

[Contents of Norman Wood's pocket notebook, a $3\frac{1}{4}$ x $5\frac{1}{4}$ cardboard-backed pencil tablet such as a child might use at school. The entries are all in pencil and are not very legible as though written in the field. The outside cover is written in ink and probably was inscribed later.]

[Outside Cover]

Notes on Kirtland Warbler written at the time of finding them in Oscoda Co. - July 2 - 8 - 1903 - Norman A. Wood. Keep this book.

[Inside Front Cover]

Roderick Fraser Lovell Crawford Co. Mich.
Home of Kirtland Warblers. I visited this spot on June 17 - 1925 and found the place shut up - the bridge burned and the warblers all gone (trees too big) N. A. Wood

[Five or more sheets were cut out of the tablet next to the rear cover and the first entry begins on what is now the rear side of the last sheet, that is, just inside the back cover on p. 42, as numbered by me in normal book fashion. The handwriting is shaky as though written on train. Howell is some 30 miles north of Ann Arbor on the Ann Arbor R.R. toward Bay City. p. 42.]

Left A. A. at 4:55 on Monday p.m. June 29th 1903 with tools, supplies, etc. bound for the Au Sauble (the supposed home of Kirtland Warbler). If they are there I shall find them and hope to see and describe their nest. It is rather late for eggs but may find the young in nest. (Written beyond Howell)

[The next entry is on the front side of the next-to-last sheet, the front side of the last sheet given over to a description of the Kirtland's behavior (undated) and the back side of the next-to-last sheet to notes on expenses. p.39]

July 2nd, 1903 - 6 a.m. I started out this morning to find *D. Kirtlandii*. Leaving the river bottom I climb to the top of the first plains and walked slowly along seeing the Junco, Song Sparrow, and Grass Finch. As I wandered slowly along I suddenly heard a new song and so rich, loud, and clear I knew it must be the one I was in search of. I followed it around and heard it sing many times.

[I believe the entry on the front side of the last sheet takes up next. p. 41]

I tried to get sight of the singer but failed on account of his keeping low down in the bushes acting much like the Maryland Yellowthroat in this respect. After a long time I saw him light in a low bush and sing. Then I shot the beautiful singer and picked up a fine male Kirtland's Warbler.

[Now the account takes up on the back side of the first sheet in the tablet, that is, the sheet next to the front cover. p.2]

July 2nd, 1903. 9 a.m. Kirtland's Warbler adult male. I knew it must be *Dendroica Kirtlandi* although I had never heard its song (as the bird I killed at A.A. on May 14 - 1902 was a female. It sounded to me it was we-chee chee chee chear 3 times quickly repeated. I watched the bird until I was sure the nest was in

[An entry written sidewise in the margin of the page] $\frac{1}{4}$ north and 1 mile west of J. Parmalee's on Au Sauble near Steel Bridge.

[The next entry is on the back side of the second sheet counting from the front cover. p.4]

a given circuit. I heard the song and followed it around a good half hour. It kept low down in scrub red black oak and jack pine and as the leaves were thick I could not see it to identify so I shot the bird a fine adult male and I am sure the nest is not far off as the bird seemed to

[Entry on back side of third sheet from front of the tablet. p.6]

return to a given point. This is miller [?] under the bush when I killed the bird and goes to prove to me a part of its life history. I shall be disappointed if I do not find the nest low down (in a jack pine probably) or maybe on the ground. Its song the most beautiful of any warbler is so wild and clear and

[Continuing on front side of fourth sheet. p.7]

has such a ringing liquid quality I feel well repaid for my trip by this one experience as I heard this bird sing (at intervals of about $\frac{1}{2}$ minute) $\frac{1}{2}$ hour. I had hoped by watching the birds to find the nest but found the cover so hard to even see the bird after it was located by the song. (Now I know the bird by its song)

[Presumably continuing on the reverse side of the fourth sheet. p.8]

A strong wind from the north made it difficult to locate and it seems to have the power of ventriloquism. As it flew rapidly from bush to bush, I expected to see it on top of a bush or tree when it sang but saw it sing from the bush just before I shot. It was then 4 feet from ground.

[Presumably continuing on front side of fifth sheet. p.9]

I shot this bird on the edge of the jack pine plains about $\frac{1}{2}$ mile north of the Au Sauble and the large timber has been cut and then burnt off. A second growth of jack pine and oak as grown up from 10 to 20 feet high and on the ground is a thick growth of sweet fern and brake. N. A. Wood

[There is no entry in the notebook for July 3, but Wood's journal says he went to the mouth of Big Creek on July 3 (is this the Big Creek south of the Au Sable?) but did not report any Kirtlands on July 3. In his journal he said he went to the plains on July 4 and looked unsuccessfully for female and nest where he shot the male on July 2. His published account says he went back to the plains on July 3. The reverse side of the fifth sheet had a list of birds in a column, but in the margin had the following entry written sidewise. p.10]

July 4 Shot a Kirtland for myself and skinned it out but it was labelled a few days later - July 8.

