whole. Young birds of the year were first noted on July 2. As in the case of the Hairy Woodpecker, young birds were carefully dissected and the sex, so determined, substantiated the supposed sex characters of juveniles in this genus as has been discussed elsewhere (Snyder, 1923). The series of adult specimens average in size within the limits ascribed to the form *medianus*. One adult male, by general appearance possibly a non-breeding bird, taken on July 2, conforms well with the race *nelsoni*. The population as a whole may best be regarded as intermediate.

♀ June 12, Emo.
♀ June 27, Emo.
2 ♂ ♂ July 2, Off Lake.
♀ July 6, Off Lake.

♂ July 6, Off Lake.
Juv. ♂ July 6, Off Lake.
♀ July 8, Off Lake.
♀ July 24, Big Fork.
Juv. ♂ July 30, Rainy River.

Picoides arcticus. ARCTIC THREE-TOED WOODPECKER.—Met with between Clearwater Lake and Off Lake on three occasions; possibly representatives of a single family were concerned in each observation. No other records were secured for the species.

A young female specimen, undoubtedly reared near camp, was collected. It has two small white marks on a black feather of the

posterior back. The fore-crown is marked, as is probably the rule, with a small faint yellow spot.

Juv. ♀ July 8, Clearwater Lake. ♂ July 9, Off Lake.

Picoides tridactylus. AMERICAN THREE-TOED WOODPECKER.—On July 16, Mr. Baillie secured an adult of this species in a spruce bog not far from camp at Big Fork. This is the only record for the region.

♀ July 16, Big Fork.

Tyrannus tyrannus. EASTERN KINGBIRD.—Although the Kingbird was observed regularly and fairly commonly about the wilder lake country to the north, it was not as numerous there as it was about settled sections. It very probably has increased as a result of the clearing, or partial clearing, of the land. A newly completed Kingbird nest was found on June 15, situated five feet from the ground on the top of a burned stump. A thicket of low-growing willows shielded the stump and the nest probably would not have been detected if the adult birds had not flown at me fiercely. Although no eggs had been deposited as yet, the defence of the nest was definite enough.

♂ July 3, Off Lake.

Myiarchus crinitus. CRESTED FLYCATCHER.—We did not meet with this flycatcher about camp at Emo but it was noted at all other camps as a rare resident. Two family groups were observed near Rainy River on August 5, by Mr. Baillie.

♀ July 10, Off Lake. Juv. ♂ Aug. 5, Rainy River.

Sayornis phoebe. EASTERN PHOEBE.—Noted daily throughout the summer. Phoebes were least numerous in flat agricultural sections and most numerous about the lake shores to the north and along the rivers to the south. While exploring an abandoned farmstead, north of Emo, on June 12, a Phoebe's nest was discovered in a rather unusual situation. A root cellar, constructed by digging a hole approximately seven feet deep on level terrain, had been timbered over and roofed level with the ground. A vertical shaft gave access to the chamber which had partially filled with water. The Phoebe accepted this subterranean site which was strictly a hole in the ground rather than a cave, in the usual sense. A nest situated over the window of the log building in which we were encamped at Off Lake was a source of much pleasure and some annoyance. When the young Phoebes left the nest during the first week of July, countless thousands of minute mites which had infested the nest emigrated. Attracted perhaps by the warmer interior of our cabin the mites entered through the chinking between the logs

and for a couple of days their masses imparted large dusky patches to the ochre surfaces of the log walls and to the bunks in which we slept.

♂	June 25, Big Fork.	♂	July 15, Big Fork.
♀	June 27, Emo.	Juv. ♀	July 24, Big Fork.
♂	July 10, Off Lake.	♀	July 25, Big Fork.
♀	July 15, Big Fork.	Juv. ♂	Aug. 7, Rainy River.

Empidonax flaviventris. YELLOW-BELLIED FLYCATCHER.—The only record for the summer was made by Mr. Baillie in a wild plot near Big Fork on July 16th.

Empidonax trailli. TRAILL'S FLYCATCHER.—A fairly common flycatcher, noted at all camps. It was somewhat more numerous in sections where semi-clearings and second growth were prevalent, rather than where more virgin conditions prevailed; the species probably increased following settlement of the land.

Of the three adults collected one is slightly peculiar; the wing-bars are a shade darker than the average for this form, the head contrasts with the general tone of the back by being slightly darker, the grey band on the breast is darker and less tinged with greenish and the third primary is the longest (by 1 mm.) rather than being equal or shorter than the second. The bird was regarded as a characteristic example of *E. trailli* in the field however.

♂	June 1, Emo.	♀	July 29, Rainy River.
♂	June 15, Emo.	Juv. ♂	Aug. 3, Rainy River.

Empidonax minimus. LEAST FLYCATCHER.—The commonest flycatcher of the region. It was to be found in a considerable variety of habitats, in the alder thickets along streams, in the mixed forests, in poplar groves, etc. The species was noted nest-building on June 4. Young birds of the year were first noted out of the nest during the second week of July.

♀	July 1, Off Lake.	Juv. ♀	July 10, Off Lake.
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Myiochanes virens. EASTERN WOOD PEWEE.—A fairly common species noted at all camps. Six was the greatest number noted on a single day. The drowsy call of the Wood Pewee was a characteristic sound of the older poplar groves. The more open mixed forest constituted a habitat for this flycatcher in the lake country to the north.

♂	June 13, Emo.	♂	July 1, Clearwater Lake.
♂	June 14, Emo.	♀	July 9, Off Lake.
♂	June 25, Aylesworth.		

