



PROVINCE OF MANITOBA

GAME AND FISHERIES BRANCH

AN INVESTIGATION OF

CERTAIN WATERS IN THE PORCUPINE MOUNTAINS

SECTION "A" - GENERAL PREAMBLE

SECTION "C" - FISH PRESENT IN

WHITEFISH LAKE

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GENERAL PREAMBLE ON THE PORCUPINE MOUNTAINS

The Porcupine Mountains lie on the Manitoba - Saskatchewan border between 52° and $52^{\circ} 45'$ North Latitude, some 264 miles north-west of Winnipeg. Attaining a height of 2,300 to 2,600 feet above sea level, they thus rise somewhat abruptly 1,300 to 16,00 feet above the surrounding level to the east. The Manitoba portion of this range extends 45 miles north and south, and 22 miles east and west, with an estimated surface area of 742 square miles.

Geologically this region is a part of the Manitoba escarpment, consisting basically of grey and greenish-grey shales with numerous clay ironstone deposits, characteristic of the Riding Mountain formation. This underlying structure was however not evident on the surface of the ground at any point visited. It represents a Cretaceous deposit sloping very gently to the south-west, uplifted at the end of the Cretaceous, with a secondary uplift in early Cenozoic times.

Although thus geologically identical with the Duck Mountains and the Riding Mountains, and appearing exactly the same when viewed from the east, physically the country is somewhat different. The mountain crests or peaks are of quite moderate height, so much so that from the air the terrain looks all but flat, while from the ground the horizon is formed of low rolling hills merging into one another. Few of these hills rise more than a hundred feet, most are considerably less. Drainage is very poor, and the pockets between the hills hold the waters well. The country therefore is exceedingly wet, and from the air shows a marked similarity to the areas about The Pas - muskeg, sloughs, potholes and lakes in profusion, linked by small water courses, most of which are obscured by dense plant growth, and separated by slight rises. The accompanying photograph taken by E.F. Harvey en route to Armit Lake from The Pas shows well the characteristic flat appearance and the numerous bodies of water as seen from the air.

Necessarily the flora reflects the general character of the country. Heavily treed, evergreens occur in profusion, chiefly black and white spruce, with lesser areas of Jackpine, birch, and some tamarack. Most commonly such stands are dense, sometimes very dense, so that the trees tend to be tall and spindling, and in most areas seen those over eight inches in

diameter were rare; further from the lakes, however, larger specimens are met. Due to the shallow nature of the light soil, they are commonly uprooted by winds or other agencies on reaching a moderate size, and thus passage through the woods is very greatly hampered by the leaning and fallen trees in all stages of decay. The holes left by the uprooted trees form, incidentally, excellent breeding grounds for mosquitoes, so that these abound in all areas, accompanied by lesser numbers of such pests as blackfly, punkies, deerfly and horsefly, to such an extent that the evening hours in particular become intolerable without the use of a considerable amount of protection against them.

The coniferous woods are mixed with deciduous trees about the margins of the lakes to a variable extent. These may form anything from less than 10% to more than 90% of the fringing tree growth. Almost invariably these deciduous forms are species of poplar; occasionally a few birch occur.

The lesser vegetation away from the water is relatively little varied. Mosses abound, covering the ground, fallen logs, and stumps generally, forming a soft moist layer ankle deep. Lichens similarly are common on the standing trees, live and dead. Small openings in the forest are characteristically paved with bunchberry or wild sarsaparilla, while similar open areas at lake shores are marked in addition by raspberry, current, strawberry, wintergreen, highbush cranberry, etc. Low areas between the hills are commonly waterlogged, and here are found, in addition to conifers, thickets of alder, Labrador tea, marsh grasses, sedges, and marsh marigold in quantity.

Streams are small and most generally very slow running. Nearly always they are marked by marginal growths of varied nature, in which sedges predominate. Frequently such streams are choked and all but obliterated by the growth of the sedges which may form a continuous mat, firm enough in some cases to support the weight of a man, floating over a foot or more of water. In addition, seeps or mere trickles of water are plentiful about the lakes shores.