[From this point the narrative runs through the pages consecutively. July 5, Sunday, has no entry in notebook or journal. What I presume to be the next entry is on the front side of the sixth sheet and is dated July 6. His journal says "I went $\frac{1}{4}$ mile west of Parmalees and $\frac{1}{4}$ mile north of the Sauble, when I hear the now familiar song of the Kirtland's Warbler." p.11]

July 6 - 1903 10 a.m. I have just found a pair of Kirtland Warblers and as I write the female is 3 feet away fluttering her wings and seems very anxious. I am near a small heap of brush and logs and maybe the nest is here. The male comes near too. He's been as close as 5 or 6 feet. Now I hear the note of the female, a faint chirp and as I go around on my hands and knees I see she keeps very near.

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I do not think she has commenced to brood yet as I see the male courting the female chasing her here and there through the brush. She is now in the jack pines low down twisting and turning and all the time catching and eating the flies and moths. The male is on top of a dead stub 20 feet high singing such:

[p. 13]

Chee chee che ah. Near the top of the stub is a small hole and it may be the nest is there although I have not seen the female go there. By the way the female acted at the brush heap I thought I was near the nest but I have searched very carefully all around and under it and I cannot find it here. Now I shall have to watch the birds, especially the female.

[p. 14]

This male does not have as loud a song or as clear as the first one I saw but it has the same notes and ringing sound. 11:30 a.m. I have just heard another male sing. Just twice and it is 1/4 mile west of the 2nd pair. I am watching for him and I have just seen a male junco and am sure they breed here.

[His journal says he returned on July 7 to a place where he found pair on July 6, that is, 4 miles west of Parmalee's, 1/4 mile north of river. p.15]

July 7th - 1903 8 a.m. I am at the home of the K. Warbler and scare Mrs. K from the ground. She acts as she did yesterday and it's 3 rods this side of that place. I try to photograph her but she is in the jack pine and I can not get her to keep still long enough. I look for the nest here but find it not.

[p. 16]

2 p.m. I have just shot a warbler that was up on a stub as I often have seen the male. I am afraid it is a female and it may be the one I have been watching although far away from the spot where I have seen them. The male is here in the small jack pines and I try to get a shot at him with the camera but he is too shy for that.

[In his journal he says he started at 6 a.m. for the plains "8 miles west of Parmalee's in Crawford Co." He "went over the ground where he had found the Kirtlands and at 10 came to a colony." p.17]

July 8th - 1903 At 6 this morning I had my breakfast and started for the Plains 7 miles west of Parmalee's in Crawford Co. Mr. P. took the horse and at 10 a.m. we reached the warbler ground. Jack pine plains that have been burnt over 4 years ago and the small pines grown up from 3 to 10 feet high. I have been over hundreds of acres of this kind.

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When we got to this spot we saw and heard a few males singing. I got out and shot one and saw another on a burnt stub. I thought I would watch him and look for a nest. I saw him go down and went over there. I saw him come to the stub and he had a worm in

[This written sidewise in margin] chu chu chee chee chee a --song at nest with worm in his mouth. ch ch chee chee (pitch a)

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his mouth. I still watch him and down into the jack pine he went. But when I went there I found no bird and no nest. I watched a few minutes longer and saw a female in the low jack pines. I watched her and she seemed very uneasy. I began looking carefully on the ground as I had made up my mind it would be found to nest there. Suddenly I saw

[p. 20]

the nest (cup shaped but a little higher at the back side than in front, 2 in. in diameter, 2 in. deep) at the foot of a jack pine almost 6 feet tall, and partially covered with low blueberry and sweet fern plants. In the nest were 2 young birds a few days old and as luck would have it one beautiful egg, 14 x 18 mm pinkish white thinly sprinkled with chocolate brown spots gathered in a wreath at the larger end.

[Sidewise in margin] Nest lined with dead grass, pine needles, and hair.

[Wood's published account of the discovery says he moved to Fraser's at this time to be near this colony of Kirtlands. Yet his notebook and journal make no mention of it except in his expense summary inside the back cover of the notebook. p.21]

July 9th 1903 7:30 a.m. I have seen III females, shot 1 male. (saw a fine cross gray fox this a.m.) III males seen and have heard another male singing chee chee chee e e. At 11:30 a.m. I found a male with a worm in his mouth and knew from his actions that the nest was near. I hid and watched him. He seemed anxious and nervous. Would sing at short

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intervals with the worm in his mouth as did the first one I saw. All at once he dove down into the jack pine and I went over to the spot but the nest was not there. I saw him go up in a tree nearby but in another direction and soon make another dive down. I went

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in that direction and walking carefully. I flushed the female and after a little close scrutiny found my 2nd nest of this rare bird. It was situated almost exactly like the other and built exactly the same, just a small depression in the ground lined with pine needles, dead grass, and hair from horse, a very

[p. 24]

simple but neat and compact nest. This contained 5 small birds about 1 week old I should judge. I spent all day in the woods or rather on the plains

studying the song habits and seeing the bird at home. The birds that nest in close proximity are Song Sparrows and Junco, Snow [?] Bird

[Sidewise in margin] The male assists in feeding the young. I saw him bring as many worms as the female.