Nuttallornis mesoleucus. OLIVE-SIDED FLYCATCHER.—Although we found the Olive-sided Flycatcher occupying the relic black spruce bog

in the settled section, it was more frequently observed in the wilder lake country to the north. It cannot be regarded as a common bird in the same sense as certain other flycatchers. Two pairs, established sufficiently close together that the calls of the male birds can be heard at the same time at a point between them, is about as dense a population, apparently, as this species attains.

♀ July 5, Off Lake.

Otocoris alpestris. HORNED LARK.—Clearing of the land for settlement in western Rainy River District has undoubtedly been favourable to the increase of the Horned Lark. We did not see the species in sections where natural conditions were little affected by man, but it was noted fairly commonly in farmed districts. Adults were seen carrying food on June 10 and the first flying young were noted on June 19.

A male taken on May 31 was the first specimen to be collected after we had established camp in the region. There seems little doubt that it was a migrant since it is distinctly not of the resident race. This individual measured as follows,—length 190 mm., culmen 18 mm., wing 106 mm., tail 69 mm., weight $43\frac{1}{2}$ gms. The forehead and crown still display winter condition of the plumage and have a yellowish brown suffusion. The superciliary stripe is distinctly yellowish and the throat is yellow. Dorsally this bird is dark in tone and warm in colour. So far as tone and colour are concerned, the specimen compares favourably with examples of the form *alpestris*. Except for its large beak and rather small wing (somewhat worn) it is typical of this race.

Of the specimens subsequently collected and known to be the breeding form, three are adult males. Their average measurements are as follows:—length 180 mm., culmen 12 mm., wing 105.3 mm., tail 69.6 mm., weight, 32.8 gms. These birds are notably pale dorsally with light cinnamon drab on the occiput and nape. Two have very pale yellow throats and the third is nearly white. These birds are like summer examples of the Horned Lark from central and southern Manitoba and similar to birds from southeastern Saskatchewan (the latter, *enthymia* of Oberholser). They differ from summer Horned Larks from southern Ontario and southern Michigan in having lighter and on the average less extensive fuscous markings on the feathers of the back. The margins of paler colour on the dorsal feathers of Rainy River birds are broader and “light drab”, not as warm in colour as on breeding birds from southern Ontario and specimens from Michigan. The colour and tone as given in detail imparts a generally paler aspect to the dorsal area as compared with specimens, from more south-

eastern localities, regarded as *praticola*. It would appear from an examination of material in the R.O.M.Z. collection that *O. a. enthymia* is a valid race and that its distribution should extend through southern Manitoba to the Rainy River region in Ontario. Birds of this region are similar to *O. a. articola*, but smaller, and similar to *O. a. leucolaema* but not so ochraceous.

♂ May 31, Emo. Juv. ♀ June 19, Emo.
 ♂ June 6, Emo. ♂ June 19, Emo.
 ♂ June 10, Emo.

Iridoprocne bicolor. TREE SWALLOW.—Found throughout the region, most commonly in the lake country and along the rivers. A nest with eggs was noted on June 7.

♀ July 3, Off Lake. Juv. ♀ July 23, Big Fork.

Riparia riparia. BANK SWALLOW.—Colonies were found along the Rainy River, at Emo, Big Fork and at the town of Rainy River. The small colony at Emo consisted of about eight pairs. The burrows were in a vertical bank of sawdust along the river where a sawmill had operated some years ago. The sawdust was well packed and although it was easier to tunnel in than earth, the site possessed a normal earth-bank appearance. Naked young were found in one of these tunnels on June 28.

Nestling (alcoholic) June 28, Emo. Juv. ♀ July 23, Big Fork.

Stelgidopteryx ruficollis. AMERICAN ROUGH-WINGED SWALLOW.—Mr. Baillie discovered this species near camp at Big Fork and counted as many as twenty-five individuals including young just out of the nest, on July 24. This constitutes the most northerly record for the species in Ontario and one of the most northerly for North America.

♀ July 20, Big Fork. Juv. ♂ July 20, Big Fork.

Hirundo erythrogaster. BARN SWALLOW.—Seen regularly and fairly commonly throughout cultivated areas where buildings for nesting sites were available. It was not noted during our stay in the lake country.

On June 25 we visited a heavily forested section on the Rainy River which formerly constituted an Indian Reservation. An abandoned farmstead in a clearing central to the forested area and several miles from settlements, was reconnoitered for birds and here one pair of Barn Swallows was found nesting in the stable. This was certainly the only pair established there. The male of this pair was collected

as a specimen about noon. In less than two hours another male was seen flying about the buildings with the resident female.

♂ June 25, Big Fork.

Petrochelidon albifrons. CLIFF SWALLOW.—We were told of several nests of this swallow on the outside eave of a barn four miles east of Emo and subsequently a set of eggs and also a nestling was secured from this situation. The only other record for the species for this region was one seen by Mr. Baillie on July 21, near Big Fork.

Nestling (alcoholic) July 25, Emo.

Progne subis. PURPLE MARTIN.—Seen regularly from all camps except at Off Lake. It nests about the town of Fort Frances, about villages and farmsteads of the region. We found the species occupying original sites for nesting, namely cavities in trees. A family was reared in an abandoned woodpecker hole situated twenty feet from the ground in a dead paper birch in an open wooded pasture near our camp at Emo. Mr. Baillie observed a flying young being fed by a female, while both birds were on the wing.

♂ June 24, Emo. Juv. ♂ Aug. 4, Rainy River.

