

Catalog of Type Specimens  
of Recent Fishes in the  
National Museum of Natural History,  
Smithsonian Institution,  
9: Family Poeciliidae  
(Teleostei: Cyprinodontiformes)

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JEFFREY M. CLAYTON,  
and  
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## ABSTRACT

Parenti, Lynne R., Jeffrey M. Clayton, and Jeffrey C. Howe. Catalog of Type Specimens of Recent Fishes in the National Museum of Natural History, Smithsonian Institution, 9: Family Poeciliidae (Teleostei: Cyprinodontiformes). *Smithsonian Contributions to Zoology*, number 604, 22 pages, 1999.—The known type specimens of poeciliid fishes in the collections of the National Museum of Natural History, Smithsonian Institution, published through 1996 are listed. These include approximately 7,707 specimens in 214 lots, including 29 holotype, 2 neotype, 2 lectotype, 29 syntype, and 152 paratype or paralectotype lots of 109 nominal species and subspecies. Of these, 43 specimens in 16 lots, including 1 holotype, 7 syntype, 1 lectotype, and 7 paratype lots of 14 nominal species are listed herein but are missing from the collection.

The listing is arranged alphabetically by current subfamily (following Parenti, 1981), original genus, subgenus, species, and subspecies names. Information for each entry includes genus, subgenus (if any), and species and subspecies (if any) names; author and date of publication; page(s) of original description; figures and plates (if any); current type status; USNM catalog number; number of specimens of adult females, adult males, and juveniles or immature specimens of either sex; a range of standard lengths; locality; collector and date collected; and remarks that include clarification of information in the entry as well as pertinent information on other type material. Each entry ends with the current status of the taxon, if different from that in the original description.

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# Catalog of Type Specimens of Recent Fishes in the National Museum of Natural History, Smithsonian Institution, 9: Family Poeciliidae (Teleostei: Cyprinodontiformes)

*Lynne R. Parenti, Jeffrey M. Clayton,  
and Jeffrey C. Howe*

## Introduction

This is the ninth in a numbered series of published catalogs of type specimens in the collections of the Division of Fishes, National Museum of Natural History (NMNH), Smithsonian Institution, Washington, D.C. In the first catalog, Vari and Howe (1991:2) reviewed the development of the type catalog project in the Division of Fishes. Preparation of type catalogs was encouraged by the International Commission on Zoological Nomenclature (ICZN) in Recommendation 72G(4) of the 1985 edition of the International Code of Zoological Nomenclature, which included publication of lists of name-bearing types (holotypes, syntypes, lectotypes, and neotypes) as a responsibility of those institutions holding type collections.

We have chosen type specimens of the cyprinodontiform family Poeciliidae (*sensu* Parenti, 1981) for review because of the long and enduring interest by both scientists and the public in the systematics, biology, and aquarium maintenance of many well-known poeciliid taxa, including those of the genera *Gam-*

*busia*, *Poecilia*, *Xiphophorus*, and *Heterandria*. In a monographic revision of the order Cyprinodontiformes, Parenti (1981) expanded the traditional limits of the family Poeciliidae to include the South American *Fluviphylax*, classified in the subfamily Fluviphylacinae, and the African lampeyes, subfamily Aplocheilichthyinae, as well as the subfamily Poeciliinae (= family Poeciliidae of Rosen and Bailey, 1963). The NMNH Division of Fishes maintains type specimens in the last two subfamilies and none in the first. We prepared this report to provide those interested in the systematics of poeciliids with a compilation of our type holdings, which annotates, for the first time for most entries, the number of females, males, and juvenile or immature specimens in each lot.

Rosen and Bailey's (1963) monograph of the family Poeciliidae (= subfamily Poeciliinae of Parenti, 1981, and herein) is the most comprehensive review of the systematics of poeciliine species, and it forms the framework of our modern classification of species and genera. We follow Rosen and Bailey (1963) for the current status of a nominal taxon, or a more recent reference, as appropriate. Classification of poeciliines at the generic level and higher has long been controversial, however (*viz.* Rivas, 1963, 1980; Rauchenberger, 1989a, 1989b; Costa, 1991; Meyer, 1993; Meyer and Etzel, 1996), and will likely not reach some stability until a comprehensive phylogenetic systematic revision of the entire subfamily is proposed.

**METHODS.**—The type catalogs published in this series have included detailed collection data on name-bearing or primary types, and vary, understandably, in amount of information provided on secondary types. We include detailed information,

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when available, on paratypes (or paralectotypes) because of their wide and consistent designation by poeciliid specialists and because paratypes often provide the best source of material for the designation of a neotype, although systematists are not required by the ICZN to use them for that purpose. Also, because poeciliids are so highly sexually dimorphic, original descriptions often have included a designated and figured holotype and allotype (= paratype of the opposite sex).

**FORMAT.**—This catalog includes all known published poeciliid types deposited in the collections of the National Museum of Natural History through 1996. These include approximately 7,707 specimens in 214 lots, including 29 holotype, two neotype, two lectotype, 29 syntype, and 152 paratype or paralectotype lots of 109 nominal species and subspecies. Of these, 43 specimens in 16 lots, including one holotype, seven syntype, one lectotype, and seven paratype lots, of 14 nominal species are listed but are missing from the collection. The order of listing is alphabetical by subfamily, genus, subgenus, species, and subspecies.

We list all known or putative type lots of species currently classified in the family Poeciliidae. Species that were described in poeciliid genera but are now classified as nonpoeciliid taxa are not treated herein. These taxa include *Limia venusta* Girard, 1858 (= *Lucania venusta*, a fundulid) and *Platypoecilus quitzeoensis* Bean, 1898 (= *Zoogoneticus quitzeoensis*, a good-eid). On the other hand, we treat just two nominal species of the genus *Zygonectes*, now classified as a subgenus of the fundulid genus *Fundulus*. We are particularly uncertain of the type status of specimens of several species described from Cuba by Felipe Poey (1854, 1860), all of which were collected by Poey and deposited in the United States National Museum (USNM; collections now in NMNH), the Museum of Comparative Zoology, Harvard (MCZ), and other museums in the mid-1800s. We list some of the material as putative syntypes, the status of which awaits clarification that may come from a better understanding of the history of Poey's collections.

Information in each entry is provided in the following format:

Genus, species, author(s), year of publication, page range of description, citation of figures.

Type status as stated in the original description followed in brackets by type status as interpreted herein, if different from that in the original description; catalog number; in parentheses, number of females, number of males, number of juveniles, immatures, or specimens for which sex could not be determined, followed by a size range of standard length in millimeters; locality as stated in the original description; collector(s),

and date of collection. Information that we have added, such as the modern name of a country or current interpretation of type status, is in brackets.

Remarks, including catalog number of holotype or additional syntype specimens when known. No effort has been made to locate all the type specimens of each nominal taxon, nor do we designate any lectotypes herein. Types noted as missing are those that we expected to be in the collections of the NMNH because of published reports or catalog information but which were not found during the preparation of this catalog. Institutional abbreviations follow Leviton et al. (1985), except as follows: CLRR is the abbreviation for the private collection of Louis René Rivas; UMIM is the abbreviation for the University of Miami Ichthyological Museum. Additional abbreviations are as follows: SL, standard length; TL, total length; mm, millimeter; m, meter; and elev., elevation. Other abbreviations are clear in context.

Current status of nominal taxon, if different from that in original description. Entries followed by "=" give the status of each nominal taxon following Rosen and Bailey (1963), Wildenkamp et al. (1986), Espinosa-Pérez et al. (1993), or another reference, as appropriate; other taxa are considered valid.

**ACKNOWLEDGMENTS.**—We are indebted to past and present members of the staff of the Division of Fishes, including Andrew G. Gerberich, Janet R. Gomon, Edgar "Nat" Gramblin, Susan L. Jewett, the late Robert Kanazawa, Thomas M. Orrell, Victor G. Springer, and Jeffrey T. Williams, who participated in the project to complete an inventory and prepare a computerized list of all type holdings of Recent fishes (see Vari and Howe, 1991). We were aided greatly by having access to preliminary versions of the species database prepared by William N. Eschmeyer, Carl J. Ferraris, Jr., Mysi Dang Hoang, and Douglas J. Long, California Academy of Sciences, San Francisco, which we cite as Eschmeyer (1998) in the text. That database was particularly useful for identifying the location of holotypes and other types, as were published type catalogs from other collections (e.g., Böhlke, 1984; Ibarra and Stewart, 1987). We also benefited from having access to "Notes on Poey's fish species, with a bibliography," a manuscript prepared by Horacio Higuchi, MCZ, in the late 1980s to help identify the possible Poey types at the MCZ. That manuscript, the MCZ database, and the insight of Karsten Hartel (MCZ) helped us make decisions concerning the potential type status of Poey material at the USNM. A draft of this catalog was reviewed by William N. Eschmeyer (CAS), Karsten Hartel (MCZ), and Richard P. Vari (NMNH) who, along with external reviewers, provided numerous suggestions for its improvement.

# Annotated List of Type Specimens

(Arranged alphabetically by subfamily, genus, subgenus, species, and subspecies)

## Family POECILIIDAE

### Subfamily APLOCHEILICHTHYINAE

*Haplochilus macrurus* Boulenger, 1904:19–20.  
[Paralectotype: USNM 92973 (20 mm)]. Angola, Marimba, Lake Sarmento; W.J. Ansorge.  
General Remarks: The lectotype is BMNH 1904.5.2.188, and additional paralectotypes are BMNH 1904.5.2.189–195. The collection date was not recorded.  
=*Aplocheilichthys macrurus* (Boulenger, 1904). See Wildekamp et al. (1986:177).

*Haplochilus pumilus* Boulenger, 1906:554, pl. 32: fig. 4.  
[?Syntype: USNM 94297 (25 mm)]. [Uganda, Entebbe], Lake Victoria; E. Degen.

General Remarks: In the original description, Boulenger (1906:554) reported data for three specimens, a syntypic lot, BMNH 1906.9.8.74–76, from [Zambia], Kituta, Lake Tanganyika. He added that “the same species has been obtained in Lake Victoria by Mr. E. Degen.” The USNM specimen was collected from Lake Victoria by Degen (collection date not recorded) and was possibly available to Boulenger when he wrote his description; therefore, it is a possible syntype. Other possible syntypes are BMNH 1906.5.30.192 (1 cleared and stained) and BMNH 1906.5.30.193–200.  
=*Aplocheilichthys pumilus* (Boulenger, 1906). See Wildekamp et al. (1986:182).

*Haplochilus (Hypsopanchax) zebra* Pellegrin, 1929:642–643, fig. 2.

[Syntype: USNM 92965 (31 mm)]. Gabon, Upper Ogooué, Lebagni River, near Zanaga; A. Baudon.

General Remarks: The syntype was out of MNHN 1929-228, one of two syntypic lots at MNHN; the other is MNHN 1929-229. An additional syntype is BMNH 1930.3.4.2. The collection date was not recorded.

=*Hypsopanchax zebra* (Pellegrin, 1929). See Wildekamp et al. (1986:190).

*Micropanchax macrurus manni* Schultz, 1942:334, 336–337, pl. 36: fig. 4.

Holotype: USNM 118851 (20.3 mm). Liberia, Harbel, [65 km inland from Monrovia]; W.M. Mann, 1940. Missing.

Paratypes: USNM 118852 (4, 15.0–21.5 mm). Collected with holotype.

General Remarks: The type specimen information is from the original description. These specimens were not found during the 1980–1982 type inventory in the NMNH Divi-

sion of Fishes, and they are presumed lost. Wildekamp et al. (1986:180) erroneously reported the above holotype and paratype lot catalog numbers with the prefix AMNH.

=*Aplocheilichthys normani* Ahl, 1928. See Wildekamp et al. (1986:180).

*Procatopus nototaenia* Boulenger, 1904:20.

[Syntypes: USNM 92967 (2 undetermined, 35–36 mm)]. South Cameroon, tributary streams of Lobi River, 15 or 20 mi [24 or 32 km] SW of Efulen, reaching the sea at Batanga; G.L. Bates.

General Remarks: Additional syntypes are BMNH 1904.7.1.141–150. The collection date was not recorded.

### Subfamily POECILIINAE

*Acanthophaelus bifurcus* Eigenmann, 1909:52–53.

Cotypes [Paratypes]: USNM 66115 (3♀, 7.2–14.8 mm). British Guiana [=Guyana], Christianburg; C.H. Eigenmann; Sep–Dec 1908.

General Remarks: Two specimens originally were listed in the USNM ledger. The three specimens comprising USNM 66115 were received from CM and must have originally belonged to CM 1089 based on locality information and their sex. The holotype is FMNH 53539 (ex CM 1088; Ibarra and Stewart, 1987:4).

=*Poecilia parae* Eigenmann, 1894. See Rosen and Bailey (1963:56).

*Acanthophaelus melanzonus* Eigenmann, 1909:51–52.

Cotype [Paratype]: USNM 66113 (♀, 23.4 mm). British Guiana [=Guyana], Georgetown, trenches; C.H. Eigenmann; Sep–Dec 1908.

General Remarks: According to the NMNH ledger, this specimen was received from CM. Based on locality information and its sex, which was given in the original description, this specimen must have originally been part of CM 1087. The holotype is FMNH 52717 (ex CM 1086; Ibarra and Stewart, 1987:4).

=*Poecilia parae* Eigenmann, 1894. See Rosen and Bailey (1963:56).

*Allophallus kidderi* Hubbs, 1936:232–238, pl. 8: figs. 2, 3.

Paratypes: USNM 117503 (2♀, 1♂, 20.1–32.3 mm). Mexico, Río Champotón, Campeche, at Janateya, 7 leagues (28 km) E of Champotón, station 43; E.P. Creaser and A.S. Pearse; 9 Jul 1932.

General Remarks: These specimens originally were part of UMMZ 102206. The holotype is UMMZ 102199.

= *Carlhubsia kidderi* (Hubbs, 1936). See Rosen and Bailey (1963:115) and Whitley (1951:67).

*Belonesox belizanus maxillosus* Hubbs, 1936:228–230, pl. 7: figs. 3, 5.

Paratypes: USNM 117504 (2♀, 48.4–72.8 mm). Mexico, Yucatán, Ciénaga, 2 km S of Progreso, station 34; A.S. Pearse and C.W. Creaser; 2 Aug 1932.

General Remarks: These specimens originally were part of UMMZ 102155, which contained 17 male and female specimens. The holotype is UMMZ 102137.

= *Belonesox belizanus* Kner, 1860. See Rosen and Bailey (1963:107).

*Brachyrhaphis hartwegi* Rosen and Bailey, 1963:87–89, pl. 2: figs. 1, 41.

[Paratypes]: USNM 202174 (6♀, 1♂, 13.3–27.7 mm). Mexico, Chiapas, Soconusco District, about 6 km NNE of Escuintla, in a tributary to the Río Jalapa, at Finca Esperanza (92°36'W, 15°20'N); N. Hartweg and P. Brodtkorb; 18 Aug 1937.

General Remarks: The specimens originally were part of UMMZ 168918. The holotype is UMMZ 179539.

*Brachyrhaphis roseni* Bussing, 1988:81–87, figs. 1–4.

Paratypes: USNM 246188 (100 [35♀, 17♂, 165 immatures], 15.0–39.3 mm). Panama, [Provincia de Chiriquí], Río Chico basin, stream (215 m elev.) 6.5 km W of Concepción; H.G. Loftin et al. [E.L. Tyson and Sharp]; 2 Dec 1961.