The lakes are in general shallow and weedy, with very few beach areas and these of small size. Temperatures are relatively high in summer and very similar for top and bottom, indicating an absence of springs. The bottom is characteristically soft organic ooze.

Turning to the fauna, moose are quite common. Not only are they frequently seen, but their trails and droppings are found about all lakes, their tracks are on all sand beaches and across most shallow bottoms. Deer on the other hand are scarce, indications of their presence being noted only sparingly at Whitefish Lake. Wolfe, bear, muskrat and beaver were seen on but one or two occasions, nor are indications of their presence common. Red squirrels and chipmunks abound, with a variety of smaller rodents. Rabbits, however, are very rare. Aquatic birds most commonly met are loons, terns and pelicans; gulls, ducks and grebes were noted only occasionally. Fish most commonly found were pike, suckers and perch, as might be expected from the general picture given above. In addition, pikeperch, whitefish and tullibee were taken from the deeper lakes. Forage fish are common, but were not taken in great quantity at any point.

The somewhat unpleasing conditions outlined here are considerably alleviated in the southern portion of the reserve. Here the hills are considerably higher, drainage is far better, and the marshy areas correspondingly reduced, so that the terrain in the region of, say, Whitefish Lake is very similar to that of the Duck Mountains. This is clearly indicated on survey and topographical maps of the area, the reduction in waters being a very obvious feature. In this regard it might be pointed out that those lakes found worthy of investigation were those that had received names on the maps, while of the various unnamed bodies of water none was found suitable for study.

Investigations were carried out from June 3 to July 18, 1952, transportation being arranged with the Manitoba Government Air Service at The Pas by radio through the Mafeking station of the Forestry Service.

The larger lakes in Township 42, Range 28, West, other than North Steeprock, were observed from the air. Few were as much as a mile in the greatest dimension, and all showed one half or more of the bottom readily from the air, indicating, in this area, less than eight feet of water. Low marsh shores encircled most lakes entirely again an indication of shallow water away from the centres. These features so severely limited the areas of deeper water that it was judged profitless to investigate these small bodies more closely. Local reports speak of pike in these lakes in some cases, and there is no reason to doubt that they, and suckers, may be present; nevertheless the lakes are so small and available waters so reduced that the application of fish culture methods would be pointless.

The somewhat larger lake in the north-east area of Township 42, Range 27 West, some six miles west-south-west of Mafeking, is merely a shallow pothole, so shallow indeed that Air Service pilots would not consider landing either Fisheries or Forest Survey parties on it. The same thing holds for the small lake two miles south-east of this point, and for the lake two miles north-east of Bell Lake. Still another of the same type is the lake between Armit and South Steeprock Lakes, in Township 41 on the border of Ranges 28 and 29 West.

The two mile long lake west of Hart Mountain, in the north-east quadrant of Township 40, Range 29 West, is but little better. Every part of the bottom is easily visible from the air, the shores are marshy, and emergent vegetation is plentifully scattered. In addition, frequent moose trails across from side to side indicate very clearly a completely unsatisfactory lake for fish.

Restricted size and the presence of islands prevented landing on the two lakes of Armit River and on Cross Lake. In the case of the former, little damage was done, for these lakes are small in size, partially obscured with islands, and have considerable shallow areas. Cross Lake, neatly divided by a large island, could be landed upon in emergency, but pilots were reluctant to land otherwise. Nearly a mile and a half long, it presented some shallow areas, but also contained good stretches of deeper waters. Although there is no reason to suppose it would be markedly different from other Porcupine Mountain lakes, it could be surveyed through the use of the road leading to the well-established wood camp present on the shore. This road, a branch of the Whitefish Lake Road, is passable for trucks and tractors but is definitely not recommended for passenger cars at the present time.