Perisoreus canadensis. CANADA JAY.—This species was noted occasionally, but not commonly during the summer of 1929. Its occurrence about farmland was more or less accidental. Near Emo on June 16, during the early evening, a young Canada Jay was observed being pursued by a Crow Blackbird which apparently regarded it as a stranger in the locality. The jay was obviously frightened, as it flew to a brick farm building and clung to the wall. Later it escaped into a clump of bushes nearby. The species breeds in the region.

Juv. ♂ July 2, Off Lake. ♂ July 21, Big Fork.

Cyanocitta cristata. BLUE JAY.—Not common but observed regularly; less frequent in wilder sections.

♂ June 5, Emo.

Corvus brachyrhynchos. AMERICAN CROW.—A common species of the region, most numerous in cultivated sections where there is undoubtedly a plentiful food supply and extensive situations for nesting.

The male bird collected is large in all its measurements, typical of the eastern form *C. b. brachyrhynchos*. Its measurements in millimetres are as follows:—length 495, total culmen 51, wing 332, tail 201, weight 480 gms.

Penthestes atricapillus. BLACK-CAPPED CHICKADEE.—Noted regularly throughout the summer, but the species became most conspicuous after about July 8, at about which time the young emerged from their nests. Twice during late summer when family groups were met with and collecting of specimens made it possible to determine the point, adult males were found to be the family escort.

The plumage condition of adults collected makes racial comparison very uncertain, both as regards tone and colour, and size. The series of five adult males when compared with specimens of the same sex and collected about the same date from extreme southern Ontario can not be certainly differentiated. The wear and loss of tail and wing feathers give an inaccurate measurement of these parts but even so they appear rather large for *P. a. atricapillus*. The average measurements for the five, given in millimetres, are as follows:—length 137, wing 65.5, tail 66.5, weight 11.5 gms.

2 ♂ ♂	June 12, Emo.	2 ♂ ♂	July 9, Off Lake.
♂	July 1, Off Lake.	Juv. ♀	July 17, Big Fork.
Juv. ♀	July 9, Off Lake.	Juv. ♀	July 29, Rainy River.

Penthestes hudsonicus. BROWN-HEADED CHICKADEE.—This chickadee was rare in the region but it was noted twice during the late summer when family groups were met with. On both occasions these birds were discovered in black spruce cover,—local boreal islands.

The material collected is not sufficiently satisfactory to be very helpful in determining the race of this species occurring in the area. Comparisons of the juveniles show them to be very similar to juveniles taken elsewhere in Ontario. A casual examination of adults in the R.O.M.Z. collection which might suggest the racial probabilities for Rainy River merely indicated the need for a general study of Canadian Brown-headed Chickadees.

2 Juv. ♂ ♂	July 16, Big Fork.	Juv. —	July 21, Big Fork.
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Sitta carolinensis. WHITE-BREASTED NUTHATCH.—A rare bird of the region; found only at or near Big Fork along the Rainy River. Woods containing old broad-leafed trees constituted its habitat. Such particularly characterized the Indian Reserve of the region.

Sitta canadensis. RED-BREASTED NUTHATCH.—Seen at all camps but an uncommon species. Found in old, dense, mixed woods, the habitat overlapping that of the White-breasted Nuthatch at Big Fork.

Certhia familiaris. BROWN CREEPER.—Noted only on three occasions during the summer, once at Off Lake and twice at Big Fork. It was found on each occasion in old and dense mixed forests, in situations

favourable to the occurrence of the last-mentioned species. The form of the region is the Eastern Brown Creeper, *C. f. americana*.

Adult June 25, Big Fork.

Troglodytes aedon. HOUSE WREN.—A fairly common bird and found at all camps; most numerous about habitations or clearings and partial clearings. A completed nest was found as early as June 1st, but young birds did not become conspicuous until mid-July.

The series of specimens secured are readily referable to the form *T. a. parkmani*, the Western House Wren.

♂	June 8, Emo.	♂	July 5, Clearwater Lake.
♂	June 12, Emo.	♀	July 8, Clearwater Lake.
♂	June 17, Emo.	♀	July 16, Big Fork.
♂	June 20, Emo.	♀	Aug. 3, Rainy River.
♀	June 27, Emo.		

Nannus hiemalis. WINTER WREN.—This species was recorded at three of our camps,—Off Lake, Big Fork and Rainy River,—but it was very rare in all localities. Typical white cedar swamps which apparently provide the most acceptable habitat for Winter Wrens were uncommon. The birds we discovered were all found in old black spruce stands. The only specimen collected was lost down one of the innumerable holes about the roots of spruce in a dark, wet bog.

Cistothorus stellaris. SHORT-BILLED MARSH WREN.—An uncommon species, noted at three of our four camps, Emo, Off Lake, and Rainy River. Young birds not long out of the nest were secured.

♂	June 1, Emo.	Juv. ♂	July 30, Rainy River.
♂	July 8, Off Lake.	Juv. ♀	Aug. 7, Rainy River.

Dumetella carolinensis. CATBIRD.—Noted occasionally at all four camps. A nest containing a set of three fresh eggs (probably an incomplete clutch) was collected on June 5 near Emo. This species is known to extend slightly north of this region (Baillie and Harrington, 1936 and 1937).

♂	June 5, Emo.	♀	July 20, Rainy River.
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Toxostoma rufum. BROWN THRASHER.—Found only near camp at Emo where it was a rare bird. The Rainy River District appears to be on the northern periphery of the range of this species in this longitude.

♂ June 5, Emo.

Turdus migratorius. AMERICAN ROBIN.—A common breeding species throughout the region.