Remarks: Bussing (1988) stated that there were 100 specimens in this lot. A note in the jar states that 15 specimens (nontypes) were exchanged to UMMZ, 20 Apr 1966. The holotype is LACM 44220-1.

Paratypes: USNM 246193 (50 [17♀, 4♂, 29 immatures], 15.6–44.1 mm). Panama [Provincia de Veraguas], Río San Pablo basin, stream (215 m elev.) 31 km W of Soná, road to Remedios; H.G. Loftin et al.; 29 Oct 1961.

Remarks: A note in the jar states that 15 specimens (nontypes) were exchanged to UMMZ, 20 Apr 1966.

Paratypes: USNM 246194 (9[♀], 29.5–40.8 mm). Panama [Provincia de Chiriquí], Río Chorcha (30 m elev.); H.G. Loftin, E.L. Tyson, and Sharp; 1 Dec 1961.

Remarks: A note in the jar states that two specimens (nontypes) were exchanged to UMMZ, 20 Apr 1966.

Paratypes: USNM 246195 (27 [8♀, 4♂, 15 immatures], 13.3–35.1 mm). Panama [Provincia de Chiriquí], Río Chiriquí Viejo basin, stream (135 m elev.) 1.5 km E of Chiriquí Viejo bridge; H.G. Loftin and E.L. Tyson; 7 Oct 1961.

Remarks: A note in the jar states that two specimens (nontypes) were exchanged to UMMZ, 20 Apr 1966.

Paratypes: USNM 246196 (24 [12♀, 4♂, 8 immatures], 12.8–37.7 mm). Panama [Provincia de Veraguas], Río Santa Maria basin, stream (300 m elev.) near Santa Fe; H.G. Loftin and E.L. Tyson; 9 Feb 1962.

Remarks: A note in the jar states that two specimens (nontypes) were exchanged to UMMZ, 20 Apr 1966.

Paratypes: USNM 246197 (27 [8♀, 5♂, 14 immatures], 18.4 [18.2]–35.1 [35.3] mm). Panama, [Provincia de Chiriquí], Río Chico basin, stream (30 m elev.) 8 km W of David [creek 5 mi W of David on Inter-American Highway]; H.G. Loftin, E.L. Tyson, and Sharp; 2 Dec 1961.

Remarks: A note in the jar states that five specimens (nontypes) were exchanged to UMMZ, 20 Apr 1966.

Paratypes: USNM 246198 (6 [2 immature ♀, 4♂], 16.0 [15.4]–23.8 [23.7] mm). Panama, [Provincia de Chiriquí], Río Chiriquí basin, [drainage] ditch (120 m elev.) at [city limits of] Gualaca; H.G. Loftin and E.L. Tyson; 16 Dec 1961.

Paratypes: USNM 246199 (2 [1 immature ♀, 1♂], 19.0 [18.8]–20.3 [20.1] mm). Panama, [Provincia de Veraguas], Río San Pedro basin, river (105 m elev.) on Soná Road [river (bridge) 12 mi (19 km) W of Santiago on Inter-American Highway]; H.G. Loftin, E.L. Tyson, and R.W. Yerger; 28 Jan 1962.

Paratypes: USNM 246802 (58 [25♀, 14♂, 19 immatures], 11.6 [11.4]–34.7 mm). Panama, [Provincia de Chiriquí], Río Chico basin, stream (135 m elev.) 19 km W of David [small creek 20 km W of David on Inter-American Highway]; H.G. Loftin et al. [E.L. Tyson and Sharp]; 2 Dec 1961.

Paratype: USNM 246804 (1[♂], 30.8 mm). Panama, [Provincia de Chiriquí], Río Chiriquí basin, stream (230 m elev.) on David-Boquete Road [creek (bridge) 11 km from David on Boquete Lima]; H.G. Loftin and E.L. Tyson; 16 Dec 1961.

Paratypes: USNM 246816 (5 [2♀, 2♂, 1 immature], 21.4–30.2 [29.9] mm). Panama, [Provincia de Veraguas], Río San Pablo basin, stream (60 m elev.) near Santiago-Soná road [creek 39 km W of Santiago on Inter-American Highway]; H.G. Loftin et al.; 28 Oct 1961.

Paratypes: USNM 246817 (4 [1♀, 2♂, 1 immature], 19.6 [19.0]–28.3 [27.8] mm). Panama, [Provincia de Veraguas], Río San Pedro basin, Río San Martín Chiquito (30 m elev.) [11 km S of Santiago on Montijo Road]; H.G. Loftin et al.; 14 Jan 1962.

Paratypes: USNM 246818 (2[♀], 34.5 [34.2]–39.0 [38.6] mm). Panama, [Provincia de Chiriquí], Río Chico basin, stream (75 m elev.) 16 km W of David [creek 16 km W of David on Inter-American Highway]; H.G. Loftin et al.; 2 Dec 1961.

Paratypes: USNM 246820 (2 [1♀, 1♂], 23.2–24.5 mm). Panama, [Provincia de Chiriquí], Río Jacaque (30 m elev.) [creek into Río Jacaque, near San Lorenzo, R. Fonseca];



- H.G. Loftin et al. [E.L. Tyson, Gale, Roquebert (sp?)]; 9 Dec 1961.
- Paratypes: USNM 246823 (2♀, 20.9–28.2 mm). Panama, [Provincia de Veraguas], Río San Pedro basin, stream (75 m elev.) on Soná road [creek 32 km W of Santiago on Inter-American Highway]; H.G. Loftin et al.; 28 Oct 1961.
- Paratypes: USNM 246825 (55 [6♀, 16♂, 33 immatures], 14.9 [15.7]–82.2 [42.5] mm). Panama, [Provincia de Veraguas], stream (105 m elev.) on road to Soná [creek 34 km W of Santiago on Inter-American Highway]; H.G. Loftin et al.; 4 Jan 1962.
- Cnesterodon brevirostratus*** Rosa and Costa, 1993:696–702, 704–706, figs. 2–9, 14B, 17.
- Paratypes: USNM 279005 [(3♀, 2♂, 10 immatures, 11.3–33.1 mm)]. Brazil, [Rio Grande do Sul], Cambará do Sul, Rio Tainhas, tributary to Rio das Antas; [L.R. Malabarba, R. Reis, and C. Lucena]; [1 May 1985].
- Remarks: This lot has the same data as MCP 10651.
- Paratypes: USNM 279180 [(11♂, 33 immatures, 9.9–25.3 mm)]. Brazil, [Rio Grande do Sul], Cambará do Sul, Rio Manoel Leão, near Auseres [tributary to Rio Pelotas of Rio Uruguai basin]; [L.R. Malabarba, R. Reis, and C. Lucena]; [2 May 1985].
- Remarks: Four (2♀, 2♂) of the 44 specimens have been cleared and counterstained. This lot has the same data as MZUSP 37699.
- Paratypes: USNM 279541 [(1♀, 2 immatures, 16.5–28.2 mm)]. Brazil, [Santa Catarina], São Joaquim, [arroyo or small stream on the São Joaquim-Lages Road], creek tributary to Rio Caveiras [Rio Pelotas of Rio Uruguai basin]; [L.R. Malabarba, R. Reis, and C. Lucena]; [3 May 1985].
- Paratypes: USNM 279542 [(10♀, 6♂, 24 immatures, 11.3–41.6 mm)]. Brazil, Rio Grande do Sul, Cambará do Sul, Parque Nacional dos Aparados da Serra, Arroio Camisa, tributary to Rio Antas; L.R. Malabarba, [R. Reis, and C. Lucena]; 1 May 1985.
- Remarks: Rosa and Costa (1993) noted that four of the 42 specimens in this lot were cleared and counterstained. Two cleared and stained specimens, in addition to 38 alcohol-preserved specimens, comprise USNM 279542. The two other cleared and stained specimens were removed, labeled *Cnesterodon* sp., and recataloged in 1990 as USNM 314034. Ten specimens were removed from USNM 279542 and deposited at MZUSP. The holotype, MZUSP 41399, was taken from this lot.
- Paratypes: [USNM 314034 (1♀, 1♂, 23.5–35 mm)].
- Remarks: These are two of the four specimens said by Rosa and Costa (1993) to have been removed from USNM 279542 and cleared and stained.
- Dactylophallus ramsdeni*** Rivas, 1944a:48–49.
- Holotype: [USNM 203152] (♂, 31 mm). Cuba, Province of Oriente, Río Guaso, at the City of Guantánamo, [station no. 18]; L.R. Rivas; 25 May 1943.
- Remarks: This specimen originally was cataloged as CLRR 73.
- Paratypes: [USNM 130217] (3♀, 2♂, 21.5–39.3 mm). Collected with holotype.
- Paratypes: [USNM 206324] (89♀, 45♂, 18.5–48.8 mm). Collected with holotype.
- General Remarks: All paratypes originally were cataloged as CLRR 74.
- =*Girardinus denticulatus* Garman, 1895. See Rosen and Bailey (1963:111).
- Gambusia alvarezi*** Hubbs and Springer, 1957:310–312, fig. 14a–d.
- Paratypes: USNM 164253 (32♀, 7♂, 14.7–35.8 mm). Mexico, Chihuahua, El Ojo de San Gregorio, [19 km ENE of Parral]; C. Hubbs and O.F. Wiegand; 31 Dec 1954.
- General Remarks: Included with the paratypes was a small cyprinid (*Notropis* sp.), which has been removed and assigned to USNM 323897. The holotype is UMMZ 168979.
- Gambusia amistadensis*** Peden, 1973:211–220, figs. 3, 5, 6, 8.
- Paratypes: USNM 205858 (45♀, 17♂, 14.1–32.3 mm). Texas, Val Verde County, near the main boil at Goodenough Spring. (29°32'10"N, 101°15'10"W), [field no. J.V.C. 322]; V. Conner and M. Zengerle; 11 Apr 1968.
- General Remarks: *Gambusia amistadensis* is thought to be extinct due to flooding following the construction of a reservoir and the loss of captive stocks (Hubbs and Jensen, 1984:529–530). The holotype is UMMZ 190407.
- Gambusia aurata*** Miller and Minckley, 1970:249–252, figs. 1, 3B.
- [Paratypes: USNM 212231] (11♀, 8♂, 14.0–26.2 mm). Mexico, Tamaulipas, about 4 km W of Highway 85 on road at south end of park on south side of Ciudad Mante, from a lateral canal flowing north off the main canal from Río Mante, [field no. M 66-31]; R.R. Miller and W.L. Minckley; 21 Dec 1966.
- General Remarks: These specimens originally were part of UMMZ 186498 and were referred to as paratopotypes. The holotype is UMMZ 188736.
- Gambusia baracoana*** Rivas, 1944a:46–47.
- Holotype: USNM 203150 (♂, 28 [27] mm). Cuba, Province of Oriente, in the vicinity of the city of Baracoa, in a small freshwater pond near the mouth of Río Miel, [station no. 31]; L.R. Rivas; 29 Dec 1943.
- Remarks: The holotype originally was cataloged as CLRR 134. Rauchenberger (1989b:365) listed this species as having uncertain status.

Paratypes: USNM 130214 (3♀, 3♂, 20.1–29.1 mm). Collected with holotype.

Remarks: The specimens originally were cataloged as CLRR 135.

Paratypes: USNM 204442 (359♀, 139♂, 41 immatures, 7.7–33.5 mm). Collected with holotype.

General Remarks: One male and one female specimen have been cleared and stained; the location of these specimens is unknown as of 1985. Four additional specimens (2♀, 2♂) were exchanged to GCRL in May 1971.

*Gambusia beebei* Myers, 1935:305–310, figs. 273–275.

[Neotype]: USNM 203161 (♂, 32.2 [27.4] mm). Haiti, Département du Sud, in the southwestern peninsula, southwest end of Lake Miragoâne. L.R. Rivas and L. Bonnefil; 12 Apr 1951.

Remarks: The location of the holotype, originally Department of Tropical Research, New York Zoological Society 7168, is unknown (Rosen and Bailey, 1963:101). Rivas (1969:782) designated the above male specimen from USNM 203162 as neotype.

*Gambusia bonita* Meek, 1904:132–133, fig. 39.

[Paratypes: USNM 94299 (1♀, 1♂, 25.5–39.6 mm)]. Mexico, Vera Cruz, upper tributaries of the Río Papaloapam, Refugio; S.E. Meek, Feb–Mar 1903.

General Remarks: Both specimens originally were cataloged as FMNH 4631. Meek designated a 2.5 inch (SL or TL was not specified) specimen as type (=holotype, FMNH 4630). Ibarra and Stewart (1987:37) stated that FMNH 4630 has two specimens, both smaller than the published length of the holotype, and they concluded that both specimens may be paratypes and the holotype either is lost or is mixed with a paratype lot. Another possibility is that Ibarra and Stewart measured the SL, not the TL, of the specimens, and, thus, one of the FMNH 4630 specimens is the holotype.

=*Priapella bonita* (Meek, 1904). See Rosen and Bailey (1963:60–61).

*Gambusia bucheri* Rivas, 1944a:42–44.

Holotype: [USNM 203149] (♂, 30.5 [29.6] mm). Cuba, Province of Oriente, in the Río Jicotea of the [Río] Moa system, at the bridge of the road between Aserrio de Moa and Punta Gorda; L.R. Rivas; 26 Dec 1943.

Remarks: The holotype originally was cataloged as CLRR 132.

Paratypes: [USNM 130213] (4♀, 2♂, 21.2–35.5 mm). Collected with holotype.

Remarks: These specimens originally were cataloged as CLRR 133.

Paratypes: [USNM 204443] (292♀, 100♂, 12.0–42.2 mm). Collected with holotype.

Remarks: These specimens originally were cataloged as CLRR 133 or MFP 455. One female and one male have been cleared and stained.

*Gambusia cana* Meek and Hildebrand, 1913:87–88.

[Paratypes: USNM 78859] (33♀, 1♂, 16.2–31.7 mm). Panama, [Darién], Cana, Río Satiganti; S.E. Meek and S.F. Hildebrand; [1 Mar 1912].

General Remarks: A note in the jar identifies these specimens as the paratypes of *Priapichthys tridenteger* [=tridentiger] *cana* Meek and Hildebrand, 1916, which, according to Rosen and Bailey (1963:128), is a synonym of *G. cana* Meek and Hildebrand, 1913. The holotype is FMNH 7596.

=*Neoheterandria cana* (Meek and Hildebrand, 1913). See Rosen and Bailey (1963:128).

*Gambusia cascajalensis* Meek and Hildebrand, 1913:86.

[Paratypes: USNM 78767 (19♀, 5♂, 16.3–57.5 mm)]. Panama, Porto Bello, Río Cascajal; S.E. Meek and S.F. Hildebrand; [17 Mar 1912].

[Paratypes: USNM 78768 (10♀, 32.4–47.9 mm)]. Panama, Porto Bello, Río Cascajal; S.E. Meek and S.F. Hildebrand; 25 Apr 1911.

General Remarks: Meek and Hildebrand specifically cited only one type (=holotype, FMNH 7594), but multiple specimens were used in the original description. Although 99 specimens were entered as paratypes in the USNM ledger, only those specimens collected at the type locality are treated as paratypes.

