

ON THE *ETHEOSTOMA VARIATUM* OF KIRTLAND.

By DAVID S. JORDAN.

In the Boston Journal of Natural History 1840, pp. 274-276, Dr. Kirtland has described two species of Darters, under the names of *Etheostoma variata* and *Etheostoma maculata*. The second of these has been till lately known only from specimens in the National Museum, collected by Dr. Kirtland and Professor Baird in the original locality. Lately, on comparison of these specimens with others from Tennessee, Professor Gilbert has recognized the identity of *Etheostoma maculata* with the *Pæcilichthys sanguifluus* of Cope.

The *Etheostoma variata* has been less fortunate. Kirtland himself regarded it as identical with the later-described *Etheostoma cærulea* of Storer, and under the name of *Pæcilichthys variatus*, Agassiz made the latter species the type of his genus *Pæcilichthys*. Putnam and Vaillant have correctly considered the *Etheostoma variata* as different from the *Pæcilichthys cæruleus*, but they have given no explanation of the grounds of their opinion.

In my earlier papers I have adopted Dr. Kirtland's view that the *Etheostoma variata* is the same as *Pæcilichthys cæruleus*. The resemblance in color of the two seemed to support this opinion, and the discrepancies in the description and figure were supposed to be due to inaccuracies on Dr. Kirtland's part.

In the Synopsis of the Fishes of North America, p. 503, Professor Gilbert and myself have adopted the view that Dr. Kirtland's figure and description were based on a specimen of *Hadropterus peliatus*, Stauffer, to which the coloration of *Pæcilichthys cæruleus* had been ascribed.

I have recently received two specimens of a Darter, taken in the White Water River at Brookville, Indiana, by Amos W. Butler. The larger of these, $3\frac{1}{2}$ inches long, an adult male, agrees very closely with Dr. Kirtland's description of *Etheostoma variatum*, and is evidently the species which Dr. Kirtland had in mind.

It is a species previously unknown to me (except from two discolored and ill-preserved specimens—the types of *Hadropterus tessellatus*), and its rediscovery forms an important addition to our knowledge of these fishes.

The following is the synonymy of the species, with a description of my largest specimen :

Hadropterus variatus.

Etheostoma variatum, Kirtland, Zool. Ohio, 1838, 168, 192; Kirtland, Boston Journ. Nat. Hist., iii, 1840, 274. (Mahoning R.)

Hadropterus variatus, Putnam, Bull. Mus. Comp. Zool. 1, 1863, 4. (Name only.)

Beleosoma variatum, Vaillant, Recherches sur les Poiss., *Etheostomidae*, 1874, 84.
(Locality unknown.)

Alvordius variatus, Jordan and Gilbert, Syn. Fish. N. A., 1883, 503. (In part confused with *Hadropterus peltatus*, Stauffer.)

Etheostoma notatum, Agassiz, MSS., 1850, fide Putnam. (No description.)

Hadropterus tessellatus, Jordan, Bull. U. S. Nat. Mus., x, 7, 1877. (Allegheny R.; young specimens discolored.)

Nanostoma tessellatum, Jordan and Gilbert, Syn. Fish. N. A., 1883, 511. (Dorsal spines given as "x," not xiii, by misprint.)

Head $3\frac{4}{5}$ times in length ($4\frac{2}{5}$ to base of caudal). Depth, $4\frac{4}{5}$ ($5\frac{1}{2}$). D. XIII-13; A. II, 9. Scales 8-51-9. Length, $3\frac{1}{3}$ inches.

Body moderately elongated, not much compressed, the back somewhat arched. Head short and thick, the snout short and blunt, and the profile above the eyes strongly decurved; profile a little depressed at the nape. Eyes large, not very close together, slightly longer than snout, $3\frac{3}{4}$ in head.

Mouth small, low, subhorizontal, the lower jaw included; teeth small, subequal, bluntish, in rather broad bands; teeth on vomer. Premaxillary not protractile; maxillary reaching front of eye, 4 in head. Top of head extremely rugose, the wrinkles evident through the skin, and radiating irregularly from behind the eye. Parietal region rather broad and depressed, as in other species of *Hadropterus*. Preopercle entire. Opercle with a rather sharp spine. Gill membranes somewhat broadly united, but meeting at a rather acute angle.