[p. 25]

Chipping Sparrow, Bluebird. Although Robins, Brown Thrush, Flickers, Downy and Hairy Woodpeckers nest nearby. In the woods Black and Yellowbilled Cuckoo, Catbird, Hermit Thrush, of which I heard the delightful song. Wilson's and Wood Thrush, Ruffed Grouse and Chickadee. I saw but one Red-headed Woodpecker and the Pileated, also Crows, Jays and Migrant Shrike

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July 10th 1903 At 7 I start to see how far the Kirtland's Warbler breeds to the west of this place. [Fraser's] I am now 2 [?] miles west of the bridge and have not heard one. I would not expect to as the conditions are different. I have found a Least Flycatcher's nest-1 egg- and have shot a young Arctic 3 Toed Woodpecker proving that they breed here.

[p. 27]

3 p.m. Have just been out to nest no. 1 and saw both male and female. The male was singing as usual and I watched to see how they fly. I call the flight a quick rather undulating one and when he goes to the ground a short drop. Their food is low down and the most of their life is spent near the ground. I have spent hours watching them

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gleaning worms and moths from the low jack pines and have seen them go to the high stubs and trees only to sing! And as a feat of observation I have seen only 3 pairs of birds and 3 male birds that I did not find the female or nest.

[p. 29]

July 11 - 1903 8 a.m. I have just shot and skinned a male Kirtland and heard another one singing but could not locate him. I have heard 2 more today. At 4 p.m. I shot the nest with a camera and the birds with my gun. The female came within 2 feet of me when at the nest and the young jumped out of the nest and scrambled off 2 or 3 feet.

[Wood's journal had no entries for July 12 (Sunday) or July 13, except a sentence in his entry for July 11 saying the young birds were found dead. Pp. 30 and 31 were filled with birth and death dates of Wood's relatives. p.32]

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July 12th I had the male and female from the nest to skin and the bodies to preserve, wrote letters and rested the rest of the day. I kept the young ones alive. Fed them flies and they seem all right. I wish to keep them until the feathers get out well.

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July 13th I found the young ones dead this morning. So I had to go to work and skin and preserve them. I did not have as much trouble as I expected as the skin was not very tender.

[Wood is now back at Parmalee's, having been at Fraser's 4 days.
p. 34]

July 14th - 1903 Today Mr. Parmalee and I went to North Branch to get the 2nd nest of Kirtland's Warbler. I shot the male and secured him all right but Mr. P. shot the female and she dropped in a big pine top and we could not find her. I make 3 exposures of the nest and young. I brought them back

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alive, 5 of them, and big enough to scramble out of the nest. Rather lively. I suppose they will die tonight. I skinned out the male, a fine bird, making 8 adult and 7 young, a grand total of 15 Kirtland's Warblers taken by myself in their breeding or summer home in Crawford and Oscoda Co. Michigan - July 1903.

[p. 36]

July 15th Shot and made skins of 3 imm. Gt. Northern Shrikes. Took care of the 5 young warblers and skinned a deer mouse found in my traps. I took them up, packed up the skins and got the nests ready to go early in the a.m. as I have a ride of 30 miles to Roscommon to take the train home.

[p. 37]

July 16 I got up at 4 and started for Roscommon, 30 miles. On the way, saw a Winter Wren, the first I have seen. Saw only 2 Red Squirrels. Shot 1 immature but had no time to skin him. Saw a number of common birds but no rare ones and found no warbler country at all. So I think I am safe in saying that I was only on the borderland of their breeding ground

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and that further investigation will prove that their true breeding ground is in the "Canadian Zone" or "Upper Austral" of Michigan. Knowing the conditions that govern in their selection of a breeding ground I will predict that no birds go to the north of Lake Superior and very few to the Upper Peninsula to breed.

Crow and young
Horn Swallow
Chimney Swift

[I suspect this is a running list of all the birds seen on the trip.
p. 1]

- Robin, find nest
- Quail-billed Cuckoo
- Am. Merganser
- Kingfisher and young
- Yellow Warbler and young
- Cat Bird and young
- Golden Wing Woodpecker and young
- Mourning Dove and young
- Bronzed Grackle and young
- Mallard female
- House Wren
- Kingbird nest and young
- Spotted Sandpiper
- Redstart
- Brown Thrush young
- Song Sparrow, young

[p. 3]

- Blue Jay
- Gt. Horned Owls, 2 young
- Red Tail Hawk
- Oven Bird
- Maryland Yellowthroat
- Phoebe
- Chipping Sparrow and young
- Cow Bird
- Gt. Blue Heron and young
- Warbling Vireo
- Hairy Woodpecker and young
- Yellow-bellied Woodpecker
- Bluebird and young
- Bank Swallow and young
- Nighthawk
- Chewink and young
- Least Flycatcher