=*Brachyrhaphis cascajalensis* (Meek and Hildebrand, 1913). See Rosen and Bailey (1963:90).

*Gambusia darienensis* Meek and Hildebrand, 1913:88.

[Paratypes: USNM 78857 (8♀, 2♂, 17.2–27.4 mm)]. Panama, [Darién], Río Capeti; S.E. Meek and S.F. Hildebrand; [5 Mar 1912].

General Remarks: Meek and Hildebrand specifically cited only one type (=holotype, FMNH 7597), but multiple specimens were used in the original description. Although 45 specimens were listed as paratypes in the USNM ledger, only those specimens collected at the type locality are treated as paratypes.

=*Diphyacantha darienensis* (Meek and Hildebrand, 1913). See Meyer and Etzel (1996:3).

*Gambusia eurystoma* Miller, 1975:19–27, figs. 5–7, table 3.

[Paratypes: USNM 211263 (20♀, 10♂, 16.1–33.8 mm)]. Mexico, Arroyo del Azufre at Baños de Azufre, 10 km W of Teapa, Tabasco (17°34'N, 93°01'W, [elev. 150 m]); R.R. Miller and R.J. Schultz; 15 Feb 1959.

General Remarks: These specimens originally were part of UMMZ 184717 and were referred to as paratopotypes. The holotype is UMMZ 197600.

*Gambusia fasciata* Meek, 1904:129–130, fig. 37.

[Paratypes: USNM 55774 (1♀?, 1♂, 35.8–38.5 mm)]. Mexico, San Geronimo, Pacific slope streams of the Isthmus of Tehuantepec, Oaxaca; S.E. Meek; Mar–May 1903.

General Remarks: Meek specifically cited only one type (= holotype, FMNH 4715), but multiple specimens were used in the original description. Those additional specimens, which were collected at the type locality, are treated as paratypes.

=*Poeciliopsis fasciata* (Meek, 1904). See Rosen and Bailey (1963:138).

*Gambusia gaigei* Hubbs, 1929:3–11.

Paratypes: [USNM 117534] (1♀, 2♂, 19.2–24.3 mm). Texas, Brewster County, Boquillas, a marshy cattail slough fed by springs, located close to the Rio Grande; F.M. Gaige; 3 Aug 1928.

General Remarks: These specimens originally were part of UMMZ 84528. The holotype is UMMZ 84527.

*Gambusia gracilis* Girard, 1859b:121.

[?Syntypes: USNM 3506 (7)]. [Mexico], Matamoras [Matamoras], [Tamaulipas]; L. Berlandier. Missing.

General Remarks: Böhlke (1984:143) listed syntypes of *Gambusia gracilis* as ANSP 6973 and USNM 3506, from the collection of Louis Berlandier. Eschmeyer (1998:666) additionally listed MCZ 1309 and MNHN (ex. USNM 3506). USNM 3506 could not be located during the preparation of this or any previous type listing. The specimens had never been separated from the main collection and stored in the type collection.

=*Gambusia affinis* (Baird and Girard, 1853). See Rosen and Bailey (1963:95).

*Gambusia heterochir* Hubbs, 1957:3–16, figs. 1, 3A, 4, 5A.

Paratypes: USNM 164573 (4♀, 3♂, 21.1–33.0 mm). Texas, Menard County, 10.4 mi [16.8 km] W of Menard, from the headspring of Clear Creek; C. Hubbs, W.G. Craig, T. Dobzhansky, A.E. Ellington, Sr., J.D. French, M.K. Muston, K. Strawn, and J.E. Tilton; 20 Feb 1956.

General Remarks: The holotype is UMMZ 170936.

*Gambusia hispaniolae* Fink, 1971a:57–61, fig. 4.

Holotype: USNM 204865 (♂, 24.4 mm). Haiti, Source Trou-Caiman, Cul-de-Sac Plain, Dept. de l'Ouest; L.R. Rivas, L. Bonnefil, and S.Y. Lin; 7 Apr 1951.

Allotype [Paratype]: USNM 204866 (♀, 37.5 mm). Collected with holotype.

Paratypes: USNM 204867 (199♀, 110♂, 57 immatures, 13.5–50.3 mm). Collected with holotype.

*Gambusia holbrooki* Girard, 1859a:61–62.

[Syntypes: USNM 8301] (45♀, 24.5–35.2 mm). South Carolina, Charleston; C. Girard.

General Remarks: The collection date was not recorded. Additional syntypes are ANSP 6976, 6977 (Böhlke, 1984), and MCZ 35999 (ex. USNM 8301).

*Gambusia howelli* Rivas, 1944a:44–46.

Paratypes: [USNM 130212] (8♀, 6♂, 20.6–44.6 mm). Cuba, Isle of Pines [=Isla de la Juventud], in a brackish water lagoon near Punta del Este; L.H. Rivero; 21 Aug 1939.

General Remarks: Twelve specimens, presumably just the alcohol specimens, were listed previously in the USNM ledger. One female and one male specimen have been cleared and stained, and they are stored separately in glycerin. All specimens originally were cataloged as MFP 253–258 and/or CLRR 4. The holotype is MFP 454.

=*Gambusia puncticulata* Poey, 1854. See Fink (1971b:18).

*Gambusia hurtadoi* Hubbs and Springer, 1957:307–310, fig. 13a–d.

Paratypes: USNM 164252 (49♀, 12♂, 12.3–31.1 mm). Mexico, Chihuahua, 7 mi [11.3 km] S of Jimenez, El Ojo de la Hacienda Dolores; C. Hubbs and O.F. Wiegand; 31 Dec 1954.

General Remarks: Fifty-nine specimens were previously listed in the USNM ledger. The holotype is UMMZ 168975.

*Gambusia infans* Woolman, 1894:62, pl. 2: fig. 3.

[Lectotype: USNM 45570 (♀, 29.3 mm)]. Mexico, [Salamanca]; A.J. Woolman, J.T. Scovell, and U.O. Cox; summer 1891.

[Paralectotypes: USNM 47508 (2♀?, 19.4–22.9 mm)]. Mexico, [Salamanca]; A.J. Woolman, J.T. Scovell, and U.O. Cox; [Aug] summer of 1891.

[Paralectotypes: USNM 125036 (2♂?, 19.0–19.2 mm)]. Mexico, [Salamanca]; A.J. Woolman, J.T. Scovell, and U.O. Cox; [Aug] summer of 1891.

General Remarks: All five specimens in the type series were originally treated as syntypes, even though only three specimens were listed in the USNM ledger. USNM 45570 was later designated the type (= lectotype) by Jordan and Evermann (1896:680). Consequently, the other four syntypes are paralectotypes. Jordan and Evermann (1896:680) stated that the type series of *G. infans* contains only males (see also Rosen and Bailey, 1963:137); however, the lectotype is a female, and Woolman (1894, plate 2) illustrated a female. We cannot determine if that illustration is of the lectotype.

=*Poeciliopsis infans* (Woolman, 1894). See Rosen and Bailey (1963:137).

*Gambusia latipunctata* Meek and Hildebrand, 1913:87.

[Paratypes: USNM 78780 (8♀?, 8 immatures?, 23.0–42.0 mm)]. Panama, Arrijan; S.E. Meek and S.F. Hildebrand; 18 Feb 1911.



**General Remarks:** These specimens were erroneously cataloged in the USNM ledger as paratypes of *Gambusia episcopi*. A label in the jar reads "*Gambusia latipunctata* Cotypes." The stated locality and collectors are the same as those listed by Rosen and Bailey (1963:89) for the holotype of *G. latipunctata*, CNHM (= FMNH) 7595. Meek and Hildebrand (1913:87) cited only a type (= holotype), but they based their description on more than one specimen.  
= *Brachyrhaphis episcopi* (Steindachner, 1878). See Rosen and Bailey (1963:89).

***Gambusia luma*** Rosen and Bailey, 1963:99–101, figs. 40B, 42; pl. 2: fig. 3.

**Paratypes:** USNM 114276 (11 immatures, 23.5 [12.7]–30 [30.5] mm). Guatemala, Río Sauce, about 2 mi [3.2 km] SW of El Estor, at mouth in Lago de Izabal; R.R. Miller, [A.D. Holloway, and J. Midence]; 27 [26] Apr 1947.

**Paratypes:** USNM 114321 (7♀, 4♂, 13 immatures, 16 [11.4]–28.5 [28.7] mm). Guatemala and British Honduras [= Belize], Río Sarstún, [at junction with Río Chacón about 2.4 km above Cadenas], about 20 mi [32 km] above mouth; R.R. Miller [and A.D. Holloway]; 29–30 Apr 1947.

**Paratypes:** USNM 114343 (6♀, 6♂, 3 immatures, 17.0–34 [35.2] mm). Guatemala, [below Cadenas], Jicotea Creek, [about 0.4 km above mouth in Río Sarstún], tributary to Río Sarstún, [about 29 km from mouth of Río Sarstún]; R.R. Miller, [A.D. Holloway, and J. Midence]; 30 Apr 1947.

**Paratypes:** USNM 134587 (6♀, 3♂, 20–38.5 mm). Guatemala, Río Dulce at San Felipe [between Lago de Izabal and the Solfete]; R.R. Miller and J. Mendizabal; 5 Apr 1946.

**Paratypes:** USNM 134588 (1♀, 2♂, 25.5–34.5 mm). Guatemala, Lago de Izabal, [near] northeast corner; R.R. Miller [and J. Mendizabal]; 6 Apr 1946.

**Paratypes:** USNM 134589 (1♀, 1♂, 27–30.5 mm). Guatemala, tributary to Lago de Izabal at [near] northeast end; R.R. Miller [and J. Mendizabal]; 6 Apr 1946.

**Paratypes:** USNM 134590 (3♀, 31–33 mm). Guatemala, Lago de Izabal at [El] Paraiso, [and in small tributary about midway on north shore]; R.R. Miller [and A.D. Holloway]; 7 Apr 1946.

**Paratypes:** USNM 134592 (2♀, 1♂, 26–35 mm). Guatemala, Río Polochic [at] Panzos [Panzós], [tributary of Lago de Izabal]; R.R. Miller; 30 Apr 1946.

**Paratypes:** USNM 197518 (4♀, 1♂, 24 [24.4]–30 mm). Guatemala, Lago de Izabal, [in bay just SW of main mouth of the Río Polochic, west end of Lago de Izabal], at Río Polochic; R.R. Miller [and A.D. Holloway]; 7–8 Apr 1946.

**Remarks:** The five specimens in USNM 197518 were removed on 27 Mar 1963 from USNM 134591, which is the catalog number listed in Rosen and Bailey (1963:99), and that number was retained for a specimen of *Gambu-*

*sia nicaraguensis* for reasons unknown to us. The holotype is UMMZ 143565.

***Gambusia manni*** Hubbs, 1927:61–66.

**Paratypes:** USNM [88500] (2[♀ ?], 18.3–21.4 mm). Bahama Islands, New Providence, in a freshwater lake [pond]; S. Howies; 18 Mar 1927.

**General Remarks:** A note in the jar states that the specimens were collected in a pond, which we interpret to be one of the two freshwater lakes on New Providence. The holotype is UMMZ 72183.

***Gambusia nicaraguensis*** Günther, 1866:336–337.

[Syntype: USNM 151461 (♀, 33.2 mm)]. Nicaragua, Lake of Nicaragua [Lago Nicaragua]; Captain Dow.

**General Remarks:** The collection date was not recorded. The specimens are doubtfully from Lake Nicaragua, but they may be from a Nicaraguan Atlantic coastal stream (Rivas, 1963). Fink (1971a:54) listed additional syntypes as BMNH 1952.12.31.1-5.

***Gambusia nicaraguensis sexradiatus*** Hubbs, 1936:225–226.

**Paratypes:** [USNM 117537 (1♀, 1♂, 22.9–27.6 mm). Mexico, Oaxaca, Río Papaloapan, at Papaloapan; Gordon, Ross, Whetzel; 1 Apr 1932].

**General Remarks:** The specimens were removed from UMMZ 108570. The holotype is UMMZ 102989.

= *Gambusia sexradiata* Hubbs, 1936. See Rosen and Bailey (1963:98–99).

***Gambusia nigroventralis*** Eigenmann and Henn in Eigenmann, 1912:26–27.

**Paratype:** [USNM 79205 (1 immature, 15.5 mm)]. Colombia, [Istmina]; 1912.

**General Remarks:** This paratype is from either CM 4836 or IU 12689, the two paratype lots listed in the original description. The holotype is FMNH 56045 (ex CM 4835; Ibarra and Stewart, 1987:37).

= *Alloheterandria nigroventralis* (Eigenmann and Henn in Eigenmann, 1912). See Meyer and Etzel (1996:3).

***Gambusia oligosticta*** Regan, 1913:988–989, fig. 169B, pl. 99: figs. 1, 2.

[Syntypes: USNM 151460 (1♀, 1♂, 19.7–28.8 mm). Jamaica; C.A. Wray; 16 Aug 1905].

**General Remarks:** Additional syntypes are BMNH 1897.7.1.17–19 and BMNH 1905.8.16.3–12.

= *Gambusia puncticulata* Poey, 1854. See Fink (1971b:17).

***Gambusia pseudopunctata*** Rivas, 1969:784–786, figs. 1B,C, 3B, 5.

**Holotype:** USNM 203163 (♀, 31.3 [32.3] mm). Haiti, Département du Sud, 15 km E of Jérémie, spring at Roseaux,

off the road from Les Cayes to Jérémie; L.R. Rivas, L. Bonnefil, and S.Y. Lin; 13 Apr 1951.

Paratypes: USNM 203164 (48 [36]♀, 25 [17]♂, 52 [43] immatures, 17 [18.1]–55 mm). Collected with holotype.

Remarks: Twenty-nine of the original 125 specimens in USNM 203164 have been removed and exchanged to other institutions: four specimens (2♀, 2♂) were sent to GCRL and 25 specimens (10♀, 5♂, 10 immatures) were sent to UMMZ.

*Gambusia punctata* Poey, 1854:376, 380, 384, 385, 390, pl. 32: figs. 5–9.

[Neotype: USNM 203165 (1♂, 35.5 mm). Cuba, City of Havana, fountain at the Jardín Botánico (Botanical Garden); L.R. Rivas; 22 Aug 1943.]

[?Syntypes: USNM 4867 (6♀, 3♂, 29.8–62.4 mm)]. Cuba, Havana, drainage ditch in the City of Havana; [F. Poey].

[?Syntypes: USNM 120411 (2♀, 1♂, 41.8–53.6 mm). Collected with USNM 4867.]

General Remarks: Rosen and Bailey (1963:101) listed Poey's syntypes as MCZ 6393, 6394, 6424, USNM 4867, 120411, and ANSP 9678 (=6978, see Böhlke, 1984:144). Rivas (1969:788) argued that these are not syntypes, and he designated a neotype (USNM 203165) and a so-called neoparatype (USNM 203166), which has no type status. We maintain the above USNM specimens collected by Poey as putative syntypes. Poey's (1854:384) description was based on a male (53 mm TL) and a female (80 mm TL), and the two may be mixed in with one or two of the above lots. USNM 4867 and 120411 contain specimens of the proper size, and they are held as putative syntypes. The collection date of these putative syntypes was not recorded. In the future, should some or all of the specimens be judged to be part of the type series, recognition of the neotype or the syntypes as the name-bearing type(s) will require a decision by the ICZN (Article 75h). Böhlke (1984:144) listed USNM 655 as a syntypic lot of *Gambusia punctata*. USNM 655 could not be located during the preparation of this or any previous type listing; however, one lot of *Gambusia punctata*, MCZ 1409 (♂, 30 mm SL), was formerly USNM 655 (K. Hartel, pers. comm., 1997). That male specimen is well below the size of Poey's male syntype (53 mm TL); therefore, it is not considered a type.