The lake at the south-east corner of Township 39, Range 29 West, one and one-half miles west of Cross Lake, presents a similar appearance to Cross, and could also be investigated by road. It is, however, quite small, measuring but half a mile each way, and is too small for aircraft to land with safety. Landing of course is not so much a matter of the water surface available as the necessity for clearing the treed hilltops surrounding such lakes; and as noted above, the hills are of greater height in this southern region.

The remaining lakes in Township 39, Ranges 28 and 29 West, are all quite small and little more than potholes in most cases, with the exception of Whitefish Lake.

Accordingly, full biological investigation was carried out upon Armit, North Steeprock, South Steeprock, Pickerel and Bell Lakes. In addition, a check on the fish present in Whitefish Lake, previously surveyed, was also made. Details of these surveys follow.

It will be seen from this introduction and from the surveys that, apart from the southern area about Whitefish Lake, the country is not of a type to appeal to the angler or camper. The difficulty of land travel, the high cost of road-making, the water-soaked terrain, and the numerous blood-sucking insects are all unsatisfactory features. The character of the lakes is such that angling presents little of a spectacular nature nor are the lakes capable of much improvement, with the possible exception of Pickerel Lake, which, however, is likely to prove difficult of access for a long time to come. In all, the country has very little of the appeal of the Duck or Riding Mountains, and it seems most unlikely to become a popular resort or angling territory.

The writer is glad to acknowledge the cheerful cooperation and unflagging energy shown by Mr. Harold H. Harvey in assisting him in these investigations. His help was of very great value.

A REPORT ON THE FISH PRESENT IN WHITEFISH LAKE, PORCUPINE MTS.

By

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GENERAL

Whitefish Lake was visited from July 14th to July 18th, 1952, Transportation being by aircraft of the Manitoba Government Air Service. Camp was established at the pleasant sand-beach area at the south-east of the lake, near to the end of the only road.

SEINING OPERATIONS

Seining was carried out at various suitable locations, chiefly along the entire eastern shore. Numerous small fish were taken, but nowhere were the numbers great. Species taken were as follows:

Spot-tail minnow, Notropis hudsonius. The most common form, specimens varying from 28 to 61 mm. in spinal length. Condition excellent. Two specimens of Ergasilus collected from gills.

Ninespine stickleback, Pungitius pungitius. Nearly as numerous as the spot-tail minnows but not so widely distributed. Length from 29 to 41 mm. More than 20% infestation with Schistocephalus in the coelom. One specimen of Ergasilus taken from the gills. Fish in excellent condition.

Yellow perch, Perca flavescens. Fairly common. Spinal length from 44 to 66 mm. Frequent and heavy infestations with trematode metacercariae in the skin, producing a black peppering. Condition nevertheless excellent.

Northern log perch, Percina caprodes semifasciata. Only occasional. Spinal length 47 to 52 mm. Condition excellent.

Johnny darter, Holeosoma nigrum nigrum. Only Occasional. Spinal length 30 to 46 mm. Condition excellent.

GILL-NETTING OPERATIONS

Gill nets were set as follows:

1. Due east from the point immediately north of the sand-beach area (lower east shore), in from 20 to 45 feet of water. Net $2 \frac{3}{4} \times 40 \times 45$ fathoms. Net set by 1:30 p.m. July 15th and lifted $21 \frac{1}{2}$ hours later.
Catch-92 fish, chiefly tullibee and whitefish, with five pikeperch and two suckers.
2. Due south from the most salient point of the mid-northern shore, in from 8 to 33 feet of water, over rock bottom. Net $4 \frac{1}{4} \times 40 \times 45$ fathoms. Net set by 8:30 p.m., July 15th and lifted $49 \frac{3}{4}$ hours later.
Catch-43 pikeperch and pike.
3. Due north from the island north of the point at which Net #1 was set, in from 10 to 30 feet of water. Net $2 \frac{3}{4} \times 40 \times 45$ fathoms. Net set by 9:30 p.m., July 15th and lifted $49 \frac{1}{4}$ hours later.
Catch-107 fish of the five species netted.
4. Due east from a point on the western shore directly opposite the sand-beach area, in from 8 to 25 feet of water. Net $2 \frac{3}{4} \times 40 \times 45$ fathoms. Net set by 11:30 a.m., July 16th and lifted $32 \frac{1}{2}$ hours later.
(This was Net #1 re-set)

Catch-112 fish of all five species, 49 being tullibee.

