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Available at: https://scholarworks.uni.edu/pias/vol1/iss3/31
THE FISHES OF THE CEDAR RIVER BASIN*

BY SETH E. MEEK, PH. D.

The Cedar river is the second largest river within the State of Iowa, and one of the most picturesque. It, together with its northern tributaries, rises in southern Minnesota. Its general course is southeast to Moscow, about fifteen miles from the Mississippi river; at this point it turns almost at right angles, and flowing southwest about thirty miles it empties into the Iowa river.

Above Moscow the current is rather swift, and its bottom sandy with few rocky places and occasional stretches of mud. The Cedar basin is, for the most part, an undulating prairie, with considerable timber along the banks of the streams, especially the eastern tributaries of the Cedar river. There are a large number of ponds and bayous along the river, especially the lower third of its course, which are always connected with the river in times of high water. In these ponds there is much swamp vegetation and always an abundance of sunfishes, pickerel and bullheads. The slough near Cedar Rapids is one of the largest of these bayous. It is the great fishing ground for the small boys of Cedar Rapids. If attended by a fair degree of luck they may be seen on their homeward trips with a string of small bullheads and sunfishes as long as the average boy himself.

The Cedar is, in my judgment, the finest stream in Iowa. It is only exceeded in size by the Des Moines, which it excels in swiftness of current, in being bordered to a greater extent by timber, and being fed by larger supply of springs and spring brooks. I do not think it has been more thoroughly explored than the Des Moines and its tributaries, yet I have recorded from it a larger number of species of fishes. As to which has or affords the larger quantity of fishes for the market I have not the data to judge. I find anglers complain of the scarcity of game fishes, or at least the remark is often made that fishing with hook and line is not as good as it used to be. Yet during the months of June and July it is good enough to entice men day after day into the water waist deep just below the dam at Cedar Rapids. These men seldom fail to come out except with a respectable string of Black Bass, Wall-eyed Pike, or Channel Cat.

The streams of Iowa have undoubtedly changed much in character since the country has become so thickly settled. The soil, since loosened with the plow, is much more easily washed into the streams than when it was covered with the stiff native sod. The more thorough underdraining and the surface ditches enables the

*This paper, presented at Sixth Annual Meeting, was too late for insertion in last report.
water, after heavy rains, to find its way at once into the large creeks and rivers. Thus the water in the streams is muddier than formerly; in wet weather is deeper, and in dry weather is more shallow. These features, together with the fact that the rivers are becoming, to some extent, the sewers for the large cities, is a probable cause for a diminution of some of the food fishes.

The natural features of the Cedar river make it an excellent stream for fishes, and it is sure to be many years before angling will cease to be an enjoyable and profitable pastime for those who are fortunate enough to reside along its banks. To all such I will say, you have in the Cedar a beautiful stream, and in it are some excellent game and food fishes. Protect your stream as far as possible from pollution, and protect your fishes from wholesale slaughter by the use of dynamite or any other barbarous methods used for their capture, and you will be amply rewarded.

During my four years' residence in Cedar Rapids as a teacher in Coe College, I utilized some spare time in making a study of the fish fauna of the State. The result of my studies is being published in the present bulletin of the United States Fish Commission. The larger share of the work done in the Cedar basin was under the direction and by the aid of the United States Fish Commission. I wish to acknowledge the services of my students who, from time to time, assisted me in making collections near Cedar Rapids, of which Mr. W. T. Jackson and Mr. E. P. Boynton and Mr. B. Bailey, deserve especial mention. I was also assisted by Prof. P. B. Burnet, of Lincoln, Nebraska, in making most of the collections from the upper part of the river basin.

I have given, in foot notes, other species not found in Cedar Basin, but which belong to the Iowa fauna.

This makes the paper also serve as a preliminary catalogue of the fishes of Iowa. No doubt other forms will be added when a more thorough survey of the State is made.

The Cedar river and its tributaries were examined as follows:
The Cedar river at West Liberty, Mt. Vernon, Cedar Rapids, Palo, Waverly and Austin (Minnesota.)
Turtle river and Rose creek, Austin (Minnesota.)
West Fork and Hartgraves creek at Dumont.
Shell Rock river and Quarter Section Run, near Waverly.
Dry creek, near Palo.
Prairie creek, near Beverly.
Indian creek, near Marion.

*Excellent food fishes.
**Good food fishes.
---Poor food fishes.
*Very good food for larger fishes.
Those unmarked are of little or no economic value.

