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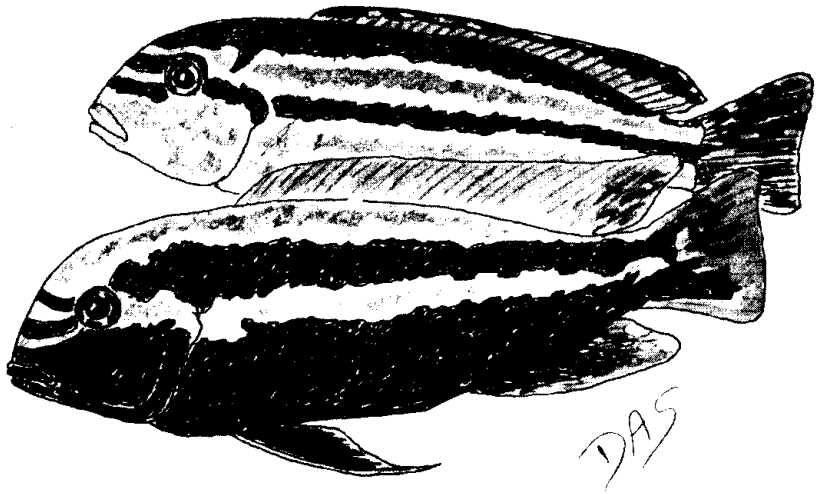

BUNTBARSCHE BULLETIN 73

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August 1979

annual ACA Convention will be history. I hope that you were there and that I was able to talk to you. Your next **BB, BB 74**, will be the annual Convention issue. I know that some of you are not overly enthralled with Convention issues because they can't possibly convey everything that went on. Well, the only solution that I can see is for you to attend next year's convention. Conventions are fun; they are time to renew friendships; they are time for learning and experiencing. So why don't you come to the next one? It is to be hoped that we will be able to announce the location of the 1980 Convention in the next issue.

As always, I hope that you enjoy this issue. Until next time,

Cichlid Power!

Randy Crout
(301) 768-3774

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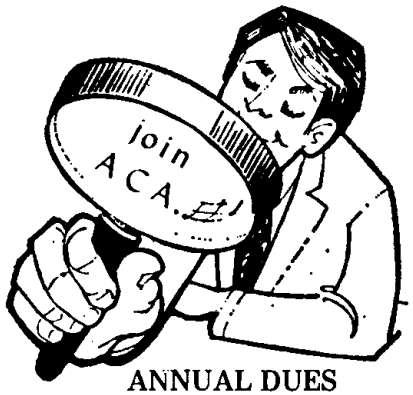

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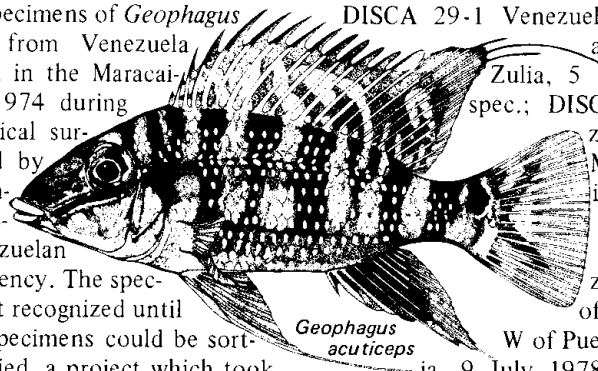
Occurrence of *Geophagus steindachneri* in the Maracaibo Basin of Venezuela

by Donald C. Taphorn and Craig G. Lilyestrom
La Universidad Nacional Experimental de los Llanos Occidentales
Ezequiel Zamora, Guanare, Portuguesa VENEZUELA

INTRODUCTION

To date, three species of *Geophagus* have been reported in Venezuela, *G. acuticeps*, *G. daemon* and *G. jurupari*, of which *G. mapiritensis* Fernandez Yepez 1950 is a junior synonym (Gosse 1975). All occur in the plains and forests of either the Orinoco or Amazon drainages, south of the Andes mountains. Therefore our discovery of a member of this genus in the Rio Limon drainage of the Maracaibo Basin of Venezuela, northwest of the Andes came as a surprise, especially since that region had been reasonably well prospected by Schultz in the 1940's.



The first specimens of *Geophagus steindachneri* from Venezuela were collected in the Maracaibo Basin in 1974 during an ichthyological survey sponsored by the United Nations and DISCA, a Venezuelan government agency. The specimens were not recognized until over 40,000 specimens could be sorted and identified, a project which took almost two years to complete. Since then we have returned several times to collect in the upper tributaries of the Rio Limon system and have successfully spawned these Venezuelan *G. steindachneri* in aquaria.

Color pattern and reproductive behavior were as described by Specian and Winkler (1977).