Juv. ♀	June 12, Emo.	Juv. ♀	July 2, Off Lake.
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Hylocichla guttata. HERMIT THRUSH.—A fairly common breeding species found throughout the region. Relic woods in cultivated sections are sufficiently numerous and extensive to support a Hermit Thrush population but slightly less numerous than in the wild areas of the lake country, according to our daily observation records.

♀	June 6, Emo.	Juv. ♂	July 7, Off Lake.
♂	July 1, Off Lake.	♂	July 16, Big Fork.
Juv. ♀	July 6, Off Lake.		

Hylocichla ustulata. OLIVE-BACKED THRUSH.—This species was not observed at our Emo camp but it was found commonly at Off Lake. It was also an uncommon species at Big Fork and Rainy River. A nest with four eggs, found on July 4, at Off Lake, was successfully photographed together with an adult by Mr. A. R. Van who was in the field with us during the period.

♂	July 4, Off Lake.	Juv. ♂	July 9, Off Lake.
Juv. —	July 5, Off Lake.		

Hylocichla fuscescens. WILSON'S THRUSH.—A common breeding species throughout the region. Comparison of the series of specimens collected at Rainy River has presented an interesting problem as regards the racial variation of this species throughout its range in Ontario. The specimens from Rainy River tend distinctly towards olive brown dorsally. When viewed in series they contrast markedly from the more tawny olive birds from southern Ontario. There can be no doubt that the Rainy River specimens represent the form *H. f. salicicola*, the Willow Thrush.

2 ♀ ♀	June 4, Emo.	♀	June 13, Emo.
♂	June 6, Emo.	♂	June 22, Emo.
♂	June 11, Emo.	♂	June 25, Aylesworth.
		♂	July 3, Off Lake.

Sialia sialis. RED-BREASTED BLUEBIRD.—The Bluebird was noted fairly regularly but not commonly from all camps in or in the vicinity of cultivation. It was not noted at the Off Lake camp. A nest with small young was found at Emo on June 20.

♂	June 20, Emo.	Juv. ♀	July 31, Rainy River.
♂	July 17, Big Fork.		

Bombycilla cedrorum. CEDAR WAXWING.—Found throughout the region; common in the lake country, somewhat less so elsewhere. Nests with eggs were noted by July 1. On July 3 the Cedar Waxwing was noted on our daily record sheet as "abundant", a term rarely employed by us to describe the status of a species during field work. Their numbers continued at a peak throughout the first week of July. Two

reasons account for the large numbers observed. First, the species was actively engaged in mating and nest-building during this period and was consequently conspicuous: second, the emergence of Ephemeroidea from the water attracted them to the open lake shores where they fed on these insects.

♀ June 15, Emo. ♀ Aug. 7, Rainy River.
♀ July 3, Off Lake.

Lanius ludovicianus. COMMON SHRIKE.—An uncommon species of the cultivated districts. A nest containing five half-grown young was found on June 8 near Emo. It was situated in a densely-branched shrub willow along a creek in a cultivated field. A dense mat of sheep wool had been used for lining material. One young bird was retained as a camp pet, and, until its escape on June 25, it proved a source of much interest. It accepted bits of meat regularly at the skinning table and at other times captured flies for itself at the windows of the old building in which we were camped. After a meal of blue-bottle flies it would disgorge a pellet of chitin about the size of a bean. It never attempted escape from the house unless all members of the party were outside at which time it became restless. It was while we were away from camp that it managed to find a hole in the fly screen of the door and started its independent career.

The two adult birds collected, represent a mated pair. The female is in much more worn plumage than is the male. The feathers of her scapulars and rump are grey or greyish and are judged not to have been extensively white even when fresh. These tracts are white or whitish on the male and the feathers on the back and head are slightly paler than those of the female. With the material at hand for comparison it seems evident that western Rainy River District is on the border range of the forms *L. l. migrans* and *L. l. excubitorides*.

4 Juv. ♀ ♀ June 8, Emo. ♀ June 8, Emo.
♂ June 8, Emo.

Sturnus vulgaris. COMMON STARLING.—This species had not reached the district at the time of our visit in 1929, but recent reports from residents indicate that it had reached there by 1935. Mrs. Down living near Devlin writes (May 1938) that during "the last three years there have been some here" and that during the present season Starlings nested in a shed-building on their farm. Miss Beatrice Sturdy, a school teacher interested in birds, also reports the species about Fort Frances though it is as yet not numerous. Its widespread occupancy of settled sections of the western Rainy River District is to be expected in the next few years.

Vireo solitarius. SOLITARY VIREO.—A rare species noted only once during the summer, at Off Lake on July 10th.

Vireo olivaceus. RED-EYED VIREO.—A common species throughout the region. The earliest breeding record was made on June 1st when a completed nest was found.

♂ July 3, Off Lake. ♂ July 4, Off Lake.

Vireo philadelphicus. PHILADELPHIA VIREO.—An uncommon species identified occasionally near Emo and at Off Lake.

♂ June 13, Emo. ♂ July 5, Off Lake.

Mniotilta varia. BLACK AND WHITE WARBLER.—Seen almost daily from all camps but six was the greatest number recorded on a single day. It is therefore regarded as a fairly common warbler of the region.

An unsexed specimen, presumably a male, collected on July 19, is in fresh incompletely developed winter plumage. The skull is soft and the field notes indicate that it is immature. This plumage differs markedly from the adult. All but a narrow median area of the ventral surface is rather heavily streaked with black. The throat, foreneck and upper breast are white as are also the sides of face and auriculars. Dorsally the specimen is similar to an adult male.

♂ June 14, Emo. Juv. — July 19, Big Fork.

