

LIST OF FISHES COLLECTED IN THE CLEAR FORK OF THE CUMBERLAND, WHITLEY COUNTY, KENTUCKY, WITH DESCRIPTIONS OF THREE NEW SPECIES.

By **DAVID S. JORDAN** and **JOSEPH SWAIN.**

In May, 1883, the writers, aided by a party of students from Indiana University, made a small collection of fishes in the Clear Fork of the Cumberland River, and in its tributaries, Wolf Creek and Brier Creek, near Pleasant View, Whitley County, Kentucky. The following is a list of the species obtained, three of which appear to be new to science. Typical examples of these have been presented to the National Museum

1. *Amiurus natalis* (Le Sueur) Jordan.
2. *Catostomus teres* (Mitchill) Le Sueur.

The use of the name *commersoni* for this species is probably unfortunate. La Cépède's *Cyprinus commersoni* may have been this species, but that it was so cannot be proven. It is therefore best to use the oldest name of certain application.

3. *Catostomus nigricans* Le Sueur.
4. *Moxostoma velatum* (Cope) Jordan.

One fine large specimen.

5. *Moxostoma macrolepidotum duquesnei* (Le Sueur) Jordan.

Very common in the Clear Fork.

6. *Campostoma anomalum* (Raf.) Agassiz.

7. *Chrosomus erythrogaster* Raf.

Very abundant in the smaller streams. The males were in very high coloration, having the dorsal and the lower fins bright golden yellow, the snout and caudal reddish. In some specimens the black lateral bands were coalescent on the caudal peduncle and partially so on the trunk. These specimens apparently correspond to the description of *Chrosomus eos* Cope. In this case, however, it is evidently a color variation of *C. erythrogaster*.

8. *Hyborhynchus notatus* (Raf.) Ag.

Very common. The males with tuberculate muzzles have the skin at the angle of the mouth swollen a little in the form of a small flap or barbel. This structure is apparently not homologous with the barbel in *Rhinichthys* and related genera, but is rather a thickening of the skin accompanying the nuptial excrecences of the males. On this character the nominal species, *Hyborhynchus superciliosus* Cope was founded.

9. *Ericymba buccata* Cope.

Very abundant in small streams.

10. *Minnilus diplæmius* (Raf.) Hay.

Abundant.

11. *Minnilus cornutus* (Mitchill) Jordan & Gilb.

Not rare.

12. *Hemitremia vittata* Cope.

Several specimens, which we refer with some doubt to this species, were taken in Wolf Creek and the Clear Fork. The scales are larger than in Cope's type and the teeth are in normal number (4-4), not 4-5 or 5-5 as stated by Professor Cope.

The following characters are shown by our specimens:

Olivaceous, the scales above punctate with black; sides with a narrow and very distinct black lateral band, narrower than the eye, extending from snout to base of caudal, where it ends in a distinct oblong black spot; caudal, dull reddish; other fins plain. Head 4, depth $3\frac{1}{5}$, A. 7, Lat. l. about 32, the exact number not easily counted. Tubes of lateral line little developed. Dorsal inserted a little before ventrals, slightly nearer snout than base of caudal; mouth very small, terminal. Snout short and blunt; head thick, broad above; pectorals not reaching ventrals, the latter slightly beyond front of anal; scales before dorsal, large. The largest specimens seen were scarcely two inches long. The young have the lateral band faint or wanting.

13. *Rhinichthys obtusus* Agassiz.

Common in cold clear streams.

14. *Ambloplites rupestris* (Raf.) Gill.

15. *Lepomis megalotis* Rafinesque.

16. *Lepomis macrochirus* Rafinesque.

17. *Lepomis cyanellus* Rafinesque.

18. *Micropterus dolomiei* La Cépède.

19. *Alvordius aspro* Cope and Jordan.

In the Clear Fork.

20. *Diplesium blennioides* (Raf.) Jor.

In the river channel. The specimen taken was very slender, without red or orange markings in life.

21. *Boleosoma susanæ*, sp. nov.

Head, $4\frac{1}{3}$; depth, $6\frac{1}{2}$. D. VIII, 10 or 11. A. I, 8. Lat. l. 45. Length of largest specimen, 2 inches.

General form and appearance of *Boleosoma nigrum*, but with the body slenderer, the fins smaller, and the head entirely naked.

Body very slender, fusiform, little compressed, the back not much elevated. Head short and small. Mouth small, inferior, formed as in other species of the genus. Snout short, bluntly decurved. Eye rather large, a little longer than snout, the maxillary extending to below front

of pupil. Whole head, nape, breast, and middle line of belly naked. Scales rather large, the tubes of the lateral line wanting on the last three or four. Fins moderate, the dorsals shorter and lower than usual in this genus, highest in the males. Anal spine single, weak. Pectorals rather long, reaching well beyond tips of ventrals, their length about equal to that of head.