MATERIAL EXAMINED

Field Museum of Natural History, Chicago: 58582 Colombia, Soplaviento, 1913, 54 specimens; FMNH 58584 Colombia, Rio Seco, 1913, 1 spec.; FMNH 85281 (same as DISCA 5-2) Venezuela, Rio Guasare, hacienda El Paso, Zulia, 26 Aug 1975, 12 spec.; DISCA 5-1 and 5-3 same locality as the last but with dates 19 Mar 1974, 36 specimens, and 4 Apr 1977, 6 specimens respectively; DISCA 29-1 Venezuela, Rio Cachiri at Santa Marta, Zulia, 5 Apr 1974, 41 spec.; DISCA 4-1 Venezuela, Cano Los Manatiales, Zulia, 18 Mar 1974, 5 spec.; DCT 78-45 Venezuela, tributary of Rio Guasare, W of Puerto Rosas, Zulia, 9 July 1978, 3 spec. The DCT collection and 13 specimens raised in aquaria are in the authors' private collection. DISCA specimens are housed in their laboratory in Maracaibo, Venezuela.

DISTRIBUTION

The red hump *Geophagus* does not occur throughout the Maracaibo Basin, but only in the upper tributaries of the Rio Limon, *i.e.*, the Rio Guasare, Rio Socuy and the Rio Cachiri (**Fig. 1**). The Rio Limon system drains the northwest corner of the state of Zulia, and its headwaters originate on the western slope of the Perija mountains. The other side of this range, in Colombia, is drained by tributaries of the Rio Magdalena. It is quite possible that in the not too distant past the Rio Limon acquired this species by the process of stream

capture. Continuous erosion of the mountains by running water or cataclysmic events such as earthquakes or landslides can sometimes change the course of a stream and cause it to fall into a different drainage basin. If the stream contained species different from those in the new basin, those that can successfully compete with the new fauna may expand into the new area.

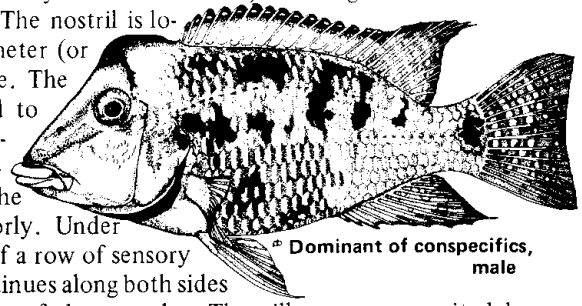
Since we find *Geophagus* in only the Rio Limon drainage, we might suppose that it has arrived rather recently and hasn't had time to spread. Its preference for upland mountain streams makes rapid dispersal difficult, and the Rio Limon drains into an estuary, thence into the Gulf of Tablazo, not into Lake Maracaibo.

The lake itself is brackish, though other cichlids of the area, *Cichlasoma kraussii* (formerly *Petenia*) and *Aequidens "sapayensis"* (perhaps a variety of *A. pulcher*) find its eight parts per thousand salinity no barrier to their dispersal. They, in fact, live and reproduce all along the shores of the lake.

MORPHOLOGY

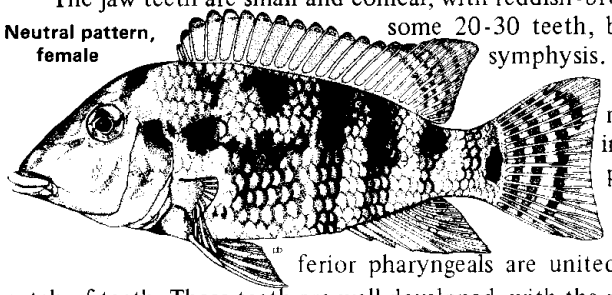
The general morphology is briefly summarized in the following paragraphs. We should point out that Gosse's (1975) Figure 19 is of a juvenile and bears little resemblence to the adult.

The cranial hump develops only in mature males, and heightens the "horse-faced" effect of the long snout. The nostril is located a distance of one eye diameter (or slightly less) in front of the eye. The maxillary bone does not extend to below the eye, and in most specimens the upper lip protrudes beyond the lower. The fold of the lower lip is interrupted anteriorly. Under the fold on either side, the first of a row of sensory canal pores is found. The row continues along both sides of the isthmus along the margins of the opercles. The gill covers are united by a membrane across the isthmus. The first scale row on the dorsum starts between the eyes; the snout is naked.