Vermivora peregrina. TENNESSEE WARBLER.—Fairly common at Big Fork, where there were extensive black spruce forests, rare at Off Lake and not seen elsewhere.

♂ July 8, Off Lake.

Vermivora ruficapilla. NASHVILLE WARBLER.—Fairly common at all camps except at Rainy River where it may have been missed because of the cessation of song since our visit there was rather late in the summer.

A nest containing three eggs and a Cowbird's egg in a partial state of incubation was found by Mr. Baillie on July 18 at Big Fork. The nest was located about three feet up from ground-level, in upturned roots of a fallen evergreen in a dense mixed woods. The female bird was collected.

♂ June 15, Emo. ♀ July 18, Big Fork.

Compsothlypis americana. PARULA WARBLER.—Common in the older and denser mixed woods at Off Lake and occasional at Big Fork; not noted elsewhere. A juvenile bird just out of the nest is one of

the rarer plumage-specimens obtained during 1929. Incidentally the taking of this bird constitutes the first positive breeding evidence for the species in Ontario. The form of the region is *C. a. pusilla* and the juvenile plumage of this race is like that described by Ridgway (1902) for the Southern Parula (*C. a. americana*) except that the feathers of the chin and upper throat are whitish (like those of the abdomen), not pale yellow.

♂ July 6, Off Lake. Juv. ♀ July 9, Off Lake.
♀ July 9, Off Lake.

Dendroica aestiva. YELLOW WARBLER.—This species nested about the village of Emo and was not rare at Off Lake. Family groups and individuals were also noted occasionally at Rainy River.

♂ July 3, Off Lake. Juv. — July 30, Rainy River.
♂ July 30, Rainy River. Imm. ♀ July 31, Rainy River.

Dendroica magnolia. MAGNOLIA WARBLER.—Fairly common breeding species in wilder sections to the north; noted rarely elsewhere.

♂ July 2, Off Lake. Juv. ♂ July 9, Off Lake.
♂ July 5, Off Lake.

Dendroica coronata. MYRTLE WARBLER.—Found regularly but not commonly in the region of Off Lake; not noted elsewhere. This species apparently prefers the pine stands in the more open, dry, rock country.

♂ July 6, Off Lake.

Dendroica virens. BLACK-THROATED GREEN WARBLER.—The species was noted regularly and fairly commonly from our Off Lake camp and rarely at Big Fork.

♂ July 9, Off Lake.

Dendroica fusca. BLACKBURNIAN WARBLER.—A rare species throughout the area visited but noted somewhat more regularly in the wilder parts. Young of the year, noted at Off Lake and at Rainy River, gave evidence that the species is a breeding bird of the region.

♂ June 10, Emo. ♀ July 6, Off Lake.

Dendroica pensylvanica. CHESTNUT-SIDED WARBLER.—A common nesting warbler of the region. The earliest record for the appearance of young in the nest was made on June 27.

♂ June 10, Emo. ♀ July 25, Big Fork.
♂ July 9, Off Lake. Imm. ♀ Aug. 5, Rainy River.

Dendroica castanea. BAY-BREASTED WARBLER.—Found commonly in the wild parts to the north; recorded once at Rainy River. On July 5th at Off Lake, a female Bay-Breasted Warbler was observed carrying some material into the dense spire of a tall spruce tree. It was probably food for young birds judging by the date but may have been nesting material.

2 ♂ ♂ July 1, Off Lake. ♀ Aug. 3, Rainy River.

Dendroica striata. BLACK-POLL WARBLER.—The taking of a female Black-poll Warbler on August 5 at Rainy River is the only record for the species we secured. This occurrence is regarded as marking an early migratory date since this bird is scarcely to be expected as a summer resident in this latitude. The specimen is in worn summer plumage and as noted during the preparation of the specimen, has a bare belly. Some plumage replacement is evident, especially on the coverts of the wings.

♀ Aug. 5, Rainy River.

Dendroica pinus. PINE WARBLER.—This species was recorded as an uncommon warbler at Off Lake. It was recorded once at Rainy River. The species breeds in the region, as indicated by the observation of broods and the collecting of juveniles. Dissection of the female collected on June 8 revealed an egg in the oviduct. Two young birds secured from a family group on July 31 show a considerable difference in the stage of plumage development. One is entirely in the dull juvenile plumage and the other has a considerable replacement of the drab grey-brown feathers of the throat and breast by bright greenish-yellow feathers of the first winter plumage. At Off Lake this warbler was found only in rather open stands of well-developed pines in high dry rocky situations.

♂ July 5, Clearwater Lake. 2 Juvs. — July 31, Rainy River.
♀ July 8, Clearwater Lake.

Dendroica palmarum. PALM WARBLER.—The taking of a juvenile female by Mr. Baillie on July 21 established this species as a rare breeding bird of the region which incidentally is the second for the province. The bird was collected in a black spruce bog.

Juv. ♀ July 21, Big Fork.

Seiurus aurocapillus. OVEN-BIRD.—Common throughout the region but more evenly distributed in the north because of the continuity of woodland. Young birds out of the nest were first noted on July 5.

♂ June 14, Emo.

Seiurus noveboracensis. NORTHERN WATER-THRUSH.—Not common but observed regularly at Off Lake. It was noted once near Emo. Comparison of the specimens secured with the series in the Museum merely indicates that a much broader study of Ontario material than can be attempted for the present report, is needed.

♂ July 4, Off Lake. ♂ July 5, Off Lake.

Oporornis philadelphia. MOURNING WARBLER.—Common throughout the region. A nest containing one egg was found by Mr. Stovell on June 16 near Emo. It was situated just off the ground in a brush pile in a small clearing where trees for winter wood had been removed. It was determined, on a subsequent visit to the place, that the nest had been destroyed by some unknown agent.