*Gambusia puncticulata* Poey, 1854:381, 386, 390, pl. 31: figs. 6, 7.

[Paralectotypes: USNM 120259 (4♀, 2♂, 22.5–41.8 mm)]. Cuba, Havana; F. Poey.

General Remarks: These specimens were removed from MCZ 6401. Fink (1971b:18) designated a male, 24.3 mm SL (MCZ 46568, ex. MCZ 6402) as the lectotype and listed three former syntypic lots, now paralectotypes (MCZ 6391, 6397, 6401). The collection date was not recorded.

*Gambusia puncticulata monticola* Rivas, 1971:5–9, fig. 1.

Holotype: USNM 203913 (♂, 29.0 mm). Cuba, Province of Oriente, Municipality of Bayamo, Río Yao, a left tributary of Río Cauto, 15 km upstream from Bueycito; L.R. Rivas; 29 Dec 1942.

Paratypes: USNM 203914 (2♀, 3♂, 1 immature, 17.8–31.0 mm). Collected with holotype.

=*Gambusia monticola* Rivas, 1971. See Rauchenberger (1989b:365).

*Gambusia rhizophorae* Rivas, 1969:786, 791–794, figs. 2C,D, 3D, 5.

Holotype: USNM 203223 (♂, 36.0 mm). Florida, Dade Co., Miami, in a mangrove swamp at Matheson Hammock, southwestern shore of Biscayne Bay; L.R. Rivas; 20 Jan 1948.

Paratypes: USNM 203224 (13 [12]♀, 9♂, 4 immatures, 19.0–41.0 mm). Collected with holotype.

Remarks: One adult female is missing from this lot.

Paratypes: [USNM 205493] (14 [12]♀, 13 [11]♂, 31 [32] immatures, 16.0–39.5 mm). Florida, Dade Co., Miami, in a mangrove swamp at Tahiti Beach, southwestern shore of Biscayne Bay; B. Bell; 16 Jan 1962.

Remarks: Rivas (1969:792) mistakenly listed these specimens as USNM 203233. The specimen count should have totaled 59 individuals, rather than 58. Four of the original 59 specimens (2♀, 2♂) were removed and exchanged to GCRL. A label in the jar reads "UMIM 4792."

*Gambusia tridentiger* Garman, 1895:89–90, pl. 4: fig. 10.

[Syntypes: USNM 120260 (3♀, 19.1–24.0 mm)]. Isthmus of Panama, fresh waters; [Hassler Expedition; Jul 1872].

General Remarks: These specimens are out of syntypic lot MCZ 6389. Additional syntypes are in MCZ 100253.

=*Neoheterandria tridentiger* (Garman, 1895). See Rosen and Bailey (1963:128).

*Gambusia turrubarensis* Meek, 1912:71.

[Paratypes: USNM 74242 (8♀, 32.8–46.5 mm)]. Costa Rica, Turrubares [San José], [Río Turrubares]; S.E. Meek; [22 Apr 1912].

General Remarks: The holotype is FMNH 7676.

=*Poeciliopsis turrubarensis* (Meek, 1912). See Rosen and Bailey (1963:136).

*Gambusia xanthosoma* Greenfield, 1983:457–464, figs. 1–3, tables 1–5.

Paratypes: USNM 236058 (1♀, 1♂, 33.0–33.4 mm). British West Indies, Grand Cayman Island, mosquito control ditch (Herringbone system 25) constructed through mangroves along a road opposite the Teraquin Manor at West Bay; D.W. Greenfield and T.A. Greenfield; 25 Nov 1980.

General Remarks: The holotype is FMNH 94188.

***Girardinus denticulatus*** Garman, 1895:47.

[Syntypes: USNM 120265 (2♀, 1♂, 31.5–52.8 mm)]. Cuba, Remedios; [J.M. Aviles; 1859].

Remarks: These specimens were removed from MCZ 1412A (now MCZ 100255). Rosen and Bailey (1963:111) listed MCZ 1412 as syntypes. A note written by L.R. Rivas, Aug 1949, and placed in the jar states that these specimens were collected in Remedios, Province of Santa Clara, by J.M. Aviles in 1859. Rivas reidentified the specimens as *Girardinus metallicus* Poey, 1854, and stated that they are not types of that species. Additional syntypes are in MCZ 36037.

[Syntype: USNM 206325 (1♀, 43 mm)]. Cuba, Remedios; [J.M. Aviles]; [1859].

Remarks: This specimen was removed from MCZ 1412A and was cataloged as CLRR 152. The CLRR label states that Remedios is in the province of Las Villas, the capital of which is Santa Clara.

***Girardinus garmani*** Eigenmann, 1903:226, fig. 5.

Cotype [Paratype: USNM 126671 (1♂, 26.9 mm)]. Cuba, Pinar del Río; C.H. Eigenmann; Mar 1902.

General Remarks: Eigenmann (1903:226) listed a male type [= holotype], IU 9661 (now MCZ 32780, ♂, 28 mm SL, 34.5 mm TL), and two male cotypes [= paratypes]. One paratype from Pinar del Río, Cuba, was recorded as 35 mm long, which agrees with USNM 126671.

***Girardinus metallicus*** Poey, 1854:387, 391, pl. 31: figs. 8–11.

[?Syntypes: USNM 120263 (4♀, 36.1–65.2 mm)]. Cuba, La Habana Province, Jardín Botánico; F. Poey.

[?Syntypes: USNM 652 (7)]. Cuba; F. Poey. Missing.

General Remarks: Specimens in USNM 120263 were removed from MCZ 6407. Poey's (1854:387) description was based on a male (40 mm TL) and a female (65 mm TL), which may be mixed with one or two of the above lots. USNM 120263 contains specimens of the proper size and is held as a putative syntypic lot. USNM 652 could not be located during the preparation of this or any previous type listing. The specimens had never been separated from the main collection and identified as types. An additional syntypic lot, ANSP 6971 (Böhlke, 1984:144), was listed in Rosen and Bailey (1963:112) as ANSP 6871. The collection date was not recorded.

***Girardinus microdactylus*** Rivas, 1944a:51–53.

Holotype: [USNM 203154] (♂, 33 mm). Cuba, Province of Pinar del Río, in a spring-fed creek, tributary to Río Taco Taco, of the San Cristóbal system, at Jardín de Blain, NW of Santa Cruz de los Pinos; L.R. Rivas; 10 Oct 1940.

Paratypes: [USNM 130216 (6♀, 4♂, 27.5–55.4 mm)]. Collected with holotype.

Paratypes: [USNM 206322 (55♀, 50♂, 21 immatures, 23.3–61.4 mm). Cuba, Arroyo del Jardín de Blain, Pinar del Río, Aspiro]; L.R. Rivas; 10 Oct 1940.

Remarks: A handwritten label in the jar gives an abbreviated version of the collection locality from the original description, but it also adds a place name, Aspiro, that was not mentioned in the original description.

Paratypes: [USNM 206323 (24♀, 12♂, 5 immatures, 25.9–51.6 mm)]. Collected with holotype.

General Remarks: The holotype originally was cataloged as CLRR 110. The original description states that the paratypes were cataloged as CLRR 9 and UHFP (= MFP) 280. USNM 130216 and 206323 originally were CLRR 9; we cannot verify that USNM 206322 was originally part of MFP 280.

***Girardinus pygmaeus*** Rivas, 1944a:49–51.

Holotype: [USNM 203153] (♂, 27.5 mm). Cuba, Province of Matanzas, Río Negro, Hatiguanico system (Ciénaga de Zapata), at Los Cristales; L.R. Rivas; 25 Feb 1941.

Remarks: This specimen originally was cataloged as CLRR 128.

Paratypes: [USNM 130215 (1♀, 1♂, 2 immatures, 19.2–31.9 mm)]. Collected with holotype.

Remarks: These paratypes originally were cataloged as CLRR 47.

Paratypes: [USNM 205458 (79♀, 105♂, 14.5–35.1 mm)]. Collected with holotype.

Remarks: These paratypes originally were cataloged as CLRR 47.

=*Girardinus metallicus* Poey, 1854. See Rosen and Bailey (1963:112).

***Girardinus uninotatus*** Poey, 1860:309.

[?Syntypes: USNM 120264 (4♀, 2♂, 23.4–40 mm)]. Cuba, [Pinar del Río Province], Río Taco Taco, near Santa Cruz, more than 20 leagues [=80 km] W of Havana. F. Poey [and J.M. Aviles?].

General Remarks: The label in the jar states, "Cuba, 1861," which is probably the year the specimens were received. Furthermore, Poey (1860:309) stated that he first received specimens from a friend who practiced science at the foot of Mt. Rangel and that he later received additional specimens from a Dr. Gundlach. These specimens were removed from MCZ 6406, a lot that is noted in the MCZ database as "Not Types" because it may be a mixed lot with mixed collectors. Additional putative syntypes are cataloged as MCZ 6243. We maintain USNM 120264 as a putative syntypic lot because Poey's syntypes (1♂, 50 mm TL, and 1♀, 95 mm TL) may be mixed with the specimens in any of these putative syntypic lots. The species name is spelled *uninotatus* at the beginning of the description (p. 309). This is viewed as a misprint as it is

spelled *uninotatus* elsewhere in the text (p. 383 and p. 432).

***Glaridichthys atherinoides*** Rivas, 1944b:3–7, figs. 2A,B, 3B.  
Holotype: [USNM 203155] (♂, 24.8 mm). Cuba, Province of Camagüey, Arroyo Blanco, a warm spring in the vicinity of Mabuya; L.R. Rivas; 20 Dec 1943.  
General Remarks: This specimen originally was cataloged as CLRR 130.  
= *Girardinus falcatus* (Eigenmann, 1903). See Rosen and Bailey (1963:111).

***Glaridichthys falcatus*** Eigenmann, 1903:224–225, figs. 2, 3.  
Cotype [Paratype]: [USNM 55692 (♀, 40.1 mm)]. Cuba, Pinar del Río Province, Río Los Palacios, Los Palacios; C.H. Eigenmann.

Remarks: This specimen originally was cataloged as CLRR 197. The collection date was not recorded.

Cotype [Paratype]: [USNM 55704 (♀, 36.0 mm)]. Cuba, Pinar del Río; C.H. Eigenmann; Mar 1902.

Cotype [Paratype]: [USNM 126673 (♀, 67.2 mm)]. Cuba, San Cristobal; C.H. Eigenmann; Mar 1902.

Remarks: According to a note in the jar, L.R. Rivas identified this specimen, originally cataloged as United States Bureau of Fisheries 1402, as the holotype, Jul 1944. The holotype, however, is CAS 22548 (ex. IU 9664).

Cotype [Paratype]: [USNM 130035 (♀, 60.6 mm)]. Cuba, San Cristobal; C.H. Eigenmann; Mar 1902.

Remarks: This specimen was removed from USNM 126673.

Cotype [Paratype]: [USNM 130036 (♂, 22.0 mm)]. Cuba, Pinar del Río; C.H. Eigenmann; Mar 1902.

Remarks: This specimen was removed from USNM 126673. A note in the jar, signed Luis René Rivas, July 1944, stated that it was from Pinar del Río, not San Cristobal. We presume that Rivas made this determination based in part on Eigenmann's (1903:224) statement that he collected the only male cotypes [= paratypes] at Río del Pinar [Pinar del Río].

= *Girardinus falcatus* (Eigenmann, 1903). See Rosen and Bailey (1963:111).

***Heterandria anzuetoi*** Rosen and Bailey in Rosen, 1979: 324–328, figs. 5B,C, 6M–S, 11, 17, 21G–J, 24, 25.

Paratypes: USNM 73972 (4♀, 1♂, 25–41 mm). Guatemala, Zacapa, Río Motagua drainage, irrigation ditch W of Gualán; [N. Miller], [13 Jan 1905].

Paratypes: USNM 114517 (14♀, 7♂, 20 immatures, 13–61 mm). Guatemala, Chiquimiula, Río Lempa drainage, Río Atulapa, [tributary of Río Lecupo], Esquipulas; [R.R. Miller, A.D. Holloway, and J. Midence]; [9 May 1947].

Paratypes: USNM 114529 (4♀, 5 immatures, 19–51 mm). Guatemala, Zacapa, Río Motagua drainage, Río Mora-

zan, [near Morazan, WNW of El Rancho]; [R.R. Miller, J. Midence, and A.D. Holloway]; [8 May 1947].

Paratypes: USNM 134583 (9♀, 11♂, 24 immatures, 12–53 mm). Guatemala, Zacapa, Río Motagua drainage, Riachuelo near Teculután; [R.R. Miller et al.]; [27 Apr 1946].

Paratypes: USNM 134584 (2♀, 2♂, 29–34 mm). Guatemala, Río Hato [Lato] W of San Agustín Acasaguastlán [E of El Rancho]; [R.R. Miller and J. Midence]; [28 Apr 1946].

General Remarks: The holotype is AMNH 36319.

***Heterandria cubensis*** Eigenmann, 1903:227–228, fig. 8.

Cotype [Paratype]: [USNM 126675 (♀, 40.6 mm)]. Cuba, Los Palacios; C.H. Eigenmann; Mar 1902.

General Remarks: Eigenmann (1903:227) noted that the female cotype (= paratype) from Los Palacios was 53 mm, presumably TL, which is close to our measurement of 51 mm TL. The holotype is MCZ 32958 (ex. IU 9663); Rodriguez et al. (1992:477) erroneously listed the holotype as USNM 32958.

= *Girardinus cubensis* (Eigenmann, 1903). See Rosen and Bailey (1963:111).

***Heterandria litoperas*** Rosen and Bailey in Rosen, 1979: 320–321, figs. 4, 6, 9, 15, 21, 24.

Paratypes: USNM 114258 (2♀, [1♂], 22–45 mm). Guatemala, Río Polochic system, Alta Verapaz, tributary to Río Polochic, 14 mi [23 km] W of Panzos; [J. Midence, R.R. Miller, and A.D. Holloway]; [4 May 1947].

Paratypes: USNM 134585 (38 [4♀, 4♂, 30 immatures], 10 [9.6]–70 [72.5] mm) Guatemala, Río Polochic system, Alta Verapaz, spring-fed creek into large tributary to Río Polochic, about 4 km W of Panzos; [R.R. Miller and J. Midence]; [30 Apr 1946].

Paratypes: USNM 134586 (154 [152: 19♀, 18♂, 115 immatures], 11.5 [11.1]–51 [52] mm). Guatemala, Río Polochic system, Alta Verapaz, tributary to Río Polochic, about 6 km W of Pancajché; [R.R. Miller and J. Midence]; [1 May 1946].

Remarks: Rosen and Bailey in Rosen (1979:321) stated that there were 154 specimens in this lot; we counted a total of 152.

General Remarks: The holotype is AMNH 36328.

