THE REDBELLIED DACE & THEIR ALLIES: Four Phoxinus Snapshots

Contributors: Edward Cope (deceased), Ken Brunson, and Valdimir Constantinescu

1. Discovering the Northern Redbellied Dace; Distinguishing It from the Southern

"Mr. Cope stated that he had made the interesting discovery of the occurrence of the genus Chrosomus Raf. in the Susquehanna basin. It had been previously known exclusively as a transalleghenian type. The specimens of the species which he called Chrosomus eos, were caught in the Meshoppen Creek, Susquehanna County. The peculiarities which first strike the eye as separating them from those of C. erythrogaster, are--1st, the absence of lateral line; 2d, the nearly straight dorsal outline' 3d, the want of prominenee [sic] of the premaxillary region, and the downward slope of the mouth; 4th, the confluence on the tail of the lateral colored bands. A groove extends on each side of the body above the position corresponding to that of the rudimentary lateral line of erythrograster; along this the superior lateral black stripe runs. The inferior band becoming confluent with the upper, traverses the median lateral line of the peduncle of the tail. The depth of the body anterior to the dorsal fin enters the length exclusive of the caudal fin, a little more than four times. Thus it is a more slender species than the erythrogaster. The diameter of the eye is greater than the distance from its anterior border to the end of the muzzle; it enters the length of the head 3½ times. The proportions of the fins are similar to those in erythrogaster, excepting in the absence of one ray in the anal, and two in the caudal. The formula is D. 8, C. 18, A. 8, V. 8, P. 16. Of the five larger pharyngeal teeth the smallest is much hooked. In specimens 2½ inches long taken in September, the abdomen was yellowish silvery as far as the interior lateral line; above this the tint was brownish vitelline, darkest superiorly. No silvery between the bands."

--From Cope 1862. Proc. Acad. Nat. Sci. Phila. [1861] 13:522-24. The Ed. of AC has made two futile trips to the area described by Cope to rediscover Phoxinus eos. Robert E. Schmidt has told the editor that inexact directions are characteristic of Cope. Eos is listed as "Possibly Extirpated" in the Pa. list of "Specially Protected Species," Konrad Schmidt, AC, May '84.

2. Redbellied Dace Have Yellow Bellies!

Despite their name, when the red fades, the most striking feature of Northern Redbellied Dace is the yellow on belly and fins. It's as brilliant as the yellow on Melanochromis auratus, the "mbuna."

REDBELLIED DACE, cont'd.

3. Frustrations of Photographing Southern Redbellied Dace

I thought while it was still fresh in my mind, I would relate some information and experience I've gained relative to my Southern Redbelly Dace picture-taking efforts.

As I have learned from not only dace, but other native species as well, a great deal of frustration and reward can accompany the experience of fish photography. I am somewhat of an expert at fish biology, since that is my profession, but I am painfully amateurish when it comes to photography. I do know, however, what some of the native fish are supposed to look like when they are at the peak of their coloration, and this is what I try to "shoot" for when depicting them on print paper. As I am sure you are aware, there is a considerable "chasm" between the desired image in the mind and the resulting transparency. That "chasm" may involve hours of neck-straining patience, rolls of "almost sharp" k-64 slides, and countless manipulative strategies at attaining the best shot of the highest peak coloration in the species of interest. In my session with the dace, I experimented with temperature shock, substrate types and modification, background color changes, crowding, bankside photography, and cursing, but was still unable to obtain the mental image I was after. Since I was doing this early in the spring during the natural time of spawning for this species, it was easier to obtain bright mating coloration in the males. These were fish that I'd recently collected, and I often found some of them in good crimson coloration in the aquarium early in the morning. The best luck I had at getting my male dace "colored up" was to place a half-dozen or so individuals in a small fish bowl containing water at about five to eight degrees F below that of the aquarium and keep them in the dark for approximately five minutes. I would then place them back in the aquarium with a relatively dark sand/gravel substrate and shoot for the perfect picture. I did manage a couple of shots with fairly good coloration, but, as luck would have it, the sharpness of those particular shots was not up to par. When I did obtain good sharp pictures, other variables came into play--for instance, the best-colored dace was in the background or on the bottom and not highlighted.

I have not made this a primary hobby, and, therefore, have not put a lot of effort in it, but I do plan on trying some more on dace this spring. I do believe my 55mm/f2.8 macro lens works well under these conditions in consort with two small flash units. I can usually shoot at f16, with this combination giving me a respectable depth of field. Being a jack of all trades when it comes to hobbies, I will give limited time to fish photography, but I do plan more efforts on several species in Kansas this spring.

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/Ken Brunson wrote "Little Fishes of Kansas," serialized in the Mar/Apr and Jun AC's./

REDBELLIED DACE, cont'd.

4. Comparative Breeding Patterns in the Genus Phoxinus

As readers may recall, we have corresponded with Vladimir Constantinescu of the Grigore Antipa Museum, Bucharest, Romania, and provided some information on the genus Phoxinus. He has since moved to Israel, but has completed the article he was working on, "Contributions to the Knowledge of the Breeding Colouration and Behaviour in Phoxinus Phoxinus (Pisces, Cyprinidae)." That fish is the European Minnow; the American equivalents include the Northern & Southern Redbellied Dace and some other daces. His article, which is either a pamphlet or an excerpt from some journal, contains an interesting chart comparing breeding behavior and color of Phoxinus phoxinus with those of five North American species of Phoxinus--neogaeus, oreas, cumberlandensis, eos, and erythrogaster. The latter are, respectively, the Northern and Southern Redbellies.

Some colouration and behaviour characters during the reproductive process in six species of the genus Phoxinus.

CHARACTER SPECIES	Abdominal Colour: males	Abdominal Colour: females	Lateral bands number	Colour of the dorsal fin in males	Egg laying substratum	Aggressive behaviour in males	Interaction males-receptive female
PHOXINUS	red	white with pink and red	1	at the base dark lenticular spot; above it distally red	fine gravel up to gravel	territoriality — chase two males rotation	— flanking
NEOGAEUS	red and yellow	yellow	1	yellowish	—	—	—
OREAS	scarlet	—	2	—	gravel	interindivi — dual distance	— flanking
CUMBERLANDENSIS	red	lighter red	in juvenile 2 in adults fused	dark line at the base; above it a red-yelowish line	gravel	—	— flanking
EOS	red and yellow	yellow	2	yellow	philamentous algae (?)	—	— flanking
ERYTHROGASTER	red and yellow	yellow	2 sometimes posteriorly fused	a little yellow; red point anteriorly	gravel	rivalry for flanking	— flanking

[Since we have not been able to nail down the nature of the document from which this chart was taken, do not reprint it; if it is desired to cite it, give author, title, and "as reprinted" in AC, Sept. '84, etc. Citers should also check with the editor of AC to see if further information has come in. Should we learn more, of course, we will acknowledge the debt.--Ed.]

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