♂ June 1, Emo. ♂ July 9, Off Lake.
♂ June 3, Emo. ♂ July 17, Big Fork.
♂ July 8, Off Lake. ♂ Aug. 6, Rainy River.

Geothlypis trichas. MARYLAND YELLOW-THROAT.—This warbler was not particularly common but it was generally distributed and observed regularly throughout the summer. The first evidence that young of the year had hatched was secured on June 27 when a female was observed carrying food.

The series of adult males secured average slightly brighter green dorsally than specimens from southern Ontario, regarded as typical of *G. t. brachidactyla*. Also the pale band across the fore-crown averages wider and paler than typical *brachidactyla*. Ventrally, the Rainy River birds show, in series, a slightly warmer yellow than a comparable series from southern Ontario but on the other hand they are not as bright as birds from the prairie region (*G. t. occidentalis*). The average measurements of the six adult males are as follows:—L. 123.5 mm., cul. 11.2 mm., W. 55.5 mm., T. 48.5 mm. (worn), tar. 19.3 mm., Wt. 10 gms.

As described, the Maryland Yellow-throat from this region is somewhat intermediate between the Northern Yellow-throat, *G. t. brachidactyla* and the Western Yellow-throat, *G. t. occidentalis*.

The females secured are too worn to be of much value in comparative work.

♂ June 11, Emo. ♀ July 25, Big Fork
♂ June 14, Emo. Juv. ♂ July 30, Rainy River.
♂ June 17, Emo. ♂ Aug. 1, Rainy River.
♂ June 27, Emo. ♀ Aug. 3, Rainy River.
♂ July 4, Off Lake. Juv. ♀ Aug. 6, Rainy River.

Wilsonia canadensis. CANADA WARBLER.—Fairly common at Off Lake and noted occasionally at Big Fork.

Setophaga ruticilla. AMERICAN REDSTART.—An uncommon species in areas altered by clearing and cultivation but fairly common in the wilder parts to the north. A second year male collected was singing a short but characteristic Redstart song.

Imm. ♂ July 3, Off Lake. ♂ July 4, Off Lake.

Passer domesticus. ENGLISH SPARROW.—This introduced species is fairly common about towns, villages and farms throughout the settled portion of western Rainy River District. It nests about habitations.

Juv. ♀ June 15, Emo.

Dolichonyx oryzivorus. BOBOLINK.—On June 16th, 1929, near Emo, a bird flew past our camp which was provisionally recorded as a Bobolink. Subsequent observation did not again reveal the species and the record was withheld. Since then Mr. D. E. MacMillan, an Ontario Game and Fisheries Overseer who formerly lived near Emo, has visited there and in late June of 1936, and again in 1937, he saw an individual male in a meadow three miles north-east of the village. This is consistent with recently noted range expansions (see Baillie and Harrington, 1937).

Sturnella neglecta. WESTERN MEADOWLARK.—Not uncommon about cultivated farmland and open pastures from Rainy River to Fort Frances. Although the species penetrates northward for several miles particularly in the central region, it was not observed in sections beyond cultivation. A female collected on June 15th contained a well-developed egg in the oviduct. Four young birds were noted in a nest found near Emo on June 26th. This is the first definite evidence of breeding for this species in the province. No exact date as to the advent of this Meadowlark into the region could be determined, but there seems no doubt that it has come to occupy the area within recent years, probably within the present century.

♂ June 3, Emo. 2 ♂ ♂ June 5, Emo.
♀ June 5, Emo. ♀ June 15, Emo.

Agelaius phoeniceus. RED-WINGED BLACKBIRD.—Fairly generally distributed in marshy habitat throughout the area and not uncommon at all camps made; most common in the lake country. A nest containing three eggs was found at Off Lake on July 1st.

The series of specimens collected are readily referred to the form *A. p. arctolegus* on the basis of measurements which average as follows:—Three mature males: L. 67.6 mm., W. 125.8 mm., T. 97.5, cul. 24.3, Depth at base, 12 mm., Wt. 67.6 gms. Three females (wings, and tail feathers worn); L. 196 mm., W. 100.5 mm., T. 71 mm., cul. 18.6 mm.,

depth at base 10.8 mm., Wt. 41 gms. Both sexes in series exhibit the colour characters attributed to the form.

♂	June 4, Emo.	2 Imm.	♂	♂	July 3, Off Lake.
♂	June 18, Emo.			♀	July 8, Off Lake.
♀	July 3, Off Lake.			♀	July 10, Off Lake.
♂	July 3, Off Lake.				

Icterus galbula. BALTIMORE ORIOLE.—Rather an uncommon species but observed throughout the region and established as a breeding bird. The first brood of young observed out of the nest was on July 7 at Off Lake. The two males collected are somewhat more brilliant in colour than the average for males in the Museum's series from southern Ontario.

♂	June 6, Emo.	Juv. ♀	July 9, Off Lake.
♂	June 27, Emo.	Juv. ♀	July 19, Big Fork.
♀	July 5, Off Lake.		

Quiscalus quiscula. CROW BLACKBIRD.—Common and noted regularly in all areas visited. Many nests were found in early June in the vicinity of Emo. Young out of the nest were noted near the end of June and by the first week of July (at Off Lake) large flocks had congregated.

Juv. ♀	June 30, Emo.	♀	July 17, Big Fork.
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Molothrus ater. COWBIRD.—Observed at all camps; common about farmland but less numerous in wilder sections. The species has undoubtedly increased since the advent of agriculture in the region.

