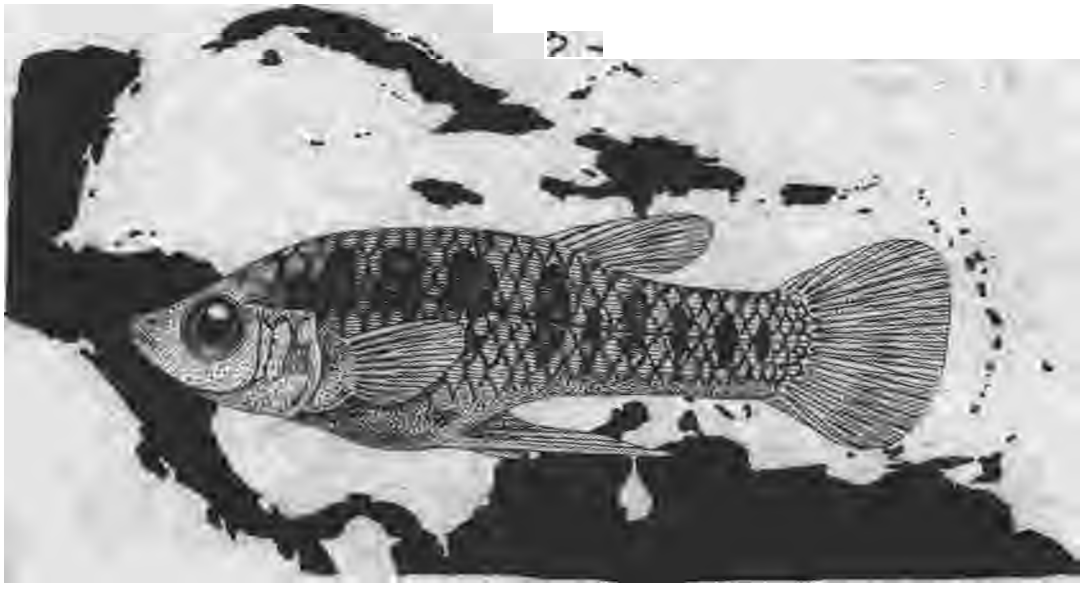
ATLAS OF NORTH AMERICAN FRESHWATER FISHES

1983 Supplement



D. S. LEE
S. P. PLATANIA
G. H. BURGESS

North Carolina Biological Survey
Contribution No. 1983-6

PUBLICATIONS OF THE NORTH CAROLINA BIOLOGICAL SURVEY

The occasional publications of the North Carolina Biological Survey are devoted to scientific papers in various disciplines within the general fields of botany and zoology. Publications to be issued at irregular intervals include collections of short papers, book-length studies, and proceedings of symposia sponsored by the Survey.

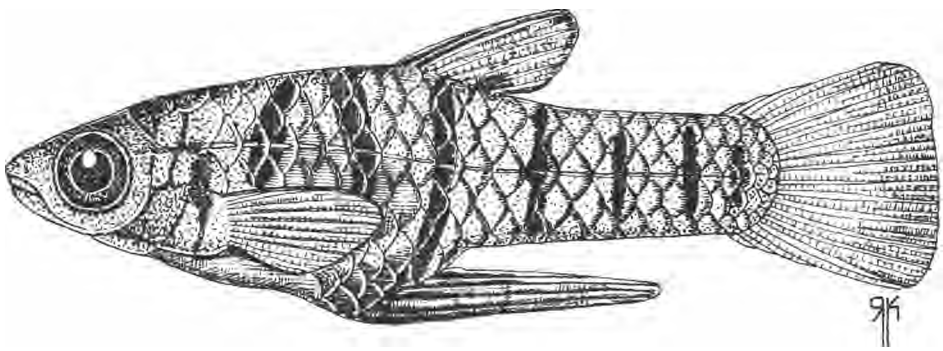
Biological Survey publications are distributed by the North Carolina State Museum of Natural History, P.O. Box 27647, Raleigh, N.C. 27611. Checks should be made payable to NCDA, Museum Extension Fund.

Occasional Papers of the
North Carolina Biological Survey
1983-[redacted]
$ 5, **postpaid**

A Division of the North Carolina Department of Agriculture
James A. Graham, Commissioner

ATLAS OF NORTH AMERICAN FRESHWATER FISHES

1983 Supplement



D. S. LEE
S. P. PLATANIA
G. H. BURGESS

Illustrations by R. Kuhler

North Carolina Biological Survey
Contribution No. 1983-6

TABLE OF CONTENTS

INTRODUCTION

At the request of Richard Franz, we decided back in 1979 to include the freshwater fishes of the Greater Antilles in the *Atlas of North American Freshwater Fishes.* As deadlines approached, it became apparent that the accounts of these species would not be available in time for their inclusion in the 1980 edition. At first we assumed that these species would simply be printed later so they could be inserted into the *Atlas.* The number of species and inclusion of several additional orders makes this impractical.

The accounts presented in this Supplement will interest mostly a small core of ardent ichthyologists. Nevertheless, collectively the accounts represent an important contribution compiled from a wide array of publications, many of which are obscure and were issued over a rather protracted period of time. As in the 1980 edition of the *Atlas,* the information presented here is a first attempt to assemble pertinent materials. Critical persons will have little trouble recognizing the shortcomings of this Supplement. Unfortunately, they probably will not also appreciate the difficult task of compiling the information, the illustrations, and the maps. Franz, Rivas, and Burgess are to be commended for the effort put into this Supplement.

Appreciation is extended to Renaldo Kuhler, scientific illustrator of the North Carolina State Museum, for preparation of many of the illustrations that appear here. The co-editors, Platania and Burgess, assisted with production and helped obtain many of the more obscure details presented.

Much of the introductory material, as well as addresses of compilers, which appeared in the first printing of the *Atlas,* is also pertinent to this Supplement. Although the U.S. Fish and Wildlife Service did not fund this portion of the project, I thank them, particularly James A. McCann, for encouragement and support.

For the record, 19 accounts of mainland North American freshwater fishes accompany this Supplement. These represent mostly species undescribed in 1980. It is intended that they be inserted in the 1980 et sequel edition of the *Atlas* and included under that volume in future citation. For practical and logistical purposes, however, this 1983 Supplement is best cited as a separate work.

DAVE LEE
N.C. State Museum
September 1983


FLORIDA
GULF OF
MEXICO
BAHAMA
ISLANDS
CUBA
ISLE OF PINES
CAYMAN
ISLANDS
ATLANTIC OCEAN
HISPANIOLA
PUERTO RICO
JAMAICA
MIDDLE
AMERICA
CARIBBEAN
SEA
ST LUCIA
ST VINCENT
BARBADOS
SOUTH
AMERICA

FRESHWATER FISHES OF THE GREATER ANTILLES

The freshwater ichthyofauna of the Bahamas, Cuba, Hispaniola, Jamaica, Puerto Rico, and the smaller islands making up the Greater Antilles includes at least 59 species of native freshwater fishes, 24 exotics, and 50 marine invaders. These fishes live in a broad range of habitats, including small and large rivers, coastal mangrove swamps, streams, mountain torrents, springs, freshwater swamps, ponds and lakes, subterranean waters, and hypersaline lakes and pools. The greatest number of species occurs on the two largest islands, Cuba and Hispaniola, where the greatest diversity of aquatic habitats exists (Table 1). Oddly, Puerto Rico has no native freshwater species. Local endemism is the rule among freshwater fishes in this region, with many species confined to single sites or restricted areas of an island; only *Gambusia puncticulata* is relatively widespread throughout the region. The high rate of endemism can be attributed not only to the insular nature of the region but also to the complexity of the local topography and geological history.

The marine species that commonly invade freshwater habitats on these islands are listed in Table 2, but are not included in the species accounts presented here. Some of them already have been dealt with in the 1980 edition of the *Atlas,* and their inclusion with the insular fishes would have necessitated duplication and revision of a number of pre-existing accounts. Additionally, distributional records for many of these species are scant and/or so widely scattered in collections that an uneven treatment would result. Typically these marine invaders are widely distributed in both insular and continental habitats throughout the region, where they form an important component of the freshwater fauna. Exotic species are listed in Table 3, but are not covered in the species accounts, owing to the paucity of reliable records. Some, however, have been treated in previously published sections of the *Atlas.*

The native fish fauna of the neighboring Lesser Antilles is sparse; only five freshwater species are known: *Ophisternon aenigmaticum, Poecilia reticulata, P.* vivipara, *Rivulus harti,* and *R. marmoratus.* The last two are marine invaders and the two *Poecilia* species have zoogeographic affinities with South America. *Ophisternon aenigmaticum,* which is found in Trinidad, ranges into the Greater Antilles (Cuba).

The inclusion of Antillean species in the *Atlas* was prompted by several factors. Most importantly, this fauna has its greatest affinity with fish faunas in the southern portions of North America, especially Mexico and Central America. The fauna has never been categorically summarized, and some of the species had never been illustrated. The biology of many of the species has not been studied. This is an unfortunate situation because, as it is in many adjacent areas, widespread habitat destruction is occurring, and many of the species discussed here appear in jeopardy. In recent years this region has become the focus of many biogeographical studies, and our accounts should provide additional support for the formulation of viable biogeographical hypotheses.

Ordinal and familial designations involving killifishes follow Parenti (1981. Bull. Amer. Mus. Nat. Hist. 168:335-557) rather than the American Fisheries Society checklist, which appeared in 1980. Thus, Rivulidae is used for fishes of the genus *Rivulus,* and Cyprinidontiformes replaces Atheriniformes as the order for the Cyprinodontidae, Poeciliidae, and Rivulidae. We also choose to accept

TABLE 1. Freshwater fishes of the Bahamas, Cuba, the Cayman Islands, Jamaica, and Hispaniola.

	Bahamas	*Cuba*	*Cayman Is.*	*Jamaica*	*Hispaniola*
Lepisosteiformes					
Lepisosteidae					
Atractosteus tristoechus					
Ophidiiformes					
Bythitidae					
Lucifuga dentatus					
Lucifuga spelaeotes					
Lucifuga subterraneus					
Cyprinodontiformes					
Poeciliidae					
Gambusia beebei					
Gambusia dominicensis					
Gambusia his paniolae					
Gambusia mela pleura					
Gambusia pseudo punctata					
Gambusia punctata					
Gambusia puncticulata					
Gambusia wrayi					
Gambusia xanthosoma					
Girardinus creolus					
Girardinus cubensis					
Girardinus denticulatus					
Girardinus falcatus					
Girardinus metallicus					
Girardinus microdactylus					
Girardinus serri penis					
Girardinus uninotatus					
Limia caymanensis					
Limia dominicensis					
Limia fuscomaculata					
Limia garnieri					
Limia grossidens					
Limia immaculata					
Limia melanogaster					
Limia melanonotata					
Limia miragoanensis					
Limia nigrofasciata					
Limia ornata					
Limia pauciradiata					
Limia perugiae					
Limia rivasi					
Limia sulphurophilia					
Limia tridens					
Limia versicolor					
Limia vittata					
Limia yaguajali					
Limia zonata					
Poecilia dominicensis					
Poecilia elegans					
Poecilia his paniolana					
Quintana atrizona					
Cyprinodontidae					
Cyprinodon bondi					
Cyprinodon laciniatus					
Cyprinodon variegatus baconi					
Cubanichthys cubensis					
Cubanichthys pengelleyi					

TABLE 1, continued

	Bahamas	Cuba	Cayman Is.	Jamaica	Hispaniola
Rivulidae					
Rivulus cylindraceus					
Rivulus garciai					
Rivulus heyei					
Rivulus insulaepinorum					
Rivulus roloffi					
Synbranchiformes					
Synbranchidae					
Ophisternon aenigmaticum					
Perciformes					
Cichlidae					
Cichlasoma haitiensis					
Cichlasoma ramsdeni					
Cichlasoma tetracanthus					
TOTALS					
Order (5)	1	5	1	1	2
Family (7)	2	7	1	2	4
Genus (12)	2	10	2	3	7
Species (59)	3	23	3	5	28

TABLE 2. Marine species of the Greater Antilles known or expected to occur in fresh waters.

Elopidae: *Elops saurus, Megalops atlanticus*

Anguillidae: *Anguilla rostrata*

Clupeidae: *Chirocentrodon bleekerianus, Harengula clupeola*

Engraulidae: *Anchoa hepsetus,* A. parva

Ariidae: *Bagre marinus*

Belonidae: *Strongylura notata, S. timucu*

Atherinidae: *Chriodorus atherinoides*

Syngnathidae: *Oostethus brachyurus, Pseudo phallus mindi*

Centropomidae: *Centropomus ensiferus, C. parallelus, C. pectinatus, C. undecimalis*

Carangidae: *Caranx hippos, C. latus*

Lutjanidae: *Lutjanus apodus, L. griseus, L. jocu*

Gerreidae: *Diapterus auratus, Eucinostomus argenteus, E. gula, Eugerres plumieri, Gerres cinereus*

Haemulidae: *Pomadasys crocro*

Mugilidae: *Agonostomus monticola, Joturus pichardi, Mugil cephalus, M. curema, M. hospes, M. liza, M. trichodon*

Eleotridae: *Dormitator maculatus, Eleotris pisonis, Gobiomorus dormitor, Guavina guavina*

Gobiidae: *Awaous tajasica, Gobiodes broussoneti, Gobionellus boleosoma, G. pseudofasciata, G. spes, Lophogobius cyprinoides, Sic ydium plumieri*

Gobiesocidae: *Gobiesox nudus*

Soleidae: *Trinectes inscriptus*

Tetraodontidae: *Sphoeroides testudineus*

Rivulidae: *Rivulus marmoratus*

TABLE 3. Established exotic species.

Species	*Where found*
Dorosoma petenense	Puerto Rico
Carassius aura tus	Puerto Rico
Barbus conch onius	Puerto Rico
Pimephales promelas	Puerto Rico
Ictalurus catus	Puerto Rico
Ictalurus nebulosus	Puerto Rico
Ictalurus punctatus	Puerto Rico
Gambusia affinis	Hispaniola, Puerto Rico
Poecilia helleri	Hispaniola, Jamaica, Puerto Rico
Poecilia maculatus	Jamaica, Puerto Rico
Poecilia reticulata	Hispaniola, Jamaica, Puerto Rico
Lepomis auritus	Puerto Rico
Lepomis gulosus	Puerto Rico
Lepomis macrochirus	Puerto Rico
Lepomis microlophus	Puerto Rico
Micro pterus coosae	Puerto Rico
Micro pterus salmoides	Puerto Rico
Astronotus ocellatus	Puerto Rico
Cichla ocellaris	Puerto Rico
Tilapia aurea	Puerto Rico
Tilapia honorum	Puerto Rico
Tilapia mossambica	Hispaniola, Jamaica, Puerto Rico
Tilapia nilotica	Puerto Rico
Tilapia rendalli	Puerto Rico

Wiley's (1976. Univ. Kansas Mus. Nat. Hist. Misc. Publ. 64:1-111) elevation of *Atractosteus* to generic status in the *A. tristoechus* account, rather than relegating it to the subgeneric level as was done in the 1980 checklist.

R. FRANZ
G. H. BURGESS
Florida State Museum
Gainesville
August 1983

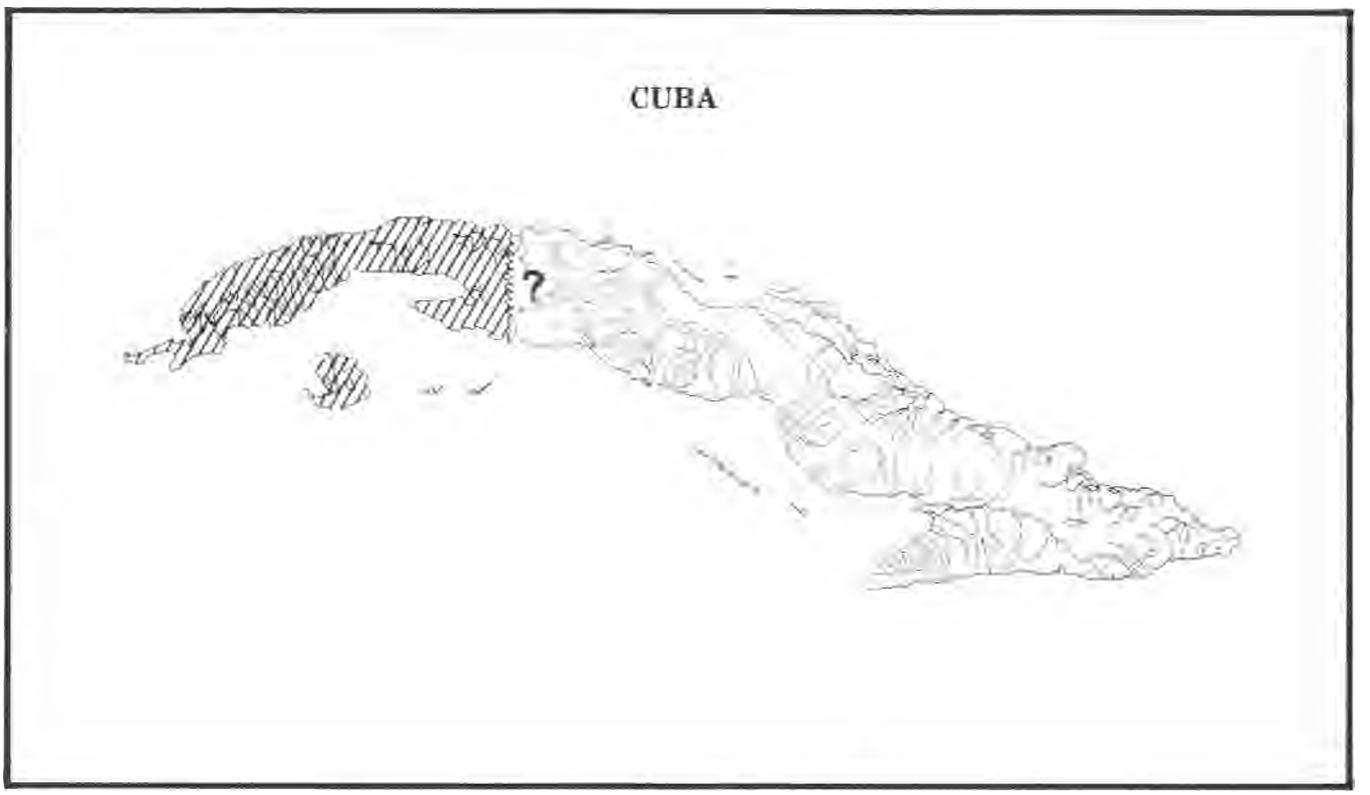
Atractosteus tristoechus (Bloch and Schneider)
Cuban gar or Manjuari

Order Lepisosteiformes
Family Lepisosteidae

Cuba: ca. 85 mm SL (Wiley 1977).

TYPE LOCALITY: Cuba (Bloch and Schneider 1801. *Systema Ichthyologiae Iconibus CX Illustratum,* 1-584).

SYSTEMATICS: *Atractosteus* elevated to generic level by Wiley (1976. Univ. Kans. Mus. Nat. Hist. Misc. Publ. 64:1-111); considered a subgenus of *Lepisosteus* by Suttkus (1963. Order Lepisostei, in Mem. Sears Found. Mar. Res. 1[3]:61-88). Other extant *Atractosteus* are *tropicus* and *spatula,* the latter considered most closely related to *tristoechus* by Wiley (1976).



DISTRIBUTION AND HABITAT: Known only from western Cuba and Isle of Pines, especially Cienaga de Zapata, Cuba. Inhabits rivers and lakes (Alayo 1973. Torreia 29:1-55).

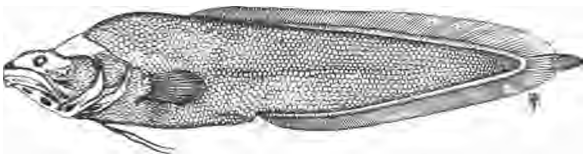
BIOLOGY: Grows to about 30 cm at end of first year. Young are fed on by introduced *Micropterus salmoides.* Feeds on fishes and birds (Wiley in Fishes 1978. W. Fischer [ed.]; *FAO Species Identification Sheets, Central Western Atlantic,* Vol. 3).

ADULT SIZE: Female, 470 mm; 2000 mm maximum.

Compiler: G. **H.** Burgess. **January** 1983.

Lucifuga dent atus (Poey)
Toothed Cuban cusk-eel

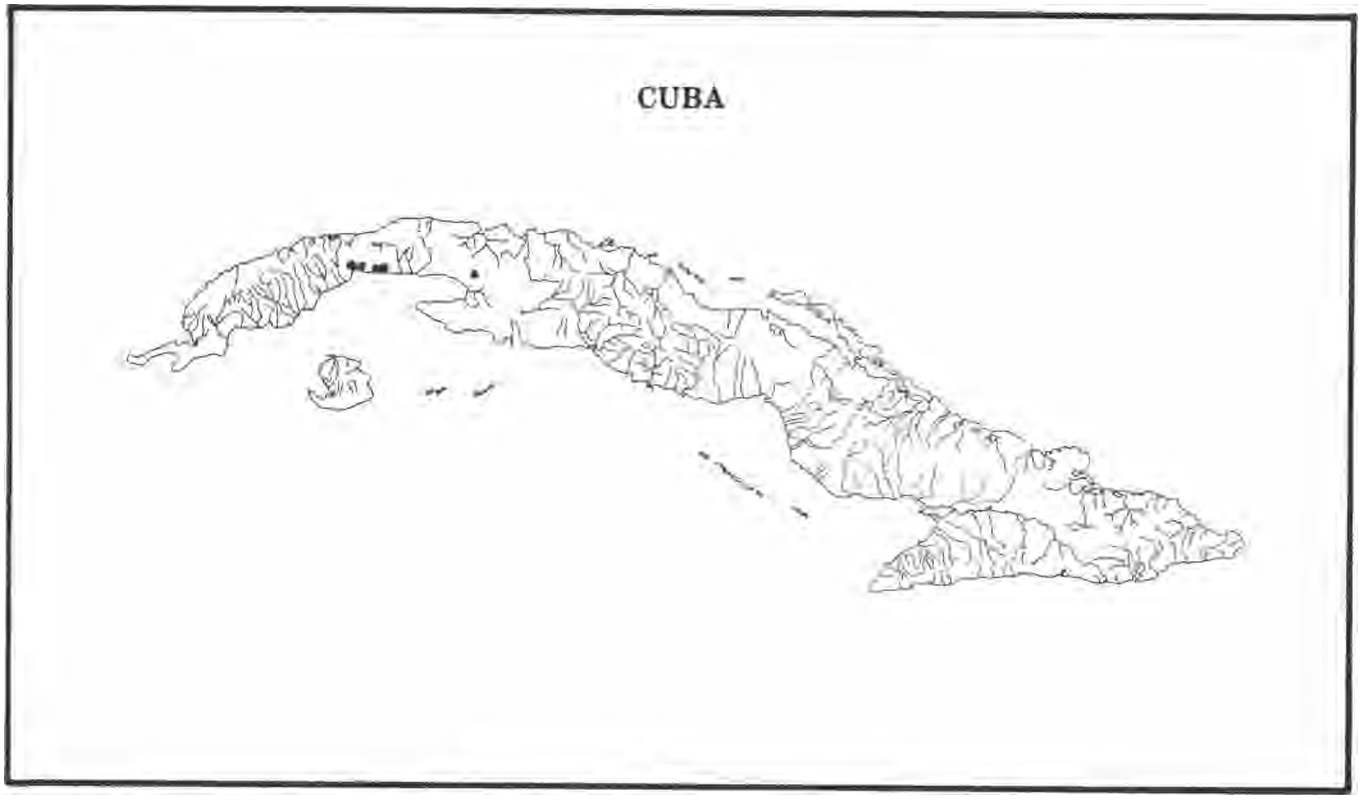
Order Ophidiiformes
Family Bythitidae



Cuba (NCSM).

TYPE LOCALITY: Cave of Cajio, 8.4 km s of La Guira de Melena, Cuba (Poey 1861. Memorias Sobre la Historia Natural de la Isla de Cuba 2:95-114).

SYSTEMATICS: Subfamily Brosomophycinae, subgenus *Stygicola* (Cohen and Nielson 1978. NOAA Tech. Rep. NMFS Circ. 417: 1-72). Closest relative is *L. spelaeotes,* endemic to New Providence Island, Bahamas (Cohen and Robins 1970. Proc. Biol. Soc. Wash. 83:133-44).



DISTRIBUTION AND HABITAT: In numerous caves in southern Cuba, frequently syntopically with *L. subterraneus.* Water in these sink-hole limestone caves is usually covered with a crust of carbonate of lime due to evaporation and discharge of carbon dioxide from the surface of the still water (Eigenmann 1902. Bull. U.S. Fish Comm. [1903] 22:213-36).

ADULT SIZE: Male 152 mm maximum, female 120 mm maximum.

BIOLOGY: Viviparous. Food includes cirolanid isopods (Eigernmann 1902). Males usually larger than females.

Compiler: G. H. Burgess. January 1983.

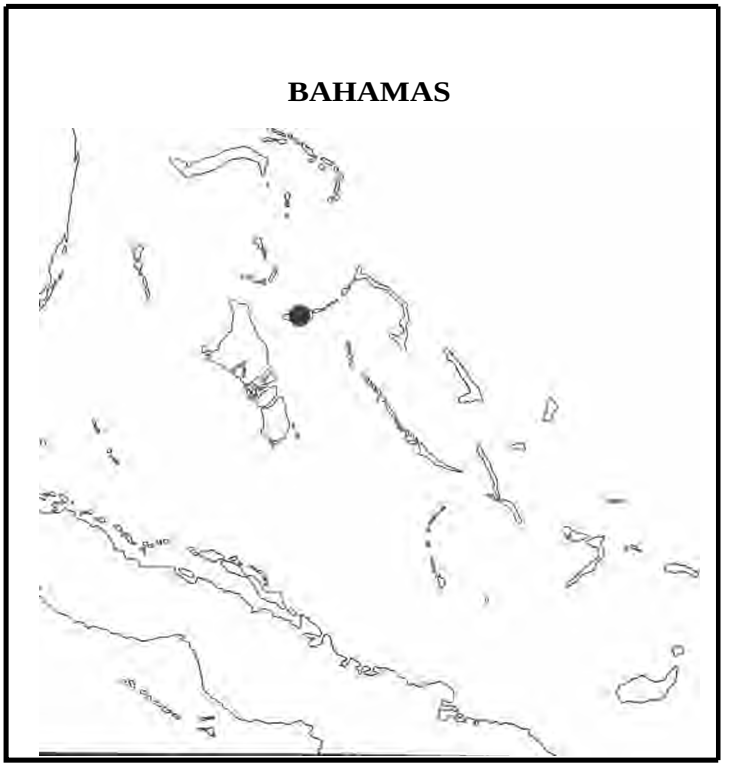
Lucifuga spelaeotes Cohen and Robins
New Providence cusk-eel

Order Ophidiiformes
Family Bythitidae

New Providence Island near Nassau. 109 mm SL (NCSM).

TYPE LOCALITY: Mermaid's Pool, a limestone sink near Nassau, New Providence Island, Bahamas (Cohen and Robins 1970. Proc. Biol. Soc. Wash. 83:133-44).

SYSTEMATICS: Subfamily Brosmophycinae, tribe Brosmophycini, subgenus *Stygicola* (Cohen and Nielsen 1978. NOAA Tech. Rep. NMFS Circ. 417: 1-72). Most primitive member of the genus; closest relative is the Cuban endemic *L. dentatus* (Cohen and Robins 1970).



DISTRIBUTION AND HABITAT: A single limestone sink on New Providence Island, Bahamas. Vegetation surrounding the sink is predominantly pine and scrub growth; water level is several feet below the surface and represents the exposed water table. Salinity one meter below surface measured 4.6 ppt (Cohen and Robins 1970).

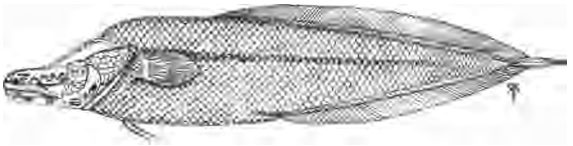
ADULT SIZE: Male 109 mm SL (holotype).

BIOLOGY: Unknown.

Compiler: G. H. Burgess. January 1983.

Lucifuga subterraneus Poey
Cuban cusk-eel

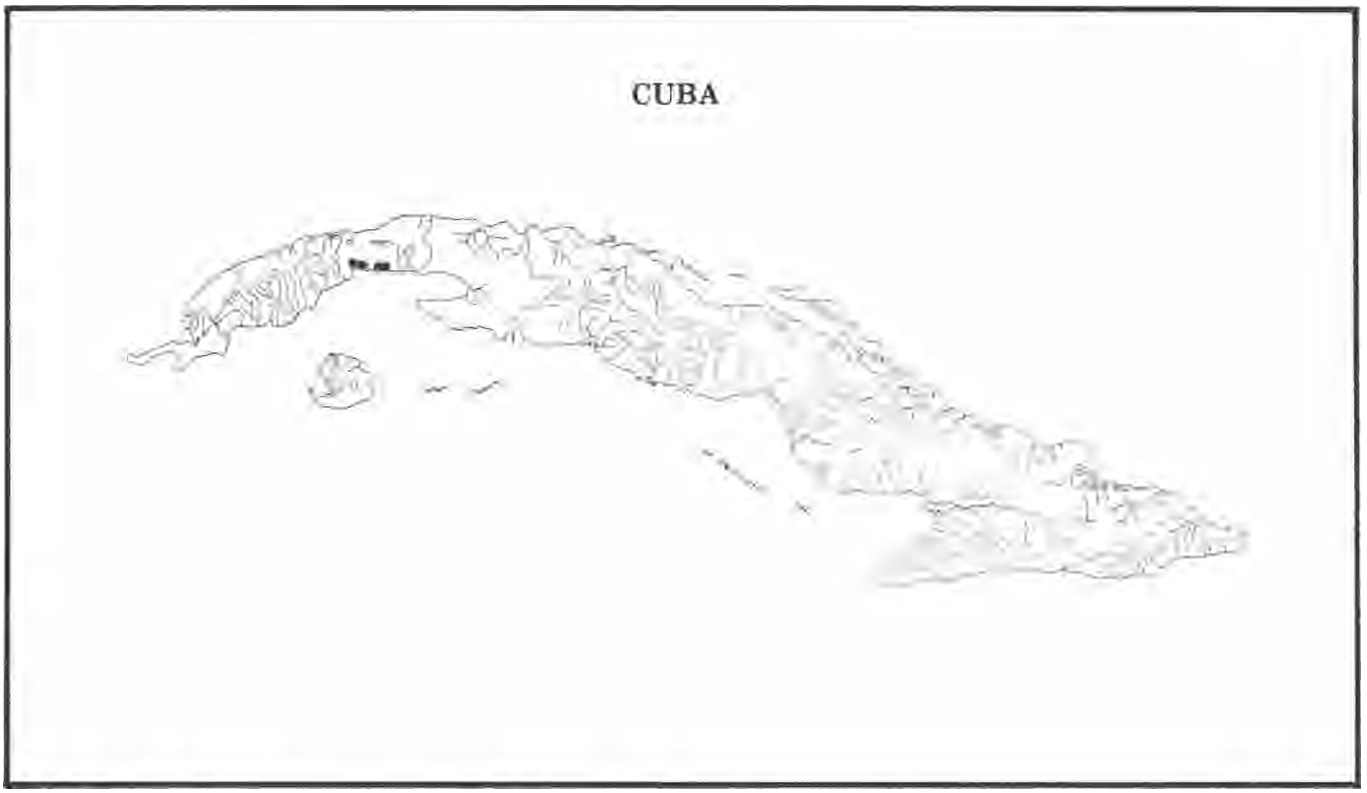
Order Ophidiiformes
Family Bythitidae



(NCSM).

TYPE LOCALITY: Caves of San Antonio in southern Cuba (Poey 1861. Memorias Sobre la Historia Natural de la Isla de Cuba 2:95-114).

SYSTEMATICS: Subfamily Brosmophycinae, tribe Brosmophycini, subgenus *Lucifuga* (Cohen and Nielsen 1978. NOAA Tech. Rep. NMFS Circ. 417: 1-72). Most specialized member of the genus (Cohen and Robins 1970. Proc. Biol. Soc. Wash. 83:133-44).



DISTRIBUTION AND HABITAT: A number of caves in southern Cuba, where frequently found syntopically with *L. dentatus*. The caves are sink-holes formed by solution of underlying limestone. Water is usually covered with a crust of carbonate of lime due to evaporation and discharge of carbon dioxide from the surface of the still water (Eigenmann 1902. Bull. U.S. Fish Comm. [1903] 22:213-36).

ADULT SIZE: Male, 94 mm maximum, female, 93 mm maximum.

BIOLOGY: Viviparous; a 65 mm female contained four 20 mm young. Food includes cirolanid isopods (Eigenmann 1902). Females usually larger than males.

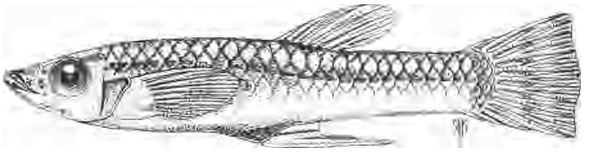
Compiler: G. H. Burgess. January 1983.

Gambusia beebei **Myers**
Miragoane gambusia

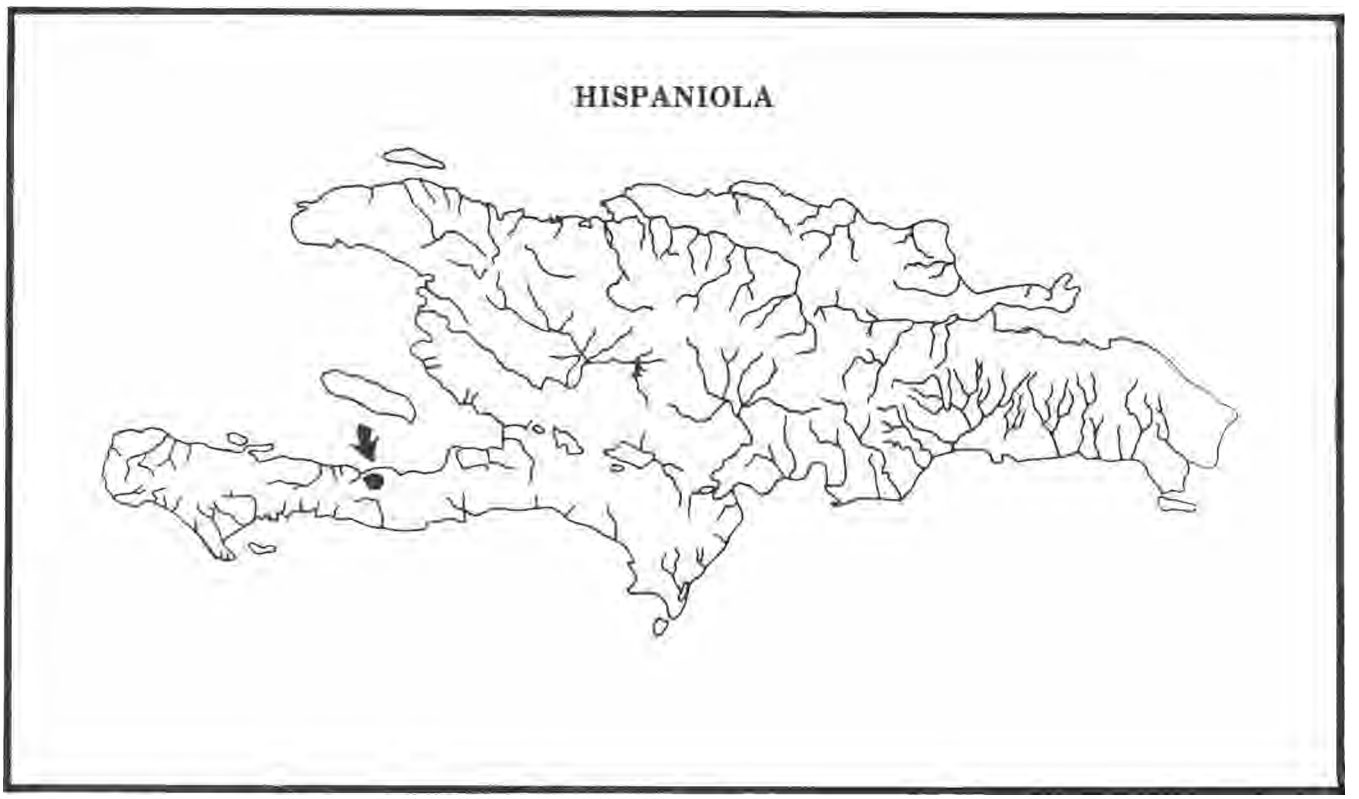
Order Cyprinodontiformes
Family Poeciliidae

TYPE LOCALITY: Etang de Miragoane, sw end of lake, from Aux Cayes Road, Haiti (Myers 1935. Zoologica 10:301-16).

