SPAWNING THE BLACKBANDED SUNFISH

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The Blackbanded Sunfish (Enneacanthus chaetodon) is sometimes obtainable from wholesale tropical-fish markets in Chicago, whence local retail pet shops in Champaign and Urbana obtain them. I have been told that these fish may originate from hatcheries in Asia. They are usually less than 2 cm long, and often very emaciated. Chances for survival are poor, but there are exceptions. I maintained a group of eleven specimens for five or six years; the last two still surviving are now eight years old.

The fish were maintained in aquaria allowed to cool as low as 45°F during December, January, and February each winter. Gradually increasing temperatures each spring brought the water into the 60-70°F range by mid-April. Twenty-gallon aquaria were used, heavily planted with Valisneria in fine-grain red-flint aquarium sand. Sponge filters and aerators took care of life support. The fish were fed live garden earthworms daily, and mosquito larvae and daphniae occasionally. Frozen brine shrimp supplemented the live food. The aquaria received only natural light. The pH, measured only a few times, always read near 6.5. The water was the local city water conditioned with Novaqua. There were biweekly partial water changes.

In 1981, in an aquarium with two male and four female E. chaetodon, I observed repeated spawning activity from late May through June. The males were about 7 cm total length; the four females were each about 9 cm. total length. (Two of the females survive and are now close to 10 cm long.) One male made a depression several centimeters deep and about 10 cm in diameter in the sand with swirling motions of his body and tail. Except when feeding, he remained over or very close to the nest at all times, usually suspended from 5 to 10 cm above the nest. The other male remained hidden in a Valisneria thicket most of the time. Both males and all four females came to the feeding site whenever food was offered.

Spawning activity was observed many times, and at different times during the day. Typically, a female approached the male, who swam toward her with fins spread. The two turned their sides toward one another, facing in the same direction with wagging movements. Within a few seconds to a minute, the courting pair descended to the bottom of the depression, where a close side-by-side stance was taken. Their bodies vibrated, and they apparently released eggs and milt. The fish separated within 10 to 30 seconds. The act was usually repeated many times. One one occasion, two females spawned simultaneously with the male, one on either side, so that he was sandwiched in between the females.

Siphoning the sand from the depression proved that spawning took place. There were many eggs adhering to the sand particles. I recovered eggs in this manner many times over a six-week period. I placed the eggs and sand in shallow containers with gentle

aeration. Hatching occurred within a few days (precise data not available); after four or five days, the fry became free-swimming.

Paramecia from a culture were accepted by the fry, but no fry ever survived for more than a few days on this diet. The fry also took newly-hatched brine shrimp nauplii, but again none survived beyond a few days. I do not know why rearing failed. Survival in an established aquarium with supplemental feeding was only slightly more successful; although the fry were seen to feed, they did not survive beyond the first week. An old report in a German publication states that paramecia are not nutritious enough and that rotifers are needed (Holly, M., Meinken, H., Rachow, A. 1935 Die Aquarien Fischche 7:88/90, Sect. 30,4). Another possibility is that the parent fish were too inbred and the fry weak.

This past summer, I succeeded in rearing a few Blackbandeds. Spawning took place in a small backyard pond (about 5'x12') rather than in an aquarium. Furthermore, the adult fish were wild-collected (New Jersey) and very vigorous and colorful compared to the purchased stock that spawned in aquaria several years ago. I put twelve sunfish in the pond in late May. The water depth was from a few centimeters over Arrowhead, Pickerel Weed, and Lizard's Tail, to about 50 cm adjacent to tubs containing Nymphaea cultivars. A mass of Elodea and Ceratophyllum was present for cover. The pond had been filled in early water with city water. No chemicals were ever added. Rain maintained the water level during most of the season, though city water was used occasionally to make up for evaporation when rain was scarce. The temperature rarely exceeded 75°F. The pH was about 6.5. Earthworms, slugs, and various insects fell into the pond and must have served as food, since I did not supplement what nature provided. Aquatic insects were present, such as mosquito larvae (but never very large) and bloodworms, aquatic beetles, hemipterans, and even damselfly nymphs. The latter may have been responsible for some predation on the fry.

In late July, I netted out five Blackbandeds, all about 1 cm long. I placed them in an aquarium and fed brine shrimp nauplii. They grew rapidly and by October 30 were about 2.5 cm long. I drained the pond in October so that I could capture the adult fish, and I found three more very small (less than 1 cm) Blackbandeds, obviously from a later spawning. These have done well on brine shrinp.

I believe that I would had greater success with E. chaetodon if the species had been the sole inhabitant of the pond. I had also placed a few E. obesus (Banded Sunfish) and E. gloriosus (Bluespotted Sunfish) plus five Fundulus dispar (Northern Starhead Topminnow) in the pond. These species all spawned with varying degrees of success. I found only one young F. dispar, but about 30 small sunfish. Some are obviously E. gloriosus and some are E. obesus. At this writing, most are still too small to separate; however, they are either E. gloriosus or E. obesus, since E. chaetodon is easily identifiable even at 1 cm. Next summer, I will put only E. chaetodon into the pond, and I hope that breeding will be more successful.