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A DESCRIPTION OF XANTHIC TESSELLATED DARTERS, *ETHEOSTOMA OLMSTEDI* (TELEOSTEI: PERCIDAE).—On 17 August, 1970, David Daniels of the Pennsylvania Fish Commission captured one specimen of xanthic tessellated darter, *Etheostoma olmstedi* Storer, in Mill Creek, a tributary of Conestoga River (Susquehanna River Drainage) south of New Holland, Pennsylvania. This discovery prompted two subsequent collections at the same locale by us.

Collections of fishes were made in August and September, 1970, and August, 1972, in the headwaters of Mill Cr., 2.7 km south of New Holland, Lancaster County, Pennsylvania (latitude = 40° 3' N, longitude = 76° 2' W).

The collections resulted in a total of five xanthic juveniles (four males; one female) in 1970 and two adults (one male; one female) in 1972. All xanthic specimens were from the 1970 year class. A collection approximately 50 m upstream from the study site resulted in several hundred tessellated darters, but no xanthic forms. All specimens were preserved in a 10% formalin solution, transferred to 40% isopropanol and placed in permanent storage in the Appalachian Environmental Laboratory Fish Museum, University Maryland. The habitat where both color phases were captured was a section of stream approximately 5-7 m wide and 30 m long flowing through a pasture. Depth ranged from .5-1.0 m. The area was covered by a dense growth of waterweed (*Elodea* sp.)

and occasionally patches of watercress (*Radicula* sp.). The bottom, where visible, was composed of sand in runs and silt and moderate sized rubble in pools and riffles. The entire area was affected by considerable erosion and disturbance by domestic animals. The site was located approximately 3 m above a sewage outfall. The bottom downstream from the collection site was covered with sewage fungus (*Sphaerotilus*) and the beds of waterweed were absent. Previous efforts of Daniels (person. commun.) yielded few fishes below the effluent. The following were associated species taken with both the xanthic and normally colored forms: *Notropis proce* (Cope), *Rhinichthys atratulus* (Hermann), *Semotilus atromaculatus* (Mitchill), *Catostomus commersoni* (Lacépède), *Fundulus diaphanus* (Lesueur), *Lepomis gibbosus* (Linnaeus), *L. macrochirus* Rafinesque, *Micropterus salmoides* (Lacépède).

Specimens of both the xanthic and normally colored phases were described immediately after capture and photographed approximately two weeks after preservation.

In the normally colored tessellated darter (Fig. 1A), the pigment pattern forms a distinct bar from the anterior part of the eye through the snout. A subocular bar is present. There are dark edges on many of the scales above, and some below, the lateral line. Five typical saddles appear on the dorsal surface: anterior to D₁, between D₁ and D₂, middle of D₂, posterior to D₂, and posterior of the least caudal peduncle. Spots form x-shaped markings along the lateral line. Dashes on the dorsal and caudal fins form barring. A few micromelanophores are present on the pectoral fins but none on the pelvic fins. Internally, there are dense melanophores on the peritoneum.

When first removed from the water, the xanthic specimens appeared to lack any extensive pigment. The body was pale yellow, translucent and the digestive tract and vertebral column were clearly visible. The preserved specimens (Fig. 1B) possess patches of melanophores anterior to each eye, which barely meet at the tip of the snout. There is a hint of a subocular bar. Scattered micromelanophores form a small patch on the anterior dorsal part of the operculum, and are present on the dorsal part of the body. Micromelanophores are present in the membranes of both dorsal fins and the caudal fin but not on the pelvics, pectorals or anal fins. The typical dorsal saddles and lateral x-shaped spots are absent. The peritoneum is dark with micro- and macromelanophores.