SYSTEMATICS: *Gambusia punctata* species group (Rivas 1963. Copeia: 331-47; Rosen and Bailey 1963. Bull. Am. Mus. Nat. Hist. 126:1-176). More closely related to *G. pseudopunctata* than to other members of the *G. punctata* group (Rivas 1969. Copeia: 778-95).



Haiti: Lake Miragoane, male, 32 mm SL (NCSM).



DISTRIBUTION AND HABITAT: Apparently endemic to Etang de Miragoane in the central portion of the Tiburon Peninsula, in southwestern Haiti (Rivas 1969).

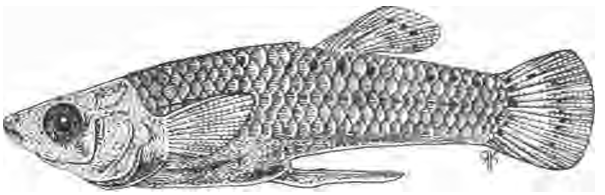
BIOLOGY: Unknown.

ADULT SIZE: Males 26-33 mm SL, females 32-59 mm SL.

Compilers: L. R. Rivas and R. Franz. January 1983.

Gambusia dominicensis Regan
Dominican gambusia

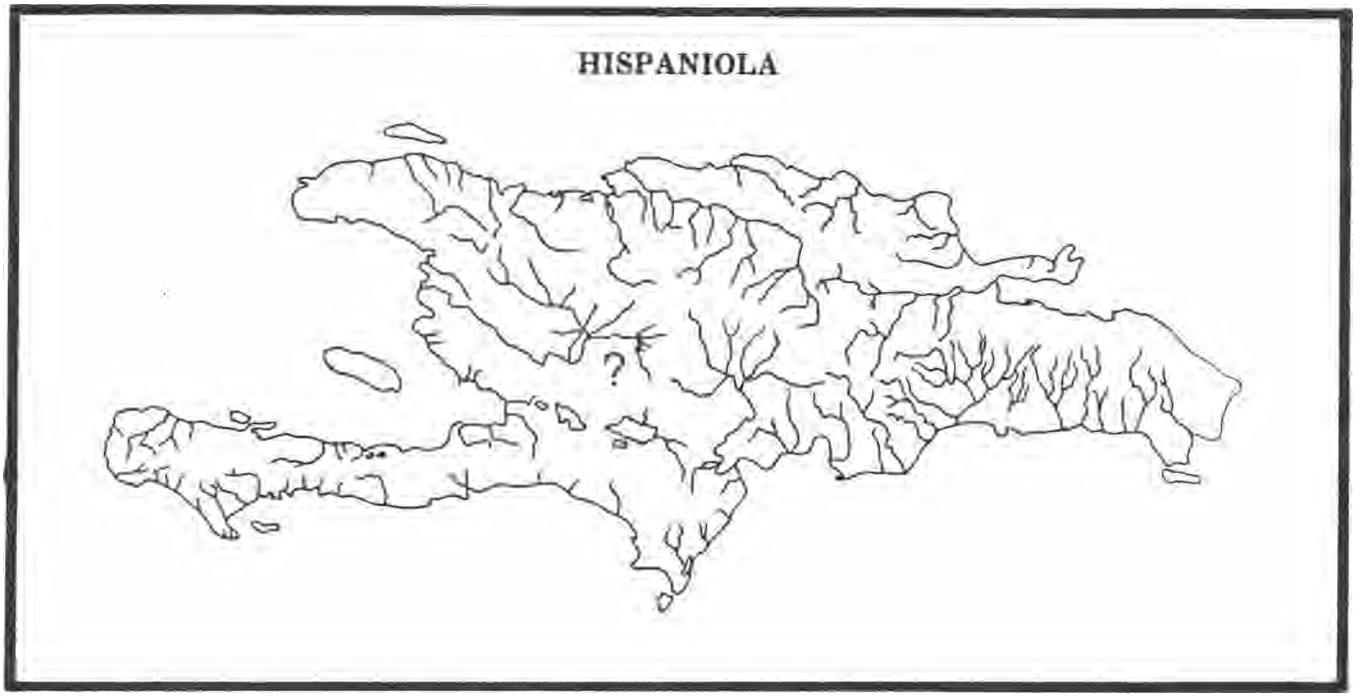
Order Cyprinodontiformes
Family Poeciliidae



Haiti: Male 20 mm SL (NCSM).

TYPE LOCALITY: "Haiti" (Regan 1913. Proc. Zool. Soc. Lond. 1 977-1018).

SYSTEMATICS: *Gambusia nobilis* species group (Fink 1971. Publ. Gulf Coast Res. Lab Mus. 2:47-77). Only member of this species group in the West Indies. Known only from the type series.



DISTRIBUTION AND HABITAT: Unknown. Despite extensive collecting in Hispaniola the species has not been re-collected. It is not known for sure that the type series actually originated from Hispaniola.

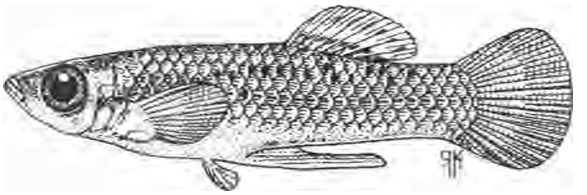
BIOLOGY: Unknown.

ADULT SIZE: The original series consisted of a female 53 mm SL and two males, each 25 mm TL.

Compilers: L. R. Rivas and R. Franz. January 1983.

Gambusia his paniolae Fink
Hispaniolan gambusia

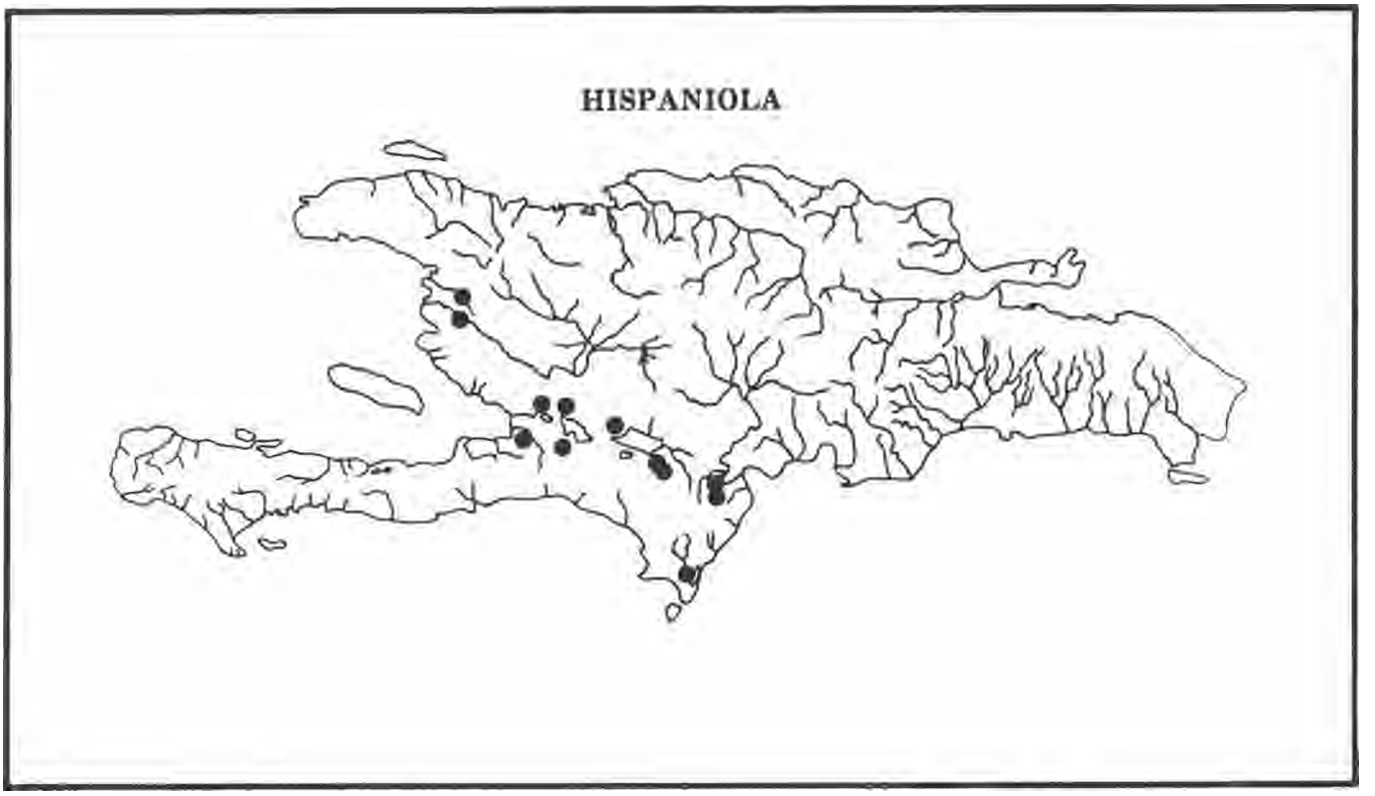
Order Cyprinodontiformes
Family Poeciliidae



Haiti: Source Trou-Caiman, Cul-de-Sac Plain, Dept. de l'Ouest, male 27 mm SL (NCSM).

TYPE LOCALITY: Source Trou-Caiman, Cul-de-Sac Plain, Dept. de l'Quest, Haiti (Fink 1971. Publ. Gulf Coast Res. Lab. Mus. 2: 47-77).

SYSTEMATICS: In *G. nicaraguensis* species group (Fink 1971).



DISTRIBUTION AND HABITAT: Freshwater habitats in central Haiti and southwest Dominican Republic. Common in springs entering the large brackish and salt water lakes in the Cul-de-Sac and Valle-de-Neiba plains. Fink (1971) speculated that *G. hispaniolae* replaced *G. beebei,* and *G. pseudopunctata* throughout most of the island which resulted in the confinement of the latter species to the Tiburon Peninsula.

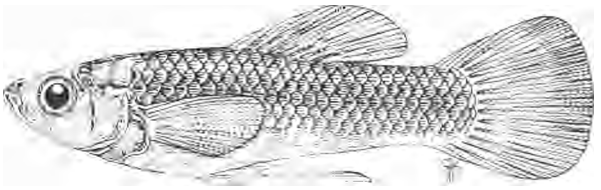
ADULT SIZE: Males 18.1-29.8 mm SL, females 19.7-51.8 mm SL.

BIOLOGY: Unknown.

Compilers: R. Franz and L. R. Rivas. January 1983.

Gambusia melapleura (Gosse)
Striped gambusia

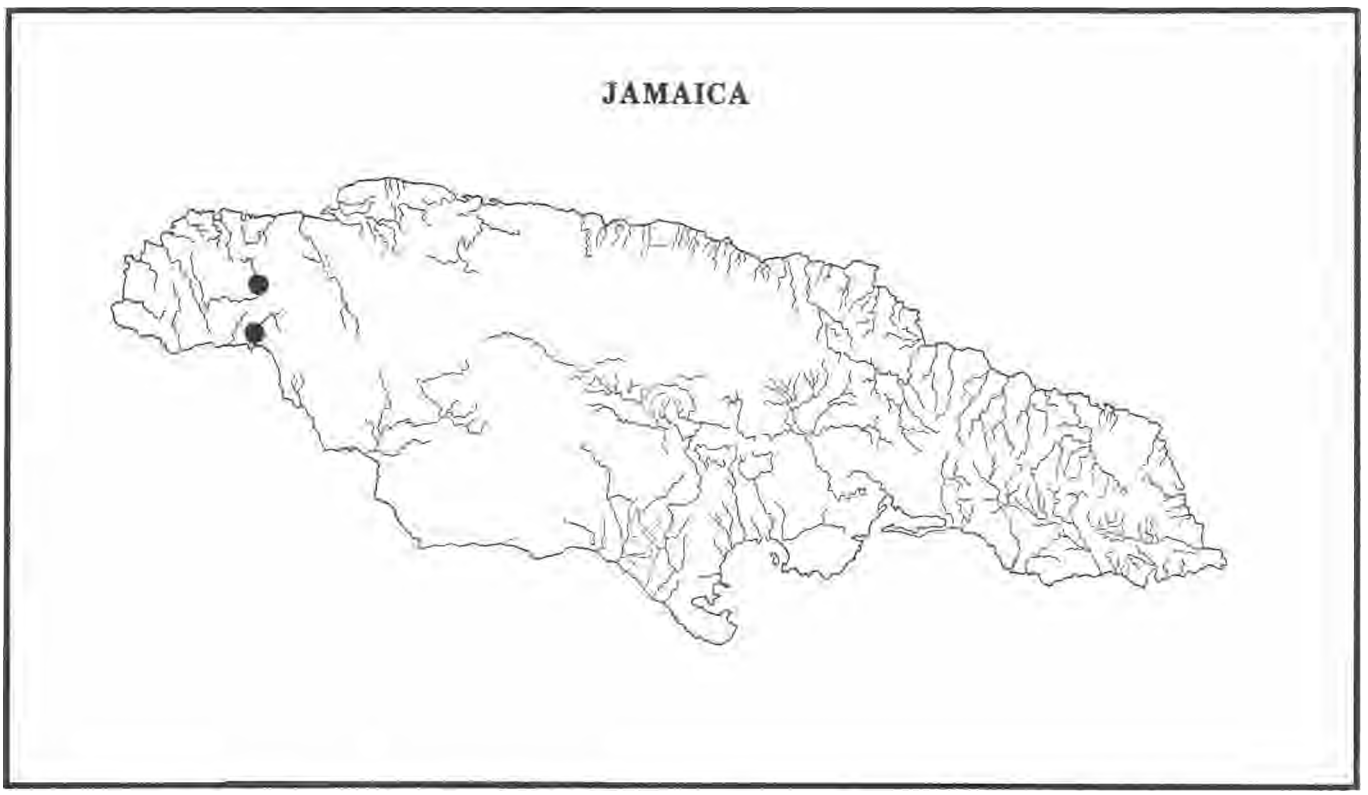
Order Cyprinodontiformes
Family Poeciliidae



Jamaica: Bluefields River
male, 34 mm SL (NCSM).

TYPE LOCALITY: "Bluefields, Jamaica" (Gosse 1851. A. *Naturalists's Sojourn in Jamaica).*

SYSTEMATICS: *Gambusia nicaraguensis* species group (Fink 1971. Publ. Gulf Coast Res. Lab. Mus. 2:47-77). *Gambusia melapleura* closely related to *G. wrayi,* and one may be the ancestral stock of the other (Fink 1971).



DISTRIBUTION AND HABITAT: Known only from Bluefields River at Old Rest House and from the headwaters spring of the Shrewsberry River, about 12 km northeast of Savanna la Mar (Fink 1971).

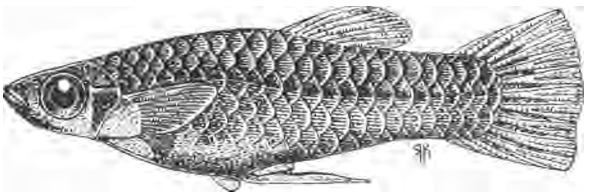
BIOLOGY: Unknown.

ADULT SIZE: Males 20.9-34.2 mm SL, females 25.4-59.1 mm SL.

Compilers: R. Franz and L. R. Rivas. January 1983.

Gambusia pseudo punctata Rivas
Tiburon Peninsula gambusia

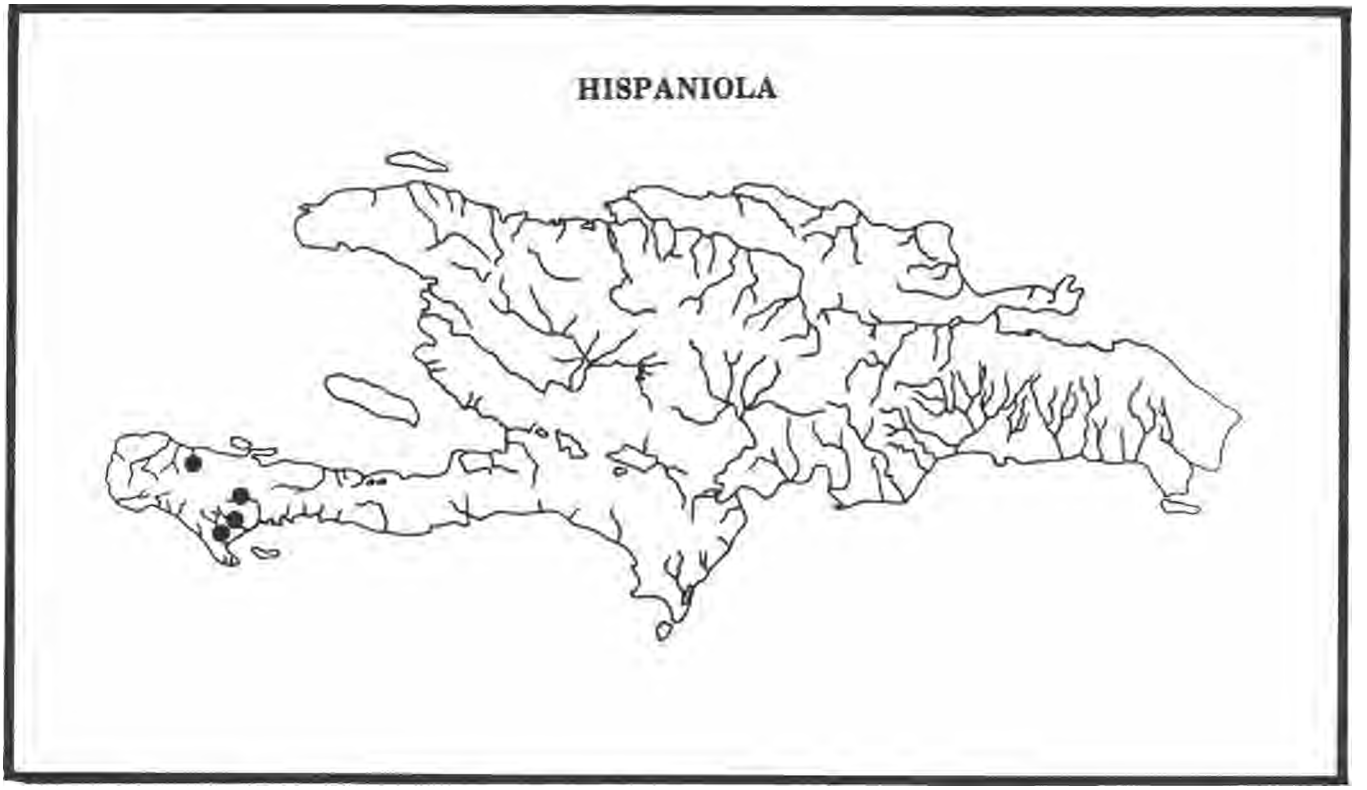
Order Cyprinodontiformes
Family Poeciliidae



Haiti: Spring at Roseaux, male, 31 mm SL (NCSM).

TYPE LOCALITY: Spring at Roseau, 15 km e of Jeremie, Dept. du Sud, Haiti (Rivas 1969. Copeia: 778-95).

SYSTEMATICS: In *G. punctata* species group (Rosen and Bailey 1963. Bull. Am. Mus. Nat. Hist. 126:1-176; Rivas 1963. Copeia: 331-47). Closely related to *G. beebei* (Rivas 1969).



DISTRIBUTION AND HABITAT: Known only from springs **and** clear streams in the western half of the Tiburon Peninsula from Les Cayes west, Dept. du Sud, Haiti.

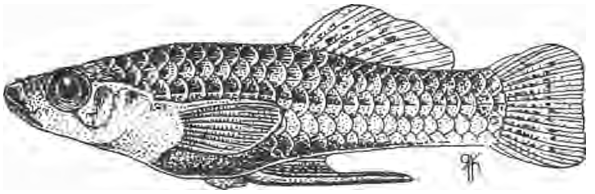
BIOLOGY: Unknown.

ADULT SIZE: Males 22-32 mm **SL, females** 31-55 mm SL.

Compilers: L. R. Rivas and R. Franz. January 1983.

Gambusia punctata Poey
Cuban gambusia

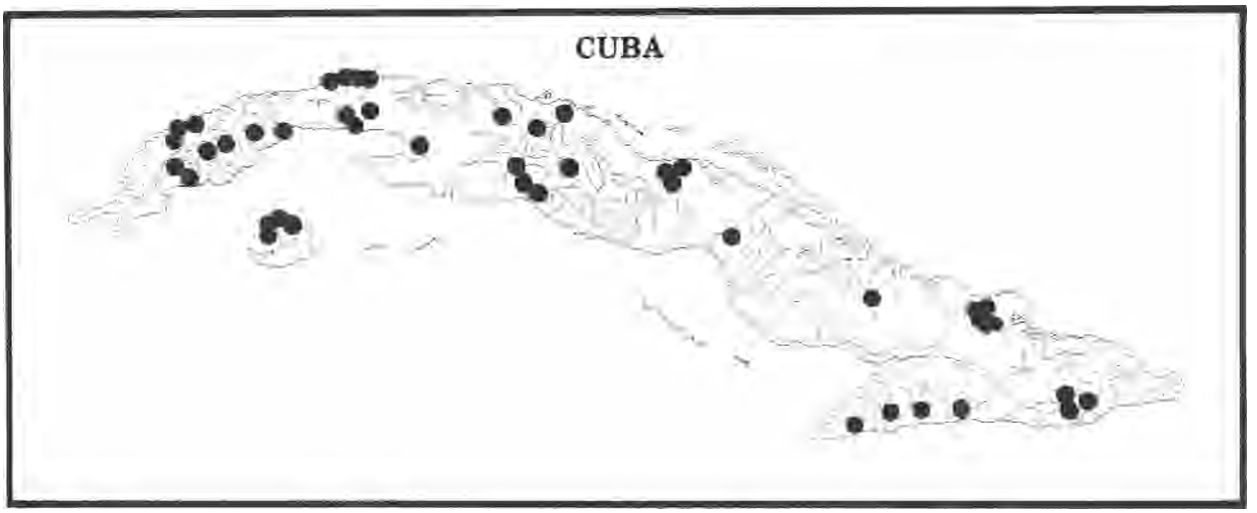
Order Cyprinodontiformes
Family Poeciliidae



Cuba: Province of Havana, Arroyo Hondo, male, 35 mm SL (NCSM).

TYPE LOCALITY: Havana, Cuba (Poey 1854. Memorias Sobre la Historia de la Isle de Cuba 1:374-92).

SYSTEMATICS: *Gambusia punctata* species group (Rivas 1963. Copeia:331-47; Rosen and Bailey 1963. Bull. Am. Mus. Nat. Hist. 126:1-176). Closely related to *G. rhizophorae* (Rivas 1969. Copeia:778-95). Isle of Pines populations show no geographic differentiation from those of the Cuban mainland (Rivas 1969).



DISTRIBUTION AND HABITAT: Abundant in freshwater ponds, lakes, and streams of Cuba and Isle of Pines. Usually occurs in schools, close to shore. Prefers stagnant or slow-flowing streams, although may be found in mountain streams at elevations up to 600 m (Rivas 1969).

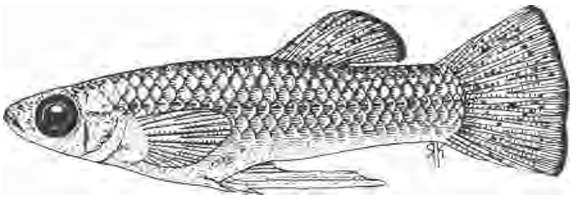
BIOLOGY: Carnivorous surface feeder. Sympatric, but not syntopic with northwest Cuban populations of *G. rhizophorae;* sympatric and syntopic with *G. puncticulata* throughout Cuba and Isle of Pines.

ADULT SIZE: Males 30-48 mm SL, females 39-70 mm SL.

Compilers: **L. R.** Rivas and R. Franz. January 1983.

Gambusia puncticulata **Poey**
Caribbean gambusia

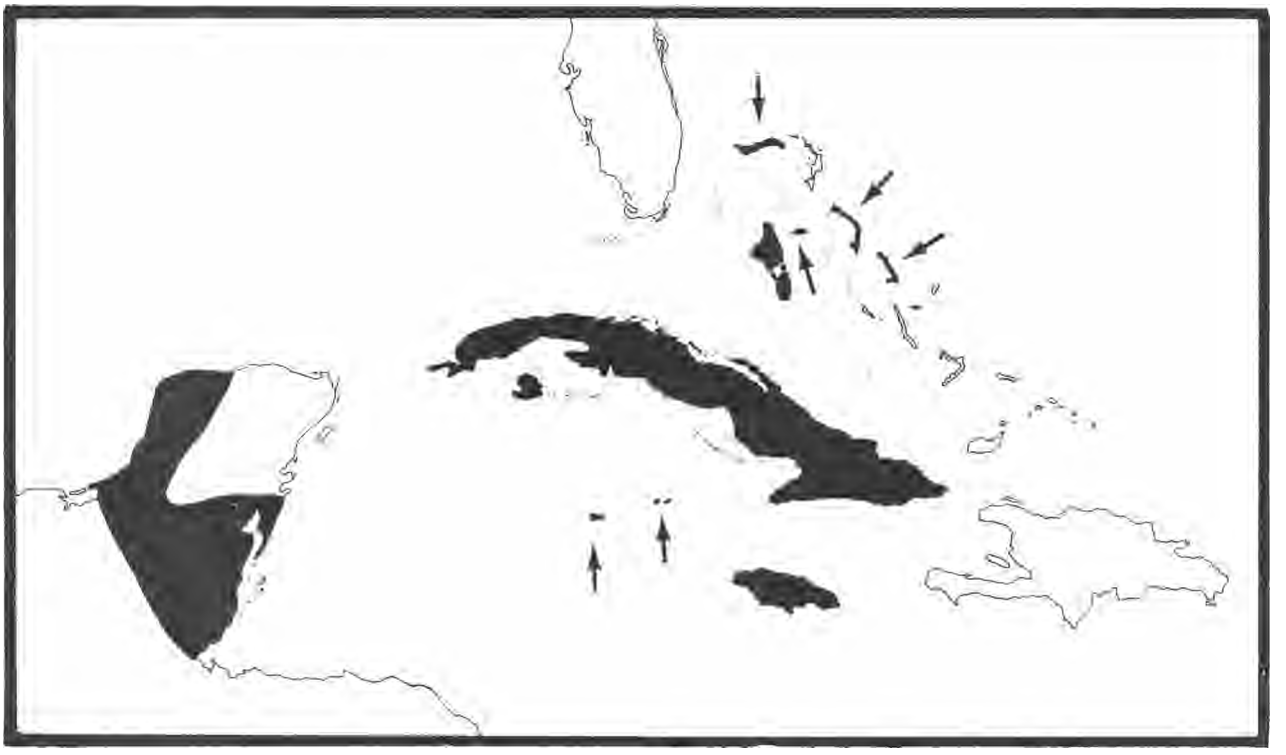
Order Cyprinodontiformes
Family Poeciliidae



Cuba: Prov. of Oriente, Rio Jicoteu, male 27 mm SL (NCSM).

TYPE LOCALITY: Havana, Cuba (Poey 1854. Memorias Sobre la Historia Natural de la Isla de Cuba 1:374-92).

SYSTEMATICS: Fink (1971. Publ. Gulf Coast Res. Lab. Mus. 2:17-22) provided an extensive account of this species. Six subspecies recognized: *G. p. puncticulata* **(Poey 1854),** *G. p. yucatana* **(Regan 1914. Ann. Mag. Nat. Hist. [Ser. 8] 14:65-67),** *G.* **p.** *manni* **(Hubbs 1927. Copeia: 61-65),** *G. p. bucheri* **(Rivas 1944. Proc. N. Engl. Zool. Club 23:41-53),** *G. p. baracoana* **(Rivas 1944), and** *G. p. monticola* **(Rivas 1971. Publ. Gulf Coast Res. Lab. Mus. 2:5-9).**



Modified from Fink 1971.

DISTRIBUTION AND HABITAT: In fresh, brackish and salt waters in coastal and lowland areas. *Gambusia p. puncticulata* **occurs throughout Cuba, Isle of Pines, Jamaica, Cayman Islands, and Bahamas;** *G.* **p.** *manni* **in two lakes on New Providence Island in the Bahamas;** *G. p. yucatana* **from near Coatzacoalcos in Veracruz (Mexico) to the outer parts of Yucatan, the Lake Peten region of Guatemala and northern Belize;** *G. p. bucheri* **from Jicotea in the Moa River system in Oriente Province, Cuba;** *G.* **p.** *baracoana* **in a backwater lagoon near the mouth of the Rio Baracoa on the northeast coast of Cuba; and G. p.** *monticola* **from the Rio Yao of the Rio Cauto system in southeastern Cuba.**

ADULT SIZE: Males 13.3-35.8 mm SL, females 17.0-54.7 mm SL.

BIOLOGY: Information available in Krumholz (1963. Int. Rev. Hydrobiol. 48:201-56), Hubbs and Miller (1942. Occas. Pap. Mus. Zool. Univ. Mich. 458:1-12), and Breder (1934. Am. Mus. Novit. 719:1-3; 1934. Zoologica 18:57-88).

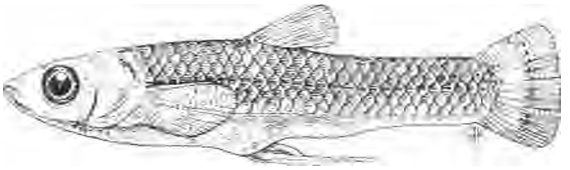
Compilers: L. R. Rivas and R. Franz. January 1983.

Gambusia wrayi Regan
Wray's gambusia

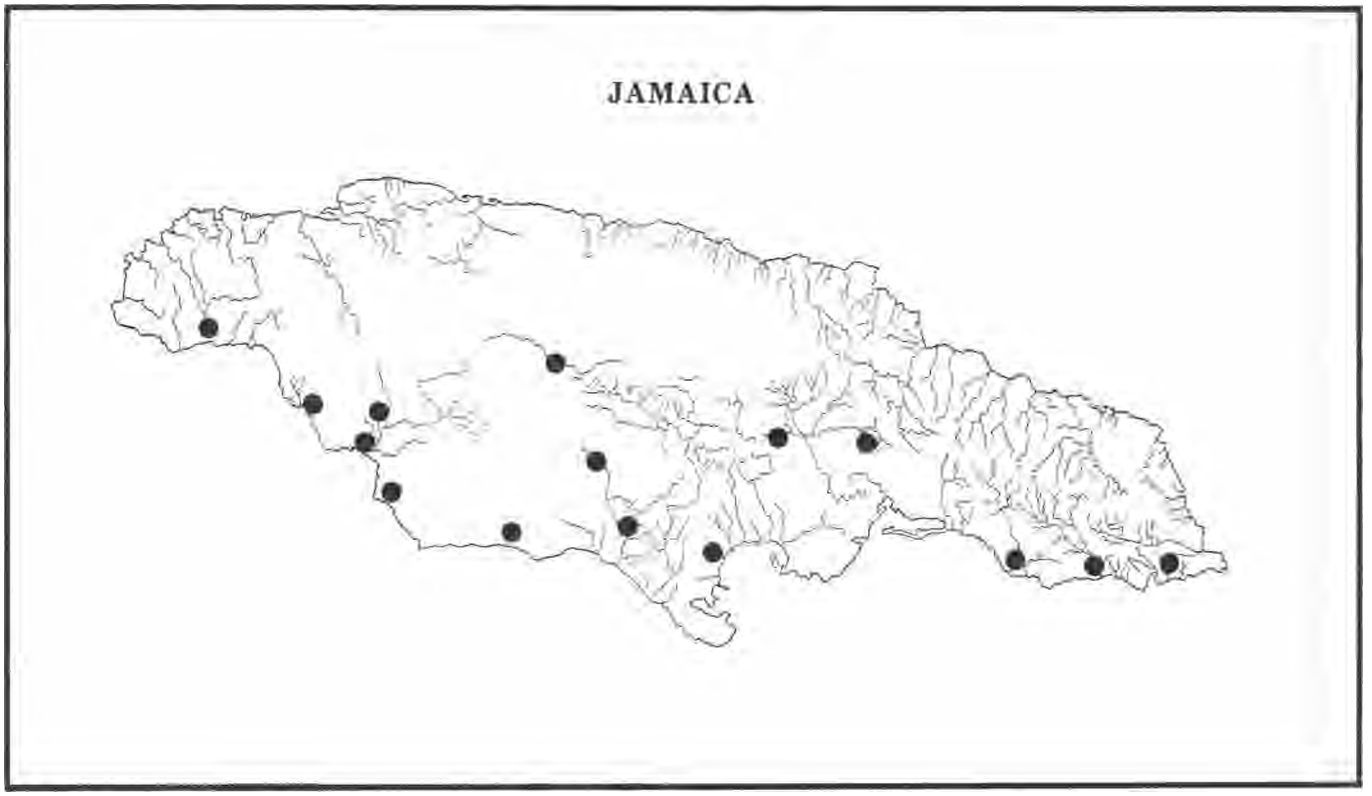
Order Cyprinodontiformes
Family Poeciliidae

TYPE LOCALITY: "Jamaica" (Regan 1913. Proc. Zool. Soc. Lond. 11:977-1018).

SYSTEMATICS: Belongs to the *G. nicaraguensis* species group (Fink 1971. Publ. Gulf Coast Res. Lab. Mus. 2:47-77).



Jamaica: Male 31 mm SL (NCSM).



DISTRIBUTION AND HABITAT: Occurs in freshwater habitats on Jamaica, particularly in the southern drainages; replaced in brackish and salt-water areas by G. *p. puncticulata*, although both occasionally occur together (Fink 1971).

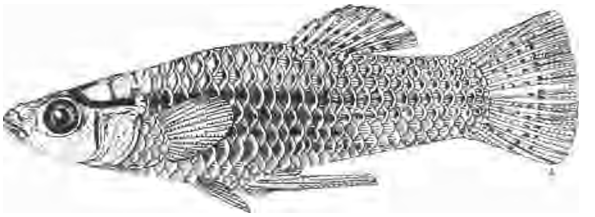
BIOLOGY: Unknown.

ADULT SIZE: Males 16.2-32.2 mm SL, females 21.0-56.4 mm SL.

Compilers: R. Franz and L. R. Rivas. **January 1983.**

Gambusia xanthosoma Greenfield
Cayman gambusia

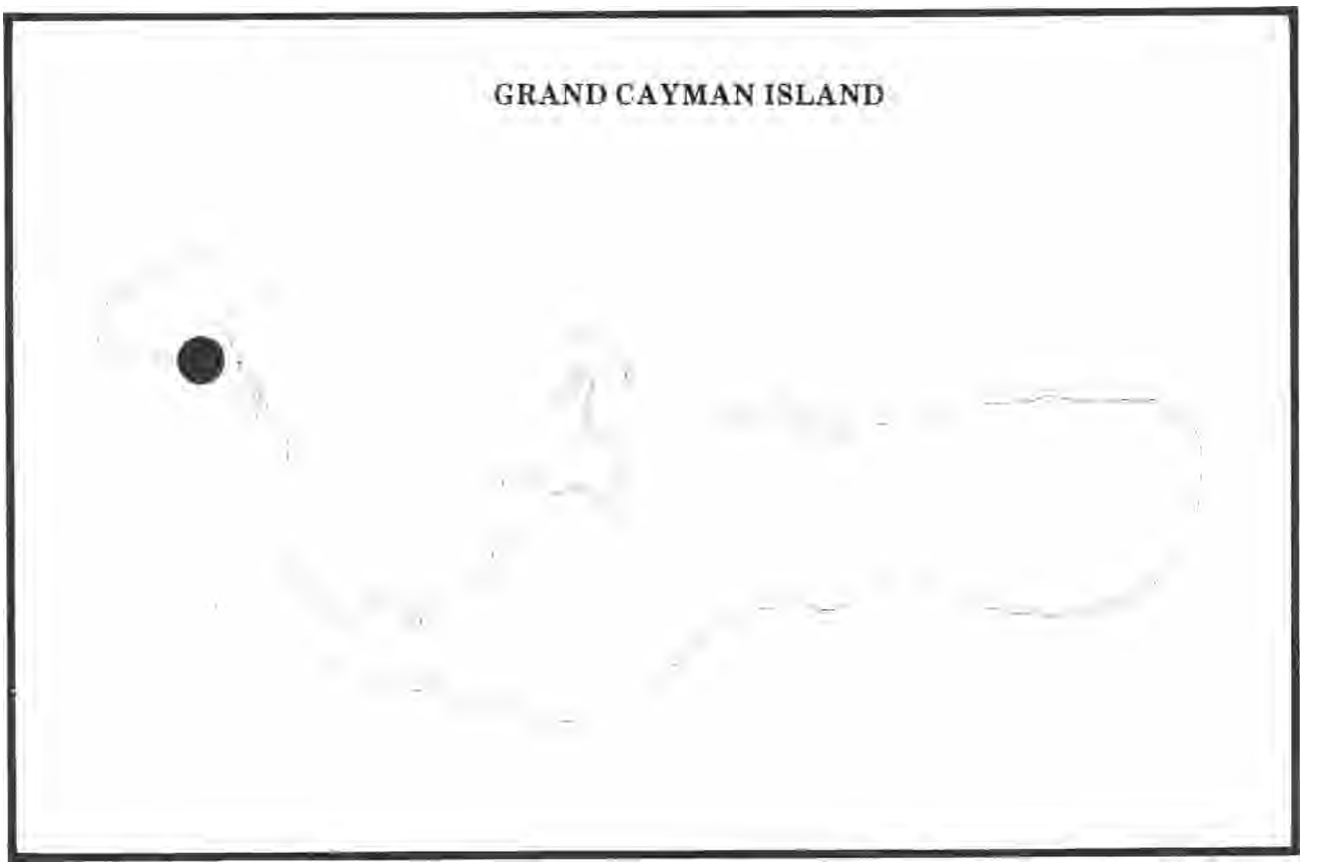
Order Cyprinodontiformes
Family Poeciliidae



Grand Cayman Island: Male (NCSM).