ORDER I. HYPEROARTIA.

FAMILY I, PETROMYZONTIDAE (THE LAMPEYS.)

1. Ammocetes branchialis (Linneus). Mud Lamprey. This small lamprey ascends clear brooks in the spring for the purpose of spawning, during which time large numbers can easily be captured. At Cedar Rapids they spawn about the middle of April, the season lasting about two weeks. They are seldom taken except during this season. The species is small, specimens seldom reaching a length of more than 6½ inches. It would be an easy matter to destroy large numbers of
these lampreys in the spring if thought expedient, in view of the injury which they are supposed to inflict on some of the food fishes. They undoubtedly do some destruction, but how much is difficult to say. From an economical standpoint the lampreys in the Cedar basin are of no importance.

2. Petromyzon concolor (Kirtland). Brook Lamprey. Prof. F. Starr collected this species in the Cedar River a few years ago. I have never seen them spawning although I have searched more carefully for them than for the preceding species. This species is quite frequently taken with large food fishes by fishermen on the Mississippi river.

ORDER II. SELACHOSTOMI.

FAMILY 2. POLYODONTIDÆ (THE PADDLE-FISHES).

3. Polyodon spatula (Walbaum). Paddle-Fish, Spoon-Bill, Duck-Billed Cat. Cedar Rapids, rare, one specimen taken from the Cedar river in November, 1861, is in Coe College Museum. The snouts of a few individuals taken during the past ten years are in the same museum.

ORDER III. GLANIOSTOMI.

FAMILY 3. ACIPENSERIDÆ.


ORDER IV. Ginglymodi.

FAMILY 4. LEPIDOSTRIDÈ (THE GAR FISHES).

5. Lepisosteus osseus (Linnaeus) Common gar-pike, Long-nosed Gar. Common in the spring in the river at Cedar Rapids. They, with the following, may be frequently seen from First Avenue bridge. Specimens sometimes reach a length of four or five feet. Of no economical value whatever:


ORDER V. HALECOMORPHI.

FAMILY 5. AMIIDÆ (THE BOWPINS).

7. Ameia calva (Linnaeus). Dog-fish, Mud-fish, John A. Gundle. Very abundant in the slough, and occasionally taken from the Cedar river. Of no value except to the biologist. This species, together with the preceding, are much studied and are of much interest from their relation to earlier forms and for the light they throw upon the subject of evolution.

ORDER VI. NEMATOGNATHI.

FAMILY 6. SILURIDÉ (THE CAT-FISHES).

8. Ictalurus punctatus (Rafinesque). Channel cat, White cat, Silver cat. Common, during the months of June and July; many specimens of this species are taken from the Cedar river with hook and line. The best bait seems to be clotted

[Acipenser rubidus (Le Sueur). Lake sturgeon. A resident of the Mississippi Valley, and no doubt inhabits the lower part of the Cedar river, as specimens have been frequently taken from the Iowa River at Iowa City.

Ictalurus furcatus (Cuv. & Val.) Chuckle headed cat. A resident of the Mississippi river. Not recorded from the Cedar basin.]
blood from swine. The favorite fishing places are just below the dam and below T. M. Sinclair's packing house. The latter being the best, although the water is less pure and clear than below the dam.


11. *Amiaurus melas* (Rafinesque). Bull-head. Common in all streams of Iowa. This and the two preceding constitute the common bullhead in Iowa, the latter being by far the most abundant.

12. *Leptos olieriocis* (Rafinesque). Mud cat. Flathead cat. Specimens weighing twenty pounds are occasionally taken from the Cedar river a short distance below the dam in the early summer. Some of these large specimens may be *A. nigricans*.


ORDER VII EVENTOGNATHI.

FAMILY 7, CATOSTOMIDÆ. (THE SUCKERS).

15. †*Carpiodes celifer* (Rafinesque). Quillback, crap sucker. Very common in the larger streams of the entire basin. Different individuals show considerable variation. I have been unable to find any constant characters by which to separate it in two or more species.


18. —*Erinus succuta* (Lacepède). Chub sucker. This species seems rare in Iowa. I have found it only in the Cedar river near West Liberty.

19. —*Moxostoma anisurum* (Rafinesque). White-nosed sucker. Rare in Iowa.

In Cedar basin known only from Austin, Minnesota, and from Waverly.

20. —*Moxostoma duquesnei* (Le Sueur). Common red-horse. The most abundant of Iowa suckers.


