

**Cyprinodon macularius** Girard.

*Type locality.*—Rio San Pedro, Arizona.

(*Cyprinodon nevadensis* Eigenmann, Proc. Cal'a Acad. Nat. Sci., 1889, 270.)

This small Cyprinodont inhabits the springs and wells throughout the desert region of southern California, Arizona and Nevada, and is the characteristic denizen of the more or less alkaline waters of this district. The original types are from the Rio San Pedro, a tributary of the Rio Gila, and I have found it abundant at a pond at Lerdo, Mexico, on the lower Colorado River. Specimens obtained at Lerdo have been compared with those from Death Valley and found identical.

The species varies in form and color, and apparently in the size which it reaches in different localities. The males have the back and sides uniform dusky, the lower parts lighter, all the fins in the most brightly colored individuals being broadly margined with black. The females have the lower half of sides as well as belly lighter, often silvery white, the sides crossed by black bars, which are wide along middle of body, but become much narrower than the interspaces on the lower half of sides. The bars vary in number and size and often alternate with narrower, fainter, and shorter ones. The fins are light, and the dorsal either with or without a black blotch on its posterior rays. Although usually uniform in coloration, the males occasionally show lateral bars, which, however, contrast little with the general dusky color of the sides.

The dorsal varies from 9 to 11, and the anal from 10 to 11. There are 24 or 25 transverse series of scales, and the humeral scale is but little enlarged. The head is contained 3 to  $3\frac{1}{2}$  times in the length. Adults are very short and deep, the depth being nearly or quite half the length; in half-grown specimens 1 inch long, the depth is contained  $2\frac{2}{3}$  in the length. The eye is very small, about equaling the snout, contained  $1\frac{1}{2}$  to  $1\frac{2}{3}$  times in the interorbital width, and  $3\frac{2}{3}$  times in the head. The front of dorsal is usually midway between occiput and base of caudal.

The normal number of ventral rays in this species seems to be six. No specimen examined has shown more than this number, and in several but five are present. In one specimen from Ash Meadows, Nevada, the ventral of one side only is present, and contains but three or four

rays. Four young specimens from the same locality and two from Medbury Springs, Amargosa Desert, California, have the ventrals wholly aborted, and show on dissection no trace of the basals. These occur in the same lots with other specimens having normal ventrals, and are otherwise indistinguishable from them. No full-grown adults were found without ventrals, the largest being a half-grown specimen about one inch long with the characteristic coloration of the males already developed. Ten young specimens from the 'Devil's Hole,' Ash Meadows, are all without ventrals, and further collections from this locality would be of interest.

In the intestines were found fragments of insects, and in one series of specimens from Saratoga Springs at the south end of Death Valley, California, very numerous shells of a small Gasteropod mollusk.

Specimens are in the collection from the following localities: Medbury Spring (6 miles north of the Borax Works), Amargosa Desert, California; Ash Meadows, Amargosa Desert, Nevada; Saratoga Springs, Death Valley, California; Amargosa Creek, California.

*Cyprinodon macularius baileyi*, subsp. nov.

*Type locality*.—Pahranagat Valley, Nevada, collected by C. Hart Merriam and Vernon Bailey, May 25, 1891.

Eleven immature specimens from Pahranagat Valley, Nevada, show no trace of ventral fins. They are olivaceous above, bright silvery on the lower half of sides and below, and have two lengthwise series of coarse black spots, one along middle line of body, the other on a level with the lower edge of caudal peduncle. The anal fin is larger than in typical *macularius*, the eleven specimens having each 13 rays instead of 10 or 11, as constantly in the latter. The material is insufficient to fully decide the status of this form. Except in the characters noted it agrees in proportions and formulæ with *macularius*.