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- Am. Goldfinch
- Cedar Bird
- Downy Woodpecker and young
- Whippoorwill
- Bald Eagle and young
- Junco and young
- Hooded Merganser and young

- Crow and young
- Barn Swallow
- Chimney Swift
- Eave Swallow
- Scarlet Tanager
- Baltimore Oriole
- Kirtland's Warbler
- Black-billed Cuckoo
- Red-breasted Nuthatch and young

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- Meadow Lark
- Bobolink
- Sparrow Hawk and young
- Wood Pewee
- White-rumped Shrike and young
- Prairie Horned Lark
- Hermit Thrush and young
- Wood Thrush
- Marsh Hawk, young
- Yellow-billed Cuckoo
- Wilson's Thrush
- Pileated Woodpecker
- Arctic 3 Toed Woodpecker, young
- Red-eyed Vireo
- Winter Wren
- Grass Finch

[p. 40]

- 1\$ at Camp Douglas, lodging and 2 meals
- 1 at Roscommon, 1 meal and lunch
- 25 cents at Parmalees
- 2\$ at Frasers where I stayed 4 days
- 8 at Jim Donnellys. I stayed here 10 days

[Inside back cover]

- | | |
|------------------------------|--------------------------|
| 2.99 R.R. ticket to Bay City | \$1 to Hotel Roscommon |
| 2.31 to Roscommon | 1 " Camp Douglas |
| 5.30 R.R. to " | 2 " R. Fraser, 4 days |
| | 8 " Mrs. Donnelly |
| 7.00 Horse hire, Parmalee | .75 Bed, hair cut, shave |
| 5.00 " Donnelly | |
| 25 cts. transfer | |
| 5.45 | |
| 23.00 | |

by
Herald Mayfield
1958

NOTES ON TRIPS BY

NORMAN A. WOOD"Discovery of Kirtland's Warbler"Monday, June 29, 1903

Dr. Hinsdale and I left A. A. on the 4.55 train ^{north on} with an T.A.A. Road bound for Roscommon. I got to Bay City at 9 p.m., noticed cedars, pine, and some hemlock before reaching this place. With a wait of 4 hours at Saginaw, we started at 2 for Roscommon and at 4^{am} in the morning (Tuesday) I got to this place. Here I see white and Norway pine, spruce, birch and the trees that are found in the Canadian zone. At 7 this a.m. without any rest I hired a boat and we started for J. Parmelee's, 18 miles by road and 35 miles by the river. The river is ^{from} 2 rods to 5 wide and from 1 foot to 4 ~~to~~ 5 in places. It has a rapid current and the bottom is sand and gravel. In places the bank is low and covered with cedar and tamarack, birch and spruce, some elms and a few basswood. In many places the banks are high and covered with a growth of Norway and some white pine and the undergrowth blueberries and ferns, a few oak, and some hemlock.

I notice here ^a bells, a red lily, and a curious flower, like a morning glory in shape, is white and grows on a short stem. I cast three flies and take about 20 trout, all Brook, and beauties, but all under 8 inches ^{but 2.} In the camp where we are tonight is a tracing of a Rainbow Trout, 17 inches long and ^{one} of 5 lbs. weight and 20 inches long. I have made a list of birds seen. I think about 40 species.

July 1, 1903

Camp Douglas. AuSable. I find 2 oaks, red and black, and wild cherry, wintergreen. Poplar trees. Black ash. Soft maple. I left C.D. at 9 a.m. and found the river full of trees and had a hard time of it. In good looking places I cast the flies and caught some fine Rainbow Trout. I saw 2 eagles, 4 blue herons, 8 young, and the first crow, the cedar birds are quite plenty, and I saw the first junco. A few blackbirds and cowbirds and robins. A few bluejays. I notice one very peculiar thing about the river. There are no mussels. I have not seen one and I have traveled about 60 miles of it. I did see a snail shell and found one live one. Shall look them up tomorrow. We arrived at Jim Parmalee's near the new Butler Bridge at dusk and found accommodations at his wife's father's, Mr. Donnelly's, on the south side of river and a mile below the bridge, a good double log house, very comfortable and fine people.

July 2, 1903

I started out to find the Kirtland's Warbler and after a walk of 2 miles my attention was suddenly called to a new song. It was then I thought (this is the Kirtland's Warbler). It is a song so clear and at the same time so joyous that words of mine are a poor expression. I should say the song was like this, we-chee chee-chee-chee. But the sweetness of the melody and the volume of it/ I think it is a wonderful and a beautiful song. I heard it many times at intervals of 1/2 minute and I tried to catch a glimpse of the singer for a long time. I failed, and I followed the song until I gave up all hopes of finding the nest by that method. Then I was so near the bird I was amazed at the volume of sound. I saw the singer flit to a low scrub oak and sing. (Sorry to say) I shot the beautiful singer and carried his body away (in the interest of science).