The adult female collected, though indicating the racial probabilities of the species in the region, would scarcely be sufficient basis for even a tentative conclusion. However, a good series of specimens from a section of Ontario adjacent to western Rainy River District, aids greatly in the matter. Female Cowbirds from this region average warmer in colour below and on the side of the head, and possess, on the average, more extensive and conspicuous dark shaft marks on the feathers of the ventral surface than birds from southern Ontario. The pale area on the throat of eastern birds shows a great deal of individual variation in conspicuousness. In the western series at hand this character is markedly uniform. The series of specimens from the west shows a tendency toward a slender beak, i.e., compressed laterally at the middle.

The average measurements of six males from this region are: L. 195.8, W. 111.6, T. 75.4, Exposed culmen 17.4. The average measurements of eight females from this region are: L. 179.7, W. 101, T. 69.8, exposed culmen 15.8. These measurements are intermediate between measurements of eastern birds as taken from southern Ontario summer

specimens and the measurements (of males) tabulated by Grinnell (1909) for western birds.

The Cowbird population of this portion of western Ontario probably was derived from the south (*ater*) and from the west (*artemisiae*).

♀ June 4, Emo. Juv. ♀ July 30, Rainy River.
Juv. — July 21, Big Fork.

Piranga erythromelas. SCARLET TANAGER.—Met with rather irregularly in the more southern districts probably because of the discontinuity of the forest, but the species was regularly observed in the wilder parts of the north. It was not common in any district, which is more or less a characteristic status of the species in any part of its range. Singing males, found in definite and restricted situations during the summer, were the nearest approach to establishing the breeding status of this species in the region.

♀ July 1, Off Lake. ♂ July 2, Off Lake.

Hedymeles ludocivianus. ROSE-BREADED GROSBEAK.—Observed regularly but not commonly at all camps. A young of the year, undoubtedly reared locally, was collected.

♂ June 17, Emo. Juv. — June 19, Big Fork.

Hesperiphona vespertina. EVENING GROSBEAK.—Observed on three occasions from our camp at Emo, one on June 1, one on June 5, and four on June 6. On June 7 eight adults were found in a scattered flock in the town of Fort Frances. They were feeding about the box elders in the small park in the centre of the town's business section. The female specimen collected (a characteristic representative of the form *H. v. vespertina*) had a bare belly and was alone in a heavy, old mixed woods near Emo. Another lone individual was seen on July 6 at Off Lake.

♀ June 1, Emo.

Carpodacus purpureus. COMMON PURPLE FINCH.—This species was recorded regularly from all camps. A nest with fresh eggs was found at Off Lake on July 12. It was situated 35 feet from the ground near the top of a balsam fir in an old dense mixed forest. The nest was found to be built of usnea moss interspersed with the stems and fine stocks of some dry plant. The female, collected on June 1 near Emo, possessed a well-developed egg in the oviduct.

♀ June 1, Emo. ♂ July 18, Big Fork.
♂ June 10, Emo.

Spinus pinus. PINE SISKIN.—This species was noted irregularly during the summer at Emo and at Off Lake. It was seen singly, or in flocks, without respect to the advance of the summer.

Spinus tristis. AMERICAN GOLDFINCH.—A common species throughout the region, slightly less numerous in wilder, more heavily forested sections. The two males collected have been carefully compared with birds from southern Ontario. The yellow of the ventral surface of these birds is purer, more nearly a lemon chrome, not as lemon yellow as specimens from southern Ontario. Abrasion of the feathers of the wings prohibits a satisfactory comparison as to their pale edgings. The white markings on the tail are not notably extensive. The two specimens present the following average measurements: L. 123.5, W. 72.2, T. 49.2, exposed culmen (one specimen) 11.5, Wt. 12.5 gms. These measurements are but slightly larger than those of a series from southern Ontario. With the mention of a slight tendency toward the western form *S. t. pallidus*, the Rainy River specimens are referred to the eastern form, *S. t. tristis*.

♂ June 13, Emo.

♂ Aug. 6, Rainy River.

Passerculus sandwichensis. SAVANNAH SPARROW.—This species has undoubtedly increased in this region since the establishment of clearings for farms. We observed it as regular, common and well-distributed throughout sections visited, within the range of cultivation. It was not seen in the wilder lake country to the north. A nest with four fresh eggs was found near Emo on June 6. It was situated in a three-inch depression in the ground bordering a hay-field.

Comparison of the Rainy River series of specimens with summer birds from southern Ontario (regarded as *P. s. savanna*) shows some significant differences. The Rainy River specimens have a generally paler aspect dorsally. They are more finely-marked, i.e. the black stripes on the dorsal feathers average narrower and there is an absence of the slight brownish tint of eastern birds, which colour borders the black dorsal stripes on many of the southern Ontario specimens. Below, the dark markings are somewhat sparser than on eastern birds. There is a notable tendency in the Rainy River specimens toward a pale or whitish superciliary stripe.

Compared with specimens from northeastern Utah (regarded as *P. s. nevadensis*) the Rainy River specimens are not as pale and have a distinctly longer beak. Specimens from northeastern North Dakota are like the Rainy River specimens in colour, tone and pattern, but they possess shorter beaks. (Av. 9.4 mm.). Specimens from the

southern prairie provinces are similar to the Rainy River birds but it has been noticed that the dark breast streaks tend to become paler westward. The juvenile bird from Rainy River is paler than juveniles from the east. The average measurements of the nine males from Rainy River are: L. 135.6, W. 67.8, T. 48.3, exposed culmen 11.2, Wt. 17.9 gms.

