Great Basin Naturalist

Volume 10
Number 1 – *Number 4*

Article 2

10-10-1950

A new species of *Gila* from Nevada (Cyprinidae)

Vasco M. Tanner
Brigham Young University

A NEW SPECIES OF GILA FROM NEVADA (CYPRINIDAE)[1]

VASCO M. TANNER
Brigham Young University

Even today, one frequently encounters some individuals who contend that speciation is not going on among the plants and animals of the earth. That isolation plays a role in establishing genetic changes of animals is well demonstrated in the fish fauna found in eastern Nevada. In this short paper, I wish to call attention to another geminate species found in the old White River drainage system.

With several students, in May 1949 and April 1950, I spent two weeks traversing the drainage system from Lake Mead to the head waters of the Muddy River, then over the divide into Pahranagat Valley, thence north from Hiko, over a dirt road which passes through some of the old White River Canyon, to Sunnyside, Hot Creek Ranch, Lund, Preston and north to Ruth and Ely. The divide between the head waters of the Muddy and Pahranagat Valley was studied and several species of reptiles collected in this area. The Coyote Springs Valley was definitely a part of the drainage course from lower Pahranagat Lake to the Home Ranch springs near the head of the Muddy River. The present topographical features from above Preston south to Lake Mead presents conclusive evidence to me that this old drainage system was once a tributary of the Colorado River. The present springs and streams were, no doubt, a part of the ancient surface water system. With the disappearance of running water which connected the springs, the fish fauna of the system was trapped in the dozens of springs and short streams which, in time, have become isolated. Some species persisted in the warm springs, 80° – 90°F, while others survived in the cool water springs 59° – 70°F. Thus for hundreds of years the Pahranagat Valley and White River springs have been isolated from the Colorado River drainage. This separation of the fishes of these valleys may be used to illustrate in a remarkable manner David Starr Jordan's law of geminate species, which he has promulgated as follows: "Given any species in any region, the nearest related species is not likely to be found in the same region, nor in a remote region, but in a neighboring district separated from the first by a barrier of some sort, or at least by a belt of country the breadth of which gives the effect of a barrier." Some of the fishes of these valleys

1 Contribution No. 122, Department of Zoology and Entomology.

have their nearest relatives in the Colorado River and its nearby tributaries, the Virgin and Muddy Rivers. Examples are the species of Gila, described below, and the catostomid, *Notolepidomyzon intermedius* Tanner found in White River County around Preston and Lund.

Hubbs and Miller, in two very useful papers, have pointed out "the strong tendencies toward isolation, endemism and relict distribution that characterize the fishes of these areas."

The species described below was first found in the Hiko springs on Mrs. Whipple's ranch in May, 1949. Upon seeing this cyprinid among *Cyprinodon macularius baileyi*, I was greatly interested since it was so new looking. In the water it was an olive green on head and back with silvery sides and venter; then too, it was more active and stream-lined than its associates. We put out wire traps, but after hours of trying we only collected three specimens, BYU 8981, 8980 and 9084. These proved to be so different from other Gila specimens from the Colorado River drainage that I again went back into the area in April, 1950 and obtained three more specimens from Crystal Spring, six miles south of Hiko. Two of these, BYU 9958 and 9959, are larger specimens. In life they are similar in color to the Hiko spring specimen, except that the more mature ones are heavily blotched as shown in figure 1. They were very active and hard to catch. Locally they are called trout and will take the baited hook. They are scarce and under the present method of dealing with the water from these springs I surmise that they may, in the near future, become extinct.

GILA **JORDANI** Tanner, sp. nov.