Total Catch - 354 fish weighing close to 600 lbs., and divided as follows:

Tullibee, Leucichthys artedi tullibee - 161.

Weight range, 1.3 to 1 lb. 4 oz.

Pikeperch, Stizostedion v. vitreum - 79.

Weight range, 11½ oz. to 5 lb., 5½ oz.

Common sucker, Catostomus commersoni commersoni - 72

Weight range, 1 lb. 2 oz. to 3 lb. 4 oz.

Whitefish, Coregonus clupeaformis clupeaformis - 22

Weight range, 4½ oz to 4 lb. 10 oz.

Pike, Esox lucius - 20.

Weight range, 1 lb. 6 oz. to 13 lb. ½ oz.

Total - 354 fish for 153 net-hours. The extended periods for which some nets were down was due to bad weather and consequent heavy water.

Detailed analysis of the catch was confined to small samples because of transport arrangements and because this lake has been surveyed at an earlier date. Tables will be found on later pages.

FIELD NOTES

Whitefish Lake is definitely the most attractive of all the lakes seen in the Porcupine Mountains Forest Reserve. The considerably higher hills, the much drier land surface, the relatively large beach and the relatively few blood-sucking insects contrast sharply with conditions at the more northern lakes. Fish productivity seems considerably higher also, even when allowance is made for the more extended netting periods used in Whitefish. It is to be regretted that no indication of trout was found at any point.

FISH RECORD - WHITEFISH LAKE

Ref. No.	Spinal length, inches	Weight lb.-oz.	Age yrs.	Condition	Alimentary contents	Parasites
<u>Pikeperch, Stigostedion vitreum</u>						
W- 1	21½	5- 4½	18	V.good-mod.fat	Mucus	25 med.tapeworms
W- 2	14½	1-11	11	V.good-fair "	Fishmeal	10 med.tapeworms
W- 3	15½	1-15	12	V.good-little "	Nil	30 med.& sm. "
W- 4	14½	1- 9½	11	V.good-v. fat	Organic debris	5 med.tapeworms
<u>Common sucker, Catostomus commersoni</u>						
W- 5	14½	2-10	5	Fat excellent	Organic debris	Nil
W- 6	15	2-10	5	Fat excellent	Organic debris	5 Thornyheaded wms.
<u>Whitefish, Coregonus clupeaformis</u>						
W- 7	18½	4- 4	12	Exc.-good fat	20 bloodworms, 2 Sphaerium	30 nematode nodules on stomach & intest.
W- 8	14½	2- 8	10	As last	1 Chir. pupae	Nil
W- 9	15½	2-10	11	Exc.-very fat	Many Chir. lar- vae, pupae.	20 nematode nodules on intestine
W-10	13½	1- 9	7	V.good-fair fat	Scant insect debris.	4 Nematode nodules
W-11	8½	0- 4½	5	V.good-fair fat	Insect debris.	Nil
<u>Tullibee, Leucichthys artedii tullibee</u>						
W-12	12½	1- 3	9	V.good-little fat	Organic debris	20 nematode nodules on int.; 4 Triaen- ophorus.
W-13	10½	0-13½	7	As last	As last	6 nema.nod. 30 med & lg.t.w., 5 Triaenoph.
W-14	12½	1- 4	9	Good-no fat	Org.debris with b.w.& pupae	15 nema.nod., 11 "
W-15	10½	0-15	7	V.good-little fat	Sm.amt.debris	9 Triaenoph. cysts.
W-16	8½	0- 6½	5	As last	As last	12 sm. tapeworms
W-17	6½	0- 3	3	V.good-no fat	Lg.amt.debris	4 med.tapeworms
W-24	5	0- 1.4	2	V.good-lit.fat	Nil	Nil
W-25	5	0- 1.3	2	- - - Preserved entire - - -	- - - - -	- - - - -
<u>Pike, Esox Lucius</u>						
-18	29½	10-15	12	Exc.-v.fat	Nil	The
-19	31½	13- 0½	13	As last	Nil	usual
-20	29½	11- 9	12	As last	½ of 15" tul.	heavy
-21	24½	5-11½		Exc.quite fat	Nil	worm
-22	26½	7-12½		As last	½ of 15" sucker	load
-23	29½	7- 2½		As last	Nil	including Triaenophorus