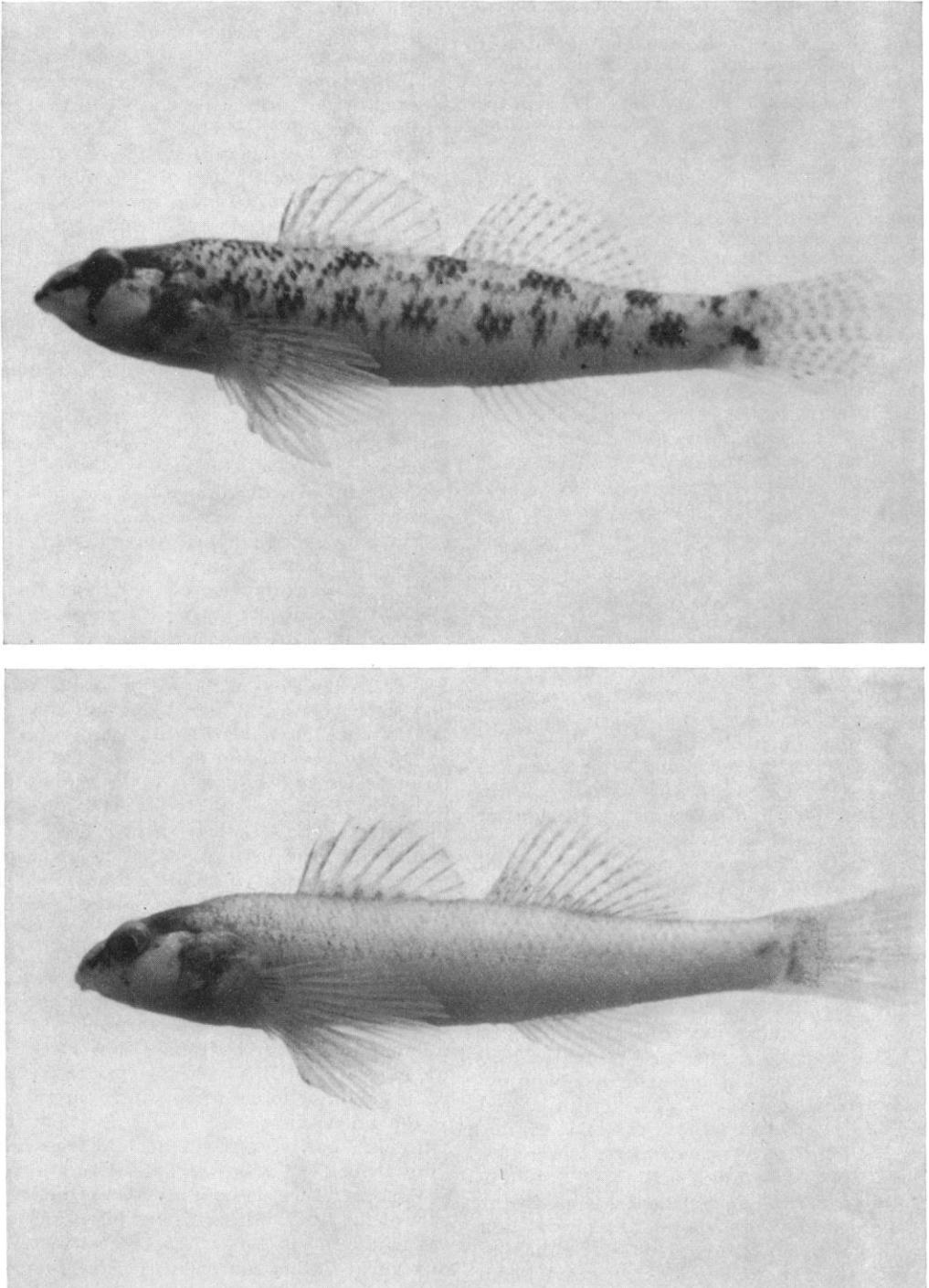


Fig. 1. A photograph of a normally colored specimen (top) and an xanthic specimen (bottom) of the tessellated darter, *Etheostoma olmstedi* Storer.

A one-way analysis of variance indicated no significant difference ($p = .05$) between the counts of seven meristic characters (lateral-line scales, scales above 1.1., scales below 1.1., least caudal peduncle scales, dorsal spines, dorsal rays, anal rays) of the seven xanthic specimens and 11 normally colored specimens. Methods of counting followed those given in Hubbs and Lagler (1958) and Raney and Suttkus (1964).

This series of xanthic specimens appears to represent a unique situation. Other authors have reported on single specimens (Allen and Neill, 1953) of other species or on a group of specimens (Johnson, 1968; Menzel, 1959), but not on a series from a single population. Life history and other studies which have included the tessellated darter made no reference to albino or xanthic specimens (Raney and Lachner, 1943; Cole, 1965; 1967; Tsai, 1972). Dawson (1964; 1966; 1971) and Hubbs (1919) gave no reference to xanthic forms of the family, Percidae.

Too few specimens of the xanthic forms were captured to determine if this strange pigment condition increased or decreased survival potential; however, our data do show that at least two specimens survived to adulthood.

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MELANISM IN *LEPISOSTEUS OSSEUS* FROM THE JAMES RIVER, VIRGINIA.—

The color pattern of adult members of the various species of *Lepisosteus* is relatively consistent with the dorsum typically various shades of olivaceous brown and the venter ranging from yellowish to white. Black spots are variously distributed on the body and fins with the numbers and dimensions differing among species and among individuals of different ages. Older specimens frequently lack distinct spots. Melanistic deviations from this pattern have been reported by Suttkus (1963) for three species inhabiting river systems that drain into the Atlantic Ocean and the Gulf of Mexico. Melanistic individuals of *L. oculatus* (spotted gar) are not uncommon in organically stained waters of swamps and bayous. The ventral coloration of *L. platyrhincus* (Florida gar) is highly variable and may range from immaculate to black whereas the dorsal coloration of *L. spatula* (alligator gar) may be nearly black, particularly in aquarium specimens. No reference to melanism in adult *L. osseus* (longnose gar) was made by Suttkus, however Goff (1935) reported the collection of a single black individual from Harris Lake in Florida. Breder (1969) reported the occurrence of melanistic young individuals of one to three cm associated with considerable organic debris. As far as we have been able to determine, the present paper is the first to describe extensive melanism in a population of *L. osseus*.

From July 1972 through June 1974 collections were made on 36 occasions with a boat mounted electric shocker (220 V, D.C.) from a 9.2 km stretch of the James River near Brems Bluff, Virginia. These collections were made as a part of a study of the influence of the heated discharge from an electric power station on the ecosystem of the river below the discharge (Woolcott, 1974). This station has been in operation since 1931. The river in this area