Description of the type specimen BYU 9959: Head 3.6+; depth 4.3+; eye 6; D. 9; A. 9; teeth 2, 5–4, 2. Body somewhat elongate, more robust than *Gila elegans*; back only sightly elevated and head depressed; least depth of caudal peduncle about one-fifth of its length and 3¼ in length of head; mouth width 18 mm., the upper lip just below the level of the lower part of the orbit; eyes, small, anterior; fins about as in *G. robusta;* pectorals not reaching the ventrals in any specimens of this species; caudal fin forked; dorsal set a little back of the ventrals; middle caudal rays less than half the length of the upper caudal lobe; proximal portions of the fins in life whitish, in preservative an orange color; scales 26-91-14; in the series 89 to 94 on the lateral line; 26 to 27 above and 13 to 14 scales below the lateral line. In life the body is greenish with black blotches, while the preserved specimens are a lead gray with black blotches and white belly;

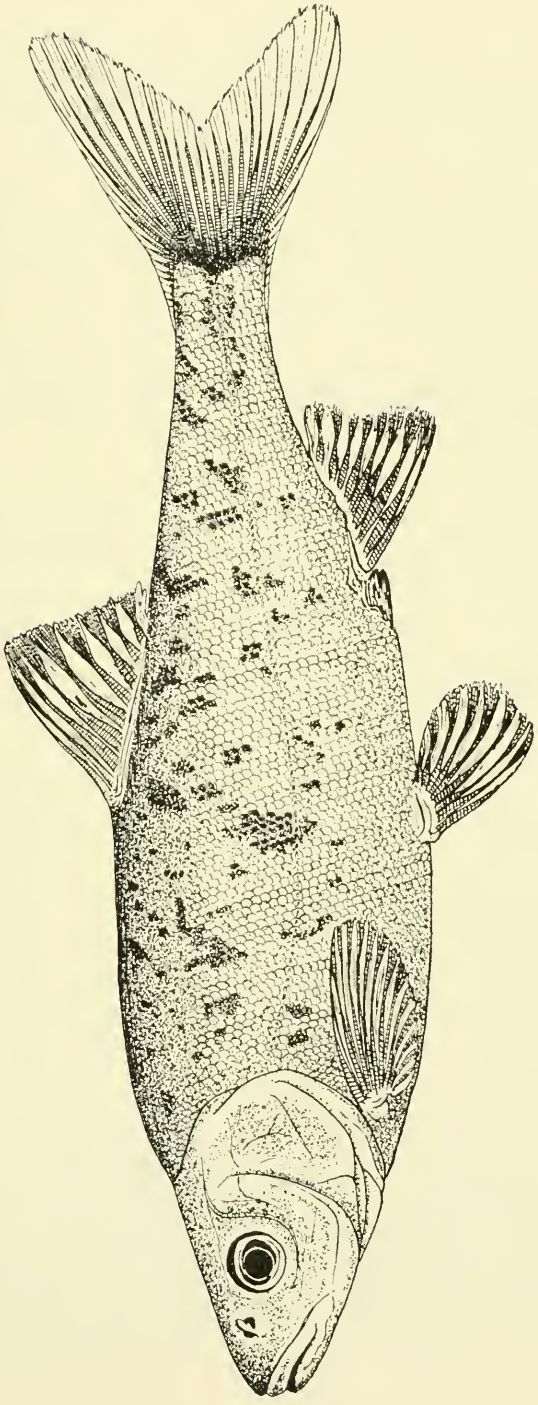

Fig. 1. *Gila jordani*, new species. Drawing of the type specimen from Crystal spring, Lincoln Co., Nevada. 1.5+.

Measurements of the type and paratypes of *Gila jordani* in millimeters.