OTHER FISH TAKEN

Figures indicate spinal length in inches, and weight in pounds & ounces.

WHITEFISH

15½	2-15	17½	4- 2½	16½	3- 0	17½	4- 0½
14	1-14½	16½	3- 6	15½	2-14	14½	2- 6
17½	4- 0½	13½	1- 6	13½	1-10	18½	4-10
17½	4- 6	18½	4- 1	16½	3-10	18	4- 7

TULLIBEE

8½	0- 6	8½	0- 6	8½	0- 6	8½	0- 5	8	0- 5
6½	0- 2½	8½	0- 6	8½	0- 6	8½	0- 6	8½	0- 6
6½	0- 3	8½	0- 5	8½	0- 5½	7½	0- 4½	7½	0- 3
10½	0-12	6½	0- 2	11½	1- 0	11½	0-14	11½	1- 0
11½	1- 0½	10½	0-12	10½	0-12	10½	0-13	12	1- 2
10½	0-12½	11½	1- 0	11	0-15	12½	1- 2	11½	0-14
11	0-12½	11½	0-14	11½	1- 0½	9½	0-11	10½	0-13
12½	1- 3	11½	1- 2	10	0-11	11½	0-15	12½	1- 1
11½	0-14	11½	1- 1	11	0-12	10½	0-12	12½	1- 1
10½	0-13	11½	1- 1	10½	0-12	11	0-12½	10½	0-12
11	0-14	11	0-14	10½	0-12½	10½	0-12½	11½	1- 0
10½	0-12½	10½	0-12½	9½	0-10	10½	0-11	10½	0-12
10	0-12½	11½	0-14	10½	0-11	10½	0-11	8½	0- 5
10½	0- 9½	10½	0-15	11½	0-14	11	1- 0	10½	0-14
11	1- 2	8½	0- 9	8	0- 6	11½	1- 2	11	1- 0
11½	1- 1	11	1- 2½	8½	0- 6½	10½	0-15	10½	0-14
11½	0-12	10½	0-14½	10½	0-14	11	1- 0	11½	1- 1
11	1- 0	10½	1- 0	11	1- 1	10	0-13	10½	0-14
8	0- 6	10½	0-14	10½	1- 1	11½	1- 3	10½	0-15
		11	1- 0½	10	0-14	10½	0-14½		

PIKEPERCH

19	3-14	15½	2- 1½	15½	2- 4	15½	2- 2½	16½	2-12
15½	2- 1	16	2-10	16	2- 7½	14½	1-12	15½	1-11
12	1- 1	13½	1- 7	16	2- 4½	16	2- 7	12½	1- 4½
16½	2- 9½	16½	2- 6	18½	3-11½	15½	2- 0½	16½	2- 8
14½	1-14	16½	2-15	15½	2- 4½	18½	3- 3	15	2- 0
10½	0-11½	16½	2- 5	18½	3- 7	16½	2- 3	15½	2- 1½
16	2- 9	13½	1-12	17½	2-12½	17½	2-12½	16½	2-10½
15½	2- 4½	15½	2- 7	14½	2- 0½	17	2-14	14½	2-3
14	1-14	15½	2- 0½	14½	2- 0	18	3- 8½	19½	3- 9½
16½	2- 8½	15½	2- 8½	17½	3- 0½	12½	1- 1½	14½	1-13
17	2-13½	15½	2- 3	15½	2- 2½	20½	5- 5½	16½	2- 9
16½	2- 6½	14½	2- 1½	15½	2- 2½	18	3- 2	18½	3- 9½
15½	2- 4½								