***Heterandria lutzi*** Meek, 1902:106, pl. 20: lower figure.

[Paratypes: USNM 126184 (2♀, 1♂, 26.0–40.8 mm)]. Mexico, Oaxaca, Río Quiotepec at Cuicatlán; F.E. Lutz and S.E. Meek; 5 May 1901.

Remarks: R.R. Miller placed a note (dated Sep 1973) in the jar stating that these specimens are probably paratypes because more than one specimen, the type (= holotype, FMNH 3718), was mentioned in the original description.

= *Poeciliopsis gracilis* (Heckel, 1848). See Rosen and Bailey (1963:136).

***Heterandria minor*** Garman, 1895:92, pl. 4: fig. 8.

[Syntypes: USNM 120268 (2♀, 2♂, 2 immatures, 10.6–19.5 mm)]. Brazil, [Mato Grosso], Villa Bella [= Villa Bela Santíssima Trindade]; 1866.

Remarks: The collector's name was not recorded. These specimens were removed from MCZ 6254. Additional syntypes are cataloged MCZ 6294.

=*Poecilia minor* (Garman, 1895). See Rosen and Bailey (1963:58).

***Hubbsichthys lauræ*** Schultz, 1949:96, fig. 13.

Holotype: USNM 120999 (♀, 13 mm). Venezuela: Trujillo, near Pampán (probably R. Motatán drainage).

General Remarks: This taxon, is known solely by the female holotype. Parenti (1981:345) believed that the species is congeneric with *Poecilia* and is most likely *Poecilia caucana* (Steindachner, 1880). R.M. Bailey (in Eschmeyer, 1990:190) considered placement of the taxon uncertain.

***Limia arnoldi*** Regan, 1913:1016, pl. 101: fig. 5.

[Syntype: USNM 151462 (♀, 30.4 mm)]. Haiti, Miragoâne; J.P. Arnold; [1912].

General Remarks: This specimen originally was cataloged as BMNH 1912.9.4.21. Additional syntypes are cataloged BMNH 1912.2.9.15–20 and BMNH 1912.8.30.2–3.

=*Poecilia nigrofasciata* (Regan, 1913). See Rosen and Bailey (1963:59).

***Limia caudofasciata*** Regan, 1913:1017, pl. 101: fig. 6.

[Syntype: USNM 151463 (♀, 31.5 mm)]. Jamaica; C.A. Wray; [1905].

General Remarks: This specimen originally was cataloged as BMNH 1905.8.16.22. Additional syntypes are cataloged BMNH 1905.8.16.13–21.

=*Poecilia caudofasciata* (Regan, 1913). See Rosen and Bailey (1963:60).

***Limia caymanensis*** Rivas and Fink, 1970:270–273, fig. 1.

Holotype: USNM 203511 (♂, 28.2 mm). British West Indies, Grand Cayman Island, in a coastal lagoon [off main North Island Road], 2 mi [3.3 km] W of Old Man Bay; L.R. Rivas [and E. Lack]; 28 Mar 1959.

Remarks: The holotype originally was cataloged as UMIM 2582.

Paratypes: USNM 203512 (30 [52]♀, 123 [117]♂, 186 [146] immatures, 11.8 [12.2]–31.5 [31.3] mm). Collected with holotype.

Remarks: These paratypes originally were cataloged as UMIM 2582. Twenty-five of the original 339 paratypes are now cataloged as UMMZ 200766.

[Paratype: USNM 204100 (♀?)]. Collected with holotype. Missing.

Remarks: This specimen originally was part of UMIM 2582. A label in the jar with the holotype stated that this speci-

men is an allotype; however, it was not published as such. The specimen was not found during the 1985 inventory.

=*Poecilia caymanensis* (Rivas and Fink, 1970). See Rauchenberger (1989b:362).

***Limia cubensis*** Poey, 1854:381, 388–389, 391, pl. 31: figs. 12, 13; pl. 32: figs. 10, 11.

[?Syntypes: USNM 659 (6)]. Cuba; F. Poey. Missing.

General Remarks: Poey (1854:388) stated that his description of *Limia cubensis* was based on two specimens, a male (60 mm TL) and a female (100 mm TL). Poey's two syntypes are probably mixed with the specimens in the putative syntypic lots, MCZ 6403, as listed by Böhlke (1984:143), and ANSP 6814 and USNM 659. The last lot could not be located during the preparation of this or any previous type listing. The specimens had never been separated from the main collection and identified as types. We have rejected USNM 120419 (2♀, 55.5–60.5 mm), previously cataloged as types, as a syntypic lot because both included females are well below 100 mm TL.

=*Poecilia vittata* Guichenot, 1853. See Rosen and Bailey (1963:59).

***Limia formosa*** Girard, 1859b:115–116.

[Lectotype: USNM 3508 (♀)]. [Texas, Cameron County], in a lagoon at Paolo [Palo] Alto; John H. Clark. Missing.

General Remarks: The collection date was not recorded. This lectotype was not found during the 1980–1982 type inventory in the NMNH Division of Fishes. Miller and Hubbs (1983:816–817) were aware that the specimen was missing when they designated the female of two syntypes as the lectotype. The male syntype (= paralectotype), which had been exchanged to MNHN and cataloged as MNNH 439, is apparently a specimen of *Poecilia latipinna*.

=*Poecilia formosa* (Girard, 1859b). See Rosen and Bailey (1963:54).

***Limia fuscomaculata*** Rivas, 1980:30–31, fig. 1c.

Holotype: USNM 220525 (♀, 39.0 mm). Haiti, Département de l'Ouest, in the southwest bight of Lake Miragoâne; L.R. Rivas; 12 Apr 1951.

Paratypes: USNM 220526 (3♀, 25.4–32.0 mm). Collected with holotype.

=*Poecilia fuscomaculata* (Rivas, 1980). See Rauchenberger (1989b:361).

***Limia garnieri*** Rivas, 1980:31–32, fig. 2A,B.

Holotype: USNM 220527 (♂, 26.0 mm). Haiti, Département de l'Ouest, at the north end of Lake Miragoâne; L.R. Rivas; 12 Apr 1951.

Paratype: USNM 220528 (1♀, 28.8 mm). Collected with holotype.



- =*Poecilia garnieri* (Rivas, 1980). See Rauchenberger (1989b:361).
- Limia grossidens*** Rivas, 1980:29–31, fig. 1A,B.  
 Holotype: USNM 220523 (♂, 48.2 mm). Haiti, Département de l'Ouest, at the north end of Lake Miragoâne; L.R. Rivas; 7 Mar 1979.  
 Paratypes: USNM 220524 (41♀, 41♂, 10 immatures, 21.4–39.5 mm). Collected with holotype.  
 =*Poecilia grossidens* (Rivas, 1980). See Rauchenberger (1989b:361).
- Limia immaculata*** Rivas, 1980:32–33, fig. 2C,D.  
 Holotype: USNM 220529 (♂, 21.3 mm). Haiti, Département de l'Ouest [Département du Sud], at the north [northeast] end of Lake Miragoâne, [at Aux Cayes Road]; L.R. Rivas, [L. Bonnefil, and S.Y. Lin]; 12 Apr 1951.  
 Paratypes: USNM 220530 (3♀, 23.9–37.7 mm). Collected with holotype.  
 General Remarks: Modifications of the published (Rivas, 1980) collection data for this species are based on a label in the paratype jar.  
 =*Poecilia immaculata* (Rivas, 1980). See Rauchenberger (1989b:361).
- Limia matamorensis*** Girard, 1859b:116–117.  
 [Syntypes: USNM 3509 (38♀, 25♂, 4 immatures, 17.3–31.2 mm)]. [Mexico], Matamoras [Matamoros], [Tamaulipas]; L. Berlandier.  
 General Remarks: A label in the jar gives the additional locality modifier, "Tamaulipas," which was not mentioned by Girard (1859b). Two males and one female have been cleared and stained and are now AMNH 29833SW. The collection date was not recorded.  
 =*Poecilia latipinna* (Lesueur, 1821). See Rosen and Bailey (1963:54).
- Limia miragoanensis*** Rivas, 1980:33–34, fig. 3A,B.  
 Holotype: USNM 220531 (♂, 30.2 mm). Haiti, Département de l'Ouest [Département du Sud], at the north [northeast] end of Lake Miragoâne, [at Aux Cayes Road]; L.R. Rivas, [L. Bonnefil, and S.Y. Lin]; 12 Apr 1951.  
 Paratypes: USNM 220532 (9♀, 2♂, 4 immatures, 19.3–39.6 mm). Collected with holotype.  
 General Remarks: Modifications of the published (Rivas, 1980) collection data for this species are from a label in the paratype jar.  
 =*Poecilia miragoanensis* (Rivas, 1980). See Rauchenberger (1989b:361).
- Limia pauciradiata*** Rivas, 1980:34–35, fig. 3C,D.  
 Holotype: USNM 220533 (♂, 35.0 mm). Haiti, Département du Nord, in Grand Rivière du Nord at town of Grand Rivière; L.R. Rivas and E. Garnier; 10 Apr 1951.  
 Paratypes: USNM 220534 (74♀, 62♂, 264 immatures, 11.8–52.7 mm). Collected with holotype.  
 =*Poecilia pauciradiata* (Rivas, 1980). See Rauchenberger (1989b:362).
- Limia poeciloides*** Girard, 1858:170.  
 [Syntypes: USNM 670 (2)]. Texas, Indianola; John H. Clark, under Col. J.D. Graham. Missing.  
 General Remarks: The specimens could not be located during the preparation of this or any previous type listing. They had never been separated out of the main collection and identified as types. The collection date was not recorded.  
 =*Poecilia latipinna* (Lesueur, 1821). See Rosen and Bailey (1963:54).
- Limia rivasi*** Franz and Burgess, 1983:51–54, figs. 1–3.  
 Paratypes: USNM 232484 (8♀, 2♂, 15.5–21.7 mm). Haiti, Département de l'Ouest, Ile de la Gonâve, 1 km SE of Anse à Galet, from a red mangrove swamp; R. Franz and D. Gicca; 27 Jan 1980.  
 General Remarks: The holotype is UF 31434.  
 =*Poecilia rivasi* (Franz and Burgess, 1983). See Rauchenberger (1989b:362).
- Limia sulphurophila*** Rivas, 1980:36–38, fig. 4C,D.  
 Paratypes: USNM 220537 (7♀, 11♂, 4 immatures, 21.4–42.9 mm). Dominican Republic, Provincia Independencia, in Balneario (spa) La Zurza, a sulfur spring 5 km WNW of Duverge, near the southeastern shore of Lake Enriquillo; E.E. Williams, S.M. Case, and J.R. Rosado; 19 Aug 1978.  
 General Remarks: These specimens were formerly cataloged as MCZ 54402. The holotype is MCZ 54401.  
 =*Poecilia sulphurophila* (Rivas, 1980). See Rauchenberger (1989b:362).
- Limia yaguajali*** Rivas, 1980:35–36, fig. 4A,B.  
 Holotype: USNM 220535 (♂, 35.8 mm). Dominican Republic, Provincia Rodriguez [Montecristi], Río Yaguajal at Santiago Rodriguez (Sabaneta); L.R. Rivas and B.P. Hunt; 23 Apr 1949.  
 Paratypes: USNM 220536 (93♀, 62♂, 26 immatures, 10.9–54.2 mm). Collected with holotype.  
 Remarks: A label in the jar with the paratypes indicates that the locality is in the province of Monte Cristi [Montecristi], not Rodriguez.  
 =*Poeciliayaguajali* (Rivas, 1980). See Rauchenberger (1989b:362).
- Phallichthys quadripunctatus*** Bussing, 1979:1–8, figs. 1–4.  
 Paratypes: USNM 216559 (2♀, 3♂, 11.7–15.9 mm). Costa Rica, Limón Province, a small tributary of the Río Sixaola, 0.5 km NE of Chase on road between Puerto Viejo and Bratsi; W. Bussing, M. Bussing, and E. Bussing; 4 Oct 1975.

General Remarks: This lot originally was cataloged as University of Costa Rica number 897-2. The holotype is LACM 36018-1.

*Platypoecilus dominicensis* Evermann and Clark, 1906:852–853, fig. 2.

Type [Holotype]: USNM 53277 [(♀, 39.5 mm)]. [Dominican Republic], Santo Domingo, in a small stream in the San Francisco Mountains; A. Busck; Sep 1905.

Cotype [Paratype]: USNM 126137 [United States Bureau of Fisheries 1434 (♀, 35.4 mm)]. Collected with holotype.

General Remarks: These specimens are the type specimens of *Poecilia montana* Rosen and Bailey (1963), which is the replacement name for *Platypoecilus dominicensis* Evermann and Clark, 1906. *Platypoecilus dominicensis* is secondarily preoccupied by *Poecilia dominicensis* Valenciennes in Cuvier and Valenciennes, 1846.

=*Poecilia montana* Rosen and Bailey, 1963. See Rosen and Bailey (1963:48–49) and Rauchenberger (1989b:360).

*Platypoecilus mentalis* Gill, 1876:335–336.

[Holotype: USNM 16675] (♀, 65.0 mm [TL, 50.0 mm SL]). Panama, from a stream on the Atlantic side of the Isthmus; J.F. Bransford; [1875?].

General Remarks: Although the collection date was not recorded, associated material (e.g., USNM 16673) from the Bransford collection bears the date “Jan ’75.”

=*Poecilia sphenops* Valenciennes in Cuvier and Valenciennes, 1846. See Rosen and Bailey (1963:49).

*Platypoecilus nelsoni* Meek, 1904:145, 147, fig. 46.

Type [Holotype]: USNM 51484 [(♀, 28.3 mm)]. Mexico, Guerrero, Papayo, basin of the Río Balsas; E.W. Nelson; 20 Apr 1903.

[Paratypes: USNM 59997 (2♀, 28.8–35.0 mm)]. Collected with holotype.

[Paratype: USNM 125676 (1♀, 29.6 mm)]. Collected with holotype.

Remarks: A note in the jar (USNM 125676) states, “From reserve series.” Another label indicates that this specimen originally was cataloged as U.S. Bureau of Fisheries 1609.

=*Poecilia butleri* Jordan, 1889. See Schultz and Miller (1971:284).

*Platypoecilus perugiae* Evermann and Clark, 1906:851, 853, fig. 1.

Type [Holotype]: USNM 53278 (♀, [35.0 mm]). [Dominican Republic], Santo Domingo, in a small stream in the San Francisco Mountains; A. Busck; Sep 1905.

=*Poecilia perugiae* (Evermann and Clark, 1906). See Rosen and Bailey (1963:59).

*Poecilia amates* Miller, 1907:108, fig. 1.

[Paratypes: USNM 73924 (5♀, 2♂, 19.6–29.1 mm)]. Guatemala, Río Matagua, small pond and its outlet at Los Amates; N. Miller; 17 Jan 1905.

General Remarks: Miller designated a type (= holotype), IU 11375, and a cotype (= paratype), IU 11375a, and based his description on numerous specimens collected 17 Jan 1905 that we treat herein as additional paratypes.

=*Phallichthys amates* (Miller, 1907). See Rosen and Bailey (1963:140).

*Poecilia amazonica* Garman, 1895:64–65, pl. 4: fig. 9.

[Syntypes: USNM 120286 (6♀, 19.4–25.4 mm)]. [Brazil], Pará, Santa Cruz; Collector was not recorded; [1859].

