

inhabit Alpine waters in remote parts of the globe the environment which has caused this convergence is limited to the conditions obtaining in Alpine waters. A closer definition of the acting cause in the reduction of the ventrals I am unable to give.

In the last two instances I have but given facts which have forced themselves on my notice. The conditions obtaining on the Pacific slope were determined after a careful comparison of all Pacific and Atlantic slope species and the details of this comparison will appear in the publications of the U. S. Fish Commission.

ON THE FISHES OF WABASH COUNTY. By A. B. ULREY.

The present paper is presented as a contribution to the biological survey of Indiana. It is apparent that before any complete survey of the fauna and flora of the state can be made there must be a large number of local lists of animals and plants representing the different regions of the state. While the county forms in no sense a faunal area, there are numerous obvious reasons for making county lists. It is perhaps not essential that these local lists should cover faunal areas. When sufficient data are at hand the matter can then be placed in systematic order.

Wabash county is situated in the northern third of the state a little east of a line passing through the centre north and south. The Wabash river, flowing a little south of west, passes through the county near its centre. Eel river flows across the northwestern part and the Mississinewa crosses the southwest corner, both of which finally reach the Wabash.

The list here presented contains most of the fishes that occur in considerable abundance in the county and some that are found only occasionally. It is desired that it may be completed by some one in this region and notes made on the spawning, life-habits and environment, presenting a complete record of the ichthyology of the county.

The collections here represented are a part of more extended collections in other groups of animals and several groups of plants made by different members of the Wabash County Science Club.* A series of the fishes of the following list has been placed in the museum of Indiana University, one in the museum of North Manchester College and another in the pri-

*This material is in preparation for the biological survey of the state.

vate collection of Mr. William O. Wallace, Wabash, Ind. All of the specimens were taken in the northern half of the county in the following streams.

CATOSTOMIDÆ.

1. *Ictiobus velifer* (Rafinesque). Kentner's creek.
2. *Catostomus teres* (Mitchill). Hellem's creek; Paw Paw creek.
3. *Catostomus nigricans* Le Sueur. Eel river.
4. *Moxostoma anisurum* (Rafinesque). Kentner's creek.
5. *Moxostoma macrolepidotum* (Le Sueur). Paw Paw creek.

CYPRINIDÆ.

6. *Campostoma anomalum* (Rafinesque). Kentner's creek; Paw Paw creek.
7. *Pimephales notatus* (Rafinesque). Kentner's creek; Paw Paw creek.
8. *Notropis deliciosus* (Girard). Kentner's creek.
9. *Notropis whipplei* (Girard). Eel river; Kentner's creek.
10. *Notropis megalops* (Rafinesque). Hellem's creek; Kentner's creek; Paw Paw creek; Eel river.
11. *Notropis ardens* (Cope). Paw Paw creek.
12. *Notropis umbratilis* (Girard). Kentner's creek.
13. *Notropis atherinoides* (Rafinesque). Eel river.
14. *Ericymba buccata* (Cope). Kentner's creek.
15. *Rhinichthys atronasus* (Mitchill). Kentner's creek.
16. *Hybopsis amblops* (Rafinesque). Eel river; Kentner's creek.
17. *Hybopsis kentuckiensis* (Rafinesque). Eel river; Paw Paw creek; Kentner's creek.
18. *Semotilus atromaculatus* (Mitchill). Hellem's creek; Kentner's creek.
19. *Notemigonus chrysoleucus* (Mitchill). Hellem's creek.

ESOCIDÆ.

20. *Lucius* (*Esox*) *lucius* Linnæus. Paw Paw creek.

GASTEROSTEIDÆ.

21. *Eucalia inconstans* (Kirtland). Kentner's creek.

CENTRARCHIDÆ.

22. *Ambloplites rupestris* (Rafinesque). Eel river; Paw Paw creek.
23. *Chaenobryttus gulosus* (Cuv. and Val). Loc.?
24. *Lepomis cyanellus* (Rafinesque). Paw Paw creek; Hellem's creek.
25. *Lepomis pallidus* (Mitchill.) Loc.?

26. *Lepomis megalotus* (Rafinesque). Paw Paw creek; Kentner's creek.
 27. *Lepomis gibbosus* (Linnaeus). Paw Paw creek.
 28. *Micropterus dolomieu* (Lacépède). Eel river; Paw Paw creek.

PERCIDÆ.

29. *Etheostoma pellucidum* Baird. Eel river.
 30. *Etheostoma nigrum* Rafinesque. Paw Paw creek; Eel river; Kentner's creek.
 31. *Etheostoma blennioides* Rafinesque. Eel river; Paw Paw creek.
 32. *Etheostoma aspro* (Cope and Jordan). Paw Paw creek.
 33. *Etheostoma flabellare* Rafinesque. Eel river.
 34. *Etheostoma coeruleum* Storer. Eel river; Paw Paw creek; Kentner's creek.

COTTIDÆ.

35. *Cottus richardsoni* Agassiz. Kentner's creek.

AN ALPHABETICAL AND SYNONYMICAL CATALOGUE OF THE ACRIDIDÆ OF THE UNITED STATES. By W. S. BLATCHLEY.

VARIATIONS IN THE COLOR-PATTERN OF *ETHEOSTOMA CAPRODES*. By W. J. MOENKHAUS.

[ABSTRACT.]

In examining a representative number of *Etheostoma caprodes* from localities covering practically all the territory of its distribution. It was found that there existed a great variation in the color-pattern and that this variation showed a definite line of development.

The simplest coloration consisted of alternate long and short vertical bars developed on the body from the head to the base of the caudal. This simplest coloration was the prevailing pattern of the specimens taken from the streams of Indiana. Four specimens from the Alabama river differed only in that the bars were very much broader and more intensely colored.

In the specimens taken from certain tributaries of the Cumberland and