TYPE LOCALITY: Mosquito control ditch (Herringbone system 25) constructed along a road opposite the Taraquin Manor at West Bay, Grand Cayman Island, BWI (Greenfield 1983. Copeia 1983:457-464).

SYSTEMATICS: Greenfield (1983) provided comparisons between *G. xanthosoma* and several other species of *Gambusia.* He did not assign this species to any species group since he considered such placement premature at this time.



DISTRIBUTION: Known only from the type locality. Water temperature in the ditch was 32°C; salinity was 30%.

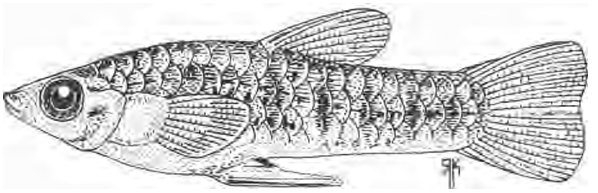
BIOLOGY: Unknown.

ADULT SIZE: Males 22.8-34.4 mm SL; females 23.0-35.8 mm SL.

Compilers: R. Franz and G. H. Burgess, August 1983.

Girardinus creolus Garman
Creole topminnow

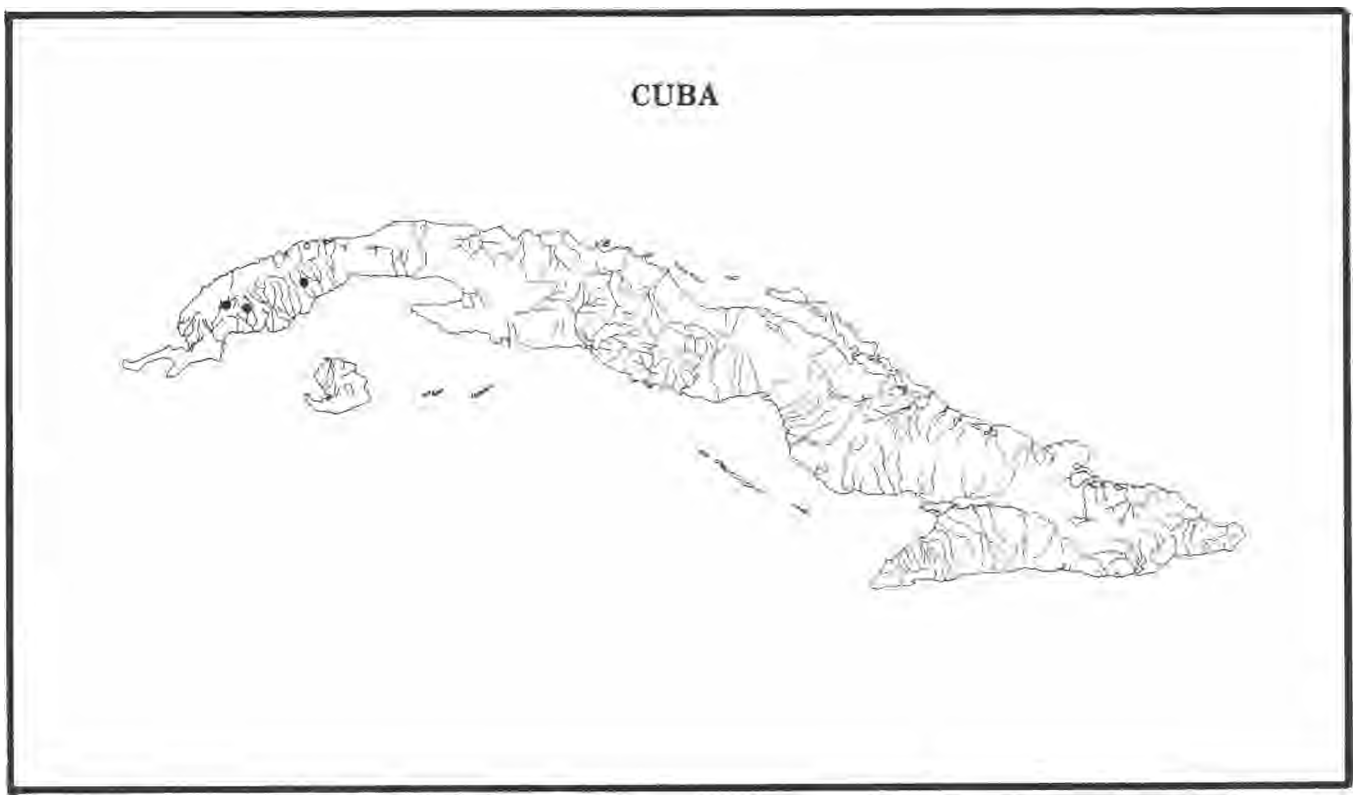
Order Cyprinodontiformes
Family Poeciliidae



Cuba: Pinar del Rio Province, male 28 mm SL (NCSM).

TYPE LOCALITY: Cuba (Garman 1895. Mem. Mus. Comp. Zool. 19:1-179).

SYSTEMATICS: Closely related to *G. serripenis* (Rivas 1958. Proc. Am. Philos. Soc. 102:281-320).



DISTRIBUTION AND HABITAT: Prefers pools and areas along banks of swift, clear, cool, well-oxygenated highland streams in southern drainages of Sierra de los Organos (30-150 m elevation), Pinar del Rio Province, Cuba. Midwater swimmers, never at the surface and seldom on the bottom, over hard substrates composed of smooth rocks, gravel, or sand (mostly from Rivas 1958).

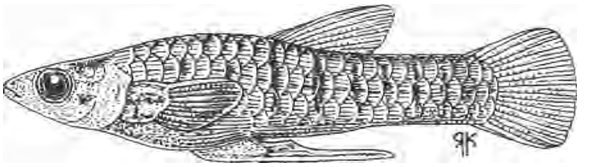
ADULT SIZE: Males to 44 mm SL, females to 70 mm SL.

BIOLOGY: Food includes algae, aquatic plants, and occasionally insect larvae (Rivas 1958).

Compilers: L. R. Rivas and R. Franz. January 1983.

Girardinus cubensis **(Eigenmann)**
Cuban topminnow

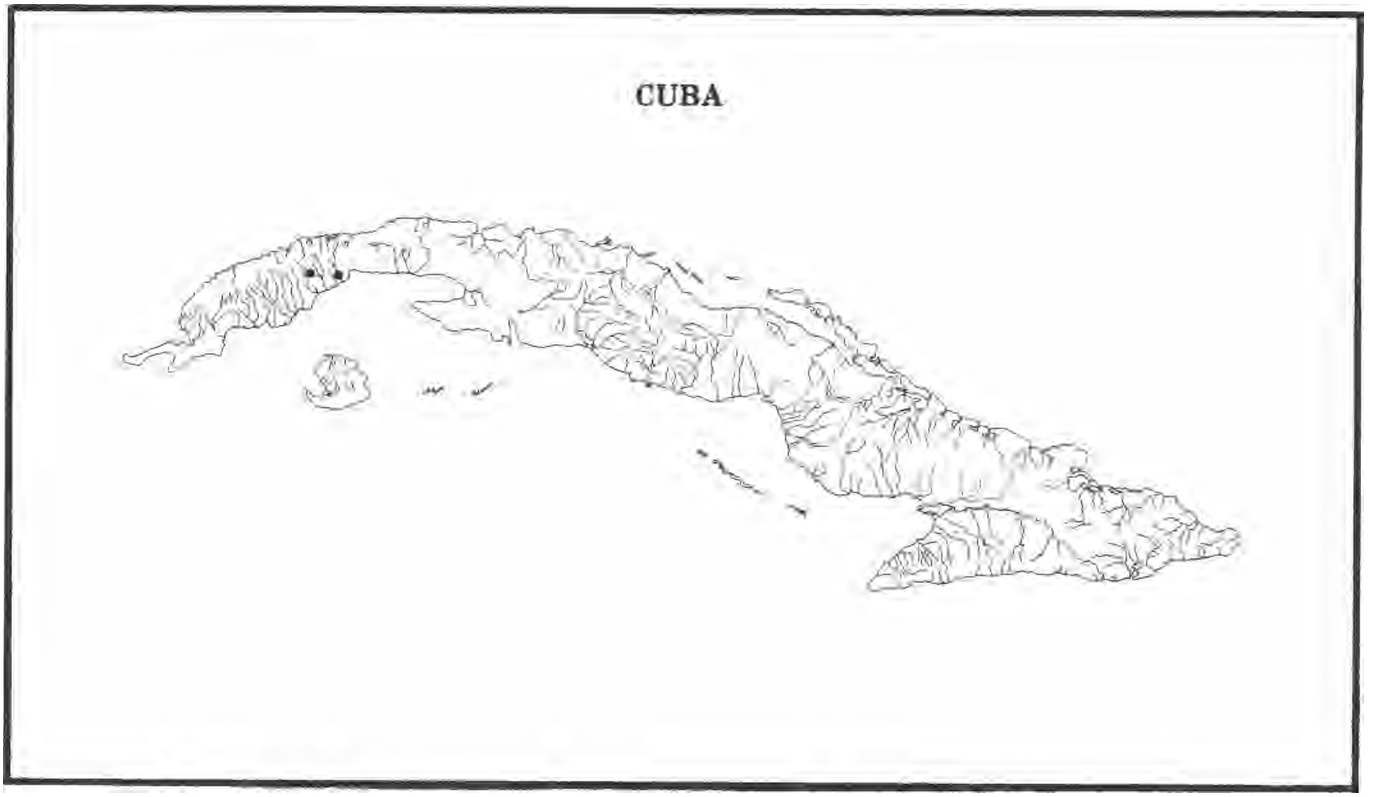
Order Cyprinodontiformes
Family Poeciliidae



TYPE LOCALITY: Los Palacios, Pinar del Rio Province, Cuba (Eigenmann 1903. Bull U.S. Fish Comm. [1902] 22:211-36).

SYSTEMATICS: Considered ancestral to *G. denticulatus, G. metallicus, G. microdactylus, G. falcatus,* **and** *G. uninotatus* **(Rivas 1958. Proc. Am. Philos. Soc. 102:281-320).**

Cuba: Pinar del Rio Province, male, 24.5 mm SL (NCSM).



DISTRIBUTION AND HABITAT: Prefers stagnant water in ponds, lakes, and streams in southern drainage of Sierra de los Organos (15-150 m elevation), Pinar del Rio Province, Cuba. Occurs in midwater and on the bottom, seldom at the surface, over soft bottoms, frequently with abundant aquatic vegetation (Rivas 1958).

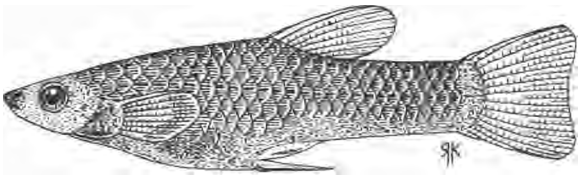
BIOLOGY: Feeds on the bottom and in aquatic vegetation mostly by scraping and sucking algae, mud, detritus, and occasionally insect larvae (Rivas 1958).

ADULT SIZE: Males to 26 mm SL, females to 46 mm SL.

Compilers: L. R. Rivas and R. Franz. January 1983.

Girardinus denticulatus **Garman**
Toothy topminnow

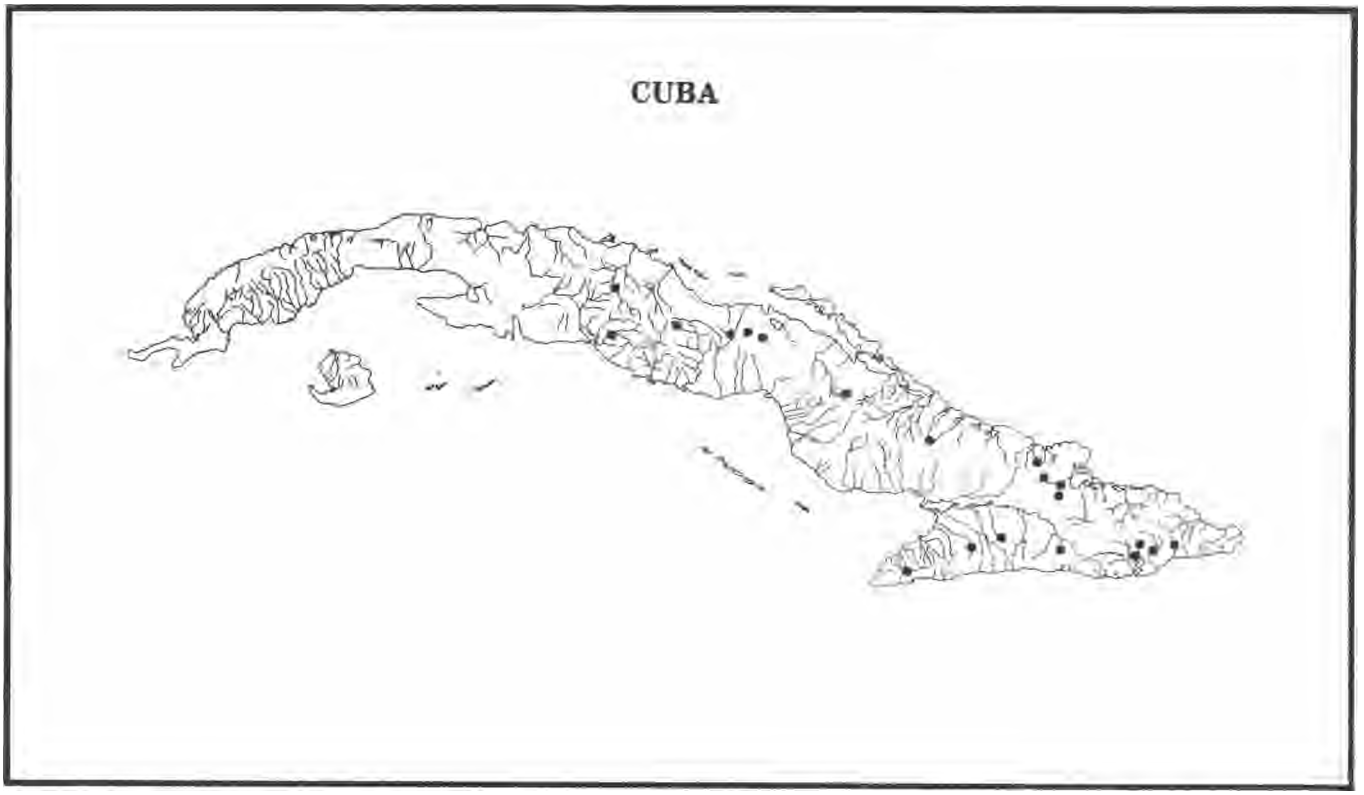
Order Cyprinodontiformes
Family Poeciliidae



TYPE LOCALITY: Remedios, Cuba (Garman 1895. Mem. Mus. Comp. Zool. 19:1-179).

SYSTEMATICS: Rivas (1958. Proc. Am. Philos. Soc. 102:281-320) recognized the subspecies *G. d. denticulatus* and *G. d. ramsdeni* (1944. Proc. N. Engl. Zool. Club 23:41-53).

Cuba: Oriente Province, Rio Rancho Nueva, male, 38 mm SL (NCSM).



DISTRIBUTION AND HABITAT: Typical subspecies occurs in central and eastern Cuba, except Rio Guaso and Rio Yateras in southeastern drainages of Sierra Maestra, Oriente Province, where it is replaced by *G. d. ramsdeni*. Found in ponds, lakes, and streams but prefers clear sluggish streams.

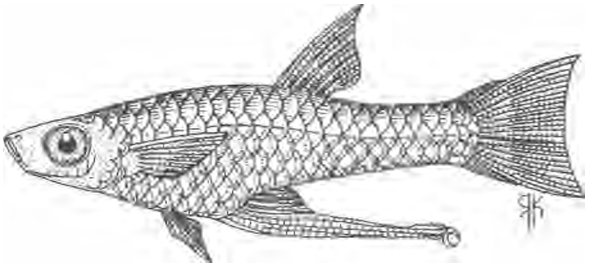
BIOLOGY: Feeds on the bottom and on aquatic vegetation, scraping and sucking diatoms, algae, detritus, mud, and occasionally insect larvae (Rivas 1958).

ADULT SIZE: Males to 50 mm SL, females to 93 mm SL.

Compilers: L. R. Rivas and R. Franz. January 1983.

Girardinus falcatus **(Eigenmann)**
Goldbelly topminnow

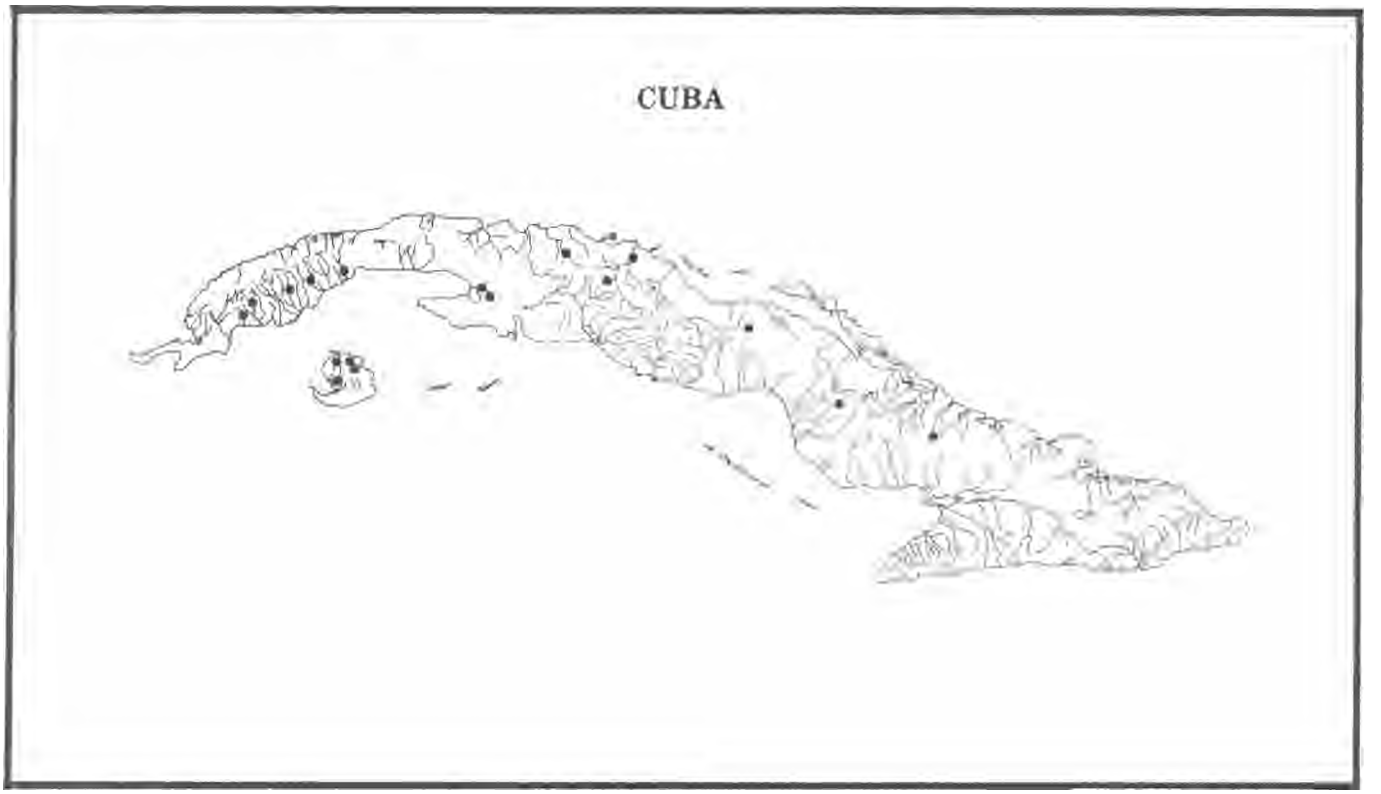
Order Cyprinodontiformes
Family Poeciliidae



Cuba: male (NCSM, from Eigenmann 1903).

TYPE LOCALITY: San Cristobal, Pinar del Rio Province, Cuba (Eigenmann 1903. Bull. U.S. Fish Comm. [1902] 22:211-36).

SYSTEMATICS: Closely related to *G. uninotatus* **(Rivas 1958. Proc. Am. Philos. Soc. 102:281-320).**



DISTRIBUTION AND HABITAT: In ponds, lakes, and lowland streams (2-150, usually less than 30, m elevation) of central and western Cuba and Isle of Pines (Rivas 1958). Prefers stagnant water over muddy substrate with abundant aquatic vegetation.

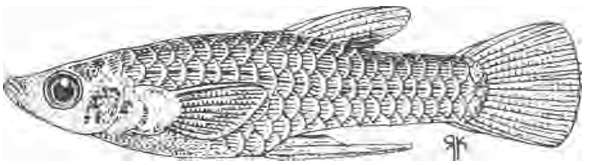
BIOLOGY: Feeds by gnawing and biting on diatoms, algae, leaves of aquatic plants, detritus, and occasionally insect larvae (Rivas 1958).

ADULT SIZE: Males to 37 mm SL, females to 85 mm SL.

Compilers: R. Franz and L. R. Rivas. January 1983.

Girardinus metallicus Poey
Metallic topminnow

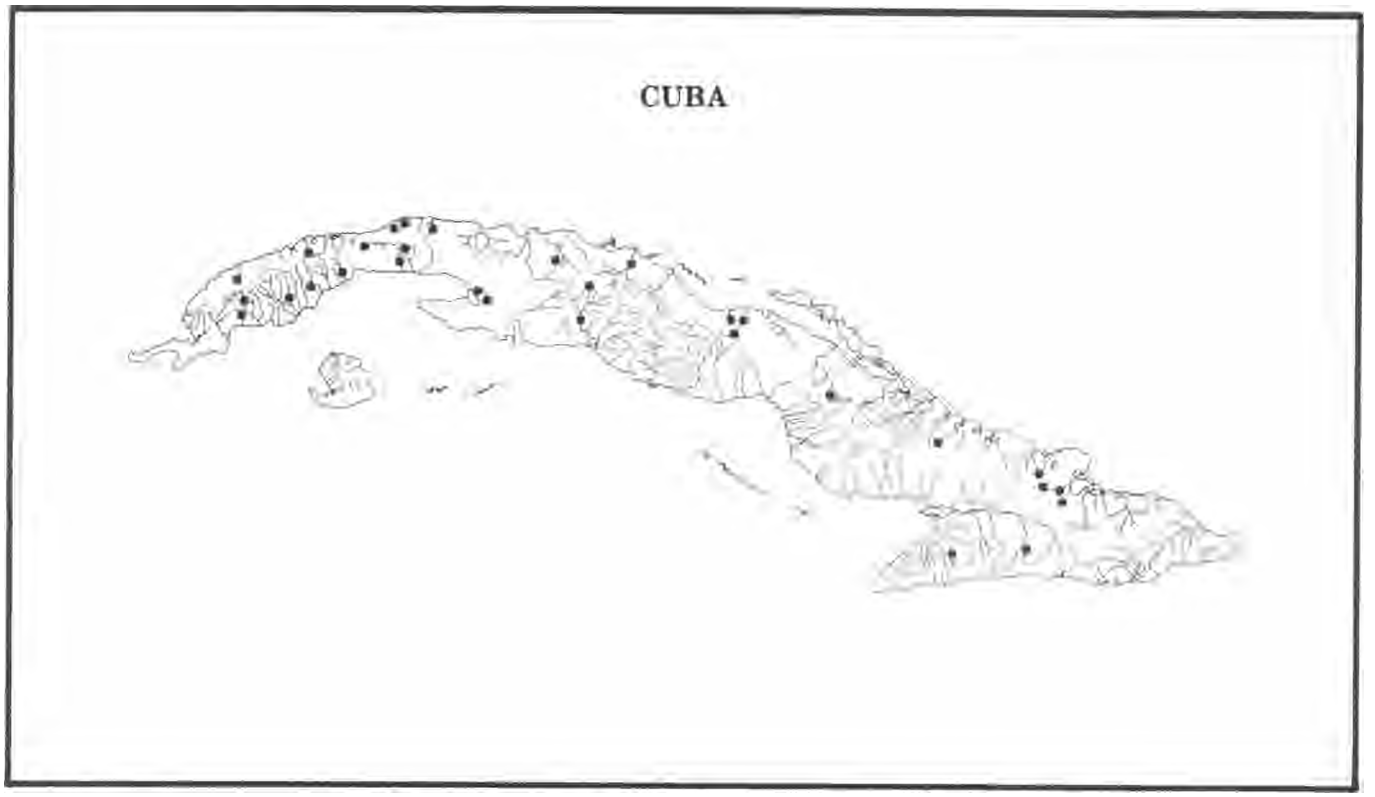
Order Cyprinodontiformes
Family Poeciliidae



TYPE LOCALITY: Jardin Botanico, Habana Province, Cuba (Poey 1854. Memorias Sobre la Historia Natural de la Isle de Cuba 1:374-92).

SYSTEMATICS: Closely related to G. microdactylus (Rivas 1958. Proc. Am. Philos. Soc. 102:281-320).

Cuba: Province of Havana, male, 28 mm SL (NCSM).



DISTRIBUTION AND HABITAT: Ponds, lakes, and streams throughout Cuba, except easternmost area at 200-300 m elevation. Thrives best in clear, stagnant, or very sluggish water (Rivas 1958).

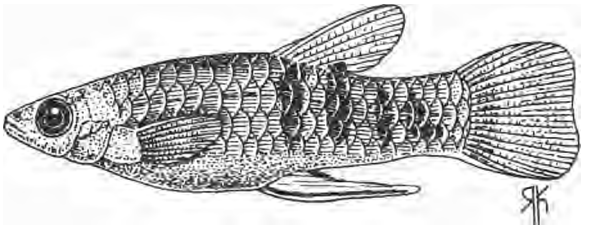
BIOLOGY: Feeds by scraping and sucking diatoms, algae, detritus, mud, and occasionally insect larvae from the bottom and from aquatic vegetation (Rivas 1958).

ADULT SIZE: Males to 45 mm SL, females to 79 mm SL.

Compilers: R. Franz and L. R. Rivas. January 1983.

Girardinus microdactylus **Rivas**
Smallfinger **topminnow**

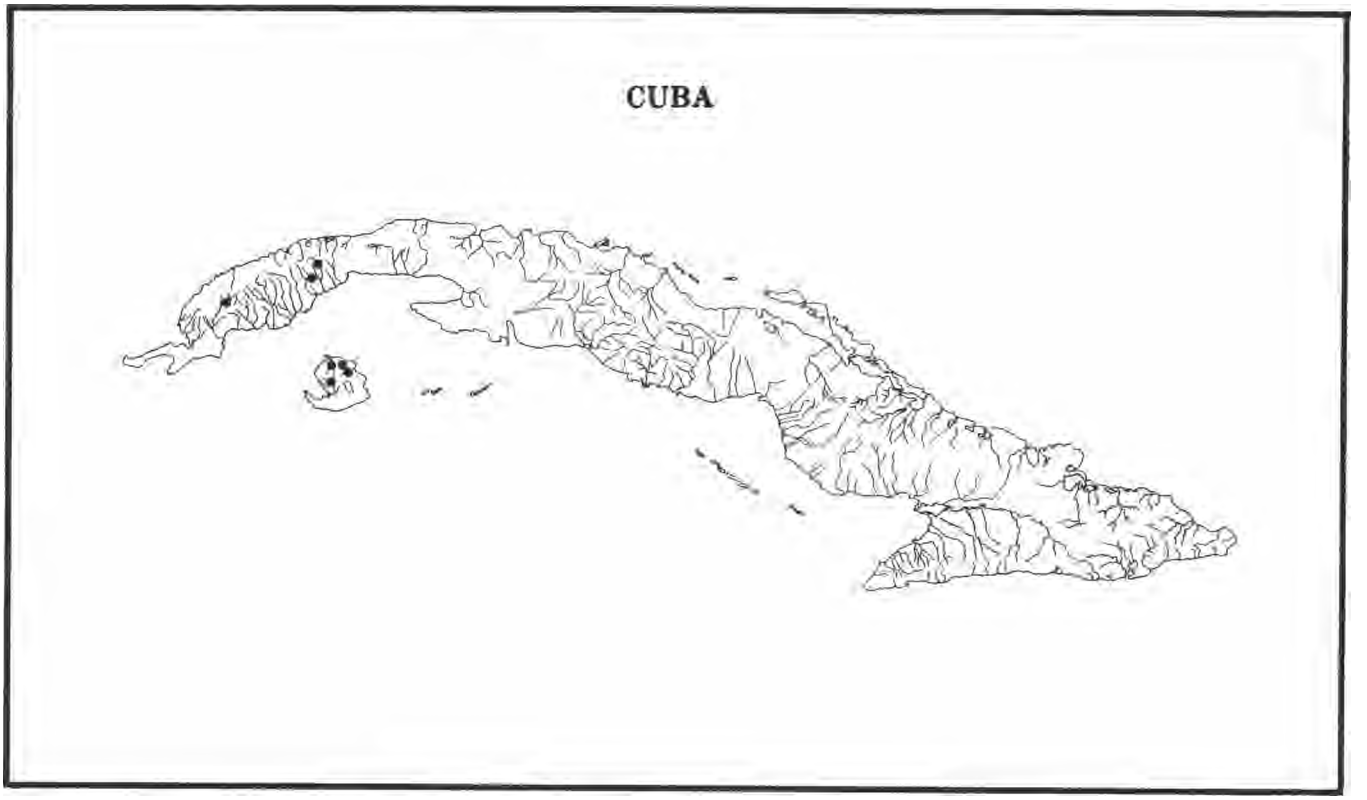
Order Cyprinodontiformes
Family Poeciliidae



Cuba: Pinar del Rio Province, male, 29 mm SL (NCSM).

TYPE LOCALITY: Rio Taco Taco, Jardin de Blain, Pinar del Rio Province, Cuba (Rivas 1944. Proc. N. Engl. Zool. Club 23:41-53).

SYSTEMATICS: Closely related to *G. metallicus* (Rivas 1958. Proc. Am. Philos. Soc. 102:281-320).



DISTRIBUTION AND HABITAT: Occurs in pools and along banks, occasionally in swift water, in highland streams of the southern drainage of the Sierra de los Organos (15-150 m elevation), western Cuba and Isle of Pines. Midwater and bottom swimmers occasionally at or near the surface; sensitive to high chlorine content and warm, turbid, poorly oxygenated, stagnant water.

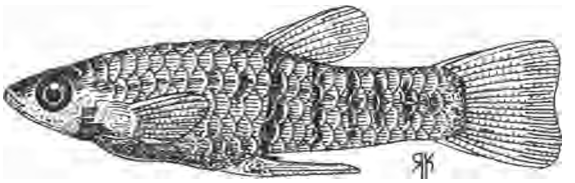
ADULT SIZE: Males to 33 mm SL, females to 63 mm SL.

BIOLOGY: Food consists of diatoms, algae, detritus, mud, and occasionally insect larvas (Rivas 1958).

Compilers: L. R. Rivas and R. Franz. January 1983.

Girardinus serripenis **Rivas**
Serrated topminnow

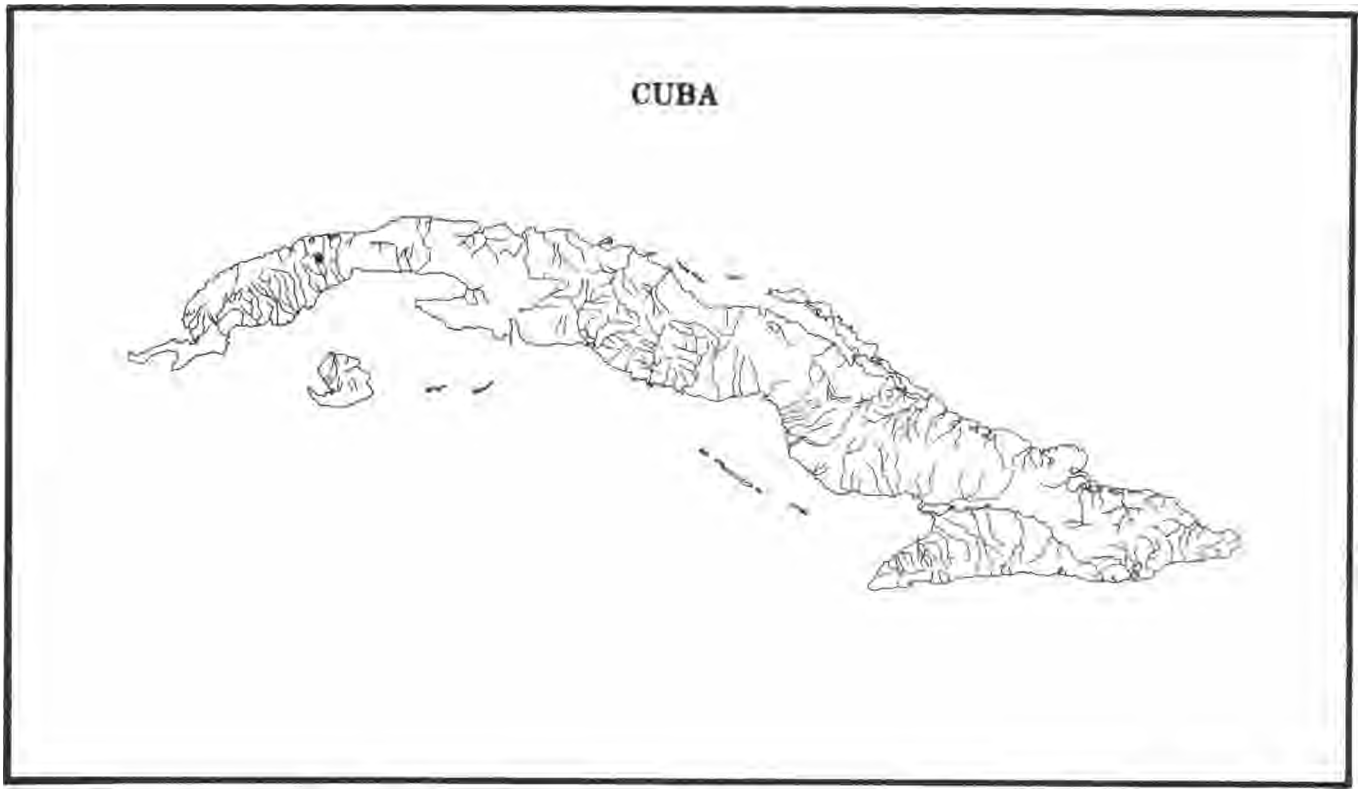
Order Cyprinodontiformes
Family Poeciliidae



Cuba: Pinar del Rio Province, male, 31 mm SL (NCSM).

TYPE LOCALITY: Rio Taco Taco at Rangel, Pinar del Rio Province, Cuba (Rivas 1958. Proc. Am. Philos. Soc. 102:281-320).

SYSTEMATICS: Most primitive member of the genus and most closely related to *G. creolus* (Rivas 1958).



DISTRIBUTION AND HABITAT: Occurs in headwater streams of the Rio Taco Taco (245 to 300 m elevation), Pinar del Rio Province, Cuba. Apparently isolated from downstream populations of poeciliid fishes by a series of water falls, totaling about 90 m, which are impassible to fishes (Rivas 1958).

