FIELD NOTES ON PUPFISH HABITATS

IN

DEATH VALLEY, ASH MEADOWS,

&

SOUTHERN AMARGOSA RIVER BASIN

5/31-6/4/83

PART II

by

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From the newsletter of the Michigan Killifish Assn., Feb. '84. The first part of this article appeared in the Sept. '84 AC. In connection with a 1983 meeting of the AKA, several killie enthusiasts, including NANFA members Martin, Northville, MI, and John Brill, Livingston, NJ, toured the area described here.

Mexican Spring, Ash Meadows

Cyprinodon nevadensis pectoralis

June 1, 1983 - 7:30 A.M.

1. The spring has been dry since 1973. We could only guess where it existed based on the heavy white carbonate deposits on the ground.

2. This spring was noted to have contained the smallest self sustaining vertebrate population in the world. It was estimated to have contained only 80 gallons of water and a population size of well under 100 individuals.

3. Mexican Spring is located between School Spring and Scruggs Springs. It is approximately 50 yards northwest of School Springs and approximately 200 yards south of Scruggs Springs. From Mexican Spring looking east, you could also see the mountain which rises above Devil's Hole. The sun was rising almost over the mountain.

4. Mexican Spring is enclosed within a barbed wire fence but has not been marked with a sign by the Park Service.

Point Of Rocks Spring, Ash Meadows

Cyprinodon nevadensis mionectes

June 1, 1983 - 8:30 A.M.

1. This spring has not been marked with a sign by the Park Service.

2. The area consisted of five or six man-made pools in addition to the original (lower) pool. The original pool is the first one encountered from the dirt road entering the area. The outflow water from this pool enters a large pipe going under the dirt road and flows into a concrete irrigation channel next to an alfalfa field.

3. The whole area had been bulldozed by the PEC Development Corporation in preparation for a winter resort housing project. The project has since been stopped by the federal government.

4. Water temperature and specific gravity readings were taken in three places in the original pool:

   A. Breeding ledge -
      Water temperature - 82 Deg. F.
      Specific gravity - above 1.000

   B. Far end of pool from pool spillway -
      Water temperature - 82 Deg. F.
      Specific gravity - above 1.000

   C. Next to pool spillway -
      Water temperature - 82 Deg. F.
      Specific gravity - above 1.000

5. The pool is approximately six feet deep in the center and 50 to 60 feet in diameter. The water was very clear and we could see the bottom. Several spring heads exist along the eastern bank of the pool. The water flowing from these spring heads is noticably warmer than the surrounding water. There is a heavy growth of hair algae covering the bottom of the pool.

6. Notes on the breeding ledge -

   A. It is located on the eastern bank and is the most striking feature of pool.

   B. This ledge ranges in depth from shoreline to six or eight inches and then drops off very sharply to several feet.

   C. Heavy clumps of hair algae are separated by clear areas on the ledge.

   D. The adult males were displaying their typical territorial behavior as females darted in and out of the areas.

   E. The adult males were not timid. They remained on the ledge by their individual clumps of hair algae as we photographed and observed them.

7. Other vertebrate and invertebrate life observed in the pool:
   1. Gambusia affinis (introduced)
   2. Poecilia latipinna (introduced)
   3. Procambarus clarki (crayfish)
   4. Rana catesbeiana (bullfrogs - introduced)

Big Spring, Ash Meadows

Cyprinodon nevadensis mionectes

June 1, 1983 - 9:45 A.M.

1. The spring was difficult to find because the roads in the area were not clearly marked. The Park Service has erected a sign and built a barbed wire fence at the park entrance.

2. The spring is used as a public water supply by the local residents. The water was an impressive deep blue and very clear. We could see all the way to the bottom.

3. The spring is circular with a diameter of 40 to 50 feet. All the side walls of the pool appeared to be almost vertical to the bottom. It has a depth of 15 to 20 feet with a deep area near the center which appears to be the spring head. There is an overflow channel on one side of the pool.

4. Cyp. n. mionectes appear to be distributed throughout the pool and at all depths. John Brill and Harry Faustmann did go swimming but they were unable to observe if fish were actually present in the deepest part of the pool.