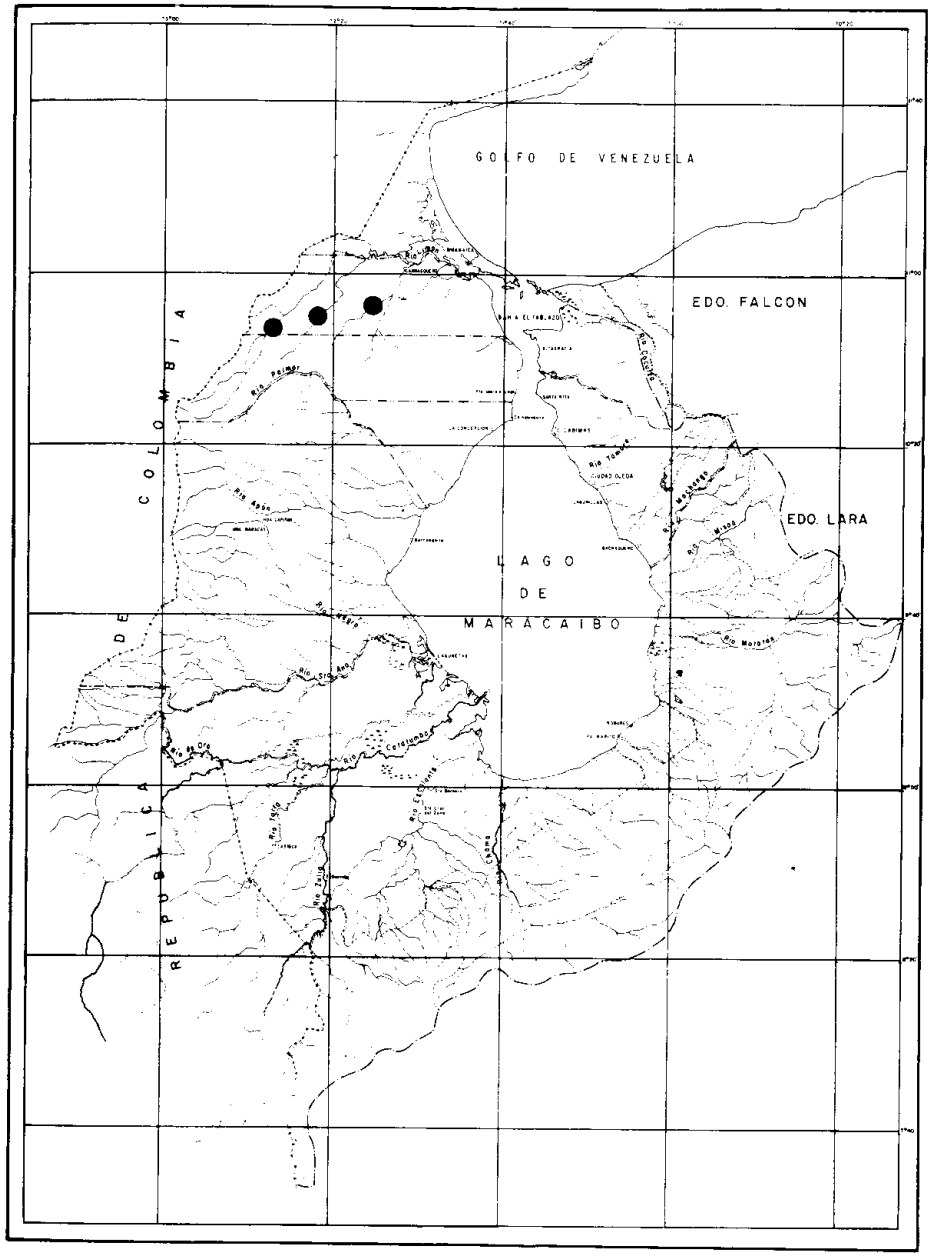
Dominant of conspecifics, male

The jaw teeth are small and conical, with reddish-brown tips. Each dentary bears some 20-30 teeth, but none are present at the symphysis. The premaxillary has larger, rounded teeth in the outer row and smaller sharper teeth in the inner rows. The upper pharyngeals bear two small rounded patches of reddish-brown teeth, whereas the inferior pharyngeals are united, bearing a single triangular patch of teeth. These teeth are well developed, with the median teeth being stout and blunt and the outer edges with finer conical teeth.



Neutral pattern, female

The dorsal fin originates slightly anterior to the posterior-most margin of the opercle. The last rays sometimes extend past the caudal fin base. Gosse (1975) apparently failed to notice scales on the base of the dorsal fin. These are present in all Venezuelan specimens except the smallest juveniles, and were also found in all Co-



ombian specimens we examined. The base of the caudal fin is scaled for about one-half of the length of the ventral rays, and one-third of the central rays.

The anal fin origin is located below the posterior portion of the spinous dorsal fin. The pelvic fins, which arise directly beneath the pectoral fin base, reach past the anus, but not to the anal fin origin. The pectoral fin base is placed low on the body and is usually just posterior to the opercular flap.

The abdominal cavity is small relative to the spacious air bladder and is lined with a black peritoneum. The gut has but one simple fold and is fairly short with the stomach not prominently enlarged. In one specimen the length of the digestive tube was roughly equal to the standard length.