July 3, 1903

I go to the mouth of Big Creek this a.m. and it set in to rain and was rainy the most of the a.m. I shot a pair of cedar birds and think they had bred this year. I saw a Sparrow Hawk also and heard that the woodcock breed here at the mouth of Big Creek and along the river one was seen last week, near the Steel Bridge. I went to see an old Beaver Dam near here. It was very plain and was 3 feet above the level of the pond above it. Could not have been made a great many years ago. I also shot a Junco and find them breeding here (~~200~~ young). I was so fortunate as to secure a young (fully feathered) of the ~~White~~ Migrant Shrike, and the lady here says they have been here all summer. Has seen the old ones I suppose and then the brood of young. I can thus prove this as a breeding place for this species. I think the Canada Jay will be found here also. A ~~star-nosed~~ mole was found here a few days ago.

July 4, 1903

Wind NW. Clear and hot. I make a trip to the plains and hear the Maryland Yellow-throat singing. I looked for the nest of the Kirtland's Warbler I shot on the 2nd. I could not find any signs of a nest and did not see the female. I shot a night hawk on the wing and in falling it hit a stub and tore off some feathers. It had a full sized egg in the ovary. I made a skin of it and shot and skinned a red squirrel which I think is the northern variety. It is the only one I have seen on this trip and the only rodent as well. Shot a male Kirtland Warbler today.

July 6, 1903

I went 4 miles west of Parmalees and 1/4 mile north of the Sauble, When I hear the now familiar song of the Kirtland's Warbler. In trying to locate the singer I scare up the female from the ground and she goes to a jack pine nearby. I look carefully now for the nest, I think is close by. The female

comes within 3 feet of me and flutters her wings uttering a faint chirp. Her actions go to prove that the nest is near. And her call brings the male closer than I ever saw one alive (about 5 feet) but search ever so carefully I can find no nest near. So I go over the ground farther out and still fail to find it. Then I go away and watch the birds. I see the female is anxious but does not seem to be at all afraid and goes to gleaning worms like a warbler and catches moths like a flycatcher on the wing. After a time the male comes and chases her here and there among the pines (always low down). He seems to be courting still. *I think she has not commenced to breed yet as she eats all the insects she gets. The male goes to the top of a burnt stub and sings his wicky chee chee cheer-r-r. It is not so full of melody as the first one I heard and not so pleasing but sweet and clear. It has much the ringing quality of the Maryland Yellow-throat only the notes are shorter. N. A. Wood.

Later I found a slight depression in the ground near where I flushed the bird that I know now was the beginning of a nest.

*July 15. Now I know there must have been eggs at least as the nests I have found indicate the eggs are laid by the 15th of June. This pair may have had the first nest broken up and were nesting again.

July 7, 1903

I went today to the spot where I found the pair of Kirtland's yesterday and about 3 rods this side I found the female on the ground. She commenced to flutter her wings and act as before. I looked carefully around and could not find the nest. I watched the birds a long time and could not tell for sure if they had a nest. I am inclined to think they have not nested yet as the condition of the ovaries in a female (I shot today) does not indicate that they have laid this year. I saw a bird fly up to the top of an old stub and I thought it was a male as I had never seen the female do that. When I shot it it was a female and I was very sorry as I wished to locate all the pairs I could to find the nest the easier. Tomorrow I go to the plains 2 miles further west. I could have shot a male today but tried to get a photo and list the bird.

(From the actions of this pair of birds I am sure the nest is on the ground. Their food and flight seems to be low down ~~in~~ in the jack pines, so I shall direct ^{all} my search ^{to} on the ground.)

July 8, 1903

6 a.m. Wind N.W. Clear. Hot. I started this morning for the jack pine plains 8 miles west of Parmalees (in Crawford County). We went over much the same ground as where I had found the Kirtland's and at 10 o'clock came to a colony. I heard the male singing. I got out of the buggy and shot a male, then went 1/2 mile further and saw a male on a burnt stub. This one

had a worm in his mouth and I thought I would stay and watch him as I had an idea from his actions that his nest was nearby. This male tried to sing with a big green worm in his mouth and his song was like this. Ch-ch-che-che-~~che~~ a- (the a long drawn out). He sang a number of times but never dropped the worm. When he saw me he seemed quite uneasy and worked his tail very like the Palm Warbler and gave an anxious ~~time~~ to his song. Now it was Cha-cha-chee-chee-wich-a-a-a delivered in a scolding manner after watching me a few minutes he dropped from the stub (in a long glide) and I hurried to find him ~~at~~ ~~the~~ at the nest. When I got there (the spot I saw him light) I could not see or flush him so I stood quietly and watched. In a few minutes he was at his old place on the stub with a worm. Again he dove down, this time 2 rods to the west of the stub and I started to go there. When just south of the stub I flushed the female from the ground and after a close look on the ground I saw the nest, at the foot of a jack pine 6 feet tall. The nest was partially covered with low blueberry bushes and sweet fern plants. In the nest were 2 young about 1 week old, I should judge, and best of all 1 egg. This egg was a beautiful pinkish white, thinly sprinkled with several shades of brown spots, gathered in a cluster forming a sort of wreath at the larger end. This egg is .72 x .56 and must have been not fertile as it contained no embryo. The nest was 2 inches in diameter and the same in depth, very neat and compact, a depression in the ground, thickly lined with fine dead grasses and pine needles and last of all a few hairs from horses mane or tail. Today I shot a male Hermit Thrush and heard its beautiful song.