General Remarks: These specimens were cataloged originally as MCZ 27573A. Additional syntypes are MCZ 27573 and MCZ 69635.

*Poecilia butleri* Jordan, 1889:330.

[Syntypes: USNM 37158 [(1♀, 3♂, 31.1–40.0 mm)]. Mexico, [Sinaloa], near Mazatlán, Río Presidio; A. Forrer; [1885?].

General Remarks: The description was based on six syntypes, one female and five males; two males are missing. The collection date was not recorded, but Jordan (1889:329) stated that the collection of fishes was sent to the USNM in 1885.

*Poecilia chica* Miller, 1975:2–13, figs. 1, 2, table 1.

Paratypes: USNM 214088 (19♀, 11♂, 17.6–39.2 mm). Mexico, Jalisco, Arroyo El Arado, 5.5 km W of Highway 80 on road to Purificación; [field no. CDB 69-23]; [C.D. Barbour and R.J. Douglas; 24 Apr 1969].

General Remarks: These specimens were originally part of UMMZ 192213. The holotype is UMMZ 172134.

*Poecilia cuneata* Garman, 1895:62, pl. 5: fig. 3.

[Syntypes: USNM 120285 (1♀, 2 immatures, 15.4–53.9 mm)]. [Panama], Gulf of Darién, Turbo.

General Remarks: The USNM ledger indicates that these specimens were removed from MCZ 6458, and the specimens that remain in that lot are also syntypes.

=*Poecilia mexicana cuneata* Garman, 1895. See Poeser (1992:89).

*Poecilia dominicensis* Valenciennes in Cuvier and Valenciennes, 1846:131–132, pl. 525.

[Syntypes: USNM 94584 (1♀, 1♂, 26.8–30.1 mm)]. [Dominican Republic], Santo Domingo; M. Ricord; 1830?

General Remarks: The catalog indicates that these specimens were collected around 1830. They were received by G.S. Myers, 1930, as an exchange from MNHN (catalog number not recorded). Additional syntypes are BMNH 1913.1.25.1-2.

*Poecilia hispaniolana* Rivas, 1978:98–112, figs. 1A,B, 2A.

Holotype: USNM 218706 (♂, 35.5 mm). Dominican Republic, Provincia Benefactor, Río Mijo, at road from Azua to San Juan; L.R. Rivas and B.P. Hunt; 21 Apr 1949.

Paratypes: USNM 218707 (38 [29]♀, 68 [87] ♂, 218 [166] immatures, 13.6 [14.3]–51.5 mm). Collected with holotype.

Remarks: This lot originally was cataloged as UMIM 5492. A note in the USNM ledger indicates that 45 specimens (10♀, 15♂, and 20 juveniles) were exchanged to the UMMZ, through R.R. Miller, on 7 Dec 1979. Our total count of specimens for this lot is 282. Rivas' (1978) count, minus the 45 specimens exchanged, yields a total of 279.

Paratypes: USNM 218708 (46 [42]♀, 28 [61]♂, 166 [137] immatures, 14.5–47.2 mm). Dominican Republic, Provincia Azua, Río Yaque del Sur at bridge of road from Azua to San Juan; L.R. Rivas and B.P. Hunt; 21 Apr 1949.

Paratypes: USNM 218709 (26 [30]♀, 34 [72]♂, 178 [136] immatures, 11.0–47.2 mm). Dominican Republic, Provincia Benefactor, Río Vallejuelo at El Cercado; L.R. Rivas and B.P. Hunt; 21 Apr 1949.

Remarks: A note in the jar questions whether the Río Vallejuelo is part of the Artibonite system. This lot originally was cataloged as UMIM 5493.

Paratypes: USNM 218710 (12 [13]♀, 9 [28]♂, 136 [116] immatures, 11.0–48.0 mm). Dominican Republic, Provincia San Rafael, Río Artibonite at Pedro Santana (Cercadillo) [Haitian border]; L.R. Rivas and B.P. Hunt; 22 Apr 1949.

Remarks: This lot originally was cataloged as UMIM 5494.

Paratypes: USNM 218711 (44 [43]♀, 22 [35]♂, 44 [40] immatures, 12.8 [12.7]–53.3 mm). Dominican Republic, Provincia La Vega, Río Yaque del Norte at Jarabacoa; L.R. Rivas and B.P. Hunt; 24 Apr 1949.

Remarks: Our total count for this lot is 118 specimens. Rivas (1978) noted a total of 110 specimens. This lot originally was cataloged as UMIM 5496.

Paratypes: USNM 218712 (49 [47]♀, 23 [61]♂, 140 [102] immatures, 12.0 [11.9]–58.5 [58.0] mm). Dominican Republic, Provincia La Vega, Río Camú, 9 km W of La Vega; L.R. Rivas and B.P. Hunt; 24 Apr 1949.

Remarks: This lot originally was cataloged as UMIM 5497. A note in the jar states that one male and one female were removed by M. Rauchenberger, 18 Nov 1988, for clearing and staining; these specimens could not be located during the preparation of this type catalog.

Paratypes: USNM 218713 (62 [66]♀, 173 [51]♂, 261 [379] immatures, 13.0–51.7 [51.3] mm). Haiti, Département de l'Artibonite, Rivière Trois Rivières at bridge of road from Gonaïves to Port-de-Paix; L.R. Rivas [and A. Garnier]; 9 Apr 1951.

Remarks: This lot originally was cataloged as UMIM 5499.

Paratypes: USNM 218714 (4♀, 3 [6]♂, 19 [16] immatures, 13.0 [12.5]–40.0 mm). Haiti, Département de l'Artibonite, Riv-

ière Canot at fork of road from St. Michel de l'Atalaye to Hinche; L.R. Rivas; 10 Apr 1951.

Remarks: This lot originally was cataloged as UMIM 5501.

Paratypes: USNM 218715 (58 [56]♀, 53 [133]♂, 323 [244] immatures, 12.2–41.0 mm). Haiti, Département de l'Artibonite, Rivière Guayamouc [Guayamouco] at Hinche; L.R. Rivas [and A. Garnier]; 10 Apr 1951.

Remarks: This lot originally was cataloged as UMIM 5502. Rivas' (1978) list of specimens for this lot totaled 434. Our count totals 433 specimens.

Paratypes: USNM 218716 (118♀, 29 [45]♂, 147 [131] immatures, 13.5 [13.4]–46.0 [45.6] mm). Haiti, Département de l'Ouest, Rivière Los Pine at road from Hinche to Las Cahobas, 2 km N of Las Cahobas; L.R. Rivas [and A. Garnier]; 11 Apr 1951.

Remarks: This lot originally was cataloged as UMIM 5503.

Paratypes: USNM 218717 (40♀, 29 [20]♂, 34 [25] immatures, 17.2 [17.0]–42.2 mm). Haiti, Département de l'Ouest, Rivière La Tombe at side road from Mirebalais to Saut d'Eeau [Eau]; L.R. Rivas [and A. Garnier]; 11 Apr 1951.

Remarks: This lot originally was cataloged as UMIM 5504.

*Poecilia lineolata* Girard, 1858:170.

[Syntypes: USNM 667 (3)]. Texas, Brownsville; Capt. VanVliet; [1851]. Missing.

[Syntypes: USNM 668 (4)]. Texas, Ft. Brown; John H. Clark, under Maj. Emory. Missing.

General Remarks: The specimens could not be located during the preparation of this type catalog. They had never been separated out of the main collection and identified as types. The collection date of USNM 668 was not recorded. Additional syntypes are cataloged as MCZ 1296.

=*Poecilia latipinna* (Lesueur, 1821). See Rosen and Bailey (1963:54).

*Poecilia montana* Rosen and Bailey, 1963:48–49.

General Remarks: This is the replacement name for *Platy-poecilus dominicensis* Evermann and Clark, 1906, which takes the same type specimens (see entry for *Platy-poecilus dominicensis*).

*Poecilia picta* Regan, 1913:1007, fig. 173A, pl. C [100]: figs. 1, 2.

[Syntypes: USNM 151459 (2♀, 2♂, 20.7–33.0 mm)]. [Guyana], Demerara; F.G. Beckford; 1872.

General Remarks: The year 1872 was noted as the date the specimens were presented by the collector, F.G. Beckford, to the BMNH. Additional syntypes are cataloged as BMNH 1872.6.11.11.

*Poecilia presidionis* Jordan and Culver in Jordan, 1895:413–414, pl. 29.

[Paratypes: USNM 47493 (4♀, 4♂, 1 immature, 26.5–47.6 mm)]. Mexico, Sinaloa, Río Presidio, about Presidio; D.S. Jordan et al.; Dec–Jan 1894–1895.

Remarks: These specimens were removed from SU 2687, the lot designated by Jordan and Culver as the type (= holotype). A note in the jar reads, “1♂ and 1♀ out of 47493,” but it does not state the whereabouts of these two specimens.

[Paratypes: USNM 86252 (8♀, 25.5–48.3 mm)]. Mexico, Sinaloa, Río Presidio, about Presidio; D.S. Jordan et al.; Dec–Jan 1894–1895.

Remarks: These specimens were removed from SU 2687. = *Poeciliopsis presidionis* (Jordan and Culver in Jordan, 1895). See Rosen and Bailey (1963:136).

*Poecilia teresae* Greenfield, 1990:449–454, figs. 1–4.

Paratypes: USNM 305307 (2♀, 2♂, 37.3–44.0 mm). Belize, (16°52′N, 89°01′W), Macal River on the Mountain Pine Ridge (tributary of eastern branch of Belize River); D.W. Greenfield and T.A. Greenfield; 10 Jul 1972.

General Remarks: The holotype is FMNH 82918.

*Poeciliopsis monacha* Miller, 1960:3–4, 7–9, pl. 1: figs. C, D.

[Paratypes: USNM 196175 (7♀, 2♂, 1 immature, 15.8–26.8 mm)]. Mexico, Sonora, Arroyo San Benito, about 1.5 mi (2.4 km) ESE of Rancho Guirocoba, 26°6′N, 108°40′W; R.R. Miller and M. Miller; 16 Feb 1957.

General Remarks: These specimens originally were part of UMMZ 178246 and were referred to as paratopotypes. A note in the jar indicates that there were “3♂, 7♀, 1 yg.” in this lot; therefore, one male specimen is missing. The holotype is UMMZ 177268.

*Poeciliopsis prolifica* Miller, 1960:5–7, 10, 11, pl. 2: figs. C, D.

[Paratypes: USNM 196174 (7♀, 3♂, 1 immature, 14.2–31.8 mm)]. Mexico, Sinaloa, Arroyo Sonolona, 18.5 mi [30 km] by road E of Culiacán, Arroyo Sonolona is a tributary of the Río Culiacán, 24°48′N, 107°08′W; R.R. Miller and J.T. Greenbank; 2 Apr 1955.

General Remarks: These specimens originally were part of UMMZ 172267 and were referred to as paratopotypes. The holotype is UMMZ 177272. Arroyo Sonolona is listed by Miller (1960) and Espinosa-Pérez et al. (1993:52) as the type locality.

*Poeciliopsis turneri* Miller, 1975:27–34, figs. 8–10, table 4.

Paratypes: USNM 214087 (25♀, 5♂, 22.4–35.0 mm). Mexico, Jalisco, Arroyo El Arado, 5.5 km W of Highway 80 on road to Purificación; [C.D. Barbour and R.J. Douglas]; [24 Apr 1969].

General Remarks: These specimens are out of UMMZ 192215. The holotype UMMZ 183942.

*Poeciliopsis viriosa* Miller, 1960:4–5, 7, 10–11, pl. 2: figs. A, B.

[Paratypes: USNM 196173 (6♀, 3♂, 2 immatures, 12.1–31.5 mm)]. Mexico, Jalisco, from a spring-fed creek about 4.5 mi [7.3 km] SW of Las Palmas, on the road to Ixtapita, 20°48′N, 105°10′W, this creek is a tributary to the Río Ameca, which drains the plateau country W of Guadalajara and S of Tepic and enters the Pacific at the Bahía de Banderas, elev. about 180 feet [55 m] above sea level; R.R. Miller and J.T. Greenbank; 21 Feb 1955.

General Remarks: These specimens originally were part of UMMZ 172074 and were referred to as paratopotypes. The holotype is UMMZ 177270.

*Priapella intermedia* Alvarez and Carranza, 1952:284–286, 289.

Paratypes: [USNM 162502 (6♀, 1♂, 2 immatures, 22.1–38.9 mm)]. Mexico, Oaxaca, Coatzacoalcos, Arroyo El Zacatal, Santa María Chimalapa, arroyo about 5 km before Río Negro of which it is a tributary, on the way between the Río Escuilapa and Santa María Chimalapa; J. Carranza; 15 May 1950.

General Remarks: Two of the original 11 specimens in this lot were removed and exchanged to the AMNH. The location of the holotype is unknown.

*Priapichthys fosteri* Hildebrand, 1925:260–261, figs. 14, 15.

Type [Holotype]: USNM 87263 (♂, 38.0 mm). El Salvador, Río Lempa, San Marcos; S.F. Hildebrand, F.J. Foster; 9 Feb 1924.

[Paratype: USNM 338683 (♀, 39.3 mm)]. The collection data for this specimen may be the same as the holotype, as this paratype (= allotype) was pictured with the holotype in the original description. Hildebrand (1925), however, did not state its collection data, noting only that his species description was based on specimens from three localities: the Río Lempa at San Marcos, Suchitoto in quiet water, and from brackish water in the estuary at El Triunfo.

Remarks: This specimen was removed from the jar containing the holotype and was recataloged as USNM 338683 to avoid confusion and to facilitate listing it in this catalog. Hildebrand (1925) noted that this specimen was 50 mm long in the caption for fig. 14. Apparently, this was TL.

[Paratypes: USNM 87264 (9♀, 9♂, 11 immatures, 18.4–62.5 mm)]. El Salvador, Río Lempa at San Marcos; S.F. Hildebrand and F.J. Foster; 10 Feb 1924.

Remarks: Notes from the USNM ledger indicate that of the original 52 specimens in this lot, six were exchanged to El Salvador (institution not stated), six were exchanged to the FMNH, and nine (4♀, 3♂, 2 immatures) were exchanged to R.M. Bailey at the UMMZ. If there were originally 52 specimens in this lot, two specimens are missing.

[Paratypes: USNM 87265 (17♀, 2♂, 8 immatures, 21.7–47.9 mm)]. El Salvador, Río Lempa at San Marcos; S.F. Hildebrand and F.J. Foster; 5 Feb 1924.

Remarks: Notes from the USNM ledger indicate that of the original 43 specimens in this lot, five were exchanged to El Salvador (institution not stated), and 12 were exchanged to the FMNH. If the exchange information is correct, then there were originally 44 specimens in this lot, rather than the 43 stated in the ledger.

[Paratypes: USNM 87266 (1♀, 1♂, 16.6–37.8 mm)]. El Salvador, in brackish water in the estuary at El Triunfo; S.F. Hildebrand and F.J. Foster; 10 Feb 1924.

=*Poeciliopsis turrubarensis* (Meek, 1912). See Rosen and Bailey (1963:136).

*Priapichthys letonai* Hildebrand, 1925:257–259, figs. 12, 13.

Type [Holotype]: USNM 87251 (♂, 42 [31.0] mm). El Salvador, Río San Miguel, San Miguel; S.F. Hildebrand and F.J. Foster; [12 Feb 1924].

