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FISH DIVISION

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Report 197

IDENTIFICATION OF OTTER RIVER GRAYLING

The following communication was sent to the Institute by the Department of Conservation on February 23:

"I wonder if you have any data bearing on the identity on the grayling found in the Otter River?

"At the American Fisheries Society meeting at Baltimore, Maryland, Mr. Robert Follett of Michigan, made the following comment:-

"I think the term 'flower of fishes' was applied to the Michigan grayling by the Jesuit fathers. It is a question whether there are any Michigan grayling left today. In that connection Dr. Hubbs, I understand, is going to follow up some experiments on the Otter River in the upper peninsula, the only stream where grayling are found today. I was up there about ten years ago trying to get some breeding stock, and I was guided by my old friend Seymour Bower and by Dr. Henshall as well. On the first of May when I arrived at the creek the fish had all spawned; we found that the Michigan grayling spawned earlier in the upper peninsula than in Montana, probably in the month of March, when it would be impossible to capture the wild fish. I went up later and fished with a fly for a couple of days, but to my disappointment I got only one Michigan grayling; the other twenty were all Montana grayling that had been introduced by the Michigan Fish Commission some years before. I am inclined to doubt whether the Otter River contains anything except Montana grayling."

"The records of this office reveal that apparently a planting of 25,000 Montana grayling fry was made in the Otter River by the Michigan Fish Commission on May 16, 1914. Judging from the apparent failure of subsequent plantings of grayling fry made in numerous waters in 1926, 1927 and 1928, I am inclined to doubt whether this plant in the Otter could have succeeded.

"I infer that you have specimens on file taken in connection with the late Dr. Metzelaar's visit to the Otter in September 1925, or possibly on other visits to that stream which would help to clear up this situation.

"I should appreciate hearing from you at your early convenience."

In connection with Mr. Follett's remarks, it may be explained that we know no basis for the statement that "Dr. Hubbs is going to follow up some experiments on the Otter River". No experiments on the Otter have been asked for or planned on.

To our knowledge no really clear-cut distinction has ever been made between Michigan and Montana grayling. Milner and Henshall both listed differences, most of which, however, we fail to confirm. Perhaps Mr. Follett knows the two forms well enough to speak with certain authority as to the species he caught on the Otter some time ago; if so, he would confer a great favor on ichthyologists by telling what the differences are, in definite terms which would allow others to make the identification.

The grayling are clearly subject to great variations, with age, sex, season, locality and probably individuals. What the actual differences may be between the Michigan, Montana and Arctic graylings is very difficult to decipher from the published accounts.

We would very much prefer to base our account on an original examination of specimens. Unfortunately our material is limited:

Thymallus signifer—Arctic grayling

One adult from White Horse Rapids, Yukon Territory, Canada, August 1927, caught and presented by J. C. Gilbert.

One young from Lake Athabasca, Saskatchewan, collected by Frances Harper, July 30, 1920.

Thymallus montanus—Montana grayling

One adult female from Deer Lodge County, Montana, May 29, 1926 collected and presented by F. A. Westerman.

One lot of fry from fish caught at that locality.

Thymallus tricolor—Michigan grayling

Two small adults without label, almost certainly fish collected in Michigan many years ago (certainly before 1920), and probably from Lower Peninsula.

One adult (and also plaster cast of same) from Au Sable River at Grayling, September 11, 1900.

Three adults from Otter River, collected by Phil Zalsman about 1922.

One half-grown from Otter River, Metzelaar and Langlois, Sept. 10, 1925.

One fingerling from Otter River, Metzelaar and Langlois, Sept. 11, 1925.

Six, half-grown to adult; from Otter River, Department of Conservation party, Sept. 10, 1925.

Comparison fails to indicate any differences between the three old specimens from the southern peninsula and those collected about 1922 and in 1925 in the Otter River. So far the evidence favors the conclusion that the Otter River grayling are native. There can be little question that Michigan grayling are native in the Otter. Jordan and Evermann in 1896 wrote of having specimens from that stream.

The distinction of the Michigan grayling from the Arctic grayling seems valid. The northern form has a longer dorsal fin with more rays becoming much higher with age.

The Michigan grayling was claimed by Milner and by Henshall to differ from the Montana grayling in a number of characters of form, proportions and color. Most of these characters do not seem to hold very well. The characters as indicated by published descriptions and figures which we verify on our specimens are as follows:

	MICHIGAN GRAYLING	MONTANA GRAYLING
Rosy spots on dorsal fin, in adults	Isolated, distinct from stripes and separated from one another	Imperfectly separated from the stripes on the fin (at least in females)
Dorsal fin	Somewhat larger	Somewhat smaller
Outline of dorsal fin in adults	Square cut on top (in both sexes), pointed behind	Rounded on top (at least in female), especially behind
Last dorsal ray	As long as or longer than middle rays	Decidedly shorter than middle rays.
Outline of body	Subovate, the contours sloping fast from deepest point at front of dorsal	Subelliptical, the contours more convex, the body holding deep well toward tail fin.

MICHIGAN GRAYLING

MONTANA GRAYLING

Body spots in adult

Fewer and smaller

More numerous and larger

Scales on belly

Moderately reduced in size

Much reduced in size

In these respects the Otter River grayling differ from the Montana grayling, as represented by one ripe female and by descriptions and one good figure. The conclusion seems verified that the Otter grayling in the Otter River in 1922 and 1925 were natives, and probably that those still remaining are also of the Michigan species.

This conclusion, however, is still tentative, because of the confusion in published accounts, and the scarcity of material for new comparisons. On a trip East this spring, a further study of this problem will be made at the U. S. National Museum where many specimens are preserved. In the meantime, an effort will be made to obtain more specimens from Montana.

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Carl L. Hubbs
Carl L. Hubbs
Director.