(My judgment formed the 6th and 7th proved correct. The nest is on the ground.)

I sat down about 2 feet from this nest with a small Kodak, and made a few shots of nest with contents and by sitting perfectly still the female would come to the little pine 10 in. from the nest, sometimes with a worm, although she never ventured to feed them when I was so near. The male also came within 5 or 6 feet and I got both in one picture and after watching them an hour or more I left them promising to call next day.

From my experience of the birds and close observation of habits I would place them close to D. ~~Palmaris~~ ^{imm} in habits (if not in food). I will predict that these birds always choose dry sandy plains covered with a low growth of jack pine as they seem to like rather open young growth. I have not seen one in the thick tall pine (where all the other conditions were favorable) nor have I found one over 1/4 mile away from the road, although I searched far and wide.

July 9, 1903

7 a.m. Wind N.W. Clear. Hot. I was on the road and saw a female. I shot a male and wandered to the nest I found yesterday. The parents were feeding the young and after watching them a short time I went on. Saw a fine Cross Fox, too far to secure only a good look at. I heard another male Kirtland singing and tried to locate the nest but failed to find it. In fact, the jack pine is so thick, the ground so covered with vegetation, it is only by the closest work I can hope to find them. At 11:30 a.m. I hear another male singing Wich' che chee-r-r- (this ending has a prolonged r----- sound). I hung

him up and find him with a worm in mouth, singing in a dead tree. I know from his actions that the nest is near and as he acted much as did the other male I soon flushed the female from the nest, but it was so completely covered that it was a long time before I could see it. It was almost a duplicate of the first, 1/2 inch deeper and wider and more cup shaped with the edges built up and contracted, especially at the back side. At both nests the birds always came to one place (the front) and only door, as it were. This nest contained 5 young. I should think 8 or 10 days old. So I would say the eggs in a set would be from 3 to 5, with 4 as a normal number. This pair of birds were shy and I had hard work to secure snap shots of them. I spent the day in watching their ways, studying their song, and habits "at home" as it were. I also made a list of birds that nest in the same habitat. The junco is a common bird here as is also the Song Sparrow, Chipping Sparrow. I found 1 nest near the Kirtland's in a small jack pine (and it was the only nest I saw in these trees. Robins and *Chewinks* are common and nest as do bluebirds, night hawks. Flickers, Downy, Hairy and Red-headed and in the timber along the river the 3-toed woodpecker. "Picordes arcticus", White-throated Sparrow, Maryland Yellow-throat, Black and White Warbler. Blk throated Green, Chestnut-sided warbler, Brown Thrasher, Hermit Thrush, Catbird, Whipperwill, Red bellied Sapsucker, and Yellow bellied also. Chickadees. ~~and~~

July 10, 1903

7 a.m. Wind West. Cloudy. Cooler. I walk 2 miles west of the North Branch to see if the breeding area extends in that direction. I find the conditions here are somewhat different. The plains are wooded and do not have the small jack pine that seems to be the chosen home of the food of the Kirtland's Warbler, which consists of a small light-colored moth (and its larva) a span worm about 1 inch long and a green, the color of the jack pine needles. I shot one male that came to the nest and he had a deer fly in his mouth. I have seen these birds catch flies and moths also on the wing, and consider them quite expert flycatching warblers. This morning I find a Least Flycatcher's nest, shade of moss and lichen and containing one fresh egg. I saw and secured one young ~~and~~ 3 toed woodpecker which proves a breeding record. I am sure there are no warblers to the nest as far as I have gone. But on describing the bird to a young man who lives a few miles N.W. of here, he says they are common and calls them the "Jack Pine Bird", good name.

July 10, p.m. 1903

Wind west. Clear. Hot. I go out to nest No. 1 to study the birds at their home. I find ~~both~~ both male and female, the male singing as usual. The duties of providing seem to have no depressing effect on him for he sings morning, noon and night, with or without a worm. You will hear his chip chip che chee a. This song is repeated at short intervals, say 30 seconds. I watched the flight of this bird and find it a rather quick, restless bird with a direct, slightly undulating flight. When he goes from his ~~post~~ ^{post} in the tree or stub he seems to dive, and while perching and feeding has a short, jerky motion of his tail for all the world like D. ^{arcticus} ~~Palmerius~~. I have watched

Sept. 3, 1903
them for hours gleaning worms from the low jack pines, very often jumping from the limb to fly a few feet and catch (on the wing) a moth or insect, pausing to sing at short intervals, (At the nest) going to the same tree or stub to rest or sing before dropping to feed the young.