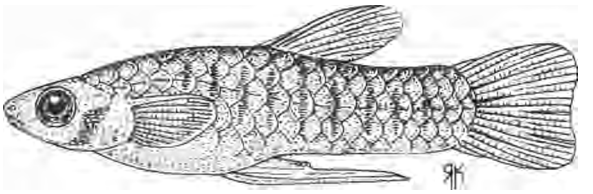
BIOLOGY: Feeds by gnawing, biting, scraping, and sucking on algae, aquatic plants, detritus, and rarely insect larvae (Rivas 1958).

ADULT SIZE: Males 27-36 mm SL, females to 60 mm SL.

Compilers: L. R. Rivas and R. Franz. January 1983.

Girardinus uninotatus Poey
Singlespot topminnow

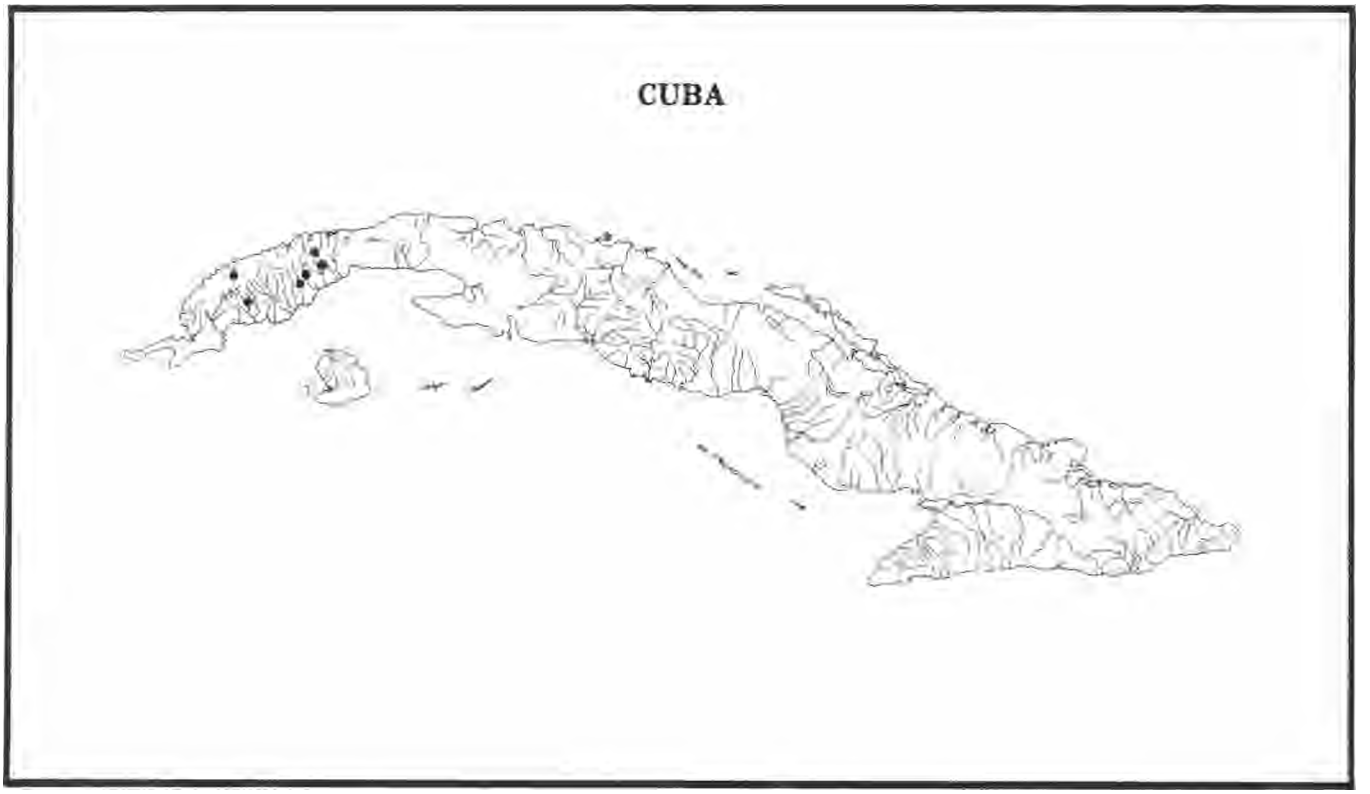
Order Cyprinodontiformes
Family Poeciliidae



Cuba: Pinar del Rio, male, 33 mm (NCSM).

TYPE LOCALITY: Rio Taco Taco, Pinar del Rio Province, Cuba (Poey 1860. Memorias Sobre la Historia Natural de la Isla de Cuba, acompanadas Sumarios Latinos y Extractos en Frances 2:115-356).

SYSTEMATICS: Two subspecies recognized by Rivas (1958. Proc. Am. Philos. Soc. 102:281-320): G. u. *uninotatus* and *G. u. torralbasi.*



DISTRIBUTION AND HABITAT: Prefers pools and areas along banks occasionally in swift water, in streams of southern and northwestern drainages of the Sierra de los Organos (30 to 150 m elevation) in western Cuba. *Girardinus u. uninotatus* occurs from the Rio Guama east; *G.* u. *torralbasi* from the Rio Guama west (Rivas 1958).

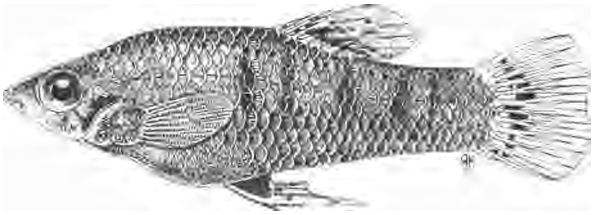
BIOLOGY: Feeds by gnawing or biting on aquatic vegetation, thus ingesting diatoms, algae, leaves of plants, detritus, and occasionally larval insects.

ADULT SIZE: Males to 47 mm SL, females to 84 mm SL.

Compilers: R. Franz and L. R. Rivas. January 1983.

Limia caymanensis Rivas and Fink
Grand Cayman limia

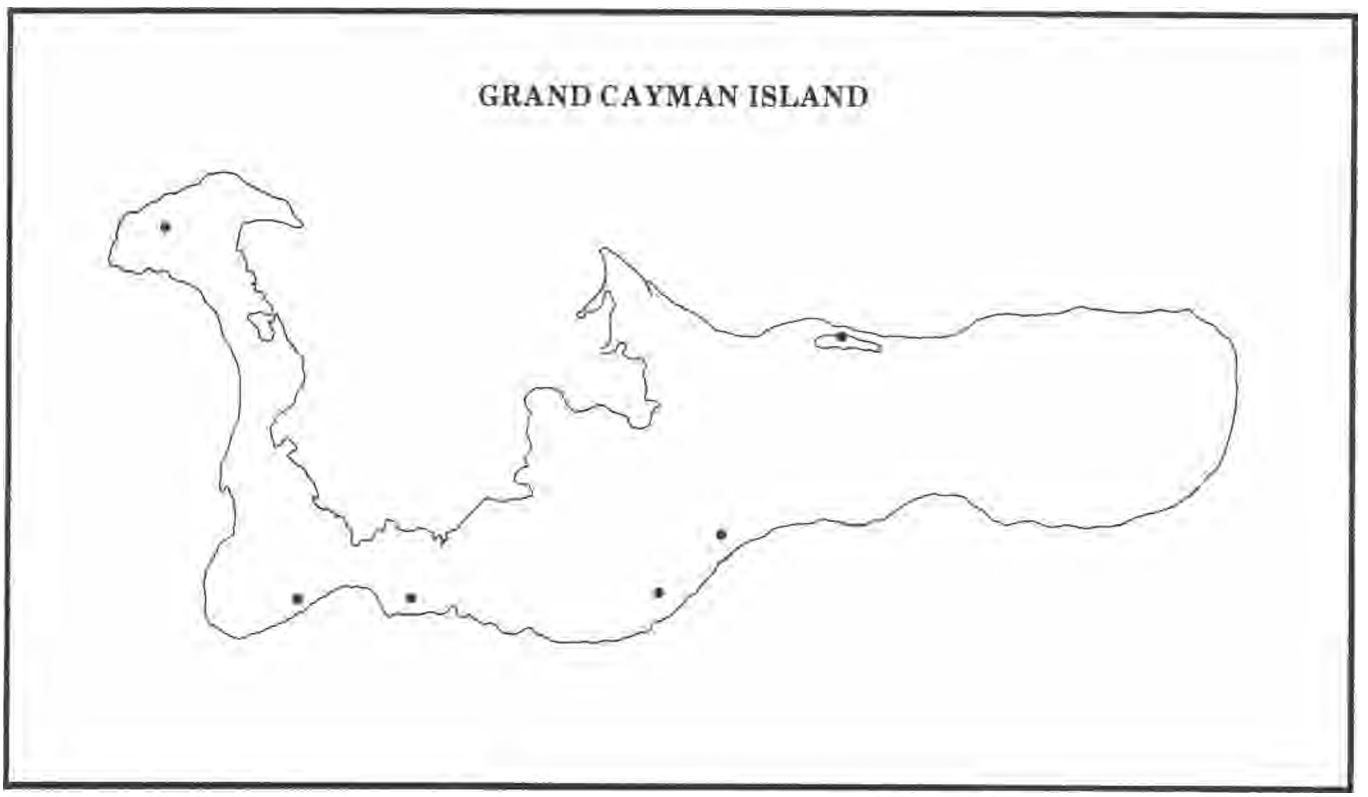
Order Cyprinodontiformes
Family Poeciliidae



Grand Cayman Island: West of Old Man Bay, male, 28 mm SL (NCSM).

TYPE LOCALITY: Coastal lagoon, 3.2 km w of Old Man Bay, Grand Cayman Island, West Indies (Rivas and Fink 1970. Copeia: 270-74).

SYSTEMATICS: Subgenus Limia (Rivas 1980. Northeast Gulf Sci. 4:28-38). Rosen and Bailey (1963. Bull. Am. Mus. Nat. Hist. 126:1-176) relegated genus *Limia* to subgenus of *Poecilia;* however, Rivas (1978. Northeast Gulf Sci. 2:98-112) presented evidence for maintaining as valid genus. Closely related to *L. vittata* of Cuba (Rivas and Fink 1970).



DISTRIBUTION AND HABITAT: Known from Grand Cayman Island, but not from the other Cayman Islands. In brackish water in mangrove coastal lagoons and fresh water in limestone depressions (Rivas and Fink 1970).

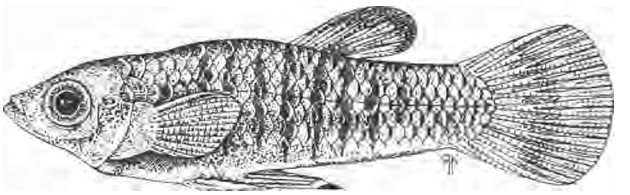
BIOLOGY: Unknown.

ADULT SIZE: Males to 28.2 mm SL, females 31.8 mm SL.

Compilers: R. Franz and L. R. Rivas. January 1983.

Limia dominicensis (Valenciennes)
Tiburon Peninsula limia

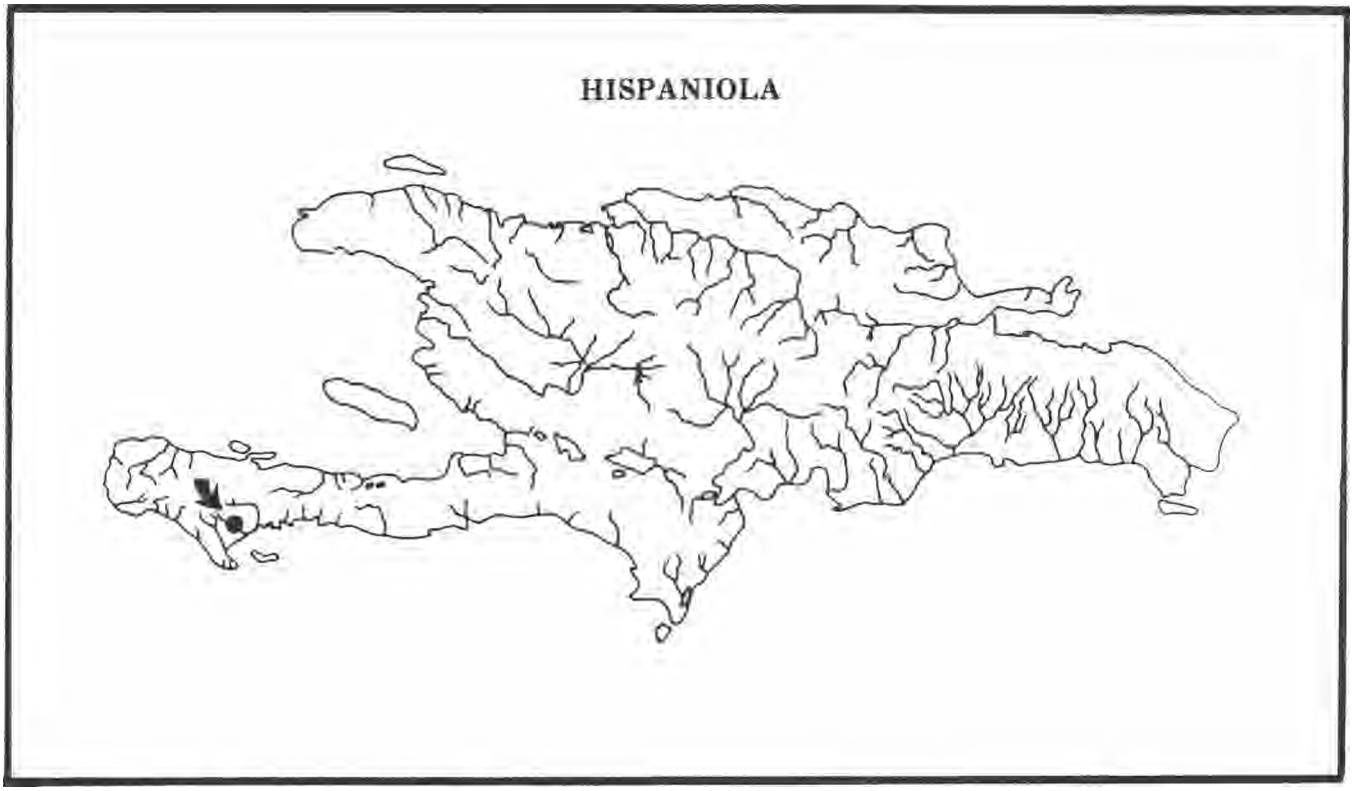
Order Cyprinodontiformes
Family Poeciliidae



TYPE LOCALITY: Haiti, Santo Domingo (Valenciennes in Cuvier and Valenciennes. 1846. *Histoire Naturelle des Poissons* 18:1-503).

SYSTEMATICS: Subgenus Limia (Rivas 1980. Northeast Gulf Sci. 4:28-38).

Haiti: Creek 3 miles n. of Camp Pekin, male 26 mm SL (NCSM).



DISTRIBUTION AND HABITAT: Streams of the southern slope of Tiburon Peninsula, southwestern Haiti.

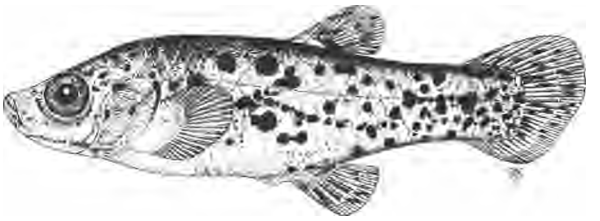
BIOLOGY: Unknown

ADULT SIZE: Males to 26 mm SL, females to 27 mm SL.

Compilers: R. Franz and L. R. Rivas. January 1983.

Limia fuscomaculata Rivas
Blotched limia

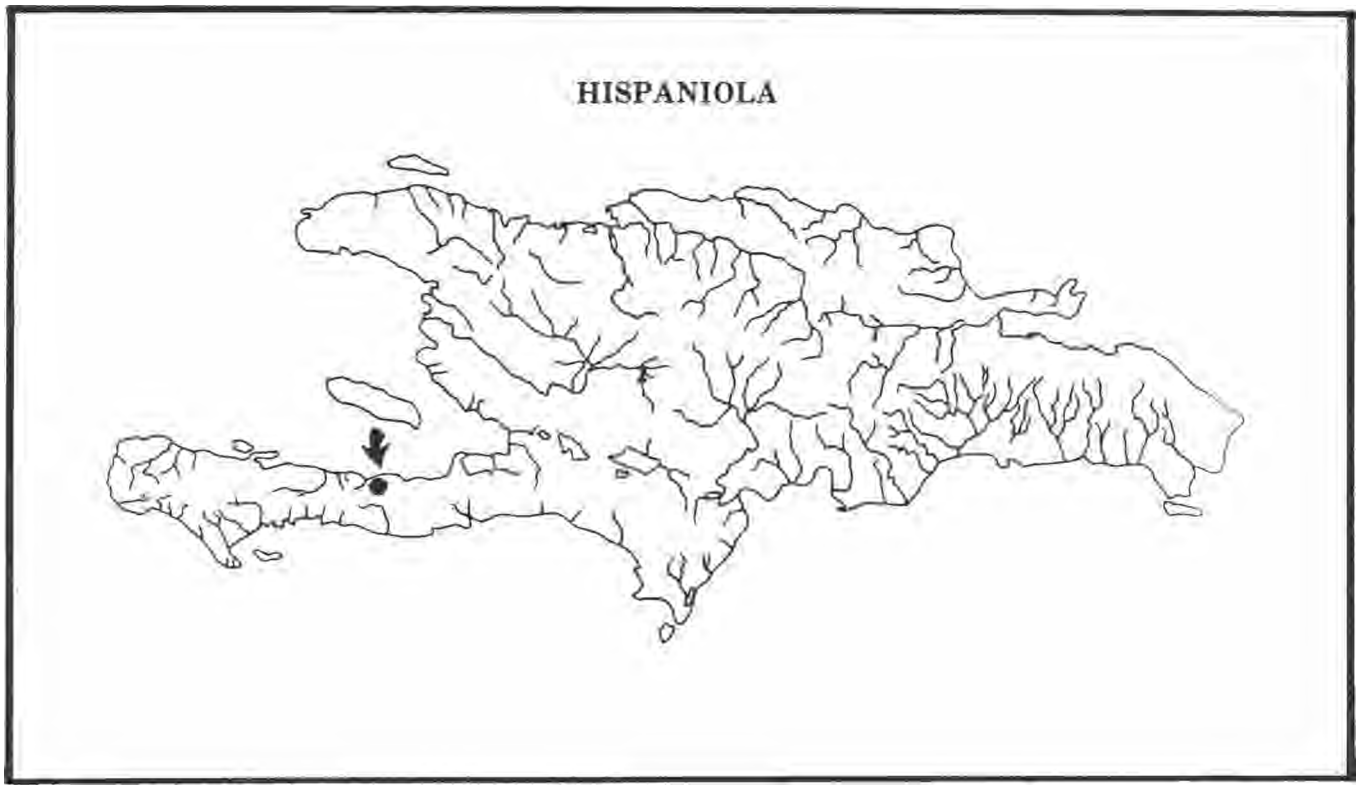
Order Cyprinodontiformes
Family Poeciliidae



Haiti: Lake Miragoane, female, 32 mm SL (NCSM).

TYPE LOCALITY: Southwest bight of Lake Miragoane, Dept. de l'Ouest, Haiti (Rivas 1980. Northeast Gulf Sci. 4:28-38).

SYSTEMATICS: Subgenus Odontolimia (Rivas 1980).



DISTRIBUTION AND HABITAT: Restricted to Etang de Miragoane, in southwestern Haiti (Rivas 1980).

BIOLOGY: Unknown.

ADULT SIZE: 26.4-39.0 mm SL (females only).

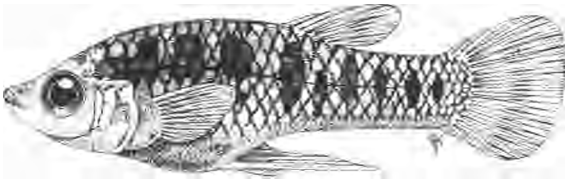
Compilers: L. R. Rivas and R. Franz. January 1983.

Limia garnieri Rivas
Garnier's limia

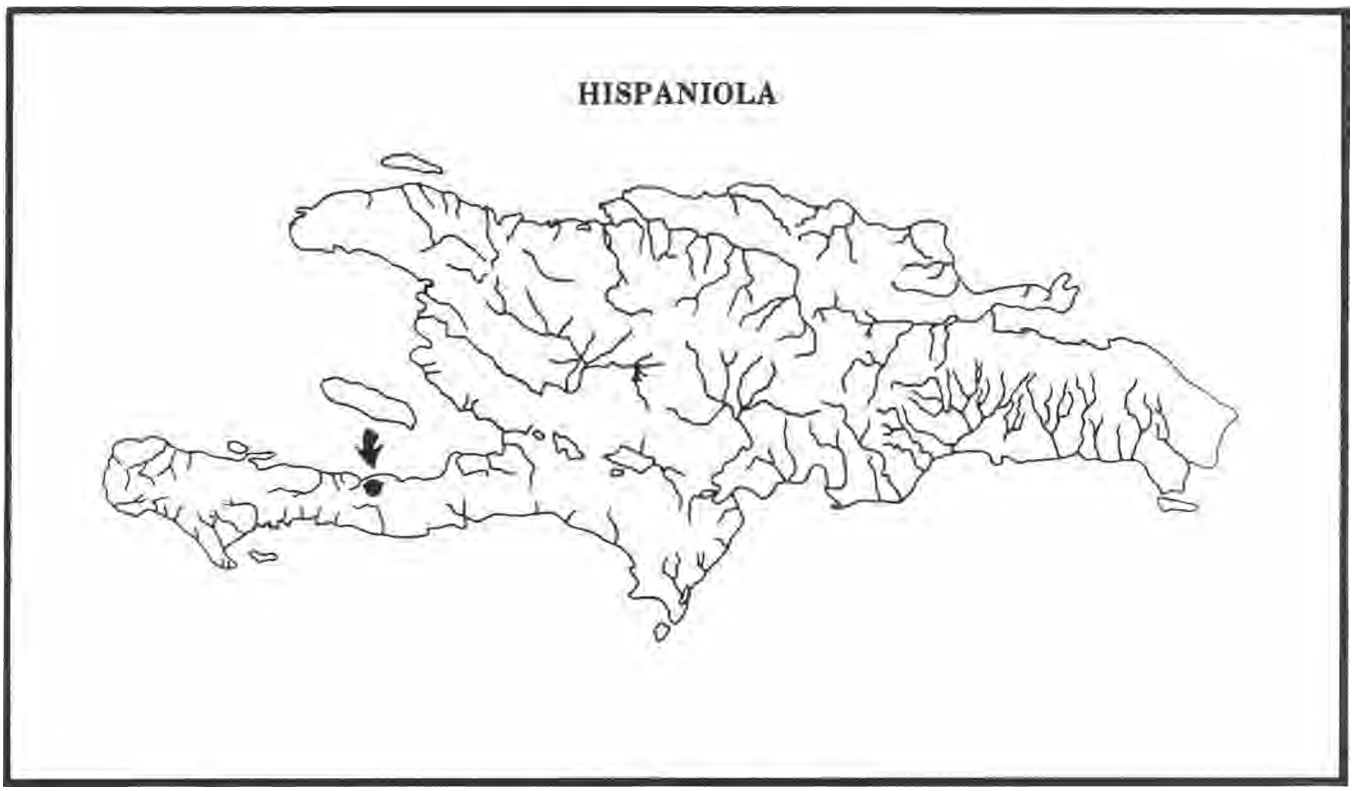
Order Cyprinodontiformes
Family Poeciliidae

TYPE LOCALITY: Northern end of Lake Miragoane, Dept. de l'Ouest, Haiti (Rivas 1980. Northeast Gulf Sci. 4:28-38).

SYSTEMATICS: Subgenus *Odontolimia* (Rivas 1980).



Haiti: North end of Lake Miragoane, male, 26 mm SL (NCSM).



DISTRIBUTION AND HABITAT: Restricted to Etang de Miragoane in southwestern Haiti (Rivas 1980).

BIOLOGY: Unknown.

ADULT SIZE: Only male 26.0 mm SL, only female 28.8 mm SL.

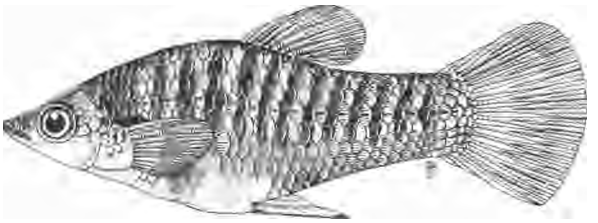
Compilers: L. R. Rivas and R. Franz. January 1983.

Limia grossidens Rivas
Largetooth limia

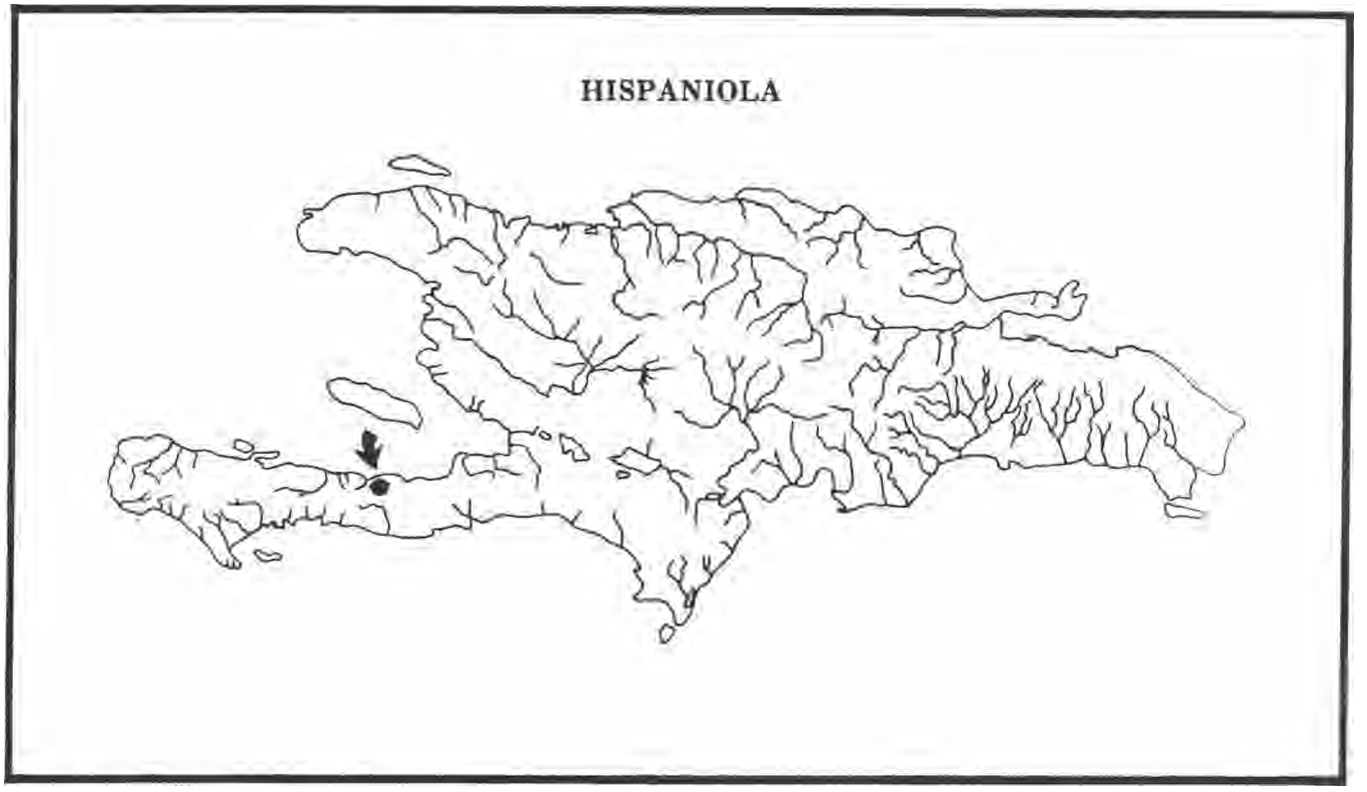
Order Cyprinodontiformes
Family Poeciliidae

TYPE LOCALITY: North end, Lake Miragoane, Dept. de l'Ouest, Haiti (Rivas 1980. Northeast Gulf Sci. 4:28-38).

SYSTEMATICS: Subgenus *Odontolimia* (Rivas 1980).



Haiti: Lake Miragoane male, 48 mm SL (NCSM).



DISTRIBUTION AND HABITAT: Restricted to Etang de Miragoane, in southwestern Haiti (Rivas 1980).

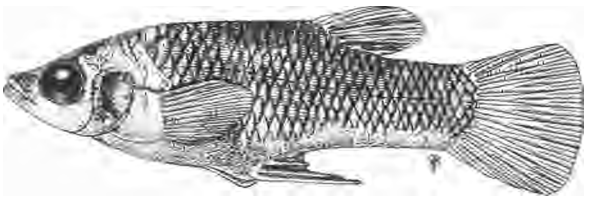
BIOLOGY: Unknown.

ADULT SIZE: Males 27.5-39.2 mm SL, females 29.6-39.5 mm SL.

Compilers: L. R. Rivas and R. Franz. January 1983.

Limia immaculata Rivas
Plain limia

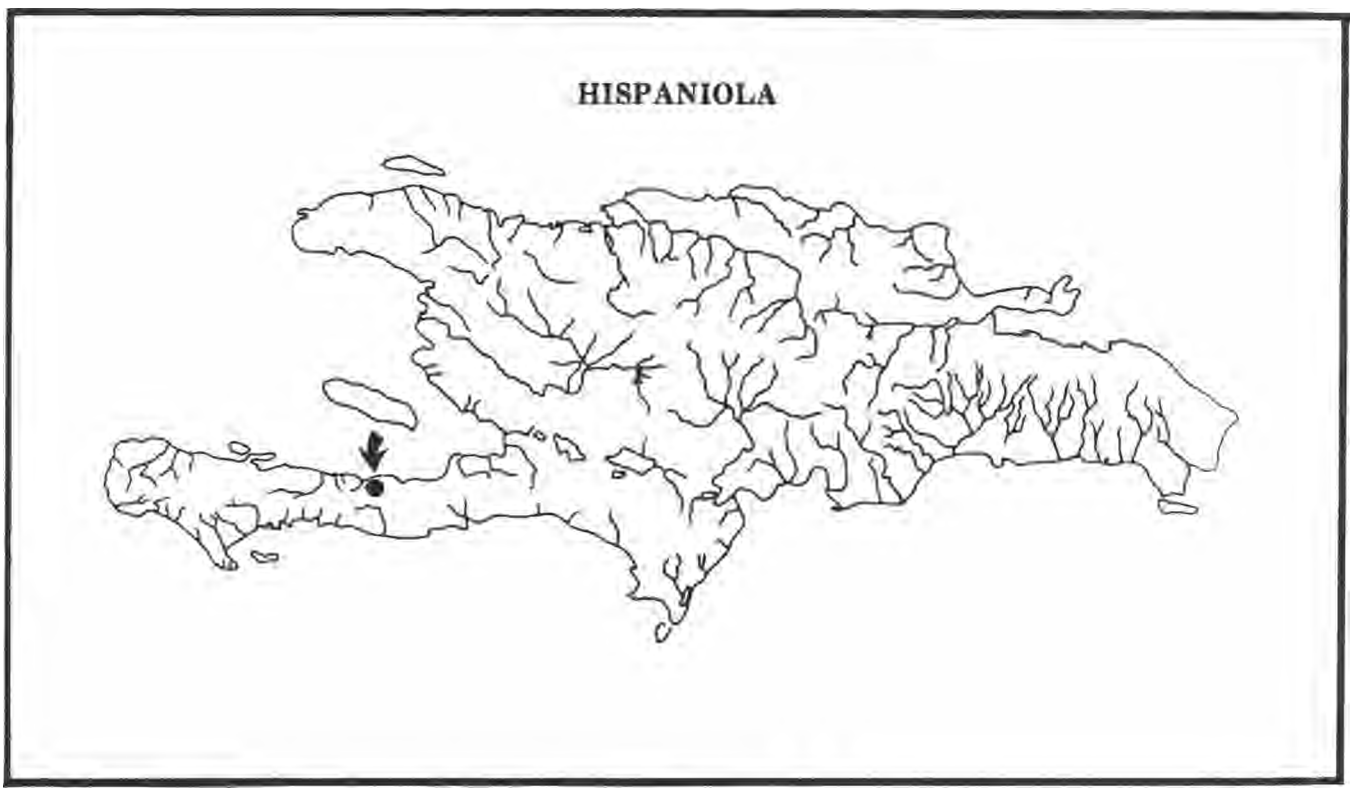
Order **Cyprinodontiformes**
Family Poeciliidae



Haiti: North end of Lake Miragoane, male, 21 mm SL (NCSM).

TYPE LOCALITY: North end of Lake Miragoane, Dept. de l'Ouest, Haiti (Rivas 1980. Northeast Gulf Sci. 4:28-38).

SYSTEMATICS: Subgenus *Odontolimia* (Rivas 1980).



DISTRIBUTION AND HABITAT: Restricted to Etang de Miragoane, in southwestern Haiti (Rivas 1980).

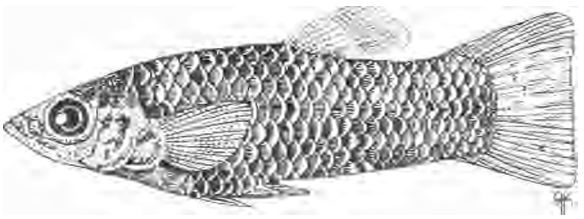
BIOLOGY: Unknown.

ADULT SIZE: Species known only from one male 21.3 mm SL, three females 23.9-37.7 mm SL.

Compilers: L. R. Rivas and R. Franz. January 1983.

Limia melanogaster (Gunther)
Blackbelly limia

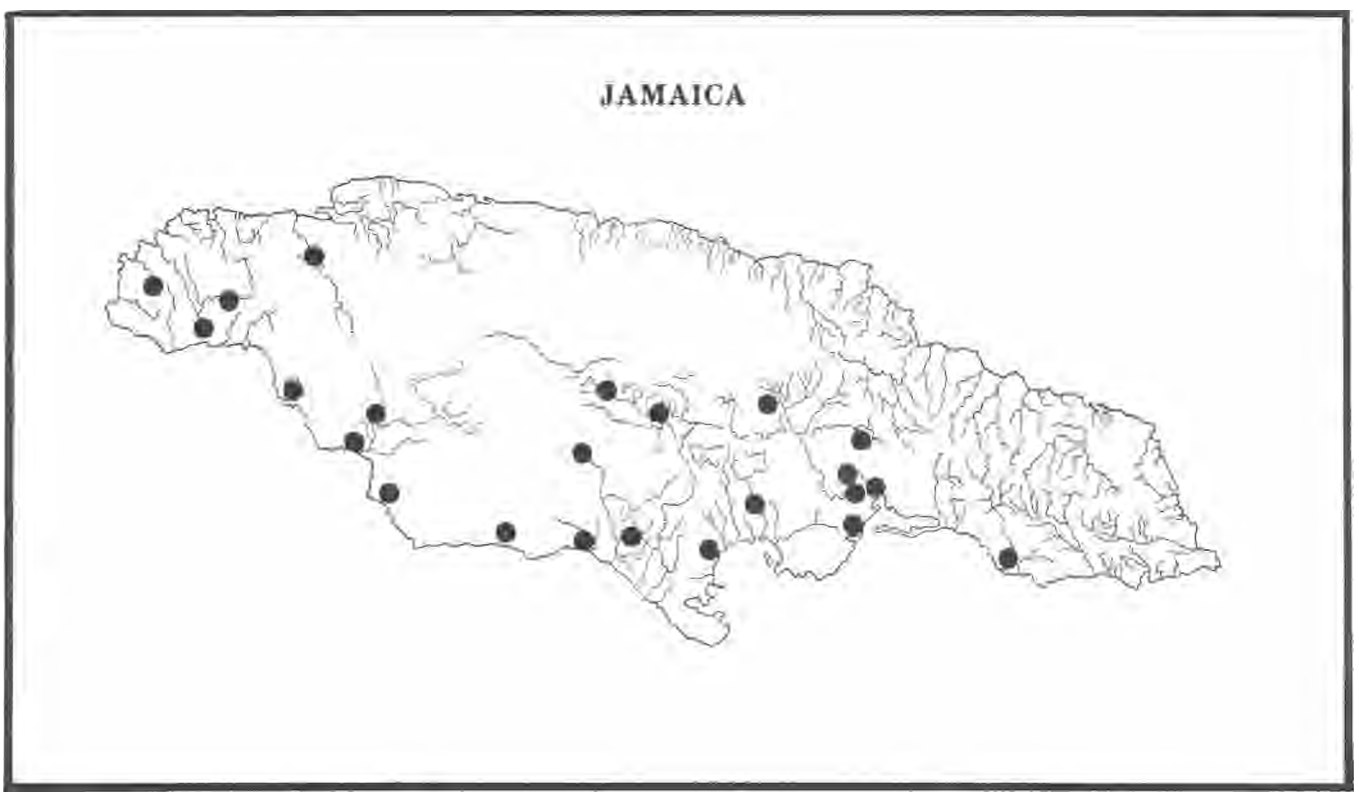
Order Cyprinodontiformes
Family Poeciliidae



Jamaica: Spring at town of Black River, male 38 mm SL (NCSM).