MEASUREMENTS & COUNTS

The mean total length of the specimens caught was 71.8 mm, with the largest specimen being 141.0 mm. The mean standard length was 54.7 mm. The head length was an average .376 of the standard length; the dorsal fin length was an average .706 of the standard length; the anal fin length was an average .341 of the standard length and the greatest body depth was an average of .387 of the standard length.

The majority of the fish caught had dorsal fin counts of XVI-10 or XVI-11; anal fin counts of III-8; 15 pectoral rays and one simple and 5 brached soft rays in the pelvic fins. The vast majority of the specimens caught had 26 or 27 lateral scales (from opercle to base of the caudal fin) and five scales on the cheek.

(Editor's Note: Complete data on measurements and counts of the Maracaibo Basin *G. steindachneri* may be obtained from the editor. **RC)**

FEEDING

These fish feed in the same manner which has earned all *Geophagus* their name (earth eaters). They shovel up a mouthful of sand or gravel and then chew it clean with their pharyngeal teeth. This process would seem to net a large amount of algae, but their stomach contents reveal that they mainly seek the many types of aquatic insect larvae that dwell in the spaces between and on the stones. We have found water pennies (*Psephenidea*, *Coleoptera*) and other water beetles, stone flies (*Plecoptera*) and bloodworms (*Chironomidae*) as well as wasps, flowers, seeds and algae. The medium length of the gut corroborates their omnivorous diet, with a preference for insect larvae.

DISCUSSION

A controversy exists over the correct scientific name for the red-hump cichlid. In 1910 Eigenmann published a catalog of South American freshwater fishes, in which he listed "*Geophagus steindachneri* Eigenmann and Hildebrand." He presented no description, published no picture, nor any information about the species or how it differed from the others. He cited *Geophagus brasiliensis* Steindachner 1880 nec Quoy et Gaimard 1824, which according to Paul Loiselle (1974 and pers. comm.) is adequate to taxonomically validate the name proposed since it clearly indicated that Eigenmann knew that Steindachner's identification of his material was incorrect and that his description sufficed to distinguish this species from other known *Geophagus*. In his revision of the genus *Geophagus*, Gosse (1975) took a different point of view, contending that the failure to present an adequate description of the fish when the name *G. steindachneri* was proposed disqualified this name from consideration. He lists *G. steindachneri* as a synonym of *G. hondae* Regan 1912. Regan's paper contained a complete description of the same species of *Geophagus* that Eigenmann had listed two years earlier. His name would be the correct one should Eigenmann's name be designated a *nomen nudum* (a name without a fish) by the International Commission of Nomenclature.

Originally, we thought that this population represented a new species. Even though it show minor differences in a few characters, and is geographically isolated from the Colombian populations of the Rio Magdalena Basin, the overall similarity in color, counts and measurements indicates that it is probably conspecific with them. One difference between the two populations is the number of lateral scales: 28-30 in Colombian and 25-28 (almost never the latter) in Venezuelan specimens. This and other small differences may eventually prove sufficient to warrant recognition of subspecies status, but until collections are made in the rivers between these two allopatric populations, we hesitate to designate them as such.

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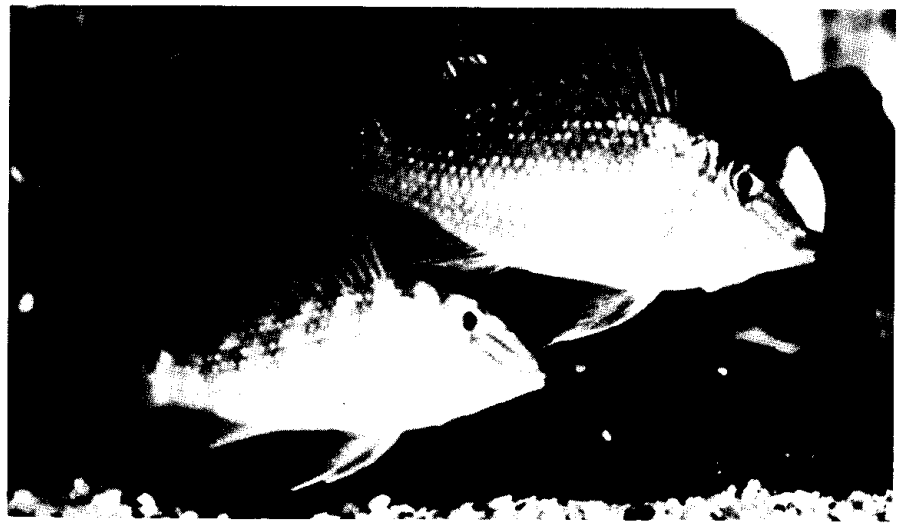
*** Drawings for this article by Paul Michael Brunelle ***



Geophagus jurupari. photo/Dan Fromm