July 11, 1903

8 a.m. Wind strong N.W. Hot. I have just shot and skinned a male K.W. and heard another one singing but could not locate him. I have had two more singing today. I made some more snap shots of nest No. 1 and hope some of these will be good. I found the young afraid of me and they scrambled out of the nest and tried to hide in the bushes. I had hard work to keep them still long enough to photograph. The female came within 2 feet of the Kodak and I made several snap shots that should be good of her and the nest. Once she lit on the toe of my assistant's shoe. We shot the male and female and kept the young alive. Then dug up the nest with the surrounding plants. I kept the young ones alive by feeding them house flies until the 13th when I found them dead and I made them up into skins.

July 14, 1903

Wind N.W. strong. Very cool. I drove with my assistant to the plains near where I got the first nest, as I wished to make more photos of the 2nd nest and take it up. I secured the male but the female my assistant shot and we could not find it. We took up the nest and I brought the five young back alive, although I had to chloroform and preserve them the next day. I skinned the male, a fine bird, and this makes 8 adult and 7 young, a grand total of 15 Kirtland's Warblers, all taken by myself in their breeding or summer home in Crawford and Oscoda Co., Michigan.

Parake, according to pocket notebook

July 15, 1903

Wind N.W., cloudy. Cool. I shot and made into skins 3 Im. White-rumped Shrikes. I opened and placed in Formal the 5 young Kirtlands from the 2nd nest. Also skinned a Deer Mouse found in my trap. I got my traps together and packed the nests ready to go early in the morning to Roscommon 30 miles away to get the 2:30 p.m. train home.

July 16, 1903

Wind N.W. Cloudy and cold. Got up at 3:30 a.m. After an early breakfast, we started for Roscommon. I was surprised to see a Winter Wren as I had supposed this country too open for them. I saw all the birds common to this plain region but the Kirtland's I did not see or hear, and am sure there are none here as I think the Au Sauble River must be the southern boundary of their breeding habitat. And knowing the conditions that govern in their selection of a breeding ground, I will predict that no bird goes to the north of Lake Superior to breed and also that the bulk of them will be found in the Canadian zone or transition, and that this zone takes in Oscoda, Crawford, and Montmorency counties. I should look for them in chosen localities in the Upper Peninsula, although many more could be nicely accommodated in choice spots in the 3 counties named.

Sept. 3, 1903.

Second trip to Au Sauble. On the first of Sept. Professor Reigherd of the University of Michigan and Director of the Museum came to me and asked me to go on a camping trip down the Au Sauble. It was decided that I should go to Grayling and get a boat and have all things ready when Prof. R. arrived. I started from A. A. on Thursday, Sept. 3rd. Went to Det. and at 8:45 p.m. started for Grayling on the M.C. I reached that town at 3:40 the next morning and after a rest of a few hours I started out to find a boat to rent (or one I could buy). I canvassed the town and could find none but expensive river boats 20 feet long, very narrow, made for fishing from. I at last found a carpenter who had made a great many boats and who agreed to help me make one the next day. On Sat., Sept. 5th, I went to Mr. N. Havens' house and found him at work on the boat, which was made of rough hemlock lumber, dimensions 18 feet long, 3 feet 4 inches wide, and 12 inches deep. We built it and calked it. Then ~~we put~~ ^{we put} pitch in the cracks. A very good boat.

On the morning of Sept. 6th I met Prof. R. at the early train and we soon were on our way to the River where at 7:30 a.m. we made a start down the Au Sauble. The river here was only 2 rods wide and quite shallow. The sides of the river were lined with cedars, some of them dead and dried very hard. In places ~~the~~ banks were raised above the river from 10 to 15 feet, and covered with a thick growth of jack pine, cedar, and some Norway. We found the river very crooked and had to watch each bend carefully to avoid the "sweepers" (trees that overhung the river). We saw many brook trout jumping for flies and could see them dart here and there in the water. The birds were out in full force and I made a list of each species. We also collected some shells in a bayou where lillies grew. We saw a fine Lincoln's Sparrow, and a Tennessee Warbler, besides others more common. At noon we stopped at a high bank and built a fire where we cooked our first dinner under a big White Pine.

We float on, enjoying the pure air, the many birds, and sights of scenes new and beautiful. Toward night it looked like rain so we stop at a spring and make camp, put up our tent, and get supper. Then we prepare for the rain which commences in the night and in the morning does not stop. We stay here until Tuesday noon and then load up and travel on. This camp is at Cole's crossing, an old logging road. The river is quite swift here and we run down to Stevens' Camp, 8 miles by road from Grayling and 24 by water. Here we camp by the side of a clear, beautiful spring. In front of the tent the trout are jumping and we see a large Osprey flying up the river. A gr. blue heron, also a Cooper's Hawk.

