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FIELD OBSERVATIONS ON THE RESPONSE OF THE RAILROAD VALLEY SPRINGFISH (*CRENICHTHYS NEVADAE*) TO TEMPERATURE

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Abstract.— The presence of *Crenichthys nevadae* Hubbs is verified from 37.8 to 18.3 C in the Big Springs aquatic system.

The Railroad Valley springfish (*Crenichthys nevadae* Hubbs) is a small (ca 5 cm) cyprinodont found naturally only within the confines of Railroad Valley, Nye County, Nevada. One location in this valley is Big Springs on Lockes Ranch closely adjacent to Highway 6.

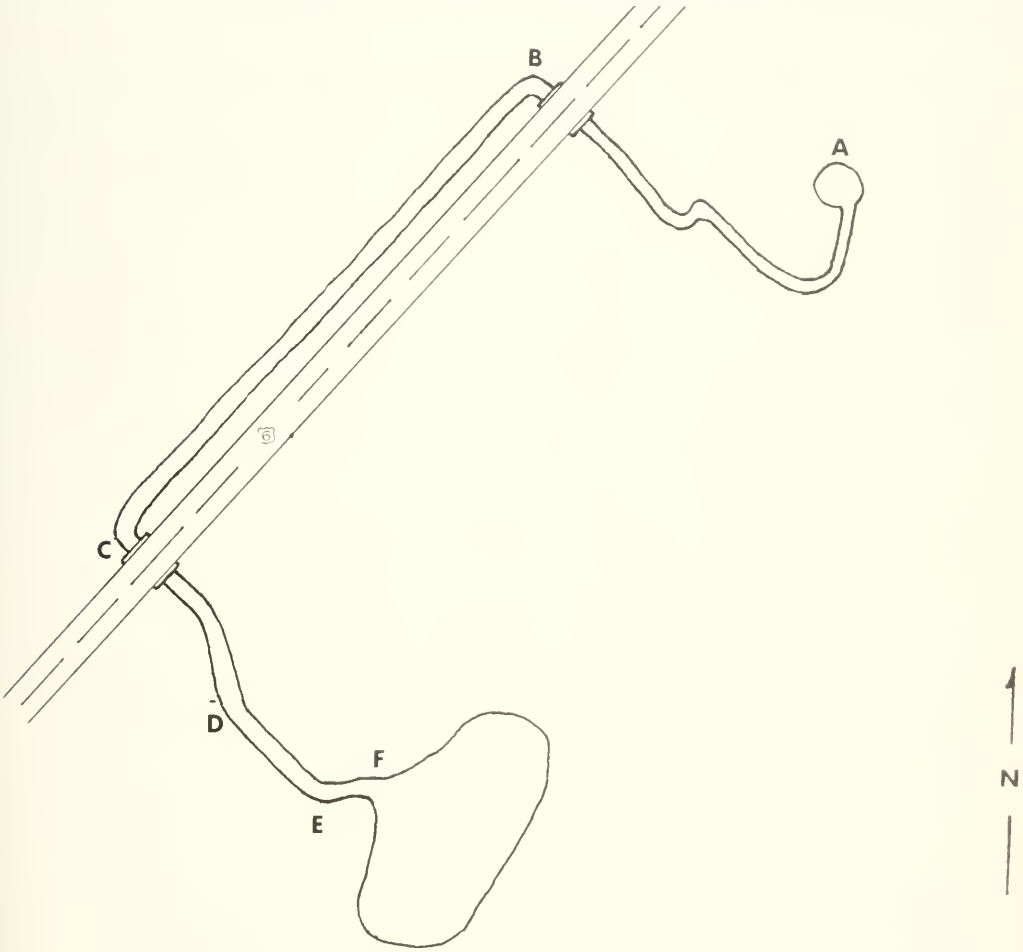

Fig. 1. Map of Lockes Ranch spring-stream-pond complex. A to B, spring and segment of stream to first down stream culvert; B to C, stream on west side of highway between two culverts; C to F, stream between second down stream culvert and pond.

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On 21 March 1980, the authors, while involved in other work, had the opportunity to make a cursory survey of water temperatures at several locations from the spring to the terminus of the stream in a pond on Lockes Ranch and to relate these temperatures to the presence of *C. nevadae*. (The length of the total aquatic system from spring to pond is estimated to be about 500 yards.)

Temperatures were taken and observations were made from 1459 to 1606 hours Pacific Standard Time. The air temperature was about 7.3 C. There were scattered clouds and wind gusts accompanied by snow flurries.

All temperatures were taken with a Weston thermometer (Model 2265) and the presence of *C. nevadae* in waters of various temperatures was verified by both authors.

The spring-stream-pond complex (Fig. 1) can be divided into three unequal segments: Segment 1 (A-B) encompasses the spring and that segment of the stream to the first downstream culvert. Segment 2 (B-C) is composed of that segment of the stream on the west side of the highway between the two culverts. Segment 3 (C-F) is composed of the segment of stream between the second downstream culvert and the pond.

The temperature gradient from spring to pond was 37.8 to 17.8 C. The temperatures at various points along the system, under the climatic conditions described above, were as follows:

Point	Temperature (C)	Fish
A	37.8	Yes
B	32.2	Yes
C	26.7	Yes
D	20.0	Yes
E	17.8	No
F	17.8	No

The last fish noted by the authors were between points D and E at a temperature of 18.3 C. No fish were found below that temperature nor were any seen in the shallow water along the perimeter of the pond, where temperatures were a uniform 17.8 C. The presence of fish was verified visually or, where vegetation made viewing impossible, by capture in a fine mesh net. Those fish noted at 18.3 C were taken in a net.

This cursory survey establishes a temperature profile for the Big Springs system of 37.8 to 17.8 C and a temperature tolerance range for *C. nevadae* of 37.8 to 18.3 C.