TYPE LOCALITY: Unspecified locality in Jamaica (Gunther 1866. *Catalogue of the Fishes in the British Museum* 6:1-368).

SYSTEMATICS: Subgenus *Limia* (Rivas 1980. Northeast Gulf Sci. 4:28-38). *Limia melanogaster* is considered the only valid species of the genus *Limia* in Jamaica. *Limia caudofasciata* is synonym of *L. melanogaster*.



DISTRIBUTION AND HABITAT: Streams in southern and western Jamaica.

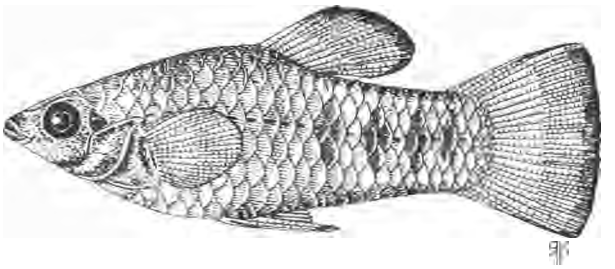
BIOLOGY: Unknown

ADULT SIZE: Males to 40 mm SL, females to 50 mm SL.

Compilers: L. R. Rivas and R. Franz. January 1983.

Limia melanonotata Nichols and Myers
Blackbanded limia

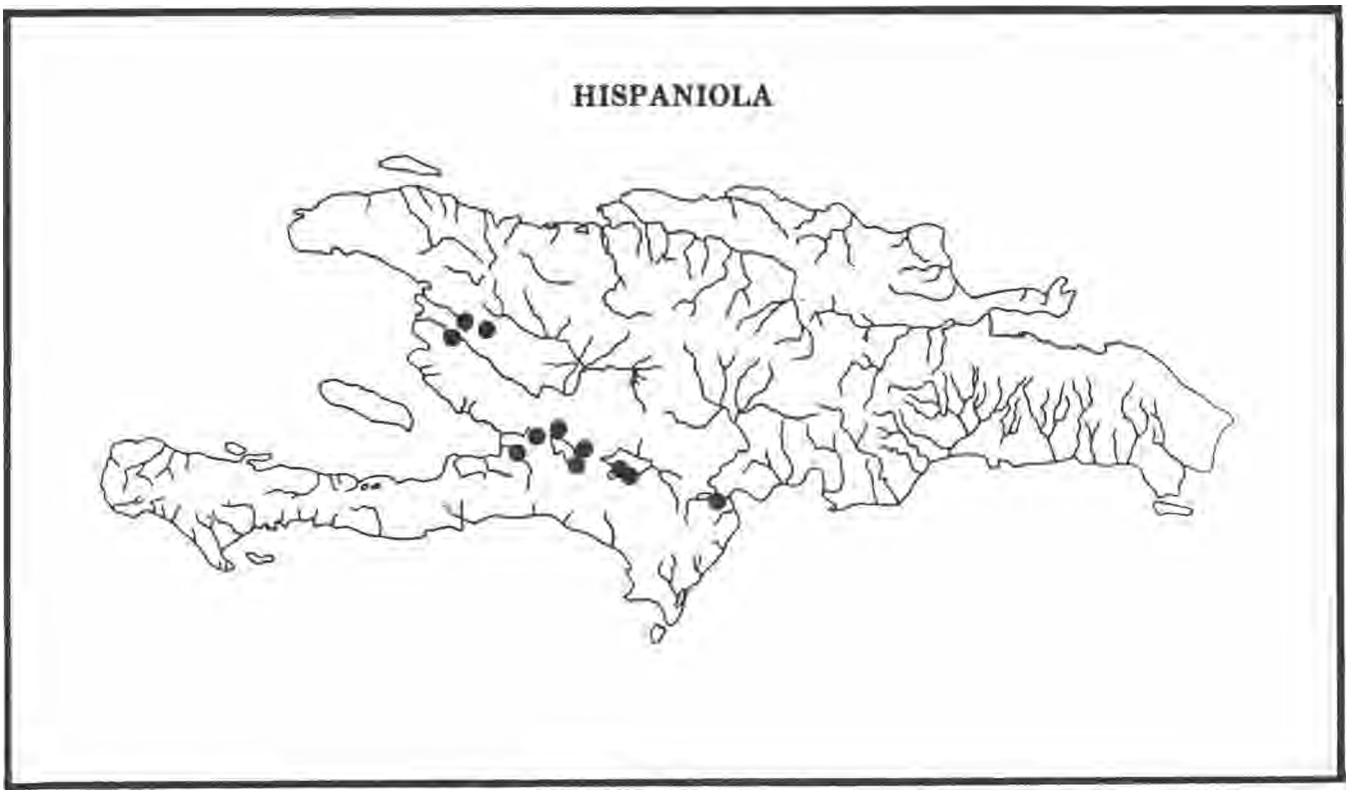
Order Cyprinodontiformes
Family Poeciliidae



(NCSM).

TYPE LOCALITY: Las Lajas, on Etang Saumatre, Santo Domingo (Haiti) (Nichols and Myers 1923. Am. Mus. Novit. No. 79).

SYSTEMATICS: Subgenus *Limia* (Rivas 1980. Northeast Gulf Sci. 4:28-38).



DISTRIBUTION AND HABITAT: Lower Artibonite system, and streams, springs, and lakes in the Cul de Sac/Valle de Neiba Plain, Haiti; and southwestern Dominican Republic.

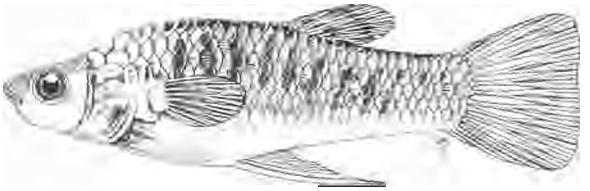
BIOLOGY: Unknown.

ADULT SIZE: Males to 50 mm SL, females to 60 mm SL.

Compilers: R. Franz and L. R. Rivas. January 1983.

Limia miragoanensis Rivas
Miragoane limia

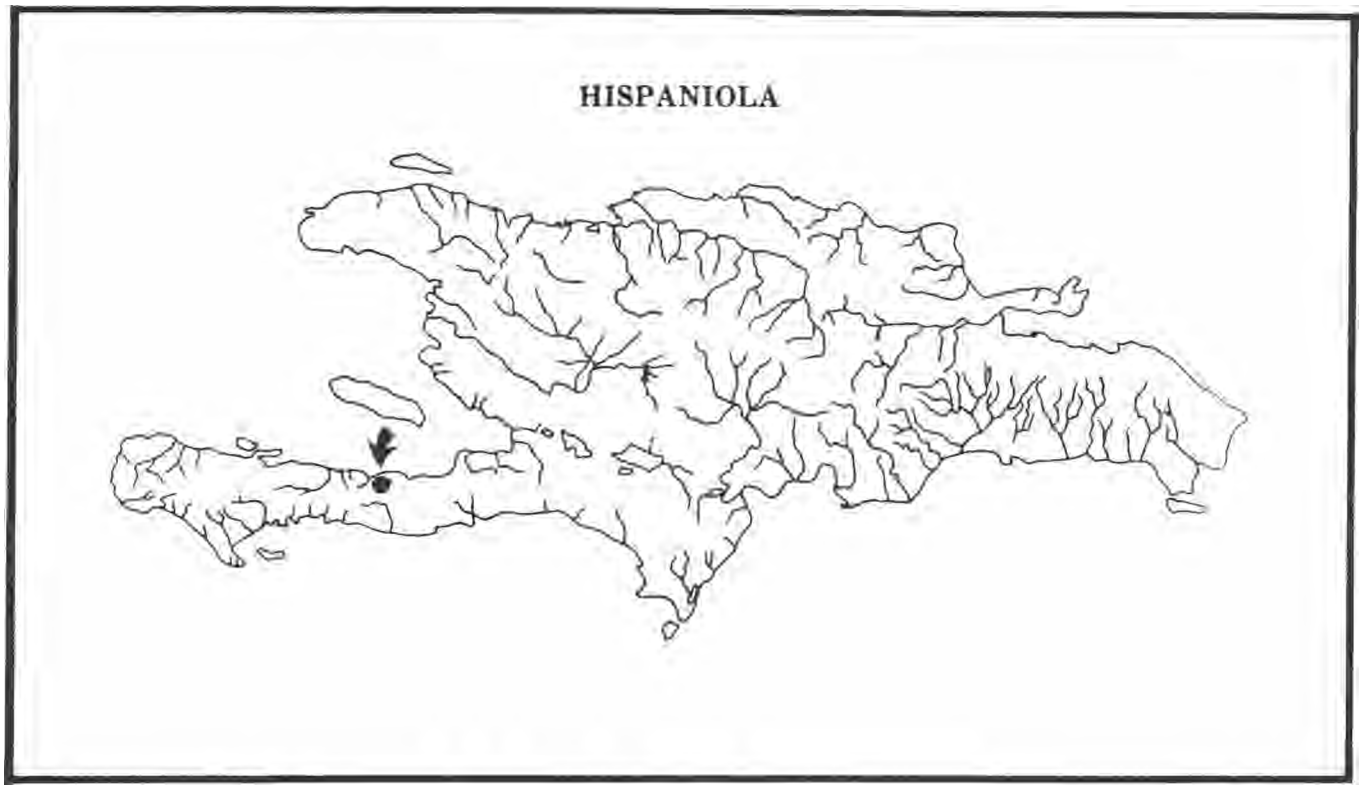
Order Cyprinodontiformes
Family Poeciliidae



Haiti: North end of Lake Miragoane, male, 30 mm SL (NCSM).

TYPE LOCALITY: North end of Lake Miragoane, Dept. de l'Ouest, Haiti (Rivas 1980. Northeast Gulf Sci. 4:28-38).

SYSTEMATICS: Subgenus *Odontolimia* (Rivas 1980).



DISTRIBUTION AND HABITAT: Restricted to Etang de Miragoane, in southwestern Haiti (Rivas 1980).

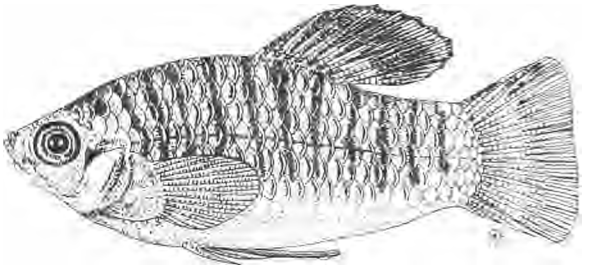
BIOLOGY: Unknown

ADULT SIZE: Males 23.3-30.2 mm SL, females 22.5-39.6 mm SL.

Compilers: L. R. Rivas and R. Franz. January 1983.

Limia nigrofasciata Regan
Humpback limia

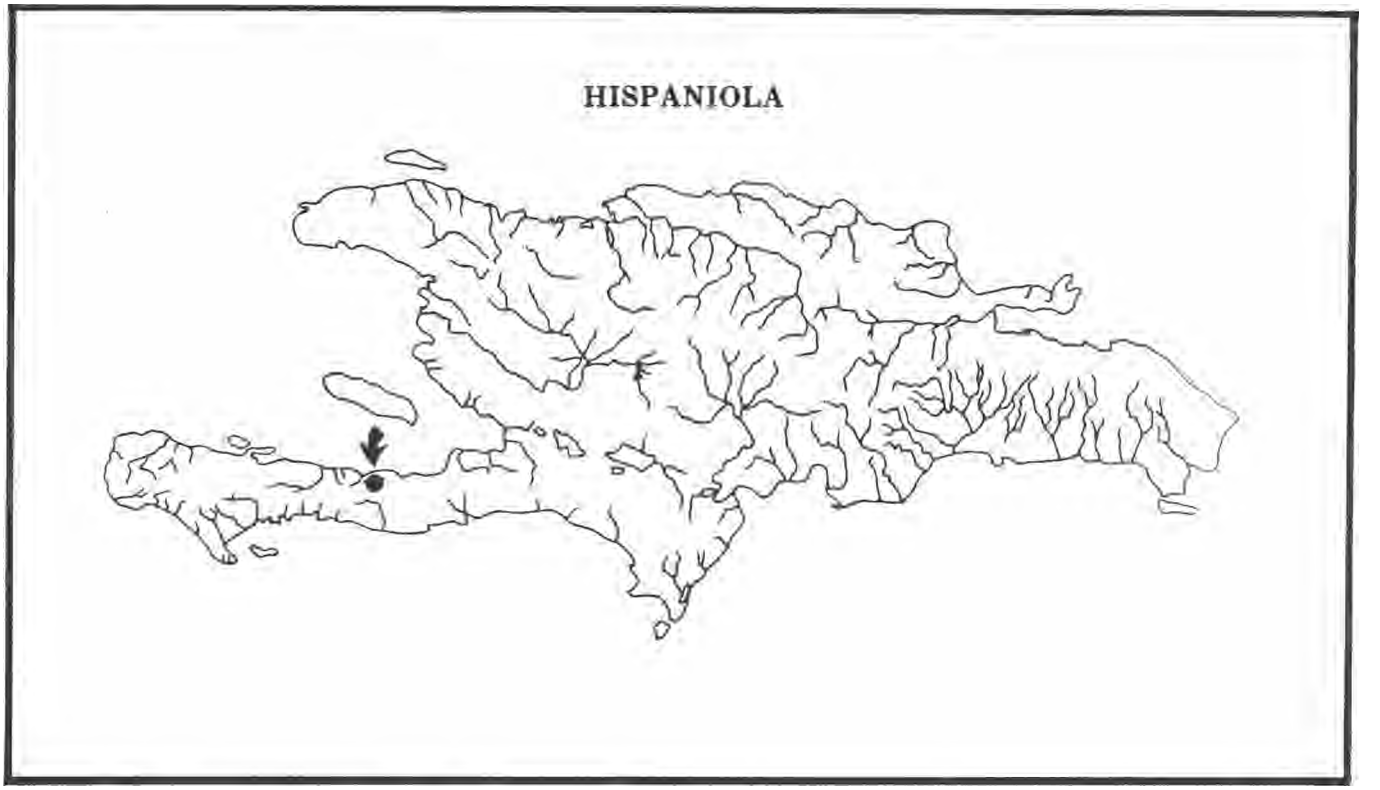
Order Cyprinodontiformes
Family Poeciliidae



Haiti: Etang de Miragoane
male, 38 mm SL (NCSM).

TYPE LOCALITY: Miragoane, Haiti (Regan 1913. Proc. Zool. Soc. Lond. 11:977-1018).

SYSTEMATICS: Subgenus *Limia* (Rivas 1980. Northeast Gulf Sci. 4:28-38).



DISTRIBUTION AND HABITAT: Restricted to Etang de Miragoane, in southwestern Haiti. Only member of the subgenus *Limia* known to occur syntopically with members of the other subgenus *Odontolimia*. Usually lives in large schools over a variety of bottom types; young hide in vegetation.

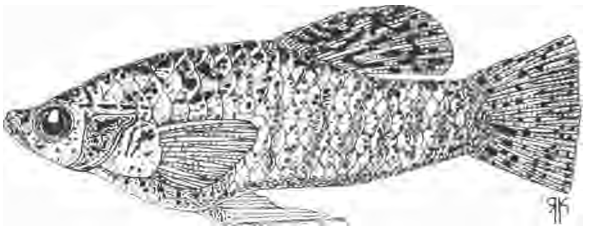
ADULT SIZE: Males to 52 mm SL, females to 51 mm SL.

BIOLOGY: In aquaria, individuals (particularly older males) are sensitive to water changes, appearing to prefer constant temperatures between 24-26°C with good oxygenation and water circulation. Territorial males very aggressive toward each other, females usually not aggressive. Females produce 15-30 large young (up to 13 mm) per delivery. Adults cannibalistic on the young (Sorensen 1974. Trop. Fish Hobbyist 23:37-45).

Compilers: R. Franz and L. R. Rivas. January 1983.

Limia ornata Regan
Ornate limia

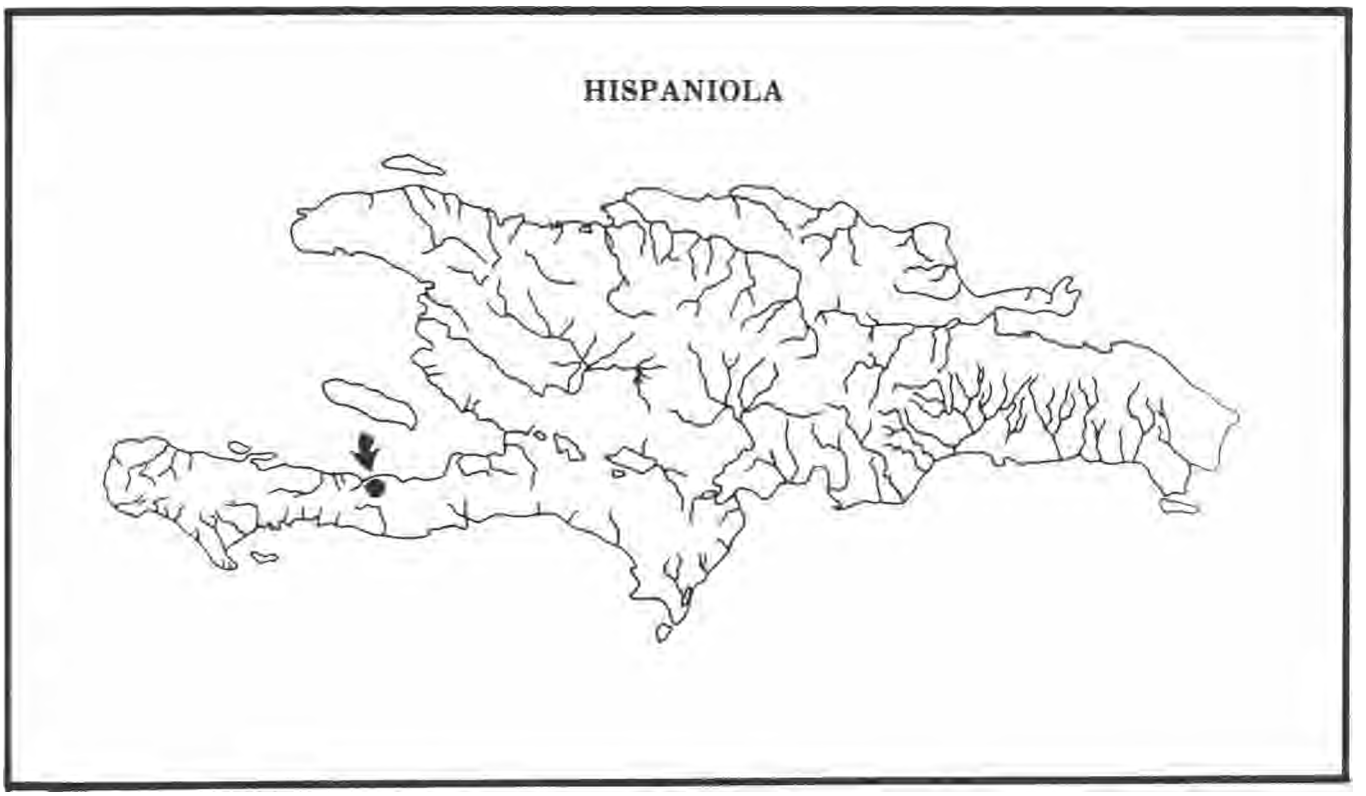
Order Cyprinodontiformes
Family Poeciliidae



TYPE LOCALITY: "Haiti" (Regan 1913. Proc. Zool. Soc. Lond. 11:977-1018).

SYSTEMATICS: Subgenus *Odontolimia* (Rivas 1980. Northeast Gulf Sci. 4:28-38).

Haiti: Etang de Miragoane (NCSM).



DISTRIBUTION AND HABITAT: Endemic to Etang de Miragoane, in southwestern Haiti (Rivas 1980).

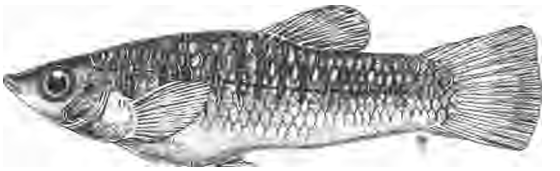
BIOLOGY: Unknown.

ADULT SIZE: Males to 40 mm SL, females to 45 mm SL.

Compilers: R. Franz and L. R. Rivas. January 1983.

Limia pauciradiata Rivas
Few-rayed limia

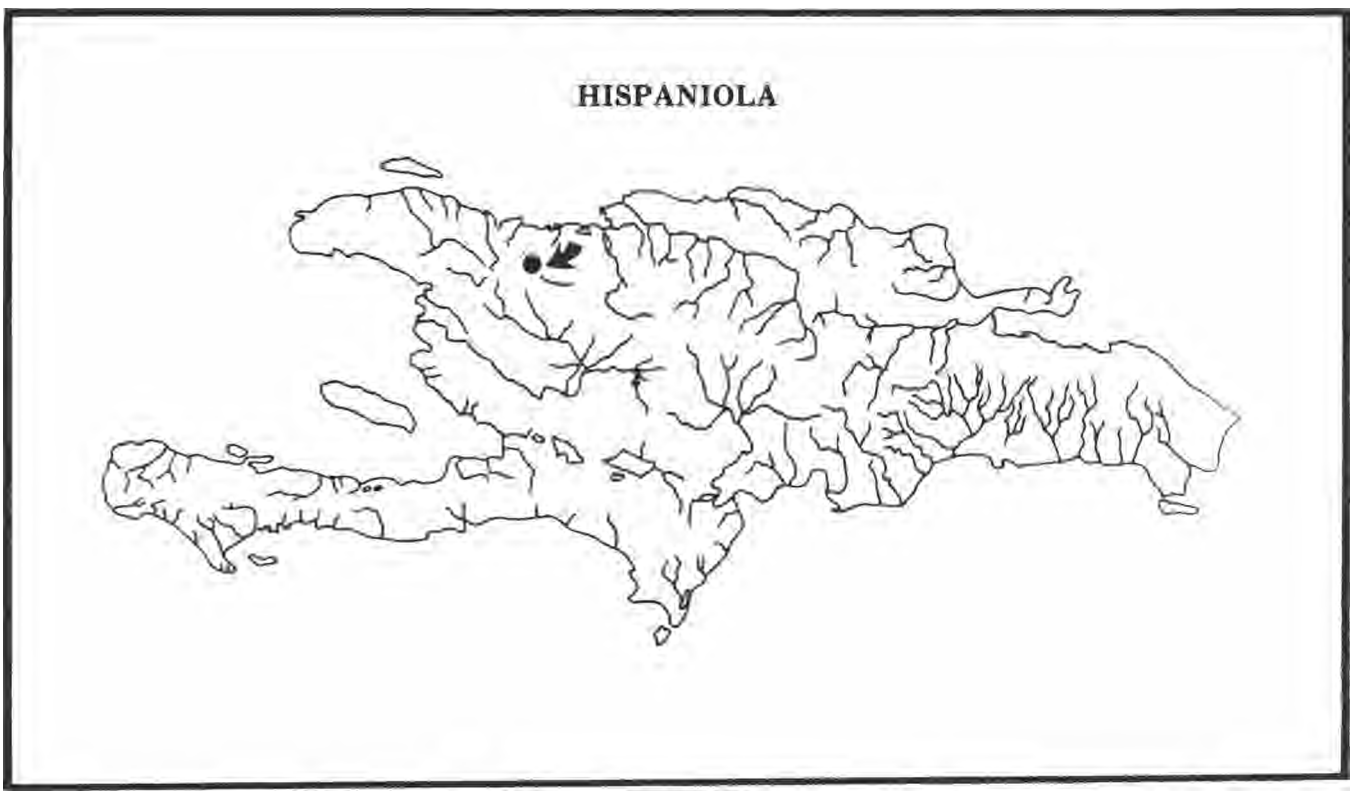
Order Cyprinodontiformes
Family Poeciliidae



Haiti: Grand Riviere du Nord at Grand Riviere, male, 35 mm SL (NCSM).

TYPE LOCALITY: Grand Riviere du Nord at town of Grand Riviere, Dept. du Nord, Haiti (Rivas 1980. Northeast Gulf Sci. 4:28-38).

SYSTEMATICS: Subgenus *Limia* (Rivas 1980).



DISTRIBUTION AND HABITAT: Known only from Grand Riviere du Nord, in northeastern Haiti (Rivas 1980).

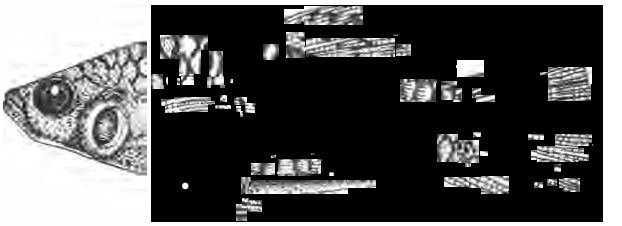
BIOLOGY: Unknown.

ADULT SIZE: Males 20.3-35.0 mm SL, females 33.0-51.8 mm SL.

Compilers: L. R. Rivas and R. Franz. January 1983.

L□□ □□ □ □ □ □ □ □□ □ (Evermann and Clark)
Perugia's limia

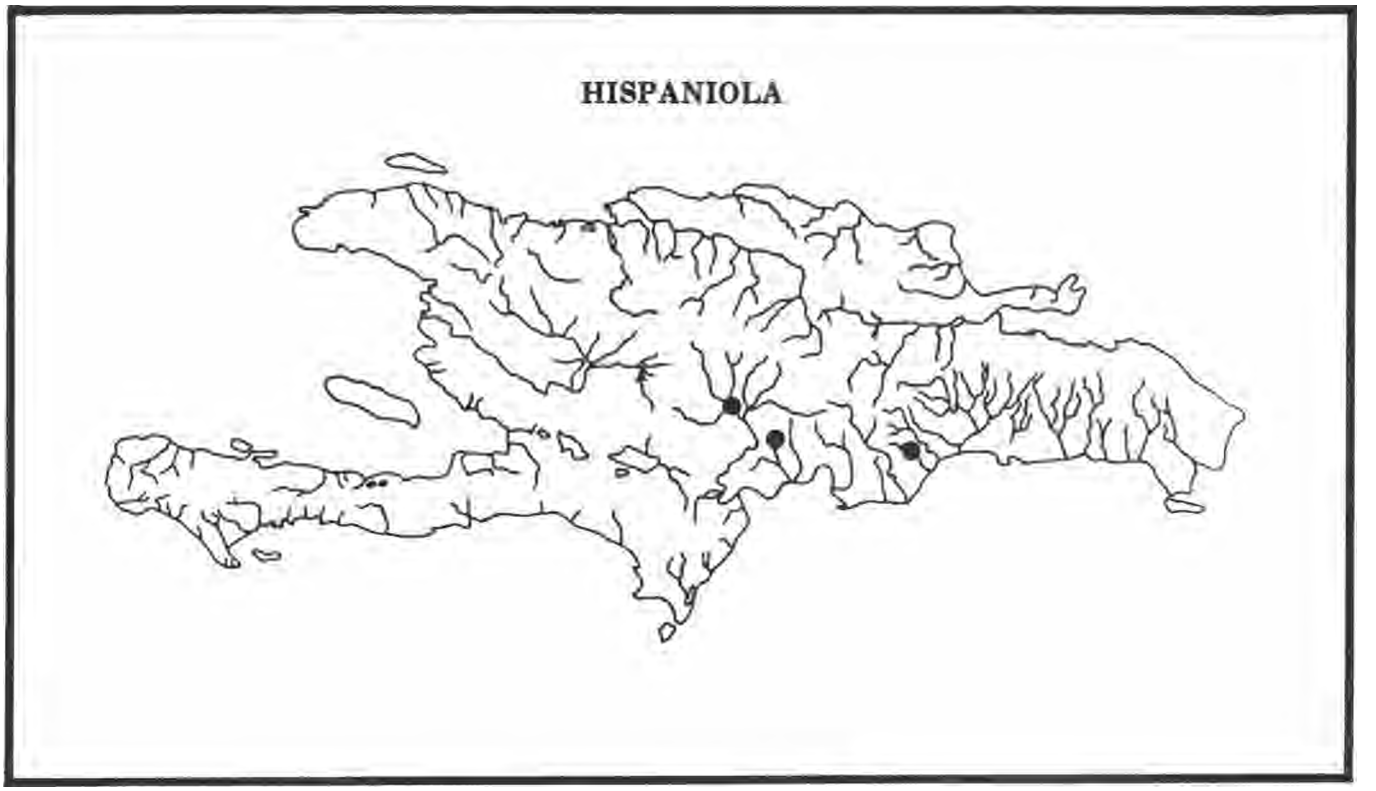
Order Cyprinodontiformes
Family Poeciliidae



(NCSM).

TYPE LOCALITY: San Francisco Mountains, Santo Domingo (Dominican Republic) (Evermann and Clark 1906. Proc. U.S. Natl. Mus. 3:851-55).

SYSTEMATICS: Subgenus *Limia* (Rivas 1980. Northeast Gulf Sci. 4:28-38).



DISTRIBUTION AND HABITAT: Streams of the southern slope of Dominican Republic.

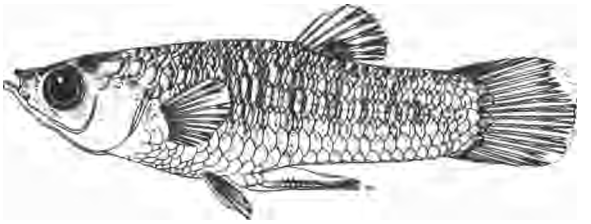
BIOLOGY: Unknown.

ADULT SIZE: Males to 30 mm SL, females to 50 mm SL.

Compilers: R. Franz and L. R. Rivas. January 1983.

Limia rivasi Franz and Burgess
Rivas's limia

Order Cyprinodontiformes
Family Poeciliidae



Haiti: La Gonave Island male, 19.5 mm SL. (Franz and Burgess 1983).

TYPE LOCALITY: Tidal creek in a red mangrove swamp, 1 km se of Anse a Galet, La Gonave Island, Dept. of L'Ouest, Haiti. (Franz and Burgess 1983. Northeast Gulf Sci. 6:51-54).

SYSTEMATICS: Subgenus *Limia* in the *dominicensis* species group (Franz and Burgess 1983).

DISTRIBUTION AND HABITAT: Known only from the type locality, but suspected to occur in other mangrove areas on the island, and possibly on the adjacent mainland. Original specimens were retrieved from "a shallow tidal creek in a red mangrove swamp as the tide was receding. Immature specimens of *Cyprinodon* cf. *variegatus* were associated with *Limia rivasi* at the site. Fishes were collected in 5-10 cm deep water over organic mud. Springs originating in the adjacent limestone bluff may have contributed some freshwater to the tidal stream." (Franz and Burgess 1983).

ADULT SIZE: 17-31 mm SL.

BIOLOGY: Unknown.

Compilers: R. Franz and G. H. Burgess. January 1983.

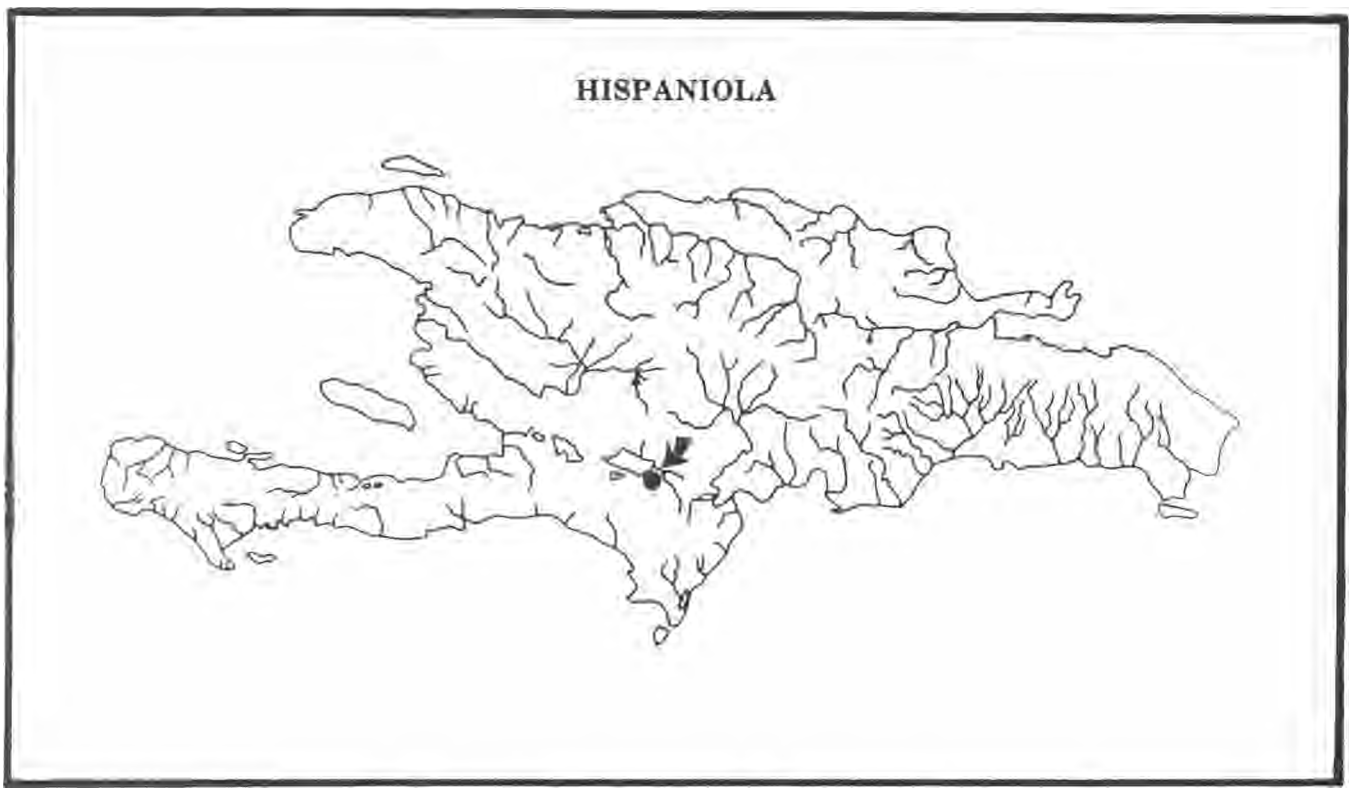
Limia sulphurophilia Rivas
Sulfur limia

Order Cyprinodontiformes
Family Poeciliidae

TYPE LOCALITY: Balneario (spa) La Zurza, sulfur spring 5 km wnw Duverge, Province Independencia, Dominican Republic (Rivas 1980. Northeast Gulf Sci. 4:28-38).

SYSTEMATICS: Subgenus Limia (Rivas 1980).

Dominican Republic: Balneario La Zurza near Duverge, male, 32 mm SL (NCSM).



DISTRIBUTION AND HABITAT: Known only from the type locality (Rivas 1980).

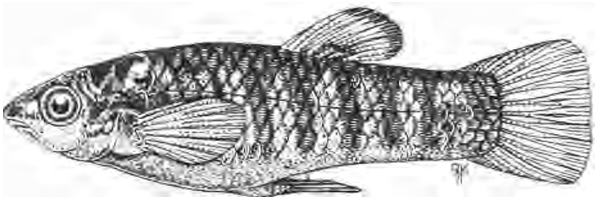
BIOLOGY: Unknown.

ADULT SIZE: Males 25.0-39.2 mm SL, females 33.4-42.7 mm SL.

Compilers: L. **R.** Rivas **and R. Franz. January** 1983.