Wednesday it rained all day but we went out and collected some birds. I shot an Osprey, a Blk ^{throated} blue Warbler and a Whippoorwill. I made skins of these and collected a few frogs. In the P.M. we walked back from the river (walked?) to the terrace and a mile or more farther but found only Flickers, ^{went?}

~~Some~~ Finches, common. A few chickadees and shot one chipping sparrow. Saw the bluejay, robin and song sparrow.

Camp Stevens ~~th~~. Thursday, Sept. 10. at 10 A.M. we broke camp and continued our journey down the river. Mr. R. shot a Kingfisher and we saw several Spotted Sandpipers. We came to the camp of the Rainbow Club of Det. Mr. Dickerson of the State Fish Com. has a fine camp here in a grove of Norway and White Pine on a side hill or the 1st terrace. We made a stop for dinner, then on again until nearly night. We stopped at a high bank for the night. We heard for the second time the call of the Whippoorwill. I had never heard it in the fall and supposed it the call used only during the breeding season. We saw 2 Bald Eagles flying along the river. We also saw one Humming bird, the only one seen on the trip, a black and white warbler, and a merganser.

Sept. 11

Friday at 6 a.m. we got up, ate breakfast, and traveled on, passing the mouth of South Branch about 8, and reaching the mouth of the North Branch at about 12 noon. We drew the net in a bayou and secured a number of fish, some crayfish and shells. We put up our tent near the mouth of North Branch. There is a hill here called "Red Heads", and here I saw a Bald Eagle fly over. In the P.M. we cared for the fish and shells.

Sept. 12

Saturday morning we got an early start to walk to R. Fraser's ~~th~~ about 3 miles, ~~XXXX~~ as we wanted to collect some fish in Big Creek and North Branch. We walked up the terrace and onto the level jack plain where in a burnt spot I saw and shot a 3 toed wood-pecker *P. arcticus*. We soon came to the warbler colony of July and watched carefully the jack pine but did not see or hear one.*

*I learned later that they left about Aug. 20th.

I shot a Spotted Sandpiper at Big Creek and we collected a number of fish and some shells and crayfish. I got back to camp about 3 and skinned a bluebird. With the others () # We are now about 25 miles by land from Grayling and 60 by water.

Sunday, Sept. 13

We got up early and broke camp. We reached the Butler Bridge at 12 and went to Jim Parmalee's for our mail, and took dinner there also. We found mail awaiting us and wrote some there. About 2 we floated on to the mouth of Big Creek 31 miles from Grayling and about 70 by water. Here we camp at the mouth of the Creek, a fine place with crystal water and here we are destined to stay a day or more as it rained the next day and until Tuesday. I shot and skinned a Yellow-bellied Sapsucker. Mr. R. shot a Kingfisher and I skinned them. I saw a number of juncos and Am Gold-finches, one Bald Eagle.

Tuesday, Sept. 15 a.m.

It rained and we could not collect or travel, but at 1 it broke away and we started on ^{resuming} going nearly to Mio where we camped in the thick pines. Saw a Gt. Horned Owl and a Red Tail-Hawk, The bends of the river are covered with elms.

Wednesday, Sept. 16.

flats? (flats) We traveled about 30 miles. The banks are some higher than before and the *flats? (flats)* are covered with Elm mixed with Ash, making beautiful groves. We reach McKinley in Oscoda Co. at 3 p.m., where we camp near a saw mill, put down a board floor, and make a good fire and pine bed.

On Thursday, Sept. 17, we collect in the high hills 2 miles south of the river where we find some oak and see a ²Ruffed Grouse. We secure a red-breasted nuthatch, a flicker, a chipping sparrow, a *chawink*. I saw a (corn shock) near a spring. We shot a Red Squirrel and I skin some of the birds. We saw a Red-tailed Hawk and Jays, Grdssfinches. Mr. R. saw a Warbler Blk and Yellow. It may be a Magnolia.

At McKinley, Oscoda Co., Mich.

Friday, Sept. 18.

I skin 7 birds and 3 squirrels and Mr. R. goes to the north about 5 miles. Saw a Black Squirrel and brought in a big "blow-snake" or adder. Also Brown Thrasher, female bluebird, a young Red-headed Woodpecker. We have seen but one other, an adult male. I make skins of all these and go to bed ^{late} about 11 p.m.

Saturday, Sept. 19.

Get up early, have breakfast, break camp, and at 7 start for a long day's run down the river. Reach Flat Rock* about 8. This place is named for a big rock at edge of river, flat on top. The river is swifter here in general. The banks are cedar swamps and high banks alternately. About here we notice Hemlock for the first time on the trip. Here I saw a large flock of Red-wing Blk birds, singing near the river in Iosco Co.

Sunday, Sept. 20.

We started from Camp 10 miles south of Bainfield at 7 a.m. The river is some swifter than before and the banks are wooded in spots, covered with Hard Maple and Hemlock, with Ash and Elm.

* Alcona Co.