Locality	Hiko spg.	Hiko spg.	Hiko spg.	Crystal spg.	Crystal spg.	Crystal spg.
Numbers	BYU 8981	BYU 8980	BYU 9084	BYU 9958	BYU 9959	BYU 9960
Standard length	72	68	85	185	158	83
Dorsal origin to tip of snout	39	36.5	45	107	83	43
Pelvic origin to tip of snout	36.5	35	43	99	78	55
Anal origin to caudal base	25+	23.5	30	71	55	30
Body, greatest depth	17	15	17	50	42	18
Greatest width	11	10	12	38	30	14
Head, length	22	20	25	58	43	24
Depth	14	12.5	16	43	34	18
Width	12	11	14	38	28	15
Caudal peduncle, length	15	14	19	74	60	29
Least depth	6	5.5	6.5	14	13	6.5
Interorbital, least bony width	6.5	6.0	7.5	18	14	8.5
Opercle, greatest length	8	7	10	20	14	9
Snout, length	6.5	5.7	8.0	9	8	5.6
Eye, length	5.0	5.0	5.6	9.0	7.0	5.5
Orbit, length	5.5	5+	6.0	9.1	7.1	5.5
Mouth, width	7	6	8.5	24	18	9.0
Upper jaw, length	8	6+	8.3	16	13	7.5
Mandible, length	6.5	5.5	6.7	18	14	8.0
Dorsal fin, depressed length	16	16	.	40	32	20.0
Basal length	10	9.5	11	26	20	12.0
Anal fin, depressed length	14	14	16	39	26	17.0
Basal length	9	9	10	23	16.5	10
Middle caudal rays, length	8	8	.	17	16.0	9.0
Upper caudal lobe, length	21	20	.	47	36	24.0
Pectoral, length	13	13	15	29	25	17
Pelvic, length	11.5	11	14	26	22	15
Dorsal rays	9	9	9	9	9	9
Anal rays	9	9	9	9	9	9
Pelvic rays	9	9	9	9	9	9
Scales	27-93-13	27-93-13	27-94-13	27-91-14	26-91-14	27-89-14

young specimens have a silvery color when in spirits. Type about 6¼ inches long.

TYPE LOCALITY: Crystal Spring, Pahranagat Valley, Lincoln County, Nevada. Water clear, cool, 59°F, and good to drink. This spring flows several second feet of water and is used for irrigation. The only other fish taken in Crystal Spring was *Cyprinodon macularis baileyi* Gilbert. With wire fish nets I collected about 100 specimens of this species. In the water *baileyi* is blackish in color with white stripes.

PARATYPES: In the table above are the measurements of the type and two paratypes, BYU 9958 and 9960 from Crystal Spring and three paratypes, BYU 8981, 8980 and 9084 from Hiko Spring. All type specimens are in the Ichthyological Collection at Brigham Young University.

REMARKS: *Jordani* is a small scaled species belonging to the subgenus Gila, as proposed by Miller, 1945. It is related to *G. robusta*. It differs from *robusta* in body proportions such as head and depth and by being less elongate; by having more scales above, below, and on the lateral line; and in life by having a greenish color intermixed with black blotches.

I am pleased to name this species for David Starr Jordan, a great ichthyologist and educator, which is but a small way to show my appreciation for his and Mrs. Jordan's many kindnesses to me while I was a student at Stanford University.

I wish to acknowledge the help of Mr. Leland Lamoreaux, Principal of the High School at Alamo, and Mr. and Mrs. Bert Allred of Preston, Nevada for their help and kindness to us during our stay in this area. Mr. Lamoreaux spent some time in the field as our guide. I also wish to express appreciation to Clayton Farnsworth, Dale Parker and Don Skousen, graduate students who accompanied the writer in the field in 1949 and 1950.

LITERATURE CITED

Hubbs, Carl L., and Robert R. Miller

1948a. Two new, Relict Genera of Cyprinid Fishes from Nevada. Occ. Papers Mus. Zool. Univ. of Mich., No. 507: 1–30, pls. I–III.

1948b. Correlation between Fish Distribution and Hydrographic History in the Desert Basins of Western United States. Bull. Univ. of Utah, Biol. Ser. Vol. X, No. 7, pp. 17–169.

Miller, Robert R.

1945. A New Cyprinid Fish from Southern Arizona and Sonora, Mexico, with the Description of a new subgenus of Gila and a Review of Related Species. Copeia, No. 2, pp. 104–110.

Jordan, David Starr

1926. Isolation with Segregation as a factor in Organic Evolution. Smithsonian Report for 1925, pp. 321–326.

Jordan, David Starr, and Barton Warren Evermann

1896. The Fishes of North and Middle America. Bull. 47, U.S. Nat. Mus. Pt. I: I-X, 1–1240.

Tanner, Vasco M.

1942. A review of the Genus Notolepidomyzon with a Description of a New Species (Pisces-Catostomidae). The Great Basin Naturalist, Vol. III, pp. 27–32.