Although our understanding of the distribution and variation of this species is in an incomplete state and certain nomenclatural problems are still to be settled, the writer would refer the Savannah Sparrow of western Rainy River District to the form, *P. s. alaudinus*, within the A. O. U. (1931 Check-list) meaning of the name, or *P. s. campestris* of Taverner.

♂	June 5, Emo.	♀	June 27, Emo.
♀	June 6, Emo.	♂	June 27, Emo.
♂	June 17, Emo.	♂	July 17, Big Fork.
♂	June 19, Emo.	Juv. ♀	July 19, Big Fork.
♂	June 22, Emo.	2 ♂	♂ July 25, Big Fork.
		♂	♂ July 29, Rainy River.

Poocetes gramineus. VESPER SPARROW.—A common species, only slightly less so than the Savannah Sparrow, and similarly distributed. We did not observe the species at the Off Lake camp. Undoubtedly this species has also flourished with the clearing of the land. It nests about the fields and pastures, young in the nest being evidenced by parent birds carrying food, on June 15, and subsequently.

The series of adult specimens has been compared with a series from southern Ontario and found appreciably paler dorsally, slightly more sparsely and narrowly streaked on the breast, and distinctly larger. The tawny brown wing-mark, characteristic of the species, is also markedly paler. They are very similar to specimens from Manitoba and the prairie provinces. Juveniles from Rainy River are also paler than eastern birds of like age.

The average measurements of five males collected are as follows:—L. 162.8, W. 82.5, T. 63, exposed culmen 12.6, Wt. 26.7 gms. The Vesper Sparrow of this region is referable to the western form *P. g. confinus*.

♂	June 4, Emo.	2 ♂	♂ June 22, Emo.
♂	June 6, Emo.	Juv. ♂	♂ July 31, Rainy River.
♂	June 15, Emo.	♂	♂ Aug. 1, Rainy River.
♀	June 22, Emo.	Juv. ♂	♂ Aug. 3, Rainy River.
		Juv. ♀	♀ Aug. 3, Rainy River.

Junco hyemalis. SLATE-COLORED JUNCO.—An uncommon species but noted occasionally at all camps. Evidence of breeding was noted

on June 21, when a female was seen procuring deer hair for a nest. The form of the region is *J. h. hyemalis*.

♀ June 21, Emo. Juv. — July 21, Big Fork.
♂ June 21, Emo.

Spizella passerina. CHIPPING SPARROW.—Not common but generally distributed; seen most regularly at our Off Lake camp. A nest was found in the town of Fort Frances on June 7th.

Comparison of the specimens secured has been made with a large series across Ontario. Both the grey and rufous colours of the plumage show a marked paleness as compared with specimens from southern Ontario. Final comparison was made with washed skins from the east to eliminate the possible effect of dirt and discoloration. The differences as noted above were still apparent.

The four adult specimens without segregation by sex give an average measurement as follows:—L. 137, W. 74, T. 59, exposed culmen 10.3, Wt. 12.9 gms. These averages are larger than for southern Ontario birds, similar to western Canadian representatives of this species and similar to specimens from western U. S. (Utah) but do not average quite as pale as the latter. The Chipping Sparrows from Rainy River, though somewhat intermediate, are referred to the western form, *S. p. arizonae*.

♂ June 17, Emo. ♂ July 8, Off Lake.
♀ June 25, Emo. ♂ Aug. 7, Rainy River.

Spizella pallida. CLAY-COLORED SPARROW.—A common species throughout the cleared portions of the region; rare in wilder sections to the north. The species is established as a nesting bird as indicated by our having collected young of the year. It seems probable that this sparrow has come to occupy the Rainy River District within comparatively recent times, perhaps the present century.

3 ♂ ♂ June 3, Emo. ♂ July 15, Big Fork.
♂ June 17, Emo. ♂ July 29, Rainy River.
♀ June 20, Emo. Juv. ♀ Aug. 1, Rainy River.
♀ June 22, Emo. Juv. ♀ Aug. 4, Rainy River.
♂ Aug. 6, Rainy River.

Zonotrichia albicollis. WHITE-THROATED SPARROW.—A fairly common species through most of the area; common in wilder sections. Several nests were found during the summer, the earliest, containing three eggs, was noted on June 5, near Emo.

♂ July 10, Off Lake. Juv. ♂ July 31, Rainy River.
♂ July 17, Big Fork.

Melospiza georgiana. SWAMP SPARROW.—Observed regularly but not commonly at all camps in the region. Young birds, obviously reared locally, were observed late in the summer at Rainy River.

♂ July 3, Off Lake. ♂ July 26, Big Fork.
♂ July 9, Off Lake.

Melospiza melodia. SONG SPARROW.—A common species throughout the region. A set of four fresh eggs (and one Cowbird egg) was collected at Off Lake on July 5th. This would appear to be a second clutch since flying young were in evidence during this period of the summer.

Comparison of the series of specimens secured leaves no doubt that the Song Sparrow population of western Rainy River District is of the Dakota Song Sparrow race, *M. m. juddi*.

♀	June 1, Emo.	♀	July 3, Off Lake.
♀	June 11, Emo.	2 ♂	♂ July 3, Off Lake.
♂	June 11, Emo.	♀	July 6, Off Lake.
♂	June 17, Emo.	Juv. ♀	July 7, Off Lake.
♀	June 19, Emo.	♂	July 15, Big Fork.
♀	June 20, Emo.	♂	July 24, Big Fork.
		♂	Aug. 7, Rainy River.
		Juv. ♀	Aug. 8, Sable Island.

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