5. Adult males were displaying their typical territorial behavior both on a small breeding ledge and on its vertical walls.

6. Water temperature - 82 Deg. F.
Specific gravity - above 1.000

7. Other vertebrate and invertebrate life observed in the pool:
1. Gambusia affinis (introduced)
2. Poecilia latipinna (introduced)
3. Procambarus clarki (crayfish)

Cottonball Marsh, Death Valley

Cyprinodon milleri

June 4, 1983 - 7:00 or 8:00 A.M.

The following field notes were taken from John Brill and Bill McNiff. I did not personally travel to this site.

1. Specific gravity - 1.008 to 1.010
Water temperature - Approximately 80 to 85 deg. F (felt warm to the touch)

2. Three springs or pools of water were found:

First site (largest pool) -

The pool was six inches in depth and its water disappeared into the plants surrounding the pool. No fish were observed in the pool.

Second site (spring against a mountain) -

The same conditions were observed as described for the first site. No fish were again observed in the pool.

Third site (a spring approximately 100 feet east of the "road" leading to the marsh) -

A single spring was found among the bushes approximately 20 to 25 inches deep. It had a clear bottom with suspended algae/mulm clumps floating in it. Many juvenile Cyp. milleri were observed in the outflows of the spring in approximately 1/4 to 1/2 inches of water. This is the only location at which fish were observed.

Saratoga Springs, Death Valley

Cyprinodon nevadensis nevadensis

June 4, 1983 - 2:45 P.M.

1. The springs are located at the southern end of Death Valley near the town of Tecopa, California.

2. They are found on the Harry Wade Exit Road from Califoria Route 127. We turned west onto the gravel road and travelled six miles until a sign pointed us to the springs. Turning north, we travelled another two miles to the park following the signs. The springs have been clearly mark by the Park Service.

3. Water temperature - 90 Deg. F.
Specific gravity - above 1.000
Air temperature - 102 Deg. F.

4. The site consists of the springs and two connected large shallow outflow ponds.

5. All close observations were performed on the springs as we entered the park.

   A. This pool contained large deposits of carbonates around its sides. A thick curtain of reeds surrounded it. There was a heavy concentration of dragonflies, horseflies, wasp, deerflies and other insects flying above the surface of the pool.

   B. The pool was approximately 30 feet in diameter with an even depth of approximately four feet.

   C. The water was clear with two types of plants covering the bottom. They appeared to be a plant commonly called "foxtail" and the other a grass-like plant. The impressive feature of this pool occurred when we first stepped through the reed curtain on an asphalt pathway and looked into the water. The Cyp. n. nevadensis were feeding all over the bottom plants in large numbers. As they twisted and turned, the sunlight was reflecting off their bright blue bodies making them appear as twinkling Christmas tree lights.

   D. The very center of the pool contained a sandy clear bottom.

6. The two peripheral outflow ponds were much larger but were not observed closely. The banks were very soft and it was difficult to get to them. These ponds appeared to be no more than two or three feet deep at most. Both ponds contained a very heavy bottom covering of plants. A reddish algae appeared to cover most of the plants. Cyp. n. nevadensis were observed in both ponds.

Amargosa River - Tecopa, California

Cyprinodon nevadensis amargosae
(River Population)

June 4, 1983 - 5:00 P.M.

1. At this location, the Amargosa River had created deep canyon walls. The river valley was very rocky and forced the river to meander. The bank areas near the water were spongy and one had to be careful not to sink in. There was a decaying sulfur smell to the area. The river had a sluggish current and the water in the backwash areas was very green and contained a heavy algae growth. These areas also had a scum on the surface of the water.

2. The shallow areas of the river ranged in depth from one to two inches and the deeper pockets from six inches to two feet.

3. Juvenile Cyp. n. amargosae were abundant and observed schooling in the shallow areas of the river. The adults stayed in the deeper pockets and appeared to be abundant.

4. Water temperature - 90 Deg. F., specific gravity, 1.000 (a small amount of salt).

5. Invertebrate life observed in the river:
   A. Deerflies (very heavy)
   B. Horseflies
   C. Procambarus clarki (crayfish)