Limia tridens (Hilgendorf)
Trident limia

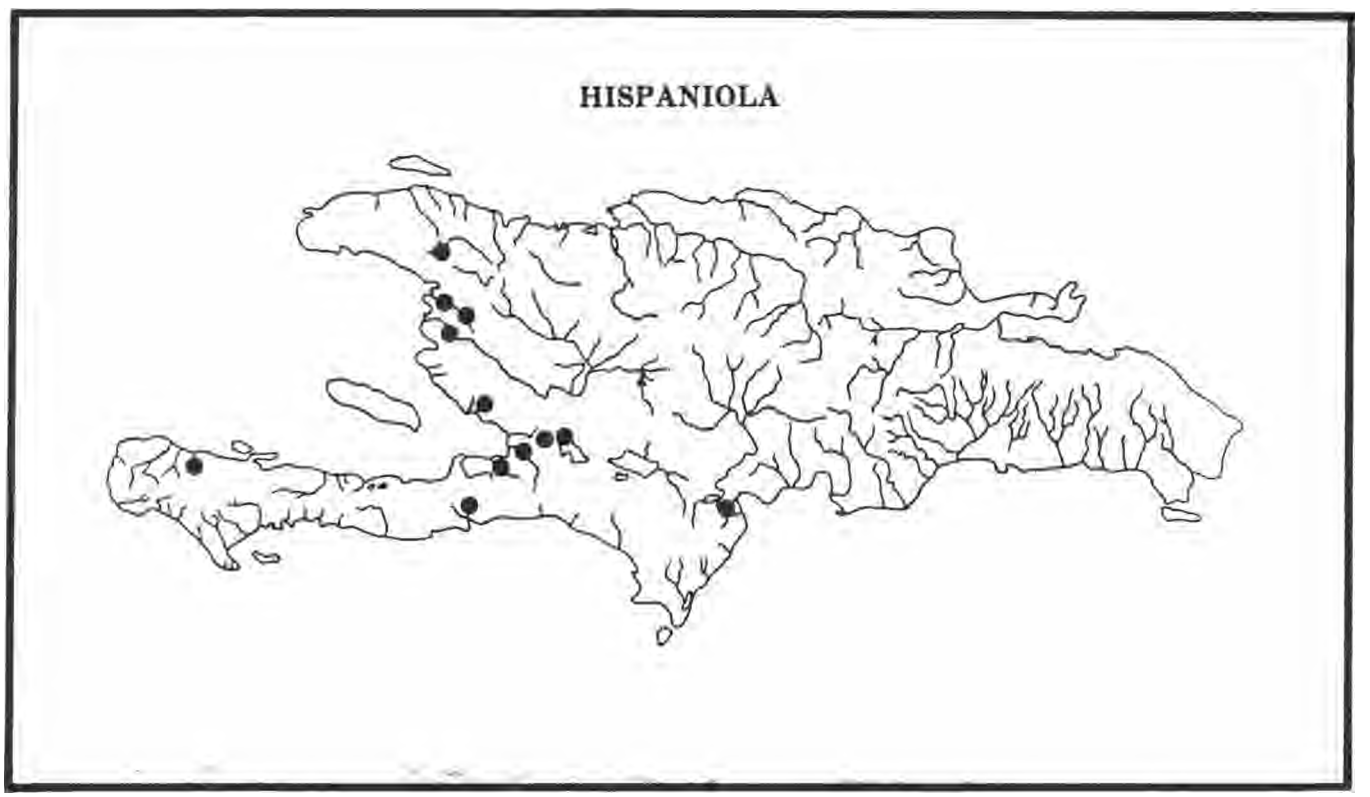
Order Cyprinodontiformes
Family Poeciliidae



TYPE LOCALITY: Port-au-Prince, Haiti (Hilgendorf 1889. Sitzber. Gesell. Naturf. Fr. Berlin 2:51-55).

SYSTEMATICS: Subgenus Limia (Rivas 1980. Northeast Gulf Sci. 4:28-38).

Haiti: Dept. du Sud, Maniche, male 28 mm SL (NCSM).



DISTRIBUTION AND HABITAT: Lower Artibonite system, lakes, streams and springs Cul de Sac/ Valle de Neiba Plain, and streams of both slopes of Tiburon Peninsula, southwestern Haiti.

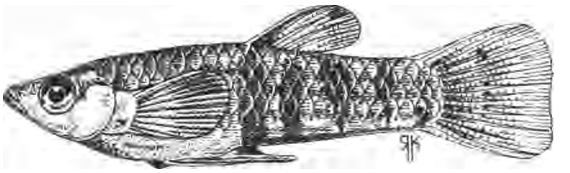
BIOLOGY: Unknown

ADULT SIZE: Males to about 30 mm SL.

Compilers: R. Franz and L. R. Rivas. January 1983.

Limia versicolor (Gunther)
Varicolored limia

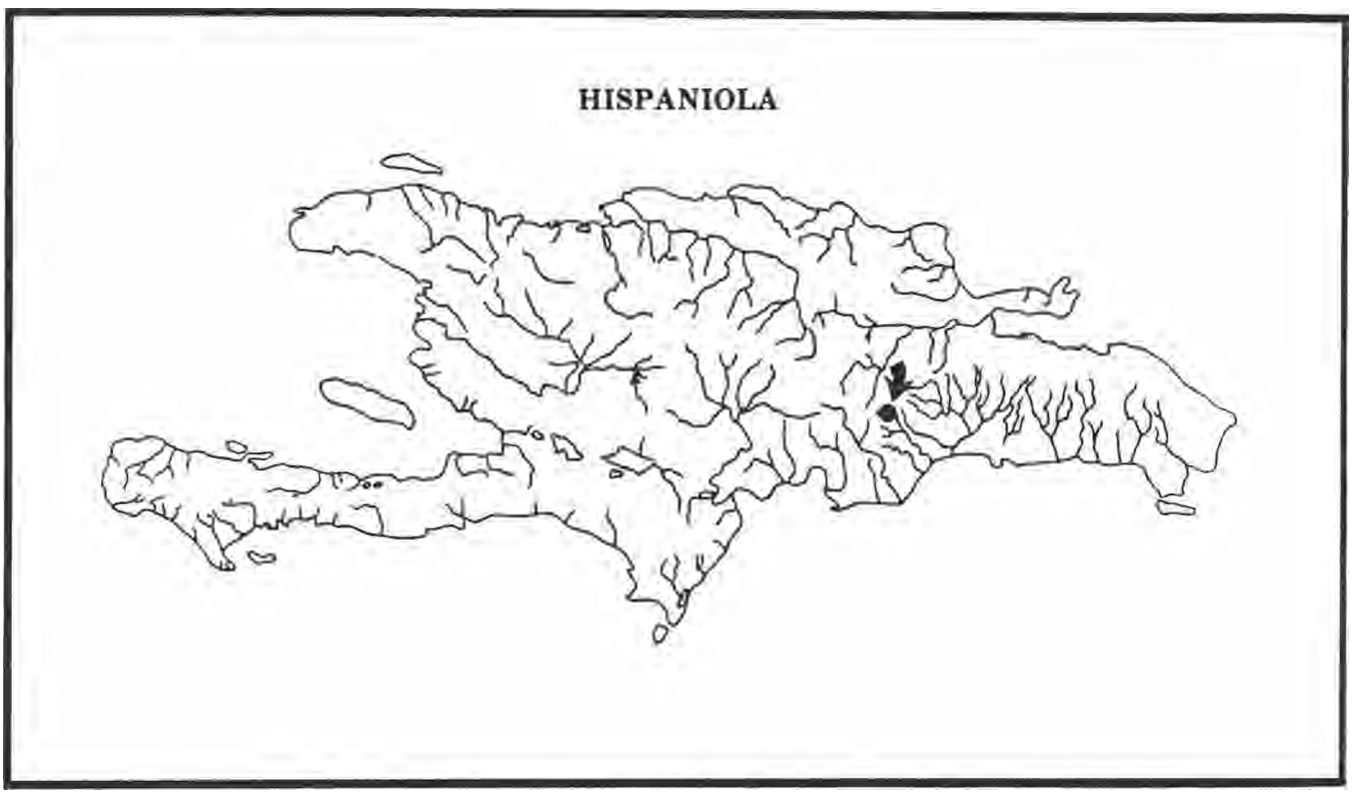
Order Cyprinodontiformes
Family Poeciliidae



(NCSM).

TYPE LOCALITY: Santo Domingo (Dominican Republic) (Gunther 1866. *Catalogue of the Fishes in the British Museum* 6:1-368).

SYSTEMATICS: Subgenus *Limia* (Rivas 1980. Northeast Gulf Sci. 4:28-38).



DISTRIBUTION AND HABITAT: Rio Haina, and streams of southern slope of Dominican Republic.

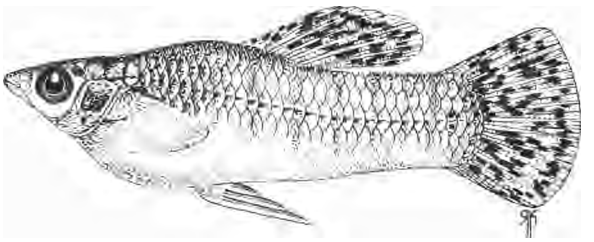
BIOLOGY: Unknown.

ADULT SIZE: Males 24-33 mm SL, females 32-45 mm SL.

Compilers: R. Franz and L. R. Rivas. January 1983.

Limia vittata **(Guichenot)**
Cuban limia

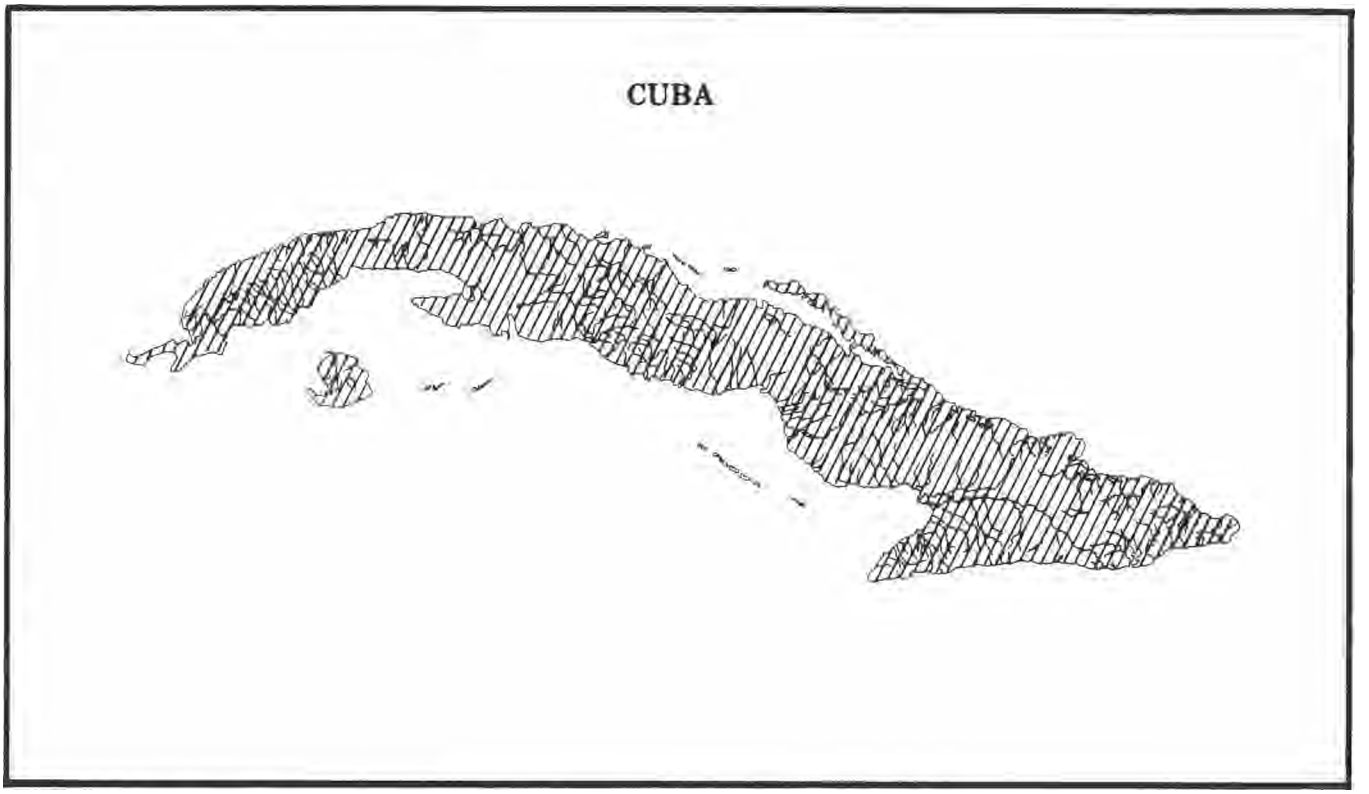
Order Cyprinodontiformes
Family Poeciliidae



(NCSM).

TYPE LOCALITY: Cuba (Guichenot in Ramon de la Sagra, D. 1853. *Histoire Physique, Politique et Naturelle de l'Lle de Cuba* 2:1-206).

SYSTEMATICS: Subgenus *Limia* (Rivas 1980. Northeast Gulf Sci. 4:28-38).



DISTRIBUTION AND HABITAT: Streams, lakes, estuaries, coastal lagoons, and mangrove swamps throughout Cuba and Isle of Pines.

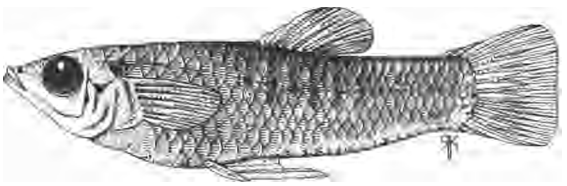
BIOLOGY: Unknown.

ADULT SIZE: Males to 50 mm SL, females to 70 mm SL.

Compilers: R. Franz and L. R. Rivas. January 1983.

Limia yaguajali Rivas
Yaguajal limia

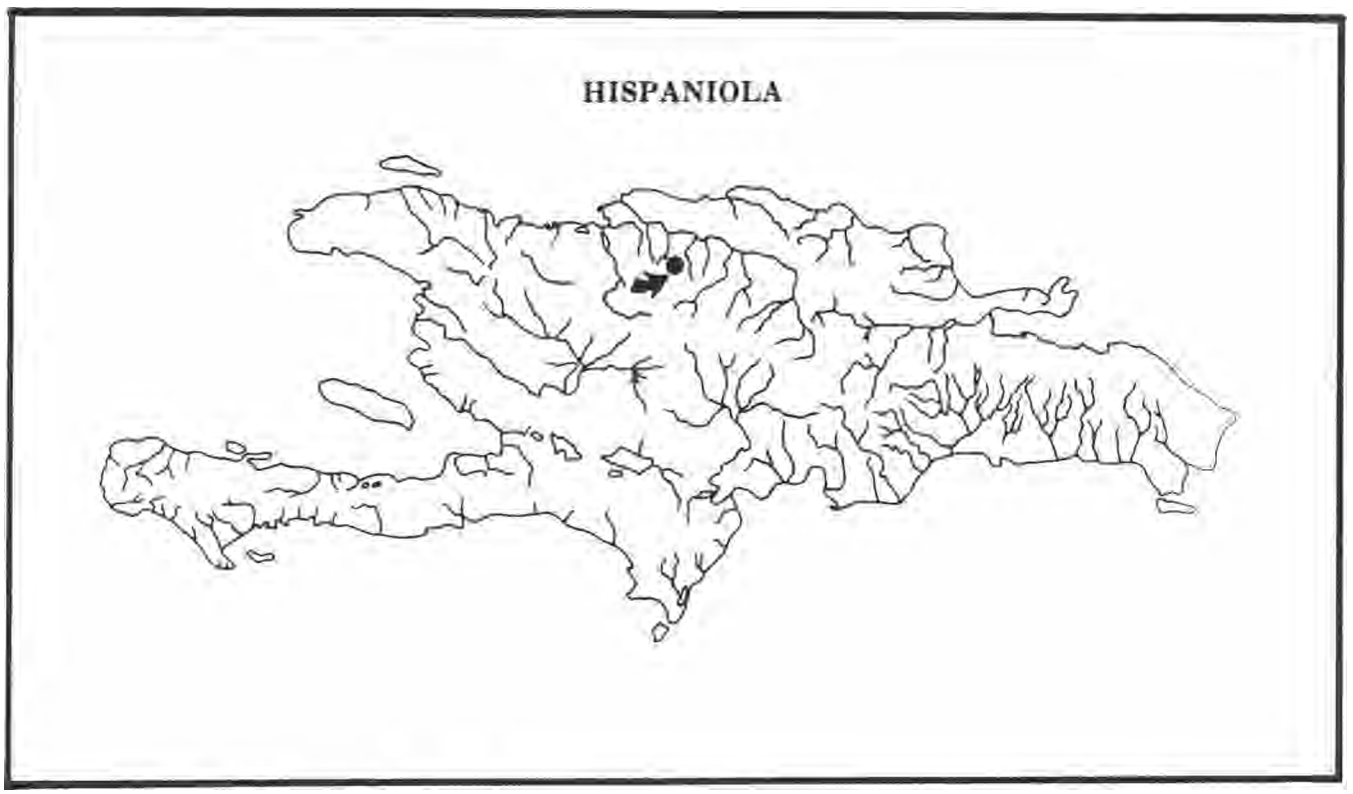
Order Cyprinodontiformes
Family Poeciliidae



Dominican Republic: Rio Yaguajal at Sabaneta, male, 34 mm SL (NCSM).

TYPE LOCALITY: Rio Yaguajal at Santiago Rodriguez (Sabaneta), Province Santiago Rodriquez, Dominican Republic (Rivas 1980. Northeast Gulf Sci. 4:28-38).

SYSTEMATICS: Subgenus Limia (Rivas 1980).



DISTRIBUTION AND HABITAT: Rio Yaguajal, a tributary of Rio Yaque del Norte, Dominican Republic. A series from Riviere du Limbe at Limbe, Dept. du Nord, in northeastern Haiti may also be referred to this species (Rivas 1980).

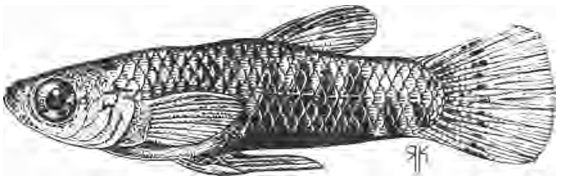
BIOLOGY: Unknown.

ADULT SIZE: Males 23.0-37.5 mm SL, females 32.0-50.6 mm SL.

Compilers: L. R. Rivas and R. Franz. January 1983.

Limia zonata (Nichols)
Striped limia

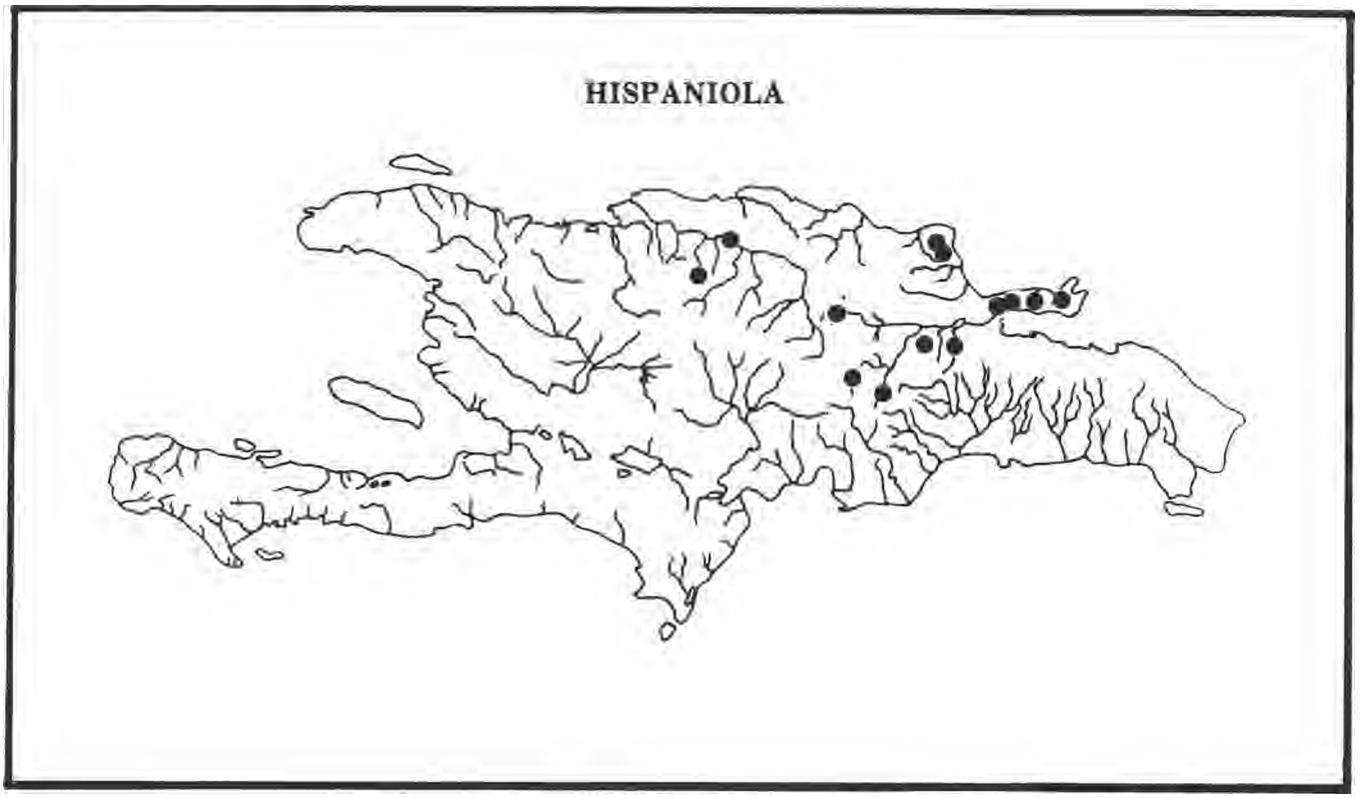
Order Cyprinodontiformes
Family Poeciliidae



(NCSM).

TYPE LOCALITY: Railroad station at Sanchez, Samana, Santo Domingo (Dominican Republic) (Nichols 1915. Bull. Am. Mus. Nat. Hist. 34:603-04).

SYSTEMATICS: Subgenus *Limia* (Rivas 1980. Northeast Gulf Sci. 4:28-38). *Limia nicholsi* considered synonym of *L. zonata.*



DISTRIBUTION AND HABITAT: Streams of Samana Peninsula and northern slope of Dominican Republic.

BIOLOGY: Unknown.

ADULT SIZE: Males 25-30 mm SL, females 28-32 mm SL.

Compilers: R. Franz and L. R. Rivas. January 1983.

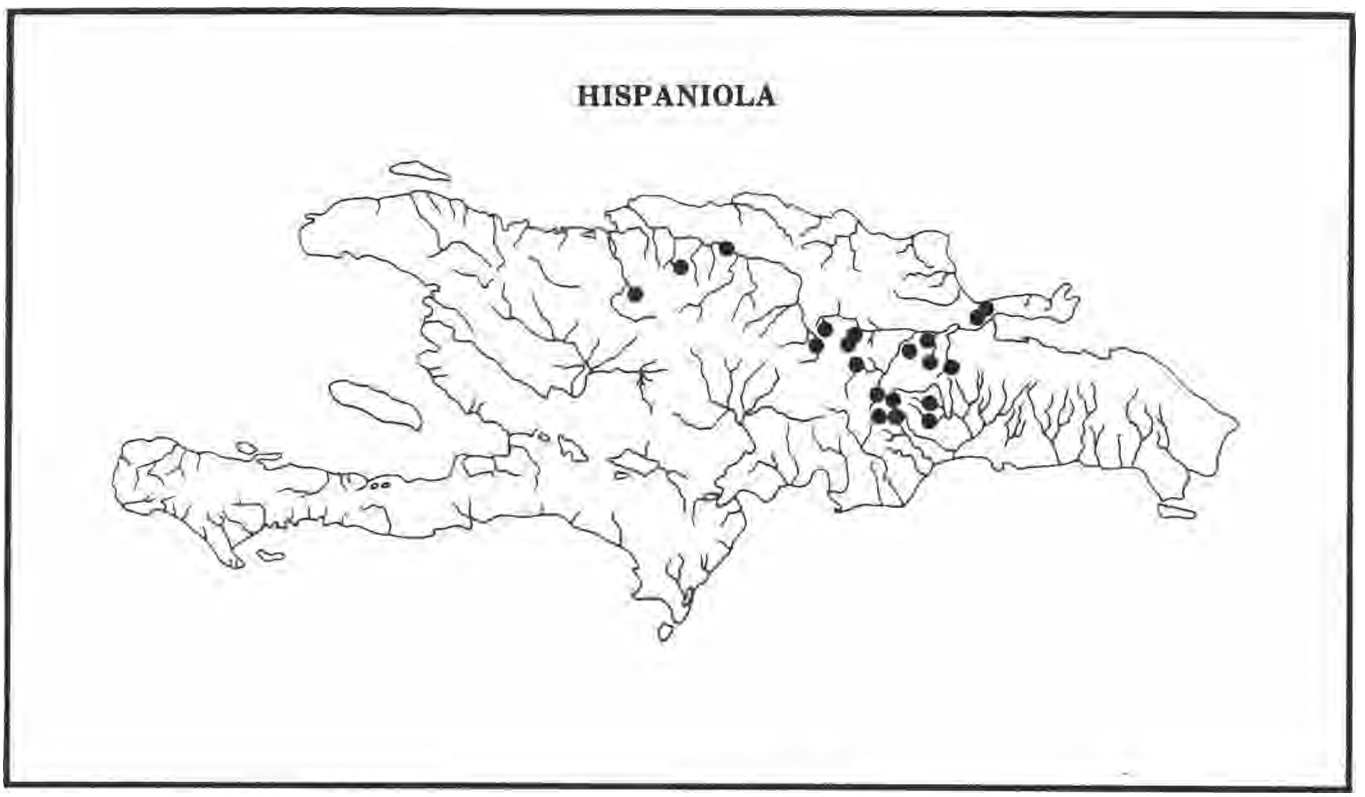
Poecilia dominicensis **(Evermann and Clark)**
Dominican molly

Order Cyprinodontiformes
Family Poeciliidae

Dominican Republic: Rio Camu, male, 26 mm SL (NCSM).

TYPE LOCALITY: San Francisco Mountains, 64 km from Santo Domingo city, Santo Domingo (Dominican Republic) (Evermann and Clark 1906. Proc. U.S. Natl. Mus. 30:851-55).

SYSTEMATICS: Subgenus *Poecilia.* **Rosen and Bailey (1963. Bull. Am. Mus. Nat. Hist. 126:1-176) synonymized** *Mollienisia, Platypoecilus, Limia,* **and other related genera with** *Poecilia* **and retained** *Limia* **as a subgenus. Under this consolidation,** *Platypoecilus dominicensis* **became a junior homonym of** *Limia dominicensis;* **therefore, Rosen and**



Bailey (1963) established the substitute name *montana* **for** *Platypoecilus dominicensis.* **Rivas (1978. Northeast Gulf Sci. 2:98-112) restored** *Limia* **to generic status and reinstated the specific name** *dominicensis* **according to Article 59 (c) of the International Code of Zoological Nomenclature.**

DISTRIBUTION AND HABITAT: Rio Massacre to Rio Yuna systems in northern Dominican Republic and from the headwaters of the Rio Haina and Rio Ozama. Prefers sluggish water over sandy or muddy bottom (Rivas 1978).

ADULT SIZE: Males 20-27 mm SL, females 23-52 mm SL.

BIOLOGY: Unknown.

Compilers: R. Franz and L. R. Rivas. January 1983.

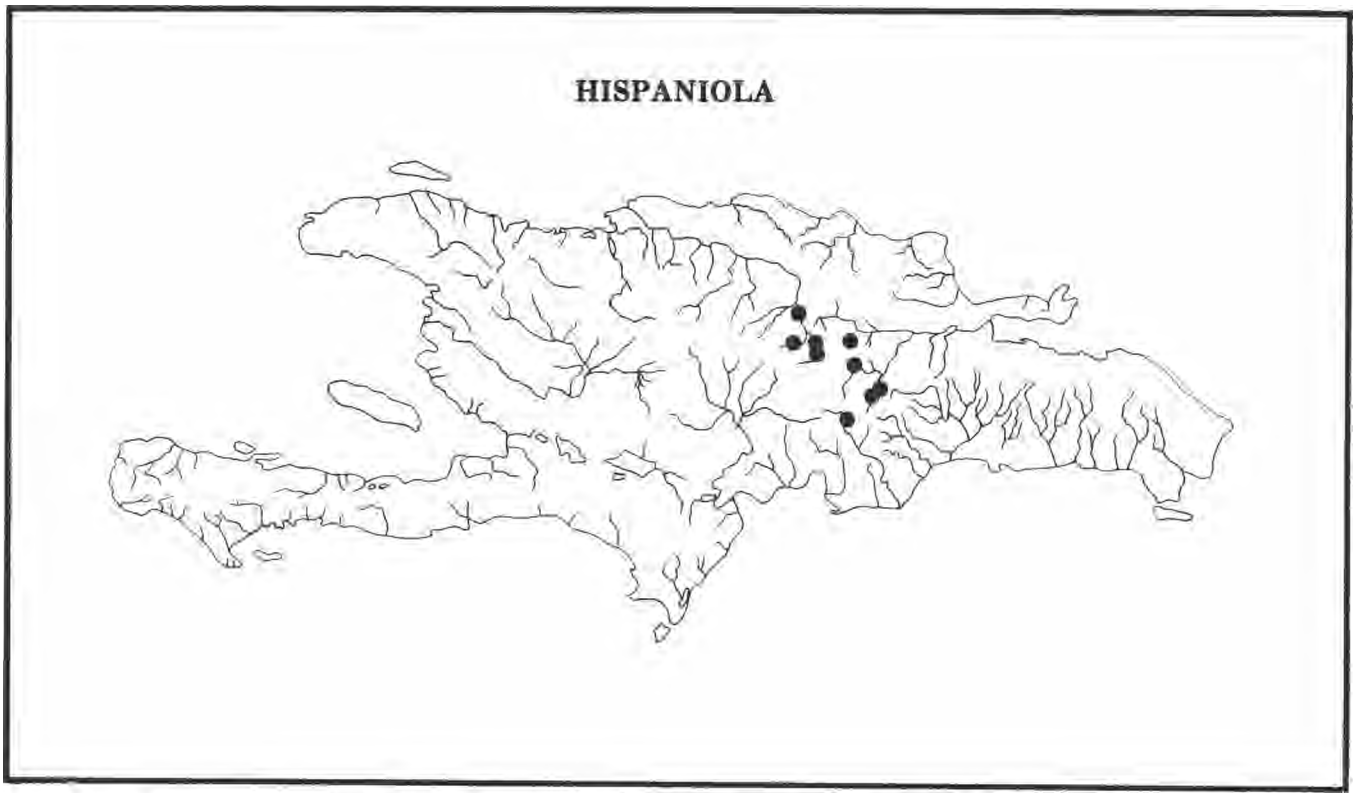
Poecilia elegans **(Trewavas)**
Elegant molly

Order Cyprinodontiformes
Family Poeciliidae

Dominican Republic: Rio del Norte Jarabocoa, male 33.0 mm SL (F SM).

TYPE LOCALITY: Jarabocoa, Dominican Republic (Trewavas 1948. Proc. Zool. Soc. Lond. 118:408-15).

SYSTEMATICS: Subgenus *Poecilia* (Rosen and Bailey 1963. Bull. Am. Mus. Nat. Hist. 126:1-176).



DISTRIBUTION AND HABITAT: Swift headwater streams in Rio Nizao, Rio Yaque del Norte, and Rio Yuna drainages from 170 to 840 m (elevation), LaVega and Peravia provinces, Dominican Republic. Occurs syntopically with *P. dominicensis* and *P. hispaniolana* at several localities.

BIOLOGY: Unknown.

ADULT SIZE: Males 27-36 mm SL, females 27-46 mm SL.

Compilers: R. Franz and L. R. Rivas. January 1983.

Poecilia hispaniolana Rivas
Hispaniola molly

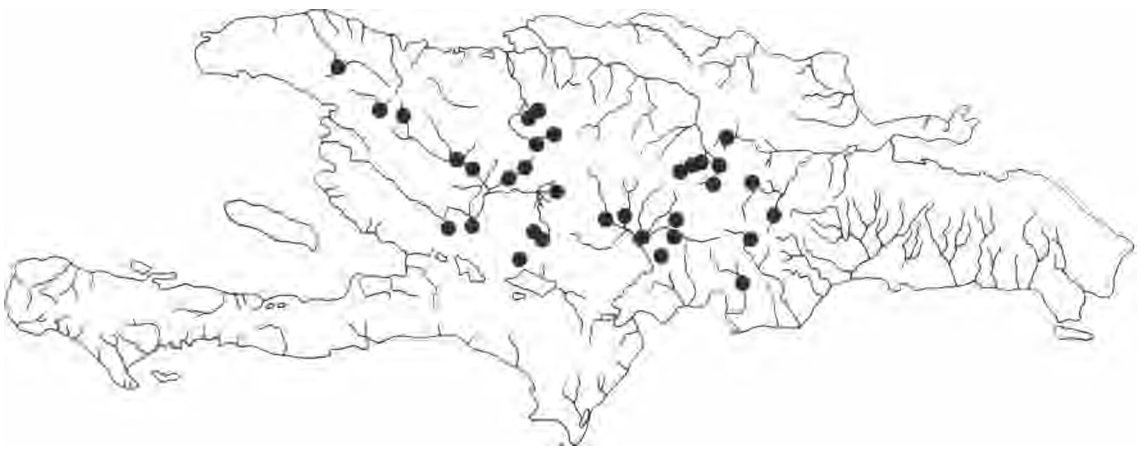
Order Cyprinodontiformes
Family Poeciliidae

Dominican Republic: Rio Yaque del North at Jarabacoa, male (NCSM).

TYPE LOCALITY: Rio Mijo, at road from A zua to San Juan, Province of Benefactor, Dominican Republic (Rivas 1978. Northeast Gulf Sci. 2:98-112).

SYSTEMATICS: Subgenus Poecilia. Closely related to P. *dominicensis* (Rivas 1978).

HISPANIOLA



DISTRIBUTION AND HABITAT: Confined to highland streams of central Hispaniola, on north slope from upper Trois Rivieres and Artibonite systems of northwest Haiti to upper Rio Yuna system of northern Dominican Republic, and on the south slope from the Rio Yaque del Sur, Rio Ocoa, and a stream emptying into Lao Enriquillo in southwest Dominican Republic (Rivas 1978). In streams over shallow riffles.

ADULT SIZE: Males 21-36 mm SL, females 28-59 mm SL.

BIOLOGY: Unknown.

Compilers: L. R. Rivas and R. Franz. January 1983.

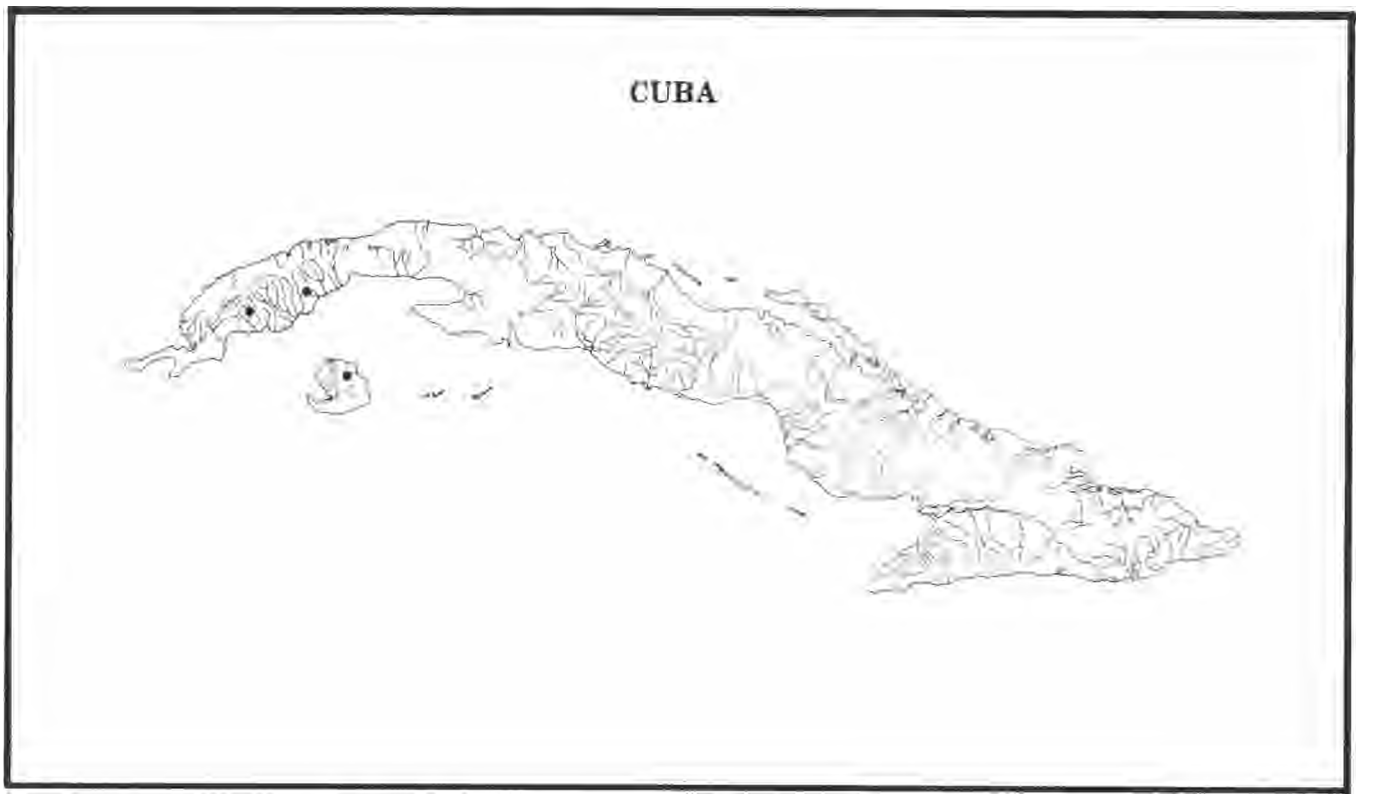
Quintana atrizona Hubbs
Barred topminnow

Order Cyprinodontiformes
Family Poeciliidae

Cuba (NCSM).