Color in life essentially as in *Bolcosoma nigrum*, the males (in spring) with the head and fins jet black, the body blackish olive, barred with black.

Females light olive, tessellated with darker, and with dusky spots along the lateral line. A dark spot before eye and one on back before dorsal; lower fins pale; both dorsals and caudal with darker bars.

This little fish is abundant in the tributaries of the Clear Fork of the Cumberland. Most of the numerous types were taken in Wolf Creek. It is named for Mrs. Susan Bowen Jordan.

22. *Pœcilichthys sagitta*, sp. nov.

Head, $3\frac{1}{5}$; depth, $4\frac{1}{4}$. D. X—13. A. I, 10. Lat. l. about 68 (48 tubes). Length of typical example, $2\frac{1}{2}$ inches.

Body rather slender, compressed, the back a little elevated, the caudal peduncle rather long and not very deep. Head very long and slender, eel like, tapering forward to a sharp snout, its depth at the pupil about one-third its length. Interorbital space narrow. Snout about as long as eye; 5 in head. Mouth very large for the genus, oblique, the maxillary reaching to below front of pupil, $3\frac{1}{4}$ in head. Jaws subequal in front, upper jaw not protractile; teeth rather strong. No scales on checks, opercles, or breast; nape covered with small scales. Opercular spine well developed. Gill membranes scarcely connected.

Scales on body small, firm, ctenoid. Humerus with its margin black, scarcely enlarged. Lateral line nearly straight, becoming obsolete under last rays of second dorsal. Belly covered with ordinary scales.

Dorsal spines slender, rather high. Soft dorsal rather higher, its base shorter. Anal nearly equal to soft dorsal, its base somewhat shorter, its rays a little higher. Anal spine slender, single in the typical example, the normal number probably two. Caudal truncate, $1\frac{1}{3}$ in head, about as long as the ventrals, which are rather shorter than the pectorals.

Color in life, dusky green, with markings of darker olive, the latter forming about nine obscure cross-bars, which are about as wide as the interspaces, these most distinct posteriorly and below the lateral line. A dusky spot at base of caudal. A roundish orange spot in each of the pale interspaces between the bars along the sides. Some minute orange spots above the lateral line. A narrow black streak along-side of head through eye. A pink spot in front of eye above. Snout tinged with orange. First dorsal translucent, with a narrow edge of orange. Soft dorsal translucent, speckled with dusky and pale orange. Tail

with three or four alternate bars of orange and dusky olive, the marking not very sharp. Pectorals similarly but more faintly marked, orange at base. Anal and ventrals colorless. Breast not blue or orange.

A single specimen was obtained in Wolf Creek.

This species bears little relationship to any of those referred to *Poecilichthys*, in Jordan & Gilbert's Synopsis of the Fishes of North America. It has, however, the technical characters of the genus in which we here place it. Its long, naked, tapering head is its most striking peculiarity.

23. *Etheostoma cumberlandicum*, sp. nov.

Closely related to *E. l. flabellare* Raf., but with thicker head and different coloration.

Head, $3\frac{2}{3}$; depth, $5\frac{2}{3}$. D. VIII, 11. A. II, 7. Lat. l. 45, the tubes on 15 to 20 scales. Length, $2\frac{3}{4}$ inches.

Body moderately elongate, somewhat compressed, the back little elevated. Head unusually thick and heavy, little tapering anteriorly, much stouter than in *E. flabellare*. Mouth terminal, very oblique, the lower jaw somewhat projecting. Eye about as long as snout, $4\frac{1}{4}$ in head, the maxillary extending nearly to below its middle. Teeth rather strong. Head, nape, and breast naked. Belly and region along dorsal with the scales small.

Scales of body smoother than in *E. flabellare*, and more loosely imbricated, especially in the adult. Fins essentially as in other species, the dorsal spines low and subequal, lowest in the male, the flesh at their tips being thickened. Caudal large, rounded. Other fins moderate.

Color in life greenish, semi-translucent, the body in the adult without trace of lines, cross-bars, or spots, excepting the large, black humeral spot; back with a few faint, dusty cross-shades. Young with tessellated spots, and numerous faint cross-bars, which are developed chiefly as a series of spots along the lateral line. A dark streak from eye through snout; a round, black spot behind eye. First dorsal translucent, abruptly edged with black, the free tips of the spines golden orange. Second dorsal obliquely barred with alternating bands of black and golden. Caudal pale, with about seven very sharply defined curved cross-bands of black. Pectorals olivaceous, scarcely barred, an orange bar at base. Ventrals and anal plain, slightly dusky.

This little fish is excessively abundant in all the small streams of the Cumberland Mountains. Numerous examples were taken in Wolf Creek, Briar Creek, &c. Others were seen in the Clear Fork, Yellow Creek, Gap Creek, &c. In all these streams this is the most abundant of the Darters.

It should, perhaps, be considered a local variety of *E. flabellare*, but a larger intermediate series is necessary before this view can be taken.

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