FAMILY 8, CYPRINIDÆ. (THE MINNOWS).


†*Amiaurus nigricans* (Le Sueur). Great cat fish, Mississippi cat. A resident of the Mississippi river.

*Noturus carol* (Nelson). Des Moines and Skunk rivers. Rare.

*Noturus miurus* (Jordan). An inhabitant of Minnesota. Not yet recorded from Iowa.


There are one or more of the buffalo fishes found in the Cedar river, but which I am unable to say.

†*Cycleptus dolgatus* (Le Sueur). Missouri sucker. Mississippi river, scarce.

†*Moxostoma auroleum* (Le Sueur). Skunk river, rare.

†*Plecostomus carinatus* (Gope). Very abundant in western Iowa. This species resembles *M. duquesnei*, and it is not at all unlikely that many of the large suckers caught in the Cedar spring may belong to this species. It is quite abundant in the Des Moines river at Des Moines.
24. †Hybognathus nuchalis (Agassiz). Silvery minnow. One of the most abundant of the minnows.
25. †Hybognathus nubila (Forbes). Waverly and Austin (Minn.) Not common.
27. †Pimephales notatus (Rafinesque). Blunt-nosed minnow. Very common, prefers clear, running water.
28. †Chirolophis vigilax (Baird & Girard). Bullhead minnow. Palo and Cedar Rapids, scarce.
29. †Notropis onogenus (Forbes). Austin, Minnesota. Rare.
30. †Notropis heterodon (Cope). Not common.
31. †Notropis caugula (Meek). This and the two preceding species very much resemble each other. They are usually found near the shore and in small bays, where there is plenty of vegetation. They are the most feeble and insignificant of the fresh water fishes of Iowa.
32. †Notropis delicatus (Girard). Not common.
33. †Notropis toeckes (Gilbert). Waverly. Rare. Similar to the preceding, but has much smaller eyes, and a more compressed body.
34. †Notropis gilberti (Jordan and Meek). Inhabits clear, running water Abundant.
35. †Notropis whipplei (Girard). Common.
36. †Notropis megalops (Rafinesque). Common Shiner. An abundant and variable minnow.
37. †Notropis jejunos (Forbes). Cedar Rapids. Rare.
40. †Notropis atherinooides (Rafinesque). Not common. Seldom taken except in river currents.
41. †Phenacobius mirabilis (Girard). Not common.
42. †Rhinichthys atronasus (Mitchill). Black-nosed Dace. Palo and Mt. Vernon. Scarce.
43. †Hybopsis dissimilis (Girard). Not common.
44. †Hybopsis storerianus (Kirtland). Scarce.
46. †Semoillas atronaculatus (Mitchill). Scarce.
47. †Phoebus elongatus (Kirtland). Palo (Dry creek). Scarce. The identification of this species somewhat doubtful.

*Hybognathus nuchalis placida (Girard). Scarce, Des Moines river.
†Notropis boops (Gilbert). Southwest Iowa. Scarce.
†Notropis latrensis (Baird and Girard). Very abundant in western Iowa.
†Rhinichthys cataractae (Cuv. and Val.) Long. Upper Iowa river. Scarce.
†Hybopsis gelidus (Girard). Common in the Missouri river.
†Hybopsis hypomonus (Gilbert). Southwest Iowa. Scarce.
†Platygobius gracilis (Richardson). Flat-headed chub. Missouri river. Scarce.
ORDER VIII, ISOPONDYLI.

FAMILY 9, HIODONTIDÆ (THE MOON EYES).


FAMILY 10, CLupeidæ (THE HERRINGS).


FAMILY 11, SALMONIDÆ (THE SALMON).

52. *Salvelinus fontinalis (Mitchell). A few specimens are occasionally taken from McLeod’s run, near Cedar Rapids. This species was originally placed here by Mr. Shaw, formerly State Fish Commissioner of Iowa. Mr. Minott, a trapper and fisherman, Mt. Vernon, Iowa, informs me that he has seen this species in small tributaries of the Cedar river near Mt. Vernon.

FAMILY 12, CYPHINODONTIDÆ (THE KILLIFISHES).

53. † Fundulus zebinus (Jordan and Gilbert). Not common in the Cedar basin. More abundant in the lakes.
54. † Zygocentes notatus (Rafinesque). Top minnow. Usually found in small numbers.
55. Zygocentes dispar (Agassiz). West Liberty. Taken from a large bayou.