COMMON SUCKER

14	2- 7½	14½	2-11½	15½	2-15	13½	2- 0½	15	3- 0½
13	2- 0	12	1-10	15	2-14½	13½	2- 2½	14½	2- 7
13½	2- 7½	13½	2-14½	14	2- 5½	15½	2-15½	14½	2-12½
13½	2- 6½	13½	1-15	13½	2- 2½	10½	1- 2½	11½	1- 4½

COMMON SUCKER (Cont'd)

15 $\frac{1}{2}$; 3-2 $\frac{1}{2}$	13 $\frac{1}{2}$; 2-6	14 $\frac{1}{2}$; 2-11	14; 2-8	13 $\frac{1}{2}$; 2-3
13 $\frac{1}{2}$; 2-0	12 $\frac{1}{2}$; 1-12	11 $\frac{1}{2}$; 1-7	12 $\frac{1}{2}$; 1-12 $\frac{1}{2}$	12 $\frac{1}{2}$; 1-10
12 $\frac{1}{2}$; 1-10 $\frac{1}{2}$	10 $\frac{1}{2}$; 1-0 $\frac{1}{2}$	12; 1-9	12 $\frac{1}{2}$; 1-10	10 $\frac{1}{2}$; 1-2
10 $\frac{1}{2}$; 1-4	10 $\frac{1}{2}$; 0-14	10; 0-14 $\frac{1}{2}$	10 $\frac{1}{2}$; 1-4	10 $\frac{1}{2}$; 1-1
14 $\frac{1}{2}$; 2-8 $\frac{1}{2}$	11 $\frac{1}{2}$; 1-12	10; 1-2 $\frac{1}{2}$	11; 1-5	14; 2-1
10 $\frac{1}{2}$; 1-3	11 $\frac{1}{2}$; 1-11	11 $\frac{1}{2}$; 1-8	14; 2-8	15 $\frac{1}{2}$; 2-13
13 $\frac{1}{2}$; 2-8	14 $\frac{1}{2}$; 2-9	12 $\frac{1}{2}$; 2-0 $\frac{1}{2}$	10 $\frac{1}{2}$; 1-2	15 $\frac{1}{2}$; 3-4
15 $\frac{1}{2}$; 2-14	11 $\frac{1}{2}$; 1-4	11 $\frac{1}{2}$; 1-10	13 $\frac{1}{2}$; 2-5	13 $\frac{1}{2}$; 2-3
15 $\frac{1}{2}$; 2-12	11 $\frac{1}{2}$; 1-4	11 $\frac{1}{2}$; 1-7		

PIKE

19 $\frac{1}{2}$; 2-5 $\frac{1}{2}$	17 $\frac{1}{2}$; 1-10 $\frac{1}{2}$	14 $\frac{1}{2}$; 1-6	16 $\frac{1}{2}$; 1-8 $\frac{1}{2}$	15 $\frac{1}{2}$; 1-7 $\frac{1}{2}$
19 $\frac{1}{2}$; 2-4 $\frac{1}{2}$	25 $\frac{1}{2}$; 6-11 $\frac{1}{2}$	27; 6-13	24; 4-12 $\frac{1}{2}$	17 $\frac{1}{2}$; 1-8
18; 1-14	16 $\frac{1}{2}$; 1-12			

The remaining fish taken but not included in the lists above were average size and weight, i.e. they approximated the middle of the ranges listed above. Discarded because of the imminent arrival of the aircraft, they comprised 55 tullibee, 14 pikeperch, 6 suckers, 2 pike and 1 whitefish. They were in no way exceptional to the eye.