Head naked, except for one to three scales on the upper part of the opercle. Scales of body rather large, ctenoid. Lateral line complete. Nape covered with small scales; breast loosely scaled; belly covered with ordinary scales similar to those on the sides. No enlarged ventral plates.

Fins all very large. Dorsal fins slightly joined; anal fin large, but lower than the soft dorsal, and somewhat shorter. Pectorals reaching front of anal. Second anal spine longer than first; both of moderate size. Longest dorsal spine $2\frac{4}{5}$ in head. Longest soft ray $1\frac{1}{2}$. Caudal subtruncate, its longest ray $1\frac{1}{2}$ in head. Longest ray of anal $1\frac{3}{5}$. Pectoral a little longer than head; ventral a little shorter.

Color of large male specimen dusky greenish above, the head similar, the centers of the scales darker, and the whole body covered with fine dark points visible with a lens. Belly and sides of the body from anal fin forward and as high up as the level of the scapula of a bright yellow orange. Posterior parts of the body with five vertical zones of bright orange, these about half as broad as the dark greenish interspaces; first zone opposite the interspace between the dorsals, and extending downward to front of anal; the last two on caudal peduncle. A vague, dusky area on base of caudal; a dusky shade across nape in front of dorsal. Head nearly plain, with some dark specks and some dashes of orange. Breast with light orange shades.

First dorsal with a broad median band of blue-black; a paler stripe

below it and above it; the base of the fin with dark interspinal spots, and the edge of the fin again blackish. Second dorsal blue-black dashed with orange toward the base; caudal blackish, rather darker at base; anal blue-black, with orange-yellow at the base; pectoral blackish, with orange cross shades; ventrals blue-black, with some edgings of orange.

The young example is similarly marked, but has less dusky shading, the fins being mostly pale.

These specimens were obtained in a hydraulic canal above Brookville, Indiana, by Mr. Amos W. Butler, April 25, 1885.

INDIANA UNIVERSITY, *April 29, 1885.*

**ON THE OCCURRENCE OF HADROPTERUS AURANTIACUS (COPE),
IN THE FRENCH BROAD RIVER, NORTH CAROLINA.**

By TARLETON H. BEAN,
Curator of the Department of Fishes.

The National Museum has just received from Dr. J. A. Watson, of Asheville, N. C., a fine specimen of the above species.

(Accession No. 15967; catalogue No. 37175.)

The length of the example is 103 millimeters; the length to end of lateral line is 88 millimeters. The form is elongate. The caudal peduncle is somewhat deep, its depth equaling about one-half the length of the head. The snout is somewhat abruptly curved, and the lower jaw is included. The back is not conspicuously elevated. The outline from the interorbital space to the origin of the dorsal forms almost a straight line. The head is slightly compressed anteriorly; its greatest length is contained about $4\frac{1}{3}$ times in the length to end of lateral line, and the greatest depth of the body about $5\frac{1}{3}$ times. The eye is one-fourth as long as the head, and equal in length to the snout. The width of the interorbital space is contained 5 times in the length of the head. The upper jaw is slightly longer than the eye. Strong teeth in the jaws. A few teeth on the head of the vomer. The maxillary reaches a little beyond the vertical through the anterior margin of the orbit. Cheeks and operculum with small scales in numerous rows. Preopercle entire. Gill membranes very narrowly united. Opercular spine feeble. Gular region naked. Scales of body very small, ctenoid. The belly is covered with ordinary scales. Scales at the nape very small and numerous. Lateral line complete, nearly straight, only slightly elevated over the anterior half of the pectoral, following a little above the median line of the body.

The dorsal fins are separated by a very narrow interspace. The longest dorsal spine is one-half the length of the head. The soft dorsal is higher than the spinous dorsal, its longest ray being nearly two-thirds as long as the head. The caudal seems to have been nearly truncate