Remarks: Apparently the lengths stated by Hildebrand (1925) for this specimen and for USNM 339268 were TL.

[Paratype: USNM 339268] (♀, 58 [46.8] mm). Hildebrand (1925) did not state the collection data for this specimen, but we presume the data are the same as for the holotype, as this specimen, the allotype, was originally cataloged with the holotype and was pictured with it in the original description.

Remarks: This specimen was removed from the jar containing the holotype and was recataloged as USNM 339268 to avoid confusion and to facilitate listing it in this catalog. Hildebrand (1925) noted that this specimen was 58 mm long in the caption for fig. 12. Apparently, this was TL.

[Paratypes: USNM 87252 (5♀, 13♂, 21.8–63.4 mm)]. El Salvador, Río San Miguel at San Miguel; S.F. Hildebrand and F.J. Foster; 12 Feb 1924.

[Paratypes: USNM 87253 (11♀, 1♂, 2 immatures, 1 undetermined (dissected) 17.4–56.6 mm)]. El Salvador, Lake Guija [and outlet]; S.F. Hildebrand and F.J. Foster; 23–25 Jan 1924.

Remarks: Notes found in the jar and the USNM ledger state that, of the original 28 specimens, three (2♀, 1♂) were sent on exchange to R.M. Bailey, UMMZ (19 Apr 1945), six were exchanged to El Salvador (institution not listed), and six were exchanged to the FMNH. If this information is correct, then there were originally 30 specimens in this lot.

[Paratypes: USNM 87254 (10♀, 7♂, 11 immatures (13.9–44.9 mm)]. El Salvador, Río Acelhuate at San Salvador; S.F. Hildebrand and F.J. Foster; 21 Jan 1924.

Remarks: Notes in the USNM ledger indicate that, of the original 40 specimens, six were exchanged to El Salvador (institution not listed) and six were exchanged to the FMNH.

[Paratypes: USNM 87255 (8♀, 7♂, 11 immatures (20.1–32.6 mm)]. El Salvador, Río Sucio at Sitio del Niño; S.F. Hildebrand and F.J. Foster; 3 Feb 1924.

Remarks: Notes in the jar and the USNM ledger indicate that, of the original 44 specimens, eight (4♀, 3♂, and 1 immature) were sent on exchange to R.M. Bailey at the UMMZ (19 Apr 1945) and 10 were sent on exchange to the FMNH.

[Paratypes: USNM 87256 (32 immatures, 10.3–19.5 mm)]. El Salvador, Lake Zapotitan; S.F. Hildebrand and F.J. Foster; 2 Feb 1924.

Remarks: A note in the USNM ledger states that, of 45 original specimens, 15 were exchanged to the FMNH. If the exchange information is correct, there were originally 47 specimens in this lot.

[Paratypes: USNM 87257 (11♀, 2♂, 2 immatures, 21.3–40.6 mm)]. El Salvador, Río Lempa at Suchitoto; S.F. Hildebrand and F.J. Foster; 5 Feb 1924.

[Paratypes: USNM 87259 (10♀, 14♂, 6 immatures, 13.8–46.0 mm)]. El Salvador, Lake Guija and Río del Desague; S.F. Hildebrand and F.J. Foster; 23–25 Jan 1924.

[Paratypes: USNM 87260 (8♀, 2♂, 1 immature, 24.8–48.6 mm)]. El Salvador, Lake Olomega; S.F. Hildebrand and F.J. Foster; 13 Feb 1924.

[Paratypes: USNM 87261 (22 immatures, 8.6–15.5 mm)]. El Salvador, Lake Guija; S.F. Hildebrand and F.J. Foster; 23 Jan 1924.

[Paratypes: USNM 87262 (7♂, 8 immatures, 7.8–32.2 mm)]. El Salvador, Lake Metapan; S.F. Hildebrand and F.J. Foster; 26 Jan 1924.

=*Poeciliopsis gracilis* (Heckel, 1848). See Rosen and Bailey (1963:136–137).

*Priapichthys olomina* Meek, 1914:112, 114.

General Remarks: The holotype is FMNH 7827. Meek (1914: 114) described *Priapichthys olomina* from numerous specimens collected in Río Grande de Tárcoles, Orotina, Turrubales, Pacaca, and the “Pacific side” of Costa Rica, which were collected in April 1912 by Meek or on various occasions by Dr. Anastasio Alfaro, then Director of the National Museum of Costa Rica. During preparation of this catalog, we located no lots cataloged currently as *Priapichthys olomina*, but we did find 17 lots, totaling 153 specimens, that were cataloged as *Brachyrhaphis rhabdophora* (Regan, 1908), the senior synonym of *P. olomina* Meek. All but one of these lots had been collected in Costa Rica by Alfaro, yet none was identified as a type lot. Rosen and Bailey (1963:89) referred to USNM 92151 as a paratype lot of *Priapichthys olomina*. Eschmeyer (1998:1239) stated that five paratype specimens of *Priapichthys olomina* were in an unnumbered lot at the NMNH, and that this lot was formerly FMNH 7878. Despite these suggestions that the NMNH holds one or



more paratype lots of *Priapichthys olomina*, we are unable to identify any lots as types. The 17 lots of *Brachyrhaphis rhabdophora* were received at the NMNH under four accessions (numbers 102252, 103511, 116610, and 131034), none of which came from the FMNH. Furthermore, we infer from the accession data that all these lots were collected in 1928 or later; thus, they cannot be types.

=*Brachyrhaphis rhabdophora* (Regan, 1908). See Rosen and Bailey (1963:89) and Bussing (1988:87).

*Priapichthys panamensis* Meek and Hildebrand, 1916:322–323, fig. 8.

[Paratypes: USNM 78858 (17 immatures, 17.3–24.5 mm)]. Panama, from a brackish pool at Chame Point; S.E. Meek and S.F. Hildebrand; 14 Feb 1912.

General Remarks: The holotype is FMNH 8950.

=*Pseudopocilia festae* (Boulenger, 1898). See Radda (1985) and Meyer and Etzel (1996:3).

*Quintana atrizona* C.L. Hubbs, 1934:1–8.

Paratypes: [USNM 93936 (1♀, 1♂, 17.7–24.0 mm)]. Reported to be of [aquarium] stock collected near Havana, Cuba.

Remarks: Hubbs (1934:5) noted that a pair of paratypes, presumably from a stock collected near Havana, were in the NMNH. We presume that this is the lot he referred to, based on the date it was cataloged, 1934. Other paratypes in the NMNH collection were cataloged at different times. Hubbs (1934) was not certain of the collection locality of the aquarium stock, but Rivas (1958) stated that the species had a very restricted range in small ponds of the southern drainage of the Sierra de los Oreganos and the Isle of Pines [= Isla de la Juventud]. The collector's name and the collection date were not stated. The holotype is UMMZ 106459, which was also from aquarium stock.

Paratype: [USNM 108251 (♂, 17.8 mm)]. Cuba: [either] from the vicinity of Baracoa, eastern Cuba or collected near Havana.

Remarks: A note in the jar indicates that this specimen is a paratype lot received from G.S. Myers, then of the USNM, who obtained it from C.L. Hubbs. The exact collection locality was not given. A note on the neck label indicates that the specimen "died in D.C. aquarium." Another note, in the accession records for this specimen, states that it was received from G.S. Myers, but it also claims that it was from "aquarium of U.S. National Museum." The collector and the collection date were not stated.

Paratypes: [USNM 117597 (1♀, 1♂, 16.9–19.2 mm)]. Descendants of aquarium stock said to have been collected in the vicinity of Baracoa, eastern Cuba.

Remarks: These specimens were bred in the Experimental Aquarium of the University of Michigan from one preg-

nant female that was donated by the proprietor of the Everglades Aquatic Nurseries of Tampa, Florida.

*Toxus riddlei* Eigenmann, 1903:226–227, figs. 6, 7.

Cotype [Paratype: USNM 126699 (♀, 50.3 mm)]. Cuba, San Cristobal; C.H. Eigenmann and O. Riddle; Mar 1902.

General Remarks: This specimen was cataloged originally as United States Bureau of Fisheries 1463. We believe this is the 66 mm (TL) female cotype mentioned by Eigenmann (1903:226). We found it to be 64 mm TL. A note in the jar states that this is the only known type specimen, and it is signed "Luis R. Rivas, July, 1944." Rosen and Bailey (1963:111) stated that the location of the holotype was unknown, but they mentioned an adult male allotype (= paratype) that was cataloged as CNHM (= FMNH) 3915. The holotype is CAS 78944 (ex. IU 9656).

=*Girardinus creolus* Garman, 1895. See Rosen and Bailey (1963:110–111).

*Toxus serripenis* Rivas, 1958:283, 286–287, 289–290, 305–307.

Holotype: [USNM 203151] (♂, 31.0 [30.7] mm). Cuba, Province of Pinar del Río, in Río Taco Taco at Rangel; L.R. Rivas; 11 Oct 1940.

Remarks: The holotype originally was cataloged as CLRR 69.

Paratypes: [USNM 206295] (20♀, 10♂, 3 immatures, 18.4–59.8 mm). Collected with holotype.

Remarks: These specimens originally were cataloged as CLRR 10. Two of the 33 specimens were exchanged to MFP.

=*Girardinus creolus* Garman, 1895. See Rodriguez et al. (1992:474–477).

*Xiphophorus marmoratus* Obregon-Barboza and Contreras-Balderas, 1988:93–124, figs. 1–7.

[Paratypes: USNM 308112 (1♀, 1♂, 28.0–32.5 mm)]. Mexico, Coahuila, El Socavón, 5.2 km SW de Múzquiz; S. Contreras Balderas and M. Torres y Grupo Biología II; 2 Jun 1978.

General Remarks: These specimens originally were cataloged as UANL 7275 and were referred to as paratopotypes. The holotype is UANL 8077. The status of this taxon is uncertain; it is not listed by Espinosa-Pérez et al. (1993).

*Xiphophorus pygmaeus* Hubbs and Gordon, 1943:31–33, pl. 1: figs. 1, 2.

Paratypes: [USNM 214158 (8♀, 8♂, 13 immatures, 14.8–27.7 mm)]. Mexico, Río Axtla of the Río Panuco system, at Axtla, San Luis Potosí; [W. Bridges and S. Coronado, New York Aquarium Expedition]; [18 Mar 1940].

General Remarks: We presume that this lot was collected by the New York Zoological Society Expedition, as mentioned by Hubbs and Gordon (1943:31); however, a note in the jar claims that it was collected by the New York Aquarium Expedition a week earlier than the published

collection date, 25 Mar 1940. The holotype is UMMZ 124365.

*Zygonectes atrilatrix* Jordan and Brayton, 1878:84.

Syntype: [USNM 23464 (♀, 33.8 mm)]. North Carolina, Neuse River, near Goldsboro; A. W. Brayton and C. H. Gilbert.

General Remarks: The collection date was not recorded.

=*Gambusia holbrooki* Girard, 1859a. See Rosen and Bailey (1963:94–95).

*Zygonectes inurus* Jordan and Gilbert, 1883:143–144.

Type [Holotype]: USNM 29666 [(♀, 39.9 mm)]. Illinois, Cache River; S. A. Forbes.

General Remarks: The type (=holotype) of *Zygonectes inurus* was listed as USNM 29666 by Jordan and Gilbert (1883). The collection date was not given. According to a note in the jar, this holotype was found in USNM 21308 with the cotypes of *Gambusia arlingtonia* Goode and Bean in Goode, 1879 (= *Fundulus chrysotus*, a fundulid, following Parenti, 1981), by C. L. Hubbs, who segregated the types of these nominal species. A specimen that had been identified by C. L. Hubbs as *Fundulus grandis*, also a fundulid, was removed from USNM 29666 and was re-cataloged as USNM 273299 in Aug 1985.

=*Gambusia affinis* (Baird and Girard, 1853). See Rosen and Bailey (1963:94–95).