TYPE LOCALITY: An "aquarium bred fish, a descendant of aquarium stock said to have been collected in the vicinity of Baracoa, eastern Cuba" (Hubbs 1934. Occas. Pap. Mus. Zool. Univ. Mich. 301:1-8).

SYSTEMATICS: Monotypic genus related to the genera *Girardinus* of Cuba and *Carlhubbsia* of Yucatan, Mexico; both *Quintana* and *Girardinus* are thought to have arisen "on Cuba from invasion of a single or of two closely related forms" (Rosen and Bailey 1959. Zoologica 44:1-44).



DISTRIBUTION AND HABITAT: Small ponds in western Cuba and the Isle of Pines; prefers dense thickets of aquatic vegetation (Rosen and Bailey 1963. Bull. Am. Mus. Nat. Hist. 126:1-176; Rivas 1958. Proc. Am. Philos. Soc. 102:281-320; Rivas pers. observ.).

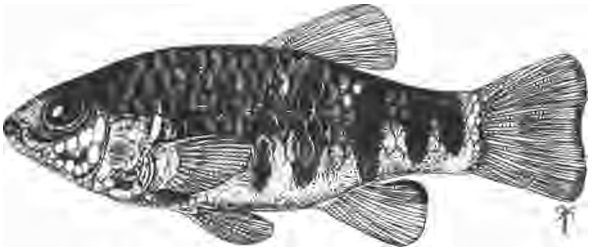
BIOLOGY: Unknown.

ADULT SIZE: Males 14.0-19.5 mm SL, females 19.0-34.0 mm SL.

Compilers: R. Franz and L. R. Rivas. January 1983.

Cyprinodon bondi Myers
Hispaniola pupfish

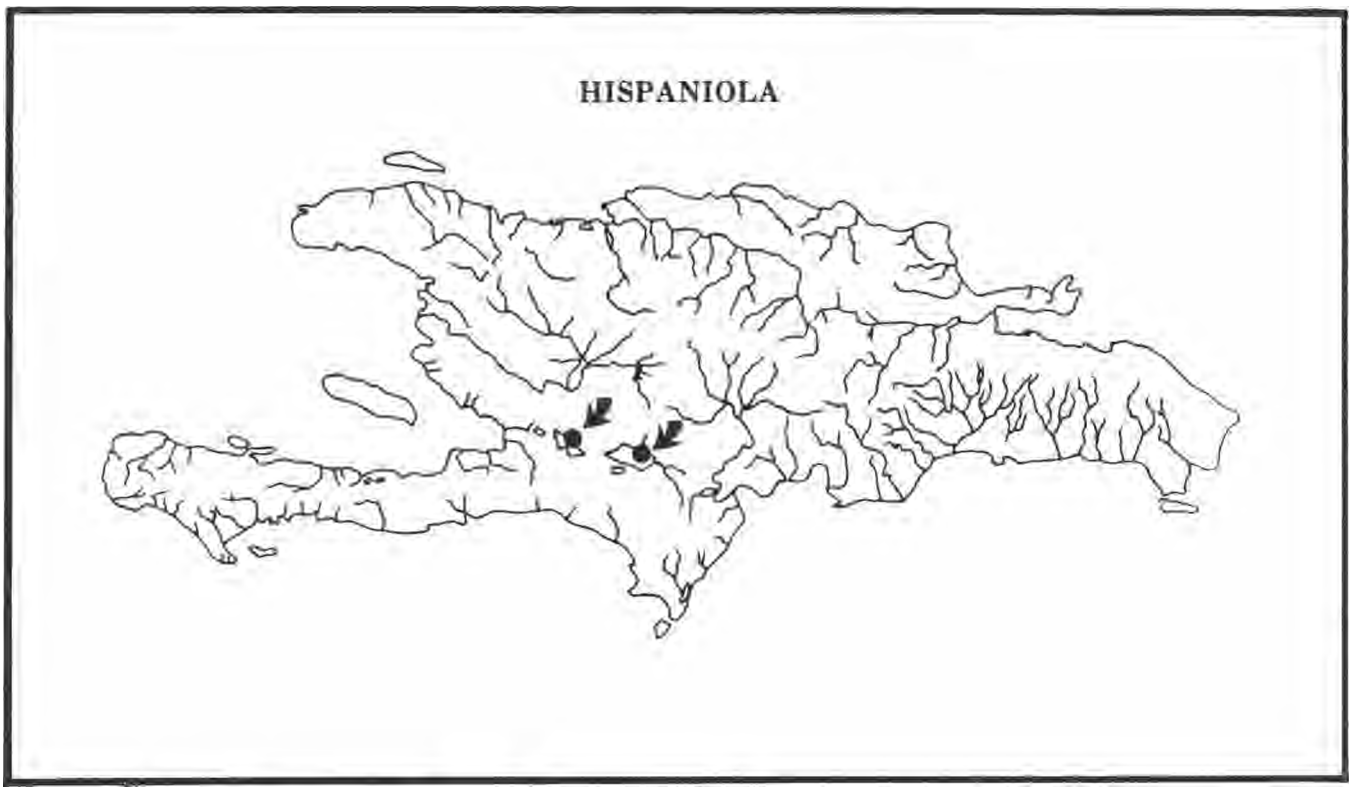
Order Cyprinodontiformes
Family Cyprinodontidae



Dominican Republic: Lago Enriguillo (NCSM).

TYPE LOCALITY: Etang Saumatre, Haiti (Myers 1935. Zoologica 10:301-16).

SYSTEMATICS: Relationships within the genus uncertain. Of the nominal species described from the West Indian region, only C. bondi and the Bahamian C. laciniatus stand out sharply from the C. variegatus complex (Miller 1962. Copeia:836-37). Ordinal designation follows Parenti (1981. Bull. Am. Mus. Nat. Hist. 168:335-557).



DISTRIBUTION AND HABITAT: Two Hispaniolan saline lakes: Lago Enriquillo, Dominican Republic is hypersaline (48.9 ppt), while Etang Saumatre, Haiti is brackish (7.4 ppt) (Woodring et al. 1924. Geology of the Republic of Haiti).

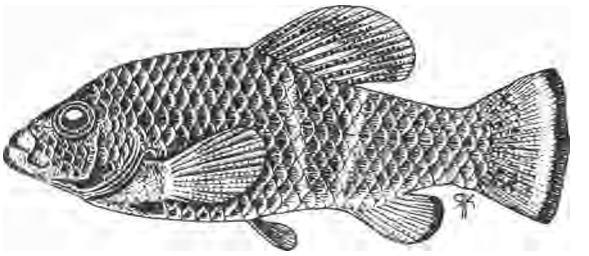
BIOLOGY: Unknown.

ADULT SIZE: At least 66 mm SL.

Compilers: G. H. Burgess. January 1983.

Cyprinodon laciniatus Hubbs and Miller
Bahama pupfish

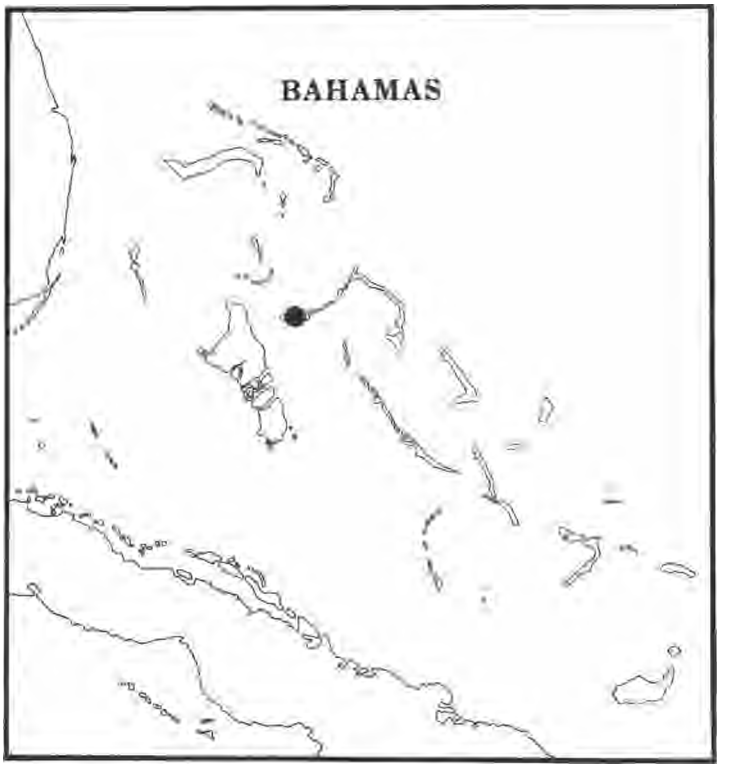
Order Cyprinodontiformes
Family Cyprinodontidae



Bahamas: New Providence Island (NCSM).

TYPE LOCALITY: Lake Cunningham, New Providence Island, Bahamas (Hubbs and Miller 1942. Occas. Pap. Mus. Zool. Univ. Mich. 458:1-11).

SYSTEMATICS: Relationships within the genus uncertain. Of the nominal species described from the West Indian region, only *C. laciniatus* and the Hispaniolan *C. bondi* stand out sharply from the *C. variegatus* complex (Miller 1962. Copeia:836-37). Ordinal designation follows Parenti (1981. Bull. Am. Mus. Nat. Hist. 168:335-557).



DISTRIBUTION AND HABITAT: Common in marl-limestone bottom lakes on New Providence Island, Great Bahama Bank, Bahamas (Bohlke and Chaplin 1968. *Fishes of the Bahamas).* Occurs in shallow (1.5 m or less), brackish (10-13 ppt) waters containing much algae in association with *Gambusia puncticulata* manni (Hubbs and Miller 1942).

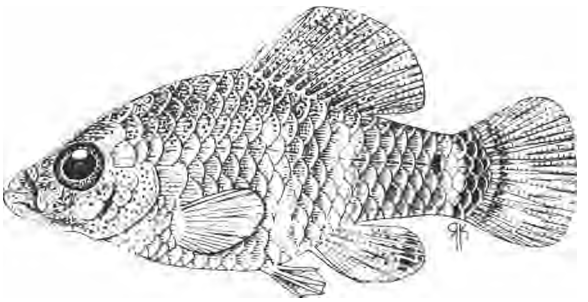
ADULT SIZE: Male 65.5 mm SL maximum, female 52.0 mm SL maximum.

BIOLOGY: Unknown.

Compilers: G. H. Burgess. January 1983.

Cyprinodon variegatus baconi (Breder)
Bahama sheepshead minnow

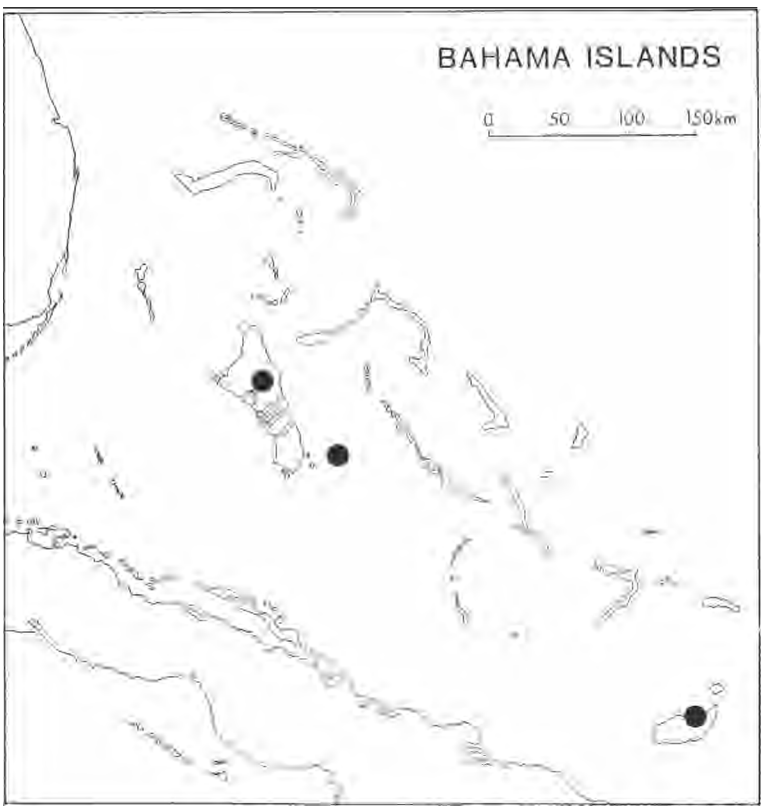
Order Cyprinodontiformes
Family Cyprinodontidae



(NCSM).

TYPE LOCALITY: Lake Forsyth, Andros Island, Bahamas (Breder 1932. Amer. Mus. Nov. 551, 8 p.).

SYSTEMATICS: Member of the *variegatus* complex, which also includes the nominal West Indian forms *dearborni, jamaicensis, riverendi, martae,* and *felicianus (=riverendi),* and the continental subspecies *hubbsi, oviceps* and *variegatus.* Systematics of group badly needs revision. Some nominal forms may eventually warrant specific status, others subspecific. The subspecific designation for *baconi* follows Miller (In press. Pisces, in Aquatic Biota of Central America, Mexico, and the West Indies), who earlier (1962. Copeia 1962:836-37) rejected specific status and noted that it might emerge as a good subspecies after study. Ordinal designation follows Parenti (1981. Bull. Amer. Mus. Nat. Hist. 168:335-557).



DISTRIBUTION AND HABITAT: Throughout the Bahamas, from freshwater (Lake Forsyth) to fully marine situations (Bohlke and Chaplin 1968. Fishes of the Bahamas).

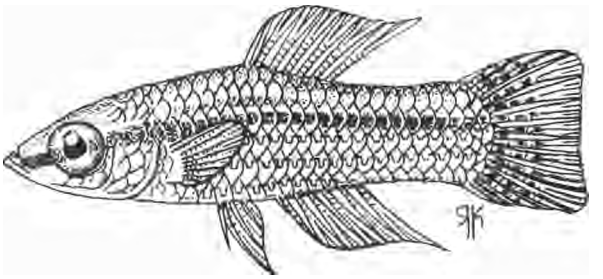
ADULT SIZE: Grows to about half the size of the continental U.S. *C. v. variegatus,* not achieving 50 mm SL (Bohlke and Chaplin 1968).

BIOLOGY: A number of physiological, ecological, and behavioral studies have been performed on this subspecies by Breder (1934. Zoologica 18[3]:57-88; 1959. Bull. Amer. Mus. Nat. Hist. 117:430-31), Breder and Rasquin (1950. Science 111:10-12; 1951. Copeia 1951 [1]:95-96), Fries (1952. Copeia 1952: 147-52), and Rosen and Gordon (1953. Zoologica 381:1-47).

Compiler: George H. Burgess, August 1982.

Cubanichthys cubensis (Eigenmann)
Cuban killifish

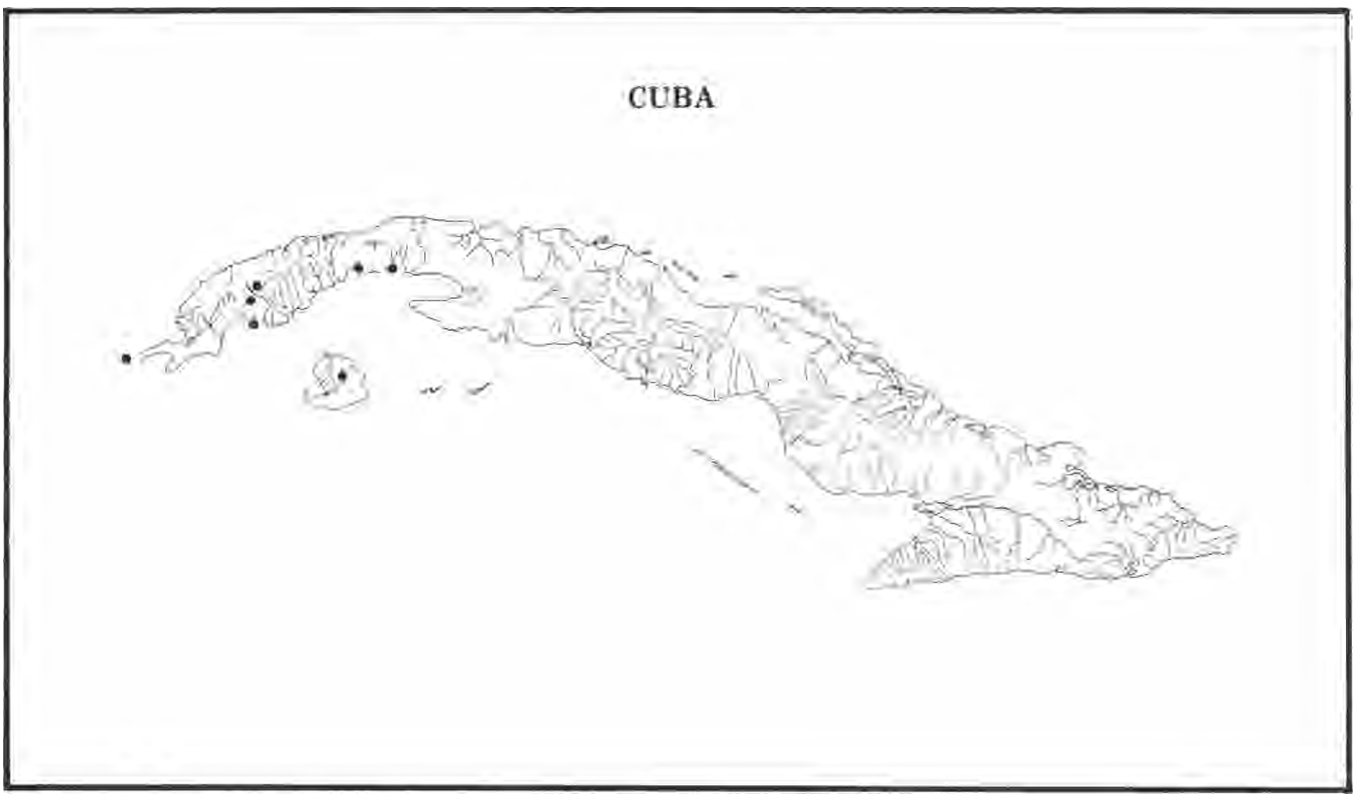
Order Cyprinodontiformes
Family Cyprinodontidae



Cuba (NCSM).

TYPE LOCALITY: Streams of Pinar del Rio, Cuba (Eigenmann 1903. Bull. U.S. Fish Comm. [1902] 22:211-36).

SYSTEMATICS: Subfamily Cubanichthyinae, composed of C. *cubensis* and C. *pengelleyi* (Parenti 1981. Bull. Am. Mus. Nat. Hist. 168:335-557). Originally included in the genus *Fundulus* by Eigenmann (1903); genus *Cubanichthys* erected by Hubbs (1926. Misc. Publ. Univ. Mich. Mus. Zool. 16:1-87). Ordinal designation follows Parenti (1981).



DISTRIBUTION AND HABITAT: Western Cuba and Isle of Pines (Alayo 1973. Torreia 29:1-59; de la Cruz et al. 1976. Misc. Zool. Acad. Cienc. Cuba Inst. Zool. 2:2). Taken in freshwater to nearly totally marine situations (de la Cruz et al.1976).

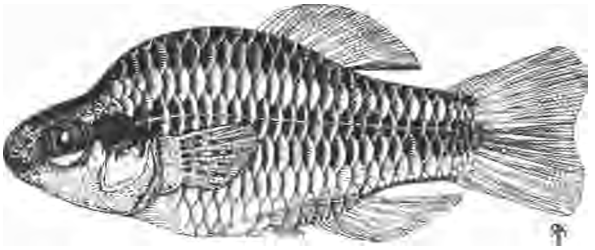
ADULT SIZE: At least 45 mm.

BIOLOGY: Troemner (1932. The Aquarium 1:70,82; 1941. The Aquarium 10:129-30) first described eggs (ca. 1 mm diameter) and reproduction. Mayer (1933. Blatt. Aquar.-Terrarienk. 44:375-76), Innes (1935. Exotic Aquarium Fishes), Sterba (1962. Freshwater Fishes of the World), and Axelrod and Vorderwinkler (1979. Encyclopedia of Tropical Fishes) further discuss reproduction and aquarium culture.

Compiler: G. H. Burgess. January 1983.

Cubanichthys pengelleyi (Fowler)
Jamaican killifish

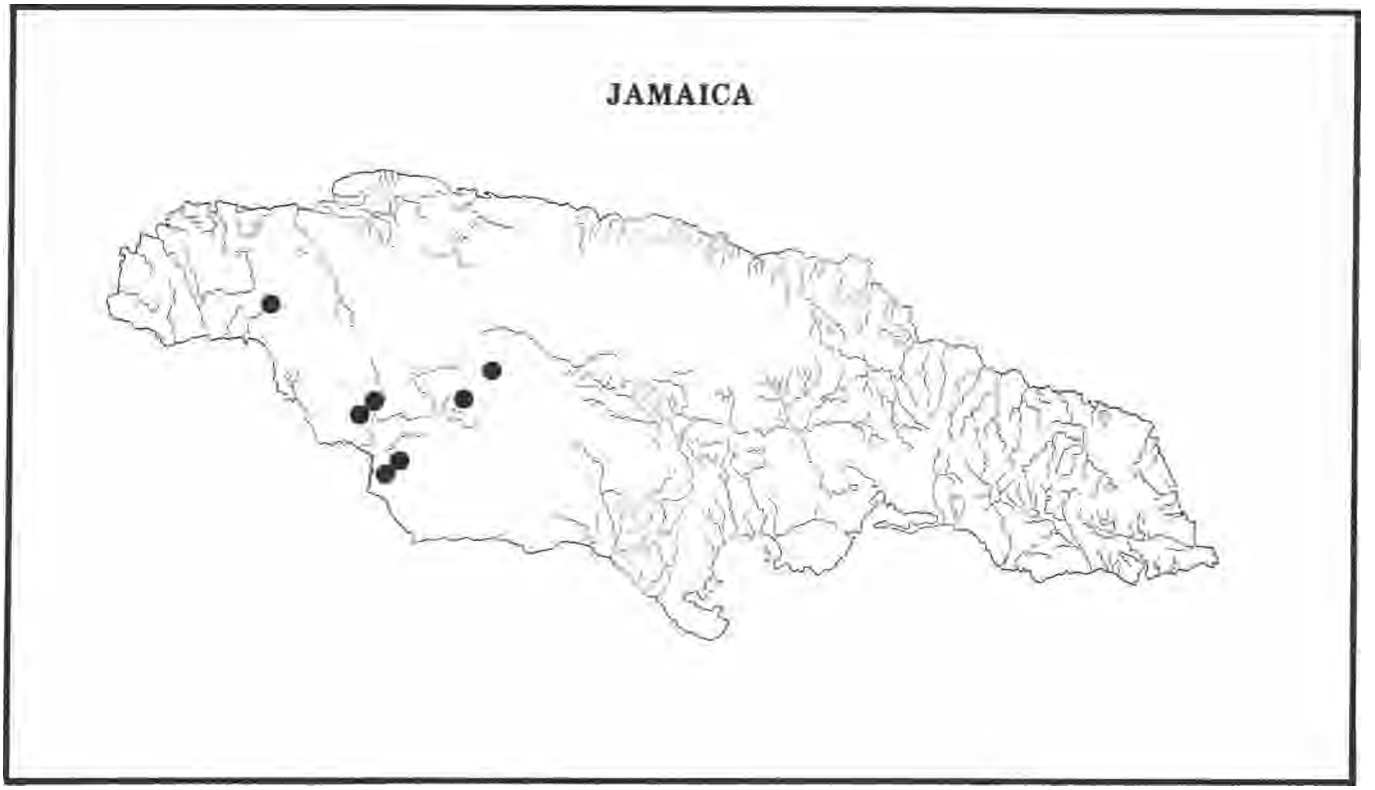
Order Cyprinodontiformes
Family Cyprinodontidae



Jamaica: Middle Quarters (NCSM).

TYPE LOCALITY: "Jamaica" (Fowler 1939. Not. Nat. 35:1-16). Subsequently restricted by Foster (1969. J. Am. Killifish Assoc. 6:17-25) to Middle Quarters Spring, south of Middle Quarters proper, adjacent to route A-2, about 9.6 km north of Black River (town), St. Elizabeth Parish, Jamaica.

SYSTEMATICS: Subfamily Cubanichthyinae, composed of *C. pengelleyi* and *C. cubensis* (Parenti 1981. Bull. Am. Mus. Nat. Hist. 168:335-557). Originally placed in the monotypic genus *Chriopeoides* by Fowler (1939). Ordinal designation follows Parenti (1981).



DISTRIBUTION AND HABITAT: Springs of Manchester, St. Elizabeth, and Westmoreland parishes, southwestern Jamaica. Occurs in shallow (1.5 m), crystal clear waters (pH 8.2; 24-26° C) with a bottom of marly sand and some soft patches of silt. Hides among submerged *(Ceratophyllum, Potamogeton, Najas)* and floating aquatic vegetation (Foster 1969).

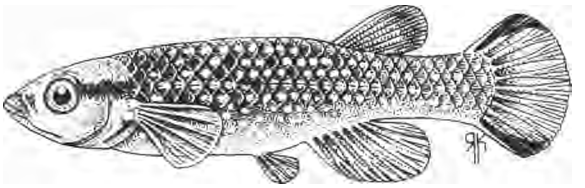
ADULT SIZE: Males 60 mm, females 50 mm.

BIOLOGY: Natural predators probably are *Dormitator maculatus* and *Eleotris* sp. (Eleotridae), and wading birds. Food includes damselfly and dragonfly nymphs, other aquatic larvae, ostracods, copepods, and snails. *Eggs* 1.2-1.4 mm in diameter and hatch in ca. 9 days (Foster 1969). Reproductive behavior described by Itzkowitz (1981. Copeia: 473-74).

Compiler: G. H. Burgess. January 1983.

Rivulus cylindraceus Poey
Cuban rivulus

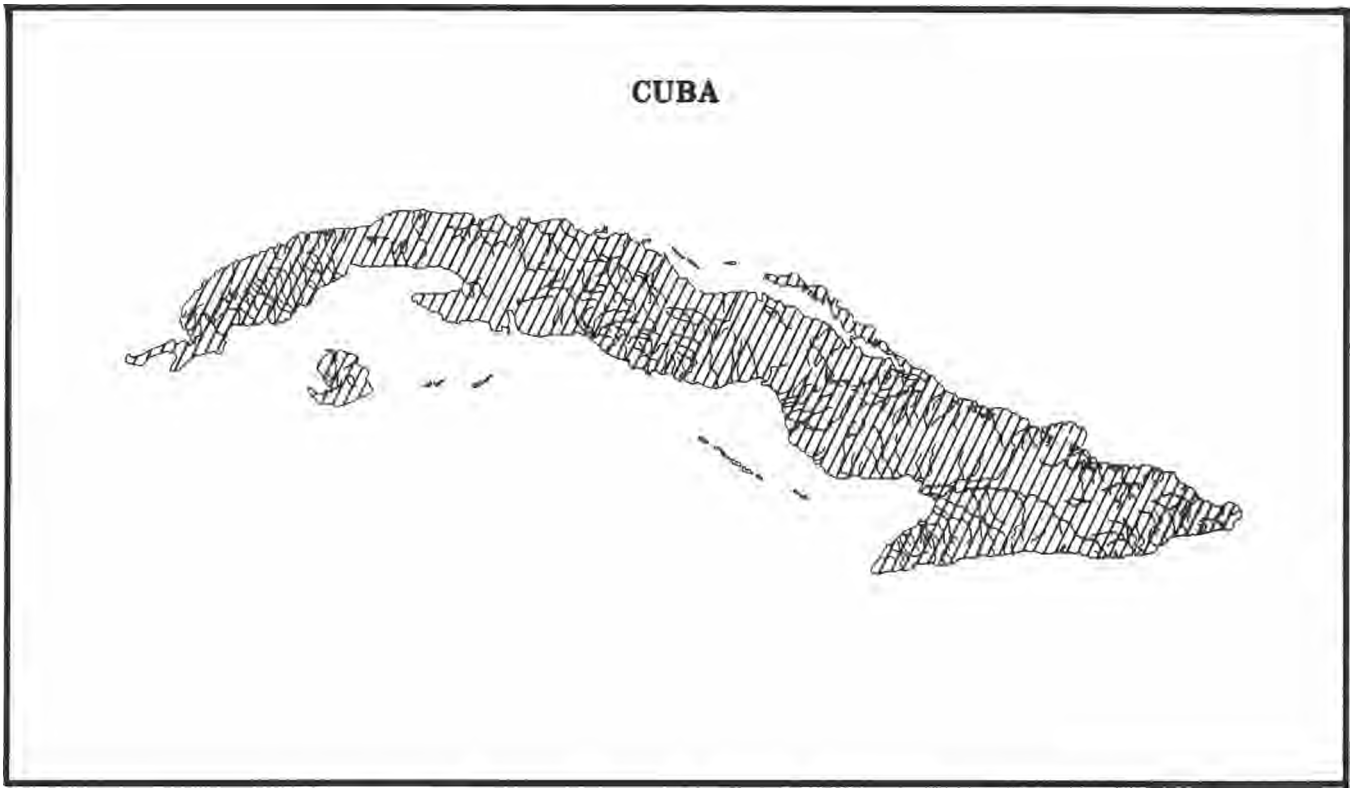
Order Cyprinodontiformes
Family Rivulidae



(NCSM).

TYPE LOCALITY: Stream at Mardazo, near Havana, Cuba (Poey 1861. Memorias Sobre la Historia Natural de la Isla de Cuba 2:95-114).

SYSTEMATICS: Genotype relationships within the genus discussed by Myers (1927. Ann. Mag. Nat. Hist. 19:115-29) and Hoedeman (1959. Stud. Fauna Suriname Guyanas 3:44-98: 1961. Bull. Aquat. Biol. 2:65-74), but the genus is in need of review. Ordinal and familial designations follow Parenti (1981. Bull. Am. Mus. Nat. Hist. 168:335-557).



DISTRIBUTION AND HABITAT: Abundant in rivers and lakes with clear water and abundant vegetation throughout western Cuba (Alayo 1973. Torreia 29:1-59).

BIOLOGY: Frequently exhibited by aquarists. An abundance of aquarium-related literature available, including summaries by Innes (1966. *Exotic Aquarium Fishes),* Sterba (1967. *Freshwater Fishes of the World),* and Axelrod and Vorderwinkler (1978. *Encyclopedia of Tropical Fishes).*

ADULT SIZE: ca. **50 mm.**

Compiler: G. H. Burgess. January 1983.

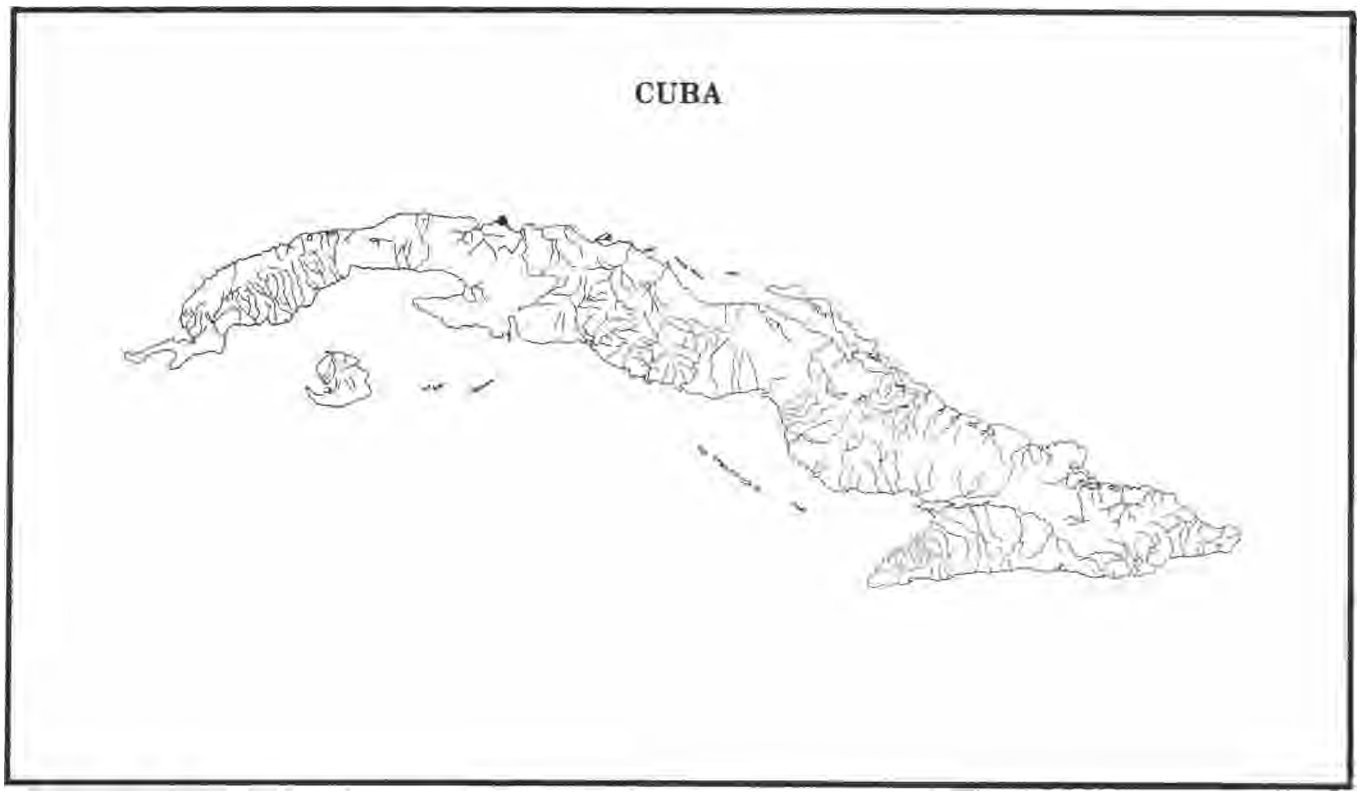
Rivulus garciai de la Cruz and Dubitsky
Matanzas rivulus

Order Cyprinodontiformes
Family Rivulidae

TYPE LOCALITY: Varadero, Matanzas, Cuba (de la Cruz and Dubitsky 1976. Poeyana 155:1-6).

ILLUSTRATION NOT AVAILABLE

SYSTEMATICS: Relationships within genus uncertain. Ordinal and familial designations follow Parenti (1981. Bull. Am. Mus. Nat. Hist. 168:335-557).



DISTRIBUTION AND HABITAT: Known only from the holotype, taken from a brackish water pool at Varadero, Matanzas, Cuba.

BIOLOGY: Unknown.

ADULT SIZE: Female 27 mm SL (holotype).

Compiler: G. **H.** Burgess. January 1983.