FAMILY 13, UMBRIDÆ (THE MUD MINNOWS).

56. Umbra limi (Kirtland). Mud minnow. Rather scarce; taken only in small grassy ponds.

FAMILY 14, LUCIDÆ (THE PIKES).

58. *Lucius lucius (Linnaeus). Pike. Northern pickerel. Common. It loiters in grassy and weedy places. This species is known as pickerel in Iowa. It is the true pike. The name pike is erroneously given to the wall-eyed pike.

ORDER IX, APOIDES (THE EELS).

FAMILY 15, ANGUILLIDÆ.


ORDER X, HEMIBRANCHII.

FAMILY 16, GASTEROSTIDÆ.

60. Eucalia inconstant (Kirtland). Brook stickleback. Scarce. Found only in small brooks.

† Hiodon alsotinctus (Rafinesque). Missouri river. Scarce.

FAMILY PERCOPSIDAE (THE TROUT PERCHES).

† Percèptis guttatus (Agassiz). Trout perch. This species is very abundant in the tributaries of the Missouri river.
† Fundulus diaphanus (Le Sueur). Not recorded from Iowa. Evidently belongs to her fauna.
† Zygocentes salitrix (Conce). Le Mars. Scarce.
* Lucius mailquinnar (Mitchell). Muskallunge. Scarce. Known from Mississippi river, also the Skunk river near Ames. The largest and most voracious fish in Iowa waters.
ORDER XI. PERESOCES.

FAMILY 17, ATERINIDÆ (THE SILVERSIDES).

61. †Labidesthes sicculus (Cope). Brook silverside. Not common.

ORDER XII, ACANTHOPTERI.

FAMILY 18, CENTRAICHLIDÆ (THE SUNFISHES).

63. Pomoxys annularis (Rafinesque). Crappie. Less common than the preceding.
68. Lepomis humilis (Girard). Scarce in eastern Iowa. Abundant in the western part of the State.
71. Lepomis holbrooki (Cuv. & Val.) Scarce.

FAMILY 19, PERCIIDE (THE PERCHES).

76. Etheostoma nigrum (Rafinesque). Johnny darter. The most abundant of Iowa darters.
79a Etheostoma eudides (Jordon & Copeland). Scarce.
81. Etheostoma flavellare (Rafinesque). Not common.
84. Etheostoma Iowae (Jordan & Meek). Very common.

Emmeacanthus eriarctus (Jordan). A very rare species. At present not recorded from Iowa.

Etheostoma bilineoides (Rafinesque). Green sided darter. A doubtful resident.
Etheostoma shumardi (Girard). Mississippi river, at Muscatine. Scarce.
FAMILY 20, SCIENTIDÆ.

89. —*Aploidonotus granniens* (Rafinesque). Fresh-water drum. Common in the spring.

FAMILY 21, COTIDÆ.


FAMILY SEHANIDÆ.


FAMILY CUDIDÆ.


According to the foregoing list, there are in the Cedar Basin, 90 species of fishes; in Iowa, 121 species. Those of the Cedar Basin are distributed among 12 orders, 21 families, and 48 genera; in the State, 12 orders, 24 families, and 58 genera.

- Fishes known from Mississippi river .......................................................... 62
- Fishes known from Cedar river basin ......................................................... 90
- Fishes known from Des Moines river basin ................................................. 66
- Fishes known from Skunk river basin ....................................................... 49
- Fishes known from Iowa river basin ......................................................... 52
- Fishes known from Wapsipinicon river basin ............................................ 42
- Fishes known from Maquoketa river basin ................................................. 31
- Fishes known from Turkey river basin ...................................................... 31
- Fishes known from Yellow river basin ...................................................... 17
- Fishes known from Upper Iowa river basin ............................................... 18
- Fishes known from Missouri river ............................................................ 11
- Fishes known from Big Sioux river basin ................................................. 33
- Fishes known from Floyd river basin ....................................................... 35
- Fishes known from Soldier river basin .................................................... 35
- Fishes known from Floyd river basin ....................................................... 35
- Fishes known from Boyer river basin ...................................................... 15
- Fishes known from Chariton river basin .................................................. 13
- Fishes known from 102 river basin .......................................................... 19
- Fishes known from Clear lake ................................................................. 16
- Fishes known from Silver lake ............................................................... 11
- Fishes known from Storm lake ............................................................... 16
- Fishes known from Spirit and Okoboji lakes ............................................ 19