Rivulus heyei Nichols
Saona rivulus

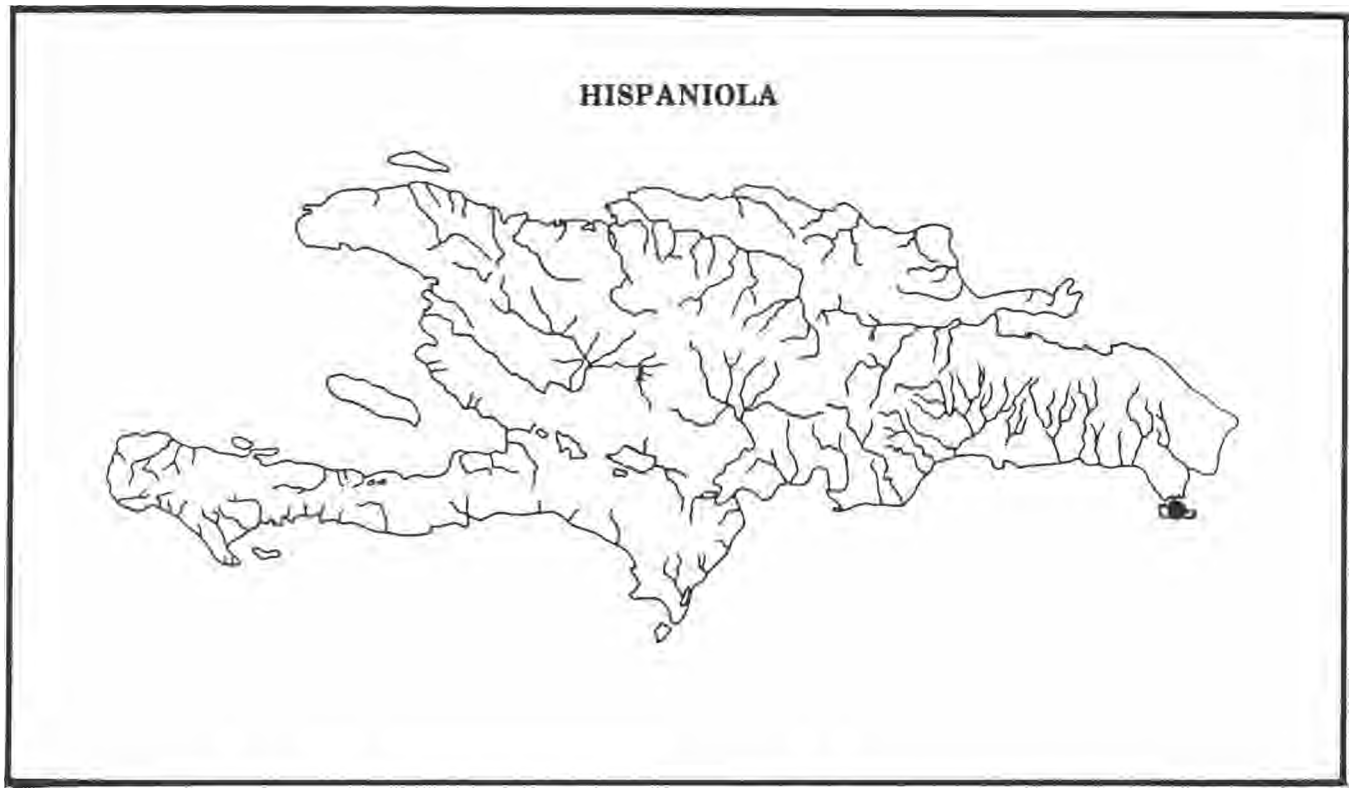
Order Cyprinodontiformes
Family Rivulidae

TYPE LOCALITY: Saona Island at eastern extremity of Haiti (Nichols 1914. Bull. Am. Mus. Nat. Hist. 33:143-44).

ILLUSTRATION

NOT AVAILABLE

SYSTEMATIC S: Specific status uncertain since it is known only from the small, poorly preserved holotype. Myers (1935. Zoologica 10:301-16) noted it is not well distinguished from the Cuban *R. cylindraceus.* Hoedeman (1959. Stud. Fauna Suriname Guyanas 3:44-98; 1961. Bull. Aquat. Biol. 2:65-74) recognized the species without discussion. Ordinal and familial designations follow Parenti (1981. Bull. Am. Mus. Nat. Hist. 168:335-557).



DISTRIBUTION AND HABITAT: Known only from type locality.

BIOLOGY: Unknown.

ADULT SIZE: 20 mm (holotype).

Compiler: G. H. Burgess. January 1983.

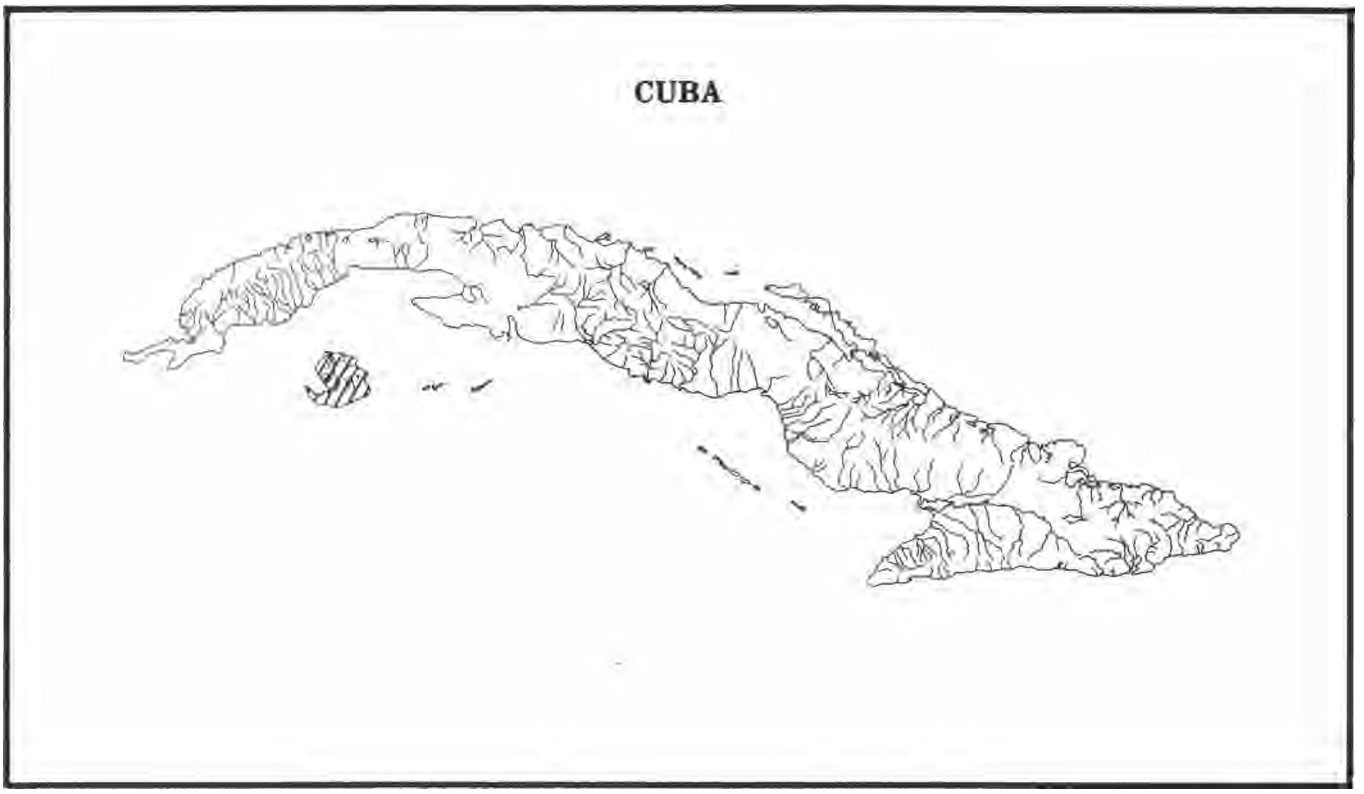
Rivulus insulaepinorum de la Cruz and Dubitsky
Isle of Pines rivulus

Order Cyprinodontiformes
Family Rivulidae

TYPE LOCALITY: Canals and pools of a rice paddy, 3 km n of Cayo Piedras, La Fe, Isle of Pines, Cuba (de la Cruz and Dubitsky 1976. Poeyana 155:1-6).

SYSTEMATICS: Relationships within the genus unknown. Ordinal and familial designations follow Parenti (1981. Bull. Am. Mus. Nat. Hist. 168:335-557).

ILLUSTRATION
NOT AVAILABLE



DISTRIBUTION AND HABITAT: Known only from Isle of Pines, Cuba, where it inhabits permanent and temporary water situations. Prefers clean water without much aquatic vegetation, frequenting bottoms of small stones or course sand. Hides in the substrate, often staying for considerable periods of time. Juveniles occur in the same environment, indicating reproduction also takes place there. Largest adults were collected in small puddles in rice fields that had dried up after irrigation was suspended. Species associates include Gambusia punctata, G. puncticulata and *Cichlasoma* tetracanthus (de la Cruz and Duditsky 1976).

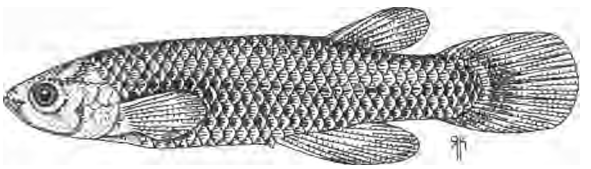
ADULT SIZE: 38 mm SL maximum.

BIOLOGY: Unknown.

Compiler: G. H. Burgess. January 1983.

Rivulus roloffi Trewavas
Hispaniolan rivulus

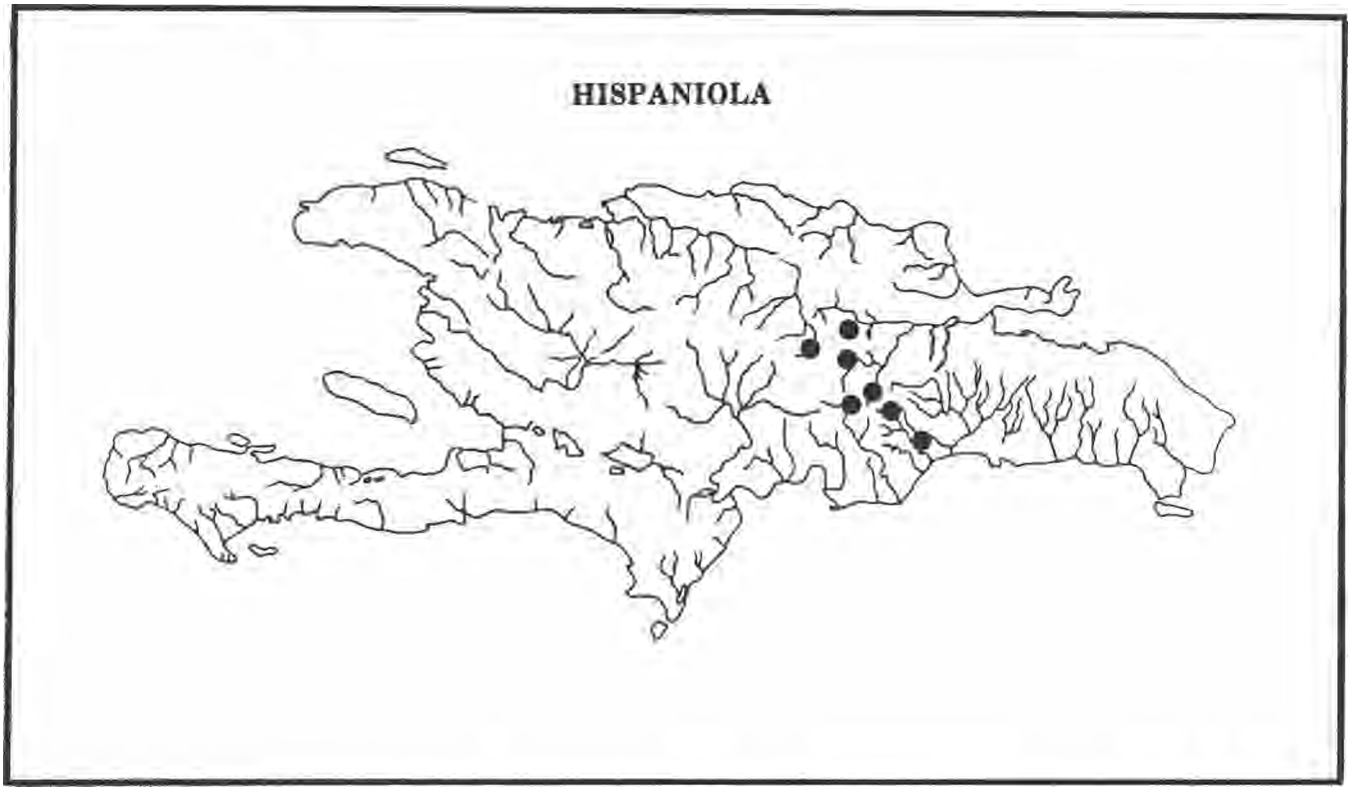
Order Cyprinodontiformes
Family Rivulidae



Dominican Republic: Rio Banilejas, 39 mm SL (NCSM).

TYPE LOCALITY: Between Ciudad Trujillo (Santo Domingo) and Puerto Plata, Dominican Republic, Hispaniola (Trewavas 1948. Proc. Zool. Soc. Lond. 118:408-15).

SYSTEMATICS: Specific status and relationships uncertain. Hoedeman (1959. Stud. Fauna Suriname Guyanas 3:44-98; 1961. Bull. Aquat. Biol. 2:65-74) recognized the species without discussion. Ordinal and familial designations follow Parenti (1981. Bull. Am. Mus. Nat. Hist. 168:335-557).



DISTRIBUTION AND HABITAT: Occurs in headwater streams in the Rio Yuna, Rio Yaque de Norte and Rio Haina drainages of La Vegas, Peravia and San Cristobal provinces, Dominican Republic, Hispaniola. Associates in small, sand-bottomed creeks with fast currents include *Poecilia hispaniolana, Poecilia dominicensis* and several *Limia* species.

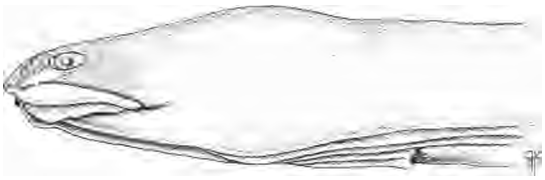
BIOLOGY: Unknown.

ADULT SIZE: Unknown. Maximum size ca. 40 mm **TL.**

Compilers: G. H. Burgess and R. Franz. January 1983.

Ophisternon aenigmaticum Rosen and Greenwood
Swamp eel

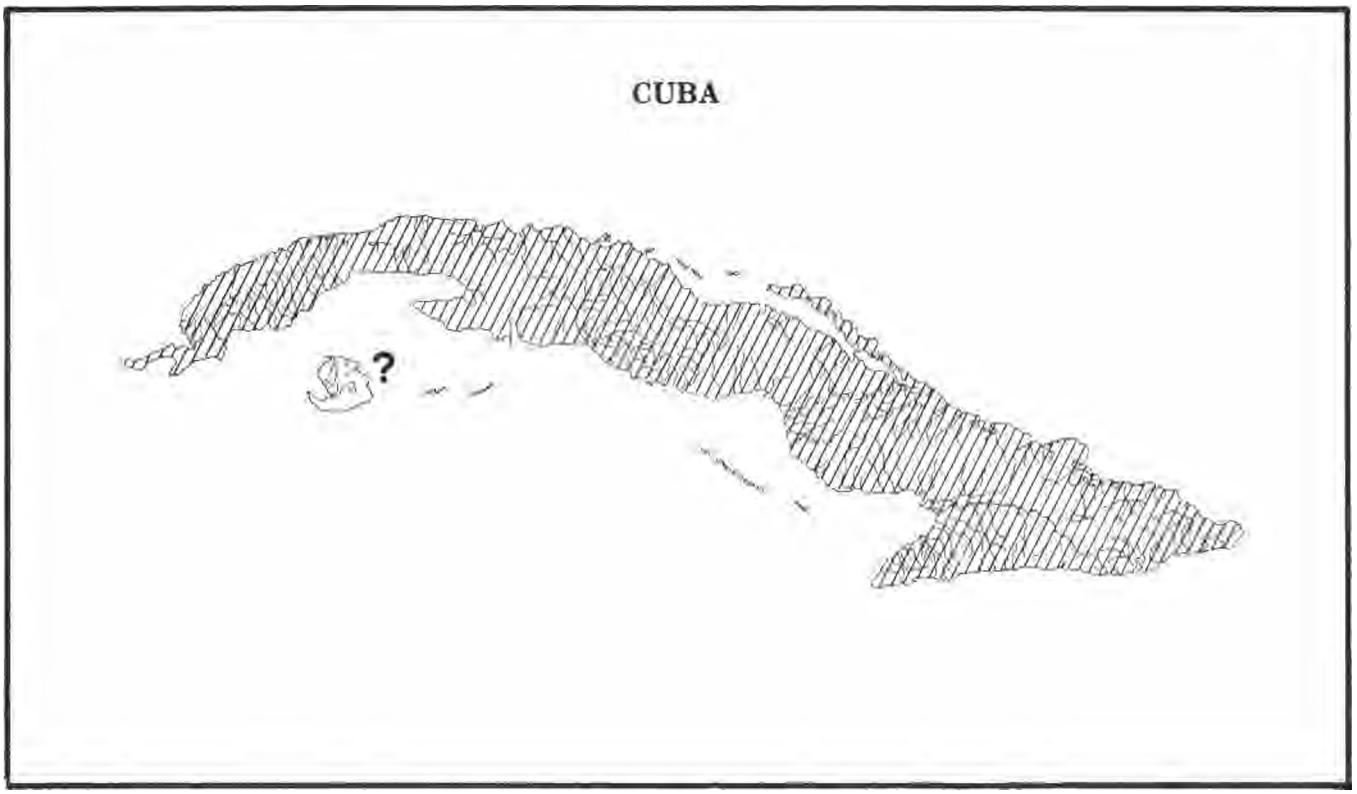
Order Synbranchiformes
Family Synbranchidae



Cuba (NCSM).

TYPE LOCALITY: Woodland pool ca. 13 km sw of Sebol, valley of Rio Chajmaic, Alta Verapaz, Guatemala (Rosen and Greenwood 1976. Bull. Am. Mus. Nat. Hist. 157:1-70).

SYSTEMATICS: Subfamily Synbranchinae. Probably all earlier references to *Synbranchus marmoratus* from the Atlantic slope of Guatemala and Mexico, and Cuba, refer to this species.



DISTRIBUTION AND HABITAT: Ranges from northeastern South America, throughout the Atlantic slope of Guatemala and Mexico, to Cuba. Occurs in a variety of habitats from standing water in small muddy pools to clear running water in streams, and larger bodies of water such as lakes (Rosen and Greenwood 1976).

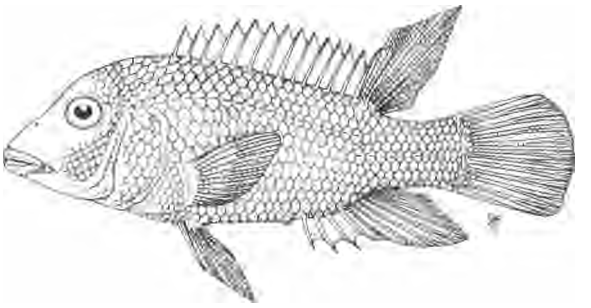
ADULT SIZE: 500-800 mm.

BIOLOGY: Breder and Rosen (1966. *Modes of Reproduction in Fishes)* summarized known reproductive biology. Nests in a horizontal tunnel made in mud of marshes in 0.30 - 1.22 m of water. Male stays with eggs (spherical, ca. 3.4 mm in diameter, translucent, grayish color). Breder (1927. Bull. Am. Mus. Nat. Hist. 57:91-176) thought spawning occurred during the latter part of the rainy season in Panama.

Compiler: G. H. Burgess. January 1983.

Cichlasoma haitiensis Tee-Van
Odo

Order Perciformes
Family Cichlidae

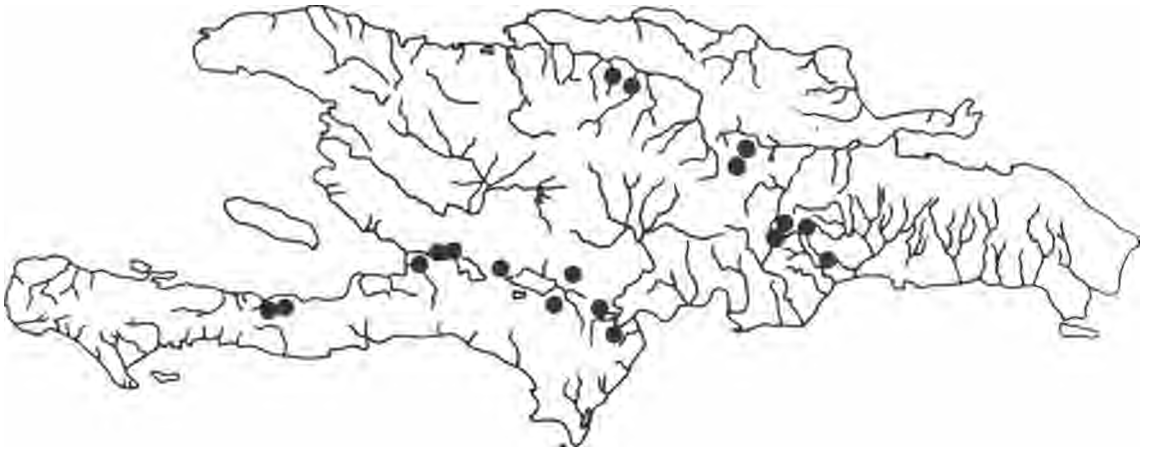


Haiti: Cul-de-Sac Plain, near Maneville, 108 mm SL (NCSM).

TYPE LOCALITY: Etang Saumatre, near Maneville, Cul-de-Sac Plain, Haiti (Tee-Van 1935. Zoologica 10:281-300).

SYSTEMATICS: Subgenus *Parapetenia,* sensu Regan (1905. Ann. Mag. Nat. Hist. 7:316-40). Related species include *C. tetracanthus, C. dovii, C. managuense, C. motaguense, C. friedrichsthali,* and *Petenia splendida* (Loiselle 1980. Freshw. Mar. Aquar. 3:39-47, 71-74).

HISPANIOLA



DISTRIBUTION AND HABITAT: Fresh and brackish lakes and streams probably throughout Hispaniola. Particularly common in springs associated with Lago Enriquillo, Independencia Province, Dominican Republic. Occurs with introduced cichlids at numerous localities. Adult *C. haitiensis* swim in open water, taking refuge in small cavities under debris or in rocks when pursued. Young frequently found in aquatic vegetation.

ADULT SIZE: 75 mm.

BIOLOGY: Largely found solitarily or in pairs, rarely in groups of 6-8, often in association with poecilids and the mugilid *Agonostomus monticola*. Diet includes algae and other water plants, and turret shells. An 87 mm female collected in March had ca. 300 eggs (1.5 mm x 2 mm diameter) ready for spawning and a 112 mm male taken on the same day had enlarged gonads (Tee-Van 1935).

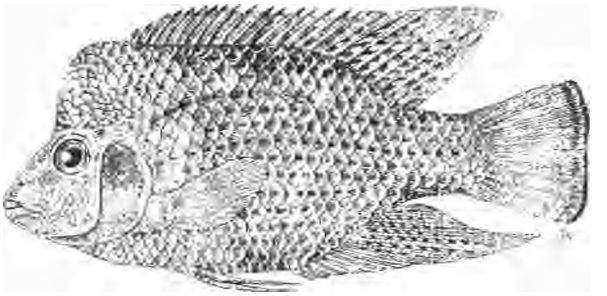
Compilers: G. **H.** Burgess and R. Franz. January 1983.

Cichlasoma ramsdeni Fowler
Joturo

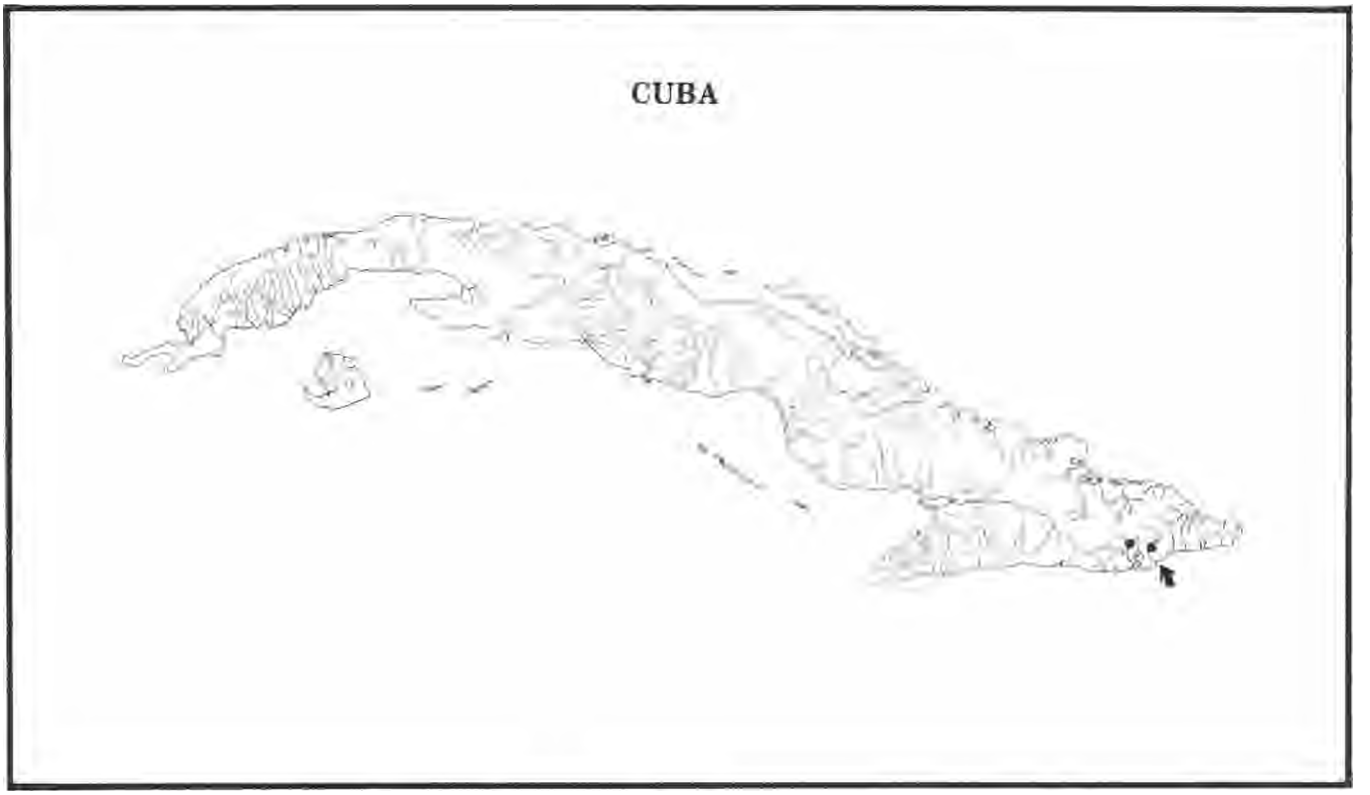
Order Perciformes
Family Cichlidae

TYPE LOCALITY: Arroyo Hondo, Yateras, Guantanamo, Cuba (Fowler 1938. Proc. Acad. Nat. Sci. Phila. 90:143-47).

SYSTEMATICS: Closely related to *C. tetracanthus* (Fowler 1938).



Cuba: Yateras River, male 110 mm SL (NCSM)



DISTRIBUTION AND HABITAT: Known from Guaso and Yateras rivers, Oriente Prov., Cuba.

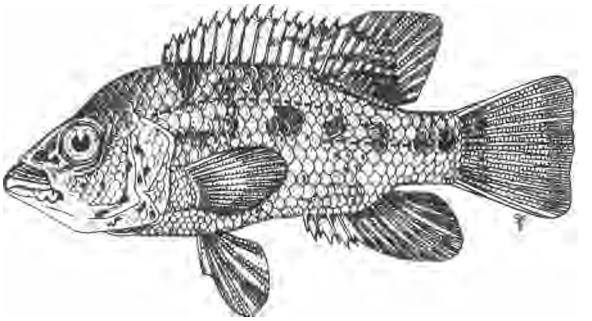
BIOLOGY: Unknown.

ADULT SIZE: To 128 mm SL.

Compilers: R. Franz and L. R. Rivas. January 1983.

Cichlasoma tetracanthus
(Valenciennes)
Biajaca

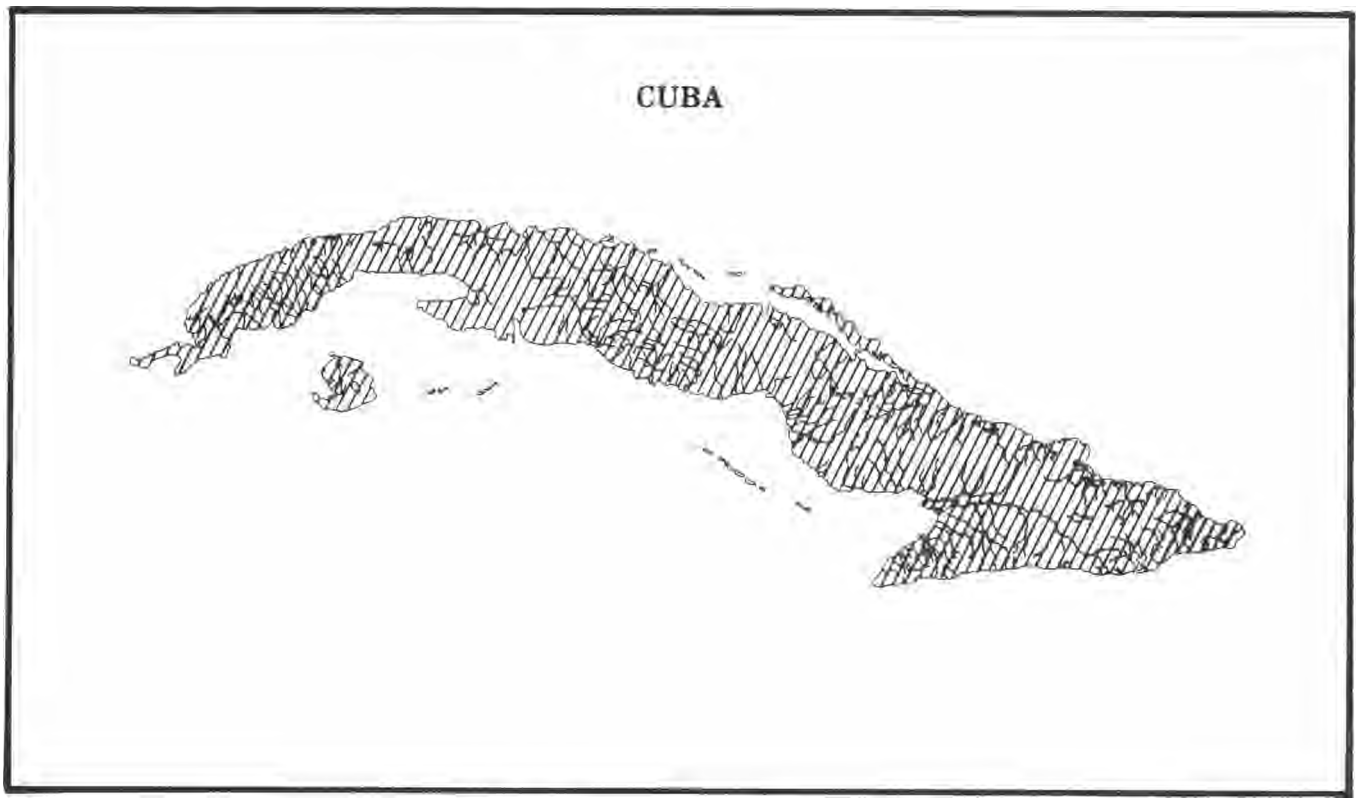
Order Perciformes
Family Cichlidae



Cuba: Almendares River near Havana (NCSM).

TYPE LOCALITY: Havana, Cuba (Valenciennes in Cuvier and Valenciennes 1831. *Histoire Naturelle des Poissons* 7:1-406). Eigenmann (1903. U.S. Fish Comm. Bull. [19021:211-36) states that the Almendares River, near Havana, is the type locality of *Centrachus tetracanthus* of Valenciennes.

SYSTEMATICS: Eigernmann (1903) described numerous chichlid taxa from Cuba. However, currently only *C. tetracanthus* and *C. ramsdeni* are recognized.



DISTRIBUTION AND HABITAT: Widespread in Cuba. Occurs in most freshwater habitats on the island.

BIOLOGY: Unknown.

ADULT SIZE: To 200 mm SL.

Compilers: L. R. Rivas and R. Franz. January 1983.

INDEX TO COMMON AND SCIENTIFIC NAMES

CONTRIBUTIONS OF THE NORTH CAROLINA BIOLOGICAL SURVEY — 1982

Potter, Eloise F. Bill-vibrating feeding behavior in the Snowy Egret. The Chat 46(1):18. 1982-1

Grant, Gilbert S. Common Mynas attack Black Noddies and White Terns on Midway Atoll. Elepaio 42:97-98. 1982-2

Grant, Gilbert S. Wildlife on Midway Atoll during the winter and spring of 1980-1981. Elepaio. 43:1-4. 1982-3

Pettit, T. N., G. S. Grant, G.C. Whittow, H. Rahn, and C. V. Paganelli. Respiratory gas exchange and growth of Bonin Petrel embryos. Physiological Zoology 55:162-170. 1982-4

Irvin, E. Wayne. A Nandy Conure in coastal North Carolina. The Chat 46(2):43-44. 1982-5

Grant, G. S., T. N. Pettit, H. Rahn, G. C. Whittow, and C. V. Paganelli. Regulation of water loss from Bonin Petrel *(Pterodroma hypoleuca) eggs.* Auk 99:236-242. 1982-6

Grant, G. S., C. V. Paganelli, T. N. Pettit, G. C. Whittow, and H. Rahn. Determination of fresh *egg* mass during natural incubation. Condor 84:121-122. 1982-7

Pettit, T. N., G. S. Grant, G. C. Whittow, H. Rahn, and C. V. Paganelli. Embryonic oxygen consumption and growth of Laysan and Black-footed Albatross. American Journal of Physiology 237:121-128. 1982-8

Grant, Gilbert S. Avian Incubation: *Egg* Temperature, Nest Humidity, and Behavioral Thermo-regulation in a Hot Environment. Ornithological Monographs No. 30. 75 pages. 1982-9

Lee, David S., John B. Funderburg Jr., and Mary Kay Clark. A Distributional Survey of North Carolina Mammals. Occasional Papers of the North Carolina Biological Survey. 72 pages. 1982-10

Potter, Eloise F. (editor). A Survey of the Vertebrate Fauna of Mainland Dare County, North Carolina. Project completion report on file at U.S. Fish and Wildlife Service, Division of Ecological Services, Raleigh, N.C. (14-16-0004-81-056). 190 pages. 1982-11

Clark, Mary K., and Eloise F. Potter. Third annual breeding bird foray: Hoke County, N.C. The Chat 46(2):29-37. 1982-12

Lee, David S., and John B. Funderburg. Marmots *Marmota monax* and allies. Chapter 9, pages 176-191, in Wild Mammals of North America (Chapman and Feldhamer, editors). Johns Hopkins University Press Baltimore. 1982-13

Pettit, T. N., G. S. Grant, and G. C. Whittow. Body temperature and growth of Bonin Petrel chicks. Wilson Bulletin 94:358-361. 1982-14

Grant, G. S., T. N. Pettit, C. V. Paganelli, H. Rahn, and G. C. Whittow. Water loss from Laysan and Black-footed Albatross *eggs.* Physiological Zoology 55:405-414. 1982-15

Franz, Richard, and David S. Lee. Distribution and evolution of Florida's troglobitic crayfishes. Bulletin of the Florida State Museum, Biological Sciences 28(3):53-78. 1982-16

Shelley, Rowland M. Revision of the milliped genus *Auturus* (Polydesmida: Platyrhacidae). Canadian Journal of Zoology 60(12):3249-3267. 1982-17

Shelley, Rowland M. A new Xystodesmid milliped genus and three new species from the eastern Blue Ridge Mountains of North Carolina (Polydesmida). Proceedings of the Biological Society of Washington 95(3):458-477. 1982-18

SPECIAL PUBLICATIONS
OF THE
NORTH CAROLINA STATE MUSEUM OF NATURAL HISTORY
AND THE
NORTH CAROLINA BIOLOGICAL SURVEY

Title	Price
Endangered and Threatened Plants and Animals of North Carolina. Cooper, Robinson, and **Funderburg,** 1977.	Out of print
Atlas of North American Freshwater Fishes. Lee, Gilbert, Hocutt, Jenkins, McAllister, and Stauffer, 1980.	$25, postpaid
Contributions of the North Carolina State Museum of Natural History and the North Carolina Biological Survey, 1884 - 1980.	$ 1, postpaid
A Distributional Survey of North Carolina Mammals. Lee, Funderburg, and Clark, 1982.	$ 5, postpaid
Supplement to the Atlas of North American Freshwater Fishes.	$ 5, postpaid
The Seaside Sparrow, Its Biology and Management. Quay, Funderburg, Lee, Potter, and Robbins, 1983.	$15, postpaid

Order from: North Carolina State Museum of Natural History
P.O. Box **27647**
Raleigh, N.C. **27611**
(Make checks payable to **NCDA,** Museum Extension Fund.)