## Literature Cited

- Ahl, E.  
1928. Descriptions of Two New Cyprinodont Fishes from Nigeria. *Annals and Magazine of Natural History*, series 10, 2:600–602.
- Alvarez, J., and J. Carranza  
1952. Cuatro especies nuevas de peces dulceacuicolas del Sureste de Mexico. *Ciencia*, 11(10–12):281–289, figures 1–3.
- Baird, S.F., and C. Girard  
1853. Descriptions of New Species of Fishes Collected by Mr. John H. Clark, on the U.S. and Mexican Boundary Survey, under Lt. Col. Jas. D. Graham. *Proceedings of the Academy of Natural Sciences of Philadelphia*, 6(1852–1853):387–390.
- Bean, B.A.  
1988. Notes on a Collection of Fishes from Mexico, with Description of a New Species of *Platycoelilius*. *Proceedings of the United States National Museum*, 21(1159):539–542.
- Böhlke, E.B.  
1984. Catalog of Type Specimens in the Ichthyological Collection of the Academy of Natural Sciences of Philadelphia. *Academy of Natural Sciences of Philadelphia*, special publication, 14:i–viii, 1–246.
- Boulenger, G.A.  
1898. Viaggio del Dr. Enrico Festa nell'Ecuador e regioni vicine; Poissons de l'Equateur (Première Partie). *Bollettino dei Musei di Zoologia ed Anatomia Comparata della R. Università di Torino*, 13(329):1–13.  
1904. Descriptions of New West-African Freshwater Fishes. *Annals and Magazine of Natural History*, series 7, 14:16–20.  
1906. Fourth Contribution to the Ichthyology of Lake Tanganyika—Report on the Collection of Fishes Made by Dr. W.A. Cunningham during the Third Tanganyika Expedition, 1904–1905. *Transactions of the Zoological Society of London*, 17(6):537–598, plates 30–41.
- Bussing, W.A.  
1979. A New Fish of the Genus *Phallichthys* (Family Poeciliidae) from Costa Rica. *Contributions in Science, Natural History Museum of Los Angeles County*, 301:1–8, figures 1–4.  
1988. A New Fish, *Brachyrhaphis roseni* (Poeciliidae) from Costa Rica and Panama. *Revista de Biología Tropical*, 36(1):81–87, figures 1–4.
- Costa, W.J.E.M.  
1991. Description d'une nouvelle espèce du genre *Pamphorichthys* (Cyprinodontiformes: Poeciliidae) du Bassin de l'Araguaia, Brésil. *Revue Française d'Aquariologie et Herpetologie*, 18(2):39–42, figures 1–6.
- Cuvier, G., and A. Valenciennes  
1846. *Histoire naturelle des poissons*. 18: i–xix + 507 pages, plates 520–553. Paris.
- Eigenmann, C.H.  
1894. Notes on Some South American Fishes. *Annals of the New York Academy of Sciences*, 7:625–637.  
1903. The Fresh-water Fishes of Western Cuba. *United States Fish Commission Bulletin for 1902*, 22:211–236, figures 1–17, plates 19–21.  
1909. Reports on the Expedition to British Guiana of the Indiana University and the Carnegie Museum, 1908; Report No. 1: Some New Genera and Species of Fishes from British Guiana. *Annals of the Carnegie Museum*, 6(1):4–54.  
1912. Some Results from an Ichthyological Reconnaissance of Colombia, South America, Part I. *Indiana University Studies*, 10(16):1–27.
- Eschmeyer, W.N.  
1990. *Catalog of the Genera of Recent Fishes*. 697 pages. San Francisco: California Academy of Sciences.
- Eschmeyer, W.N., editor  
1998. *Catalog of Fishes*. In *Special Publication No. 1 of the Center for Biodiversity Research and Information*, three volumes, 2905 pages. San Francisco: California Academy of Sciences.
- Espinosa-Pérez, H., Ma. T. Gaspar Dillanes, and P. Fuentes Mata  
1993. *Listados faunísticos de México III: Los peces dulceacuicolas Mexicanos*. 98 pages, figure 1. México (City): Universidad Nacional Autónoma de México.
- Evermann, B.W., and H.W. Clark  
1906. New Fishes from Santo Domingo. *Proceedings of the United States National Museum*, 30(1478):851–855, figures 1–3.
- Fink, W.L.  
1971a. A Revision of the *Gambusia nicaraguensis* Species Group (Pisces: Poeciliidae). *Publications of the Gulf Coast Research Laboratory Museum*, 2:47–77, figures 1–9.  
1971b. A Revision of the *Gambusia puncticulata* Complex (Pisces: Poeciliidae). *Publications of the Gulf Coast Research Laboratory Museum*, 2:11–46, figures 1–8.
- Franz, R., and G.H. Burgess  
1983. A New Poeciliid Killifish, *Limia rivasi*, from Haiti. *Northeast Gulf Science*, 6(1):51–54, figures 1–3.
- Garman, S.  
1895. The Cyprinodonts. *Memoirs of the Museum of Comparative Zoology*, 19(1):1–179, plates 1–12.
- Gill, T.  
1876. Notes on Fishes from the Isthmus of Panama, Collected by Dr. J.F. Bransford, U.S.N. *Proceedings of the Academy of Natural Sciences of Philadelphia*, 28:335–339.
- Girard, C.  
1858. Notes upon Various New Genera and New Species of Fishes, in the Museum of the Smithsonian Institution, and Collected in Connection with the United States and Mexican Boundary Survey: Major William Emory, Commissioner. *Proceedings of the Academy of Natural Sciences of Philadelphia*, 10:167–171.  
1859a. Ichthyological Notices. *Proceedings of the Academy of Natural Sciences of Philadelphia*, 11:56–68.  
1859b. Ichthyological Notices. *Proceedings of the Academy of Natural Sciences of Philadelphia*, 11:113–122.
- Goode, G.B.  
1879. A Preliminary Catalogue of the Fishes of the St. John's River and the East Coast of Florida, with Descriptions of a New Genus and Three New Species. *Proceedings of the United States National Museum*, 2(73):108–121.
- Greenfield, D.W.  
1983. *Gambusia xanthosoma*, a New Species of Poeciliid Fish from Grand Cayman Island, BWI. *Copeia*, 1983(2):457–464, figures 1–3.  
1990. *Poecilia teresae*, a New Species of Poeciliid Fish from Belize, Central America. *Copeia*, 1990(2):449–454, figures 1–4.
- Guichenot, A.  
1853. Poissons. In Ramón de la Sagra, *Histoire Physique, Politique et Naturelle de l'Île de Cuba*, volume 2, pages 1–206. Paris.
- Günther, A.  
1866. *Catalogue of the Fishes in the British Museum*. Volume 6, pages i–vii, 1–368. London.
- Heckel, J.  
1848. Eine neue gattung von Poecilien mit Rothenartigem Anklammerungs-Organ. *Sitzungsberichte K. K. Akademie der Wissenschaften, Wien, Mathematisch-Naturwissenschaftlichen Classe*, 1:289–303, plates 8, 9.
- Hildebrand, S.F.  
1925. Fishes of the Republic of El Salvador, Central America. *Bulletin of the United States Bureau of Fisheries*, 41(985):237–287, figures 1–20.

- Hubbs, C.  
1957. *Gambusia heterochir*, a New Poeciliid Fish from Texas, with an Account of Its Hybridization with *G. affinis*. *Tulane Studies in Zoology*, 5(1):1-16, figures 1-7.
- Hubbs, C., and B.L. Jensen  
1984. Extinction of *Gambusia amistadensis*, an Endangered Fish. *Copeia*, 1984:529-530.
- Hubbs, C., and V.G. Springer  
1957. A Revision of the *Gambusia nobilis* Species Group, with Descriptions of Three New Species, and Notes on Their Variation, Ecology, and Evolution. *The Texas Journal of Science*, 9(3):279-327, figures 1-15.
- Hubbs, C.L.  
1927. Studies of the Fishes of the Order Cyprinodontes, VII: *Gambusia manni*, a New Species from the Bahamas. *Copeia*, 164:61-66.  
1929. Studies of the Fishes of the Order Cyprinodontes, VIII: *Gambusia gaigei*, a New Species from the Rio Grande. *Occasional Papers of the Museum of Zoology, University of Michigan*, 198:1-11.  
1934. Studies of the Fishes of the Order Cyprinodontes, XIII: *Quintana atrizona*, a New Poeciliid. *Occasional Papers of the Museum of Zoology, University of Michigan*, 301:1-8.  
1936. Fishes of the Yucatan Peninsula. *Carnegie Institution of Washington Publication*, 457:157-287, plates 1-15.
- Hubbs, C.L., and M. Gordon  
1943. Studies of Cyprinodont Fishes, XIX: *Xiphophorus pygmaeus*, New Species from Mexico. *Copeia*, 1943(1):31-33, plate 1: figures 1, 2.
- Ibarra, M., and D.J. Stewart  
1987. Catalogue of Type Specimens of Recent Fishes in the Field Museum of Natural History. *Fieldiana (Zoology)*, new series, 35: 112 pages.
- International Commission on Zoological Nomenclature (ICZN)  
1985. *International Code of Zoological Nomenclature*. 338 pages. Berkeley: University of California Press.
- Jordan, D.S.  
1889. List of Fishes Collected by Alphonse Forrer about Mazatlan, with Descriptions of Two New Species: *Heros beani* and *Poecilia butleri*. *Proceedings of the United States National Museum* (for 1888), 11(719):329-334.  
1895. The Fishes of Sinaloa. *Proceedings of the California Academy of Sciences*, series 2, 5(1):377-514, plates 26-55.
- Jordan, D.S., and A.W. Brayton  
1878. On the Distribution of the Fishes of the Alleghany Region of South Carolina, Georgia, and Tennessee, with Descriptions of New or Little Known Species. In *Contributions to North American Ichthyology, Based Primarily on the Collections of the United States National Museum, III*. *Bulletin of the United States National Museum*, 12:1-95.
- Jordan, D.S., and B.W. Evermann  
1896-1900. The Fishes of North and Middle America: A Descriptive Catalogue of the Species of Fish-like Vertebrates Found in the Waters of North America, North of the Isthmus of Panama. *Bulletin of the United States National Museum*, 47(1-4):i-lx, 1-3313, plates 1-392.
- Jordan, D.S., and C.H. Gilbert  
1883. Description of a New Cyprinodont (*Zygonectes inurus*), from Southern Illinois. *Proceedings of the United States National Museum* (for 1882), 5(273):143-144.
- Kner, R.  
1860. Über *Belonesox belizanus*, Nov. Gen. et Spec. aus der Familie der Cyprinodonten. *Sitzungsberichte K. K. Akademie der Wissenschaften, Wien, Mathematisch-Naturwissenschaftlichen Classe*, 40(10):419-422, figure 1.
- Lesueur, C.A.  
1821. Description of a New Genus, and Several Species of Fresh Water Fish, Indigenous to the United States. *Journal of the Academy of Natural Sciences of Philadelphia*, 2(1):2-8, plates 1-3.
- Leviton, A.E., R.H. Gibbs, Jr., E. Heal, and C.E. Dawson  
1985. Standards in Herpetology and Ichthyology, Part I: Standard Symbolic Codes for Institutional Resources Collections in Herpetology and Ichthyology. *Copeia*, 1985(3):802-832.
- Meek, S.E.  
1902. A Contribution to the Ichthyology of Mexico. *Publication of the Field Columbian Museum, Zoological Series*, 3(6):63-128, plates 14-31.  
1904. The Fresh-water Fishes of Mexico North of the Isthmus of Tehuantepec. *Publication of the Field Columbian Museum, Zoological Series*, 5:1-252, figures 1-72, plates 1-17.  
1912. New Species of Fishes from Costa Rica. *Publication of the Field Columbian Museum, Zoological Series*, 10(7):69-75.  
1914. An Annotated List of Fishes Known to Occur in the Fresh Waters of Costa Rica. *Field Museum of Natural History, Publication 174, Zoological Series*, 10(10):101-134.
- Meek, S.E., and S.F. Hildebrand  
1913. New Species of Fishes from Panama. *Field Museum of Natural History, Publication 166, Zoological Series*, 10(8):77-91.  
1916. The Fishes of the Fresh Waters of Panama. *Field Museum of Natural History, Publication 191, Zoological Series*, 10(15):217-374, figures 1-10, plates 6-32.
- Meyer, M.K.  
1993. Reinstatement of *Micropoecilia* Hubbs, 1926, with a Redescription of *M. bifurca* (Eigenmann, 1909) from Northeast South America (Teleostei, Cyprinodontiformes: Poeciliidae). *Zoologische Abhandlungen Staatliches Museum für Tierkunde Dresden*, 47(10): 121-130, figures 1-5.
- Meyer, M.K., and V. Etzel  
1996. Notes on the Genus *Priapichthys* Regan (1913), *Sensu Radda* (1985), with Description of *P. puetzi* Spec. Nov. from the Atlantic Slope of Northern Panama (Teleostei: Cyprinodontiformes: Poeciliidae). *Zoologische Abhandlungen Staatliches Museum für Tierkunde Dresden*, 49(1):1-11, figures 1-8.
- Miller, N.  
1907. The Fishes of the Motagua River, Guatemala. *Bulletin of the American Museum of Natural History*, 23(2):95-123, figures 1-6.
- Miller, R.R.  
1960. Four New Species of Viviparous Fishes, Genus *Poeciliopsis*, from Northwestern Mexico. *Occasional Papers of the Museum of Zoology, University of Michigan*, 619:1-11, plates 1, 2.  
1975. Five New Species of Mexican Poeciliid Fishes of the Genera *Poecilia*, *Gambusia*, and *Poeciliopsis*. *Occasional Papers of the Museum of Zoology, University of Michigan*, 672:1-44, figures 1-10.
- Miller, R.R., and C. Hubbs  
1983. Designation of a Lectotype for the Amazon Molly, *Poecilia formosa* (Pisces: Poeciliidae). *Copeia*, 1983(3):816-817.
- Miller, R.R., and W.L. Minckley  
1970. *Gambusia aurata*, a New Species of Poeciliid Fish from Northeastern Mexico. *The Southwestern Naturalist*, 15(2):249-259, figures 1-4.
- Myers, G.S.  
1935. An Annotated List of the Cyprinodont Fishes of Hispaniola, with Descriptions of Two New Species. *Zoologica*, 10(3):301-316, figures 273-279.
- Obregon-Barboza, H., and S. Contreras-Balderas  
1988. Una nueva especie de pez del genero *Xiphophorus* del grupo *couchianus* en Coahuila, Mexico (Poeciliidae). *Publicaciones Biologicas, Facultad de Ciencias Biologicas, Universidad Autonoma de Nuevo Leon, México*, 2(3):93-124, figures 1-8.
- Parenti, L.R.  
1981. A Phylogenetic and Biogeographic Analysis of Cyprinodontiform Fishes (Teleostei, Atherinomorph). *Bulletin of the American Museum of Natural History*, 168(4):335-557, figures 1-99.

- Peden, A.E.  
1973. Virtual Extinction of *Gambusia amistadensis* N. Sp., a Poeciliid Fish from Texas. *Copeia*, 1973(2):210–221, figures 1–8.
- Pellegrin, J.  
1929. Siluridé et Cyprinodontidé nouveaux du Gabon recueillis par M.A. Baudon. *Bulletin de la Société Zoologique de France*, 54:640–643, figures 1, 2.
- Poeser, F.N.  
1992. Re-establishment and Redescription of *Poecilia vandepolli* Van Lidth de Jeude, 1887 (Pisces: Poeciliinae), with Comments on Related Species. *Studies on the Natural History of the Caribbean Region*, 71(1992):79–98, plates 1–4, figures 1, 2.
- Poey, F.  
1854. Los Guajacones, pecesillos de Agua Dulce. In F. Poey, *Memorias sobre la historia natural de la Isla de Cuba*, 1:374–392, figures 5–11, plates 31, 32.  
1860. Poissons de Cuba, espèces nouvelles. In F. Poey, *Memorias sobre la historia natural de la Isla de Cuba, acompañadas de sumarios Latinos y extractos en Frances*, 2:115–356, plates 12–19.
- Radda, A.C.  
1985. Revision der Gattung *Priapichthys* Regan, 1913; Ssensu Rosen & Bailey (1963). *Aquaria*, 32:119–125.
- Rauchenberger, M.  
1989a. Systematics and Biogeography of the Genus *Gambusia* (Cyprinodontiformes, Poeciliidae). *American Museum Novitates*, 2951: 74 pages, figures 1–64.  
1989b. Annotated Species List of the Subfamily Poeciliinae. In G.K. Meffe and F.F. Snelson, Jr., editors, *Ecology and Evolution of Livebearing Fishes (Poeciliidae)*, pages 359–367. New Jersey: Prentice Hall.
- Regan, C.T.  
1908. A Collection of Fresh Water Fishes Made by C.F. Underwood in Costa Rica. *Annals and Magazine of Natural History*, series 8, 2: 455–464.  
1913. A Revision of the Cyprinodont Fishes of the Subfamily Poeciliinae. *Proceedings of the Zoological Society of London*, 11:977–1018, figures 168–173, plates 99–101.
- Rivas, L.R.  
1944a. Contributions to the Study of the Poeciliid Fishes of Cuba, I: Descriptions of Six New Species of the Subfamily Gambusiinae. *Proceedings of the New England Zoological Club*, 23:41–53.  
1944b. Contribuciones al estudio de los peces Cubanos de la familia Poeciliidae, II: *Glaridichthys atherinoides*, nueva especie de la Provincia de Camaguey. *Contribuciones Ocasionales del Museo de Historia Natural del Colegio "De La Salle," Havana*, 2:1–7, figures 1–3.  
1958. The Origin, Evolution, Dispersal, and Geographical Distribution of the Cuban Poeciliid Fishes of the Tribe Girardinini. *Proceedings of the American Philosophical Society*, 102(3):281–320, figures 1–14.  
1963. Subgenera and Species Groups in the Poeciliid Fish Genus *Gambusia* Poey. *Copeia*, 1963(2):331–347, figures 1–4.  
1969. A Revision of the Poeciliid Fishes of the *Gambusia punctata* Species Group, with Descriptions of Two New Species. *Copeia*, 1969(4):778–795, figures 1–5.  
1971. A New Subspecies of Poeciliid Fishes of the Genus *Gambusia* from Eastern Cuba. *Publications of the Gulf Coast Research Laboratory Museum*, 2:5–9, figure 1.
1978. A New Species of Poeciliid Fish of the Genus *Poecilia* from Hispaniola, with Reinstatement and Redescription of *P. dominicensis* (Evermann and Clark). *Northeast Gulf Science*, 2(2):98–112, figures 1–3.  
1980. Eight New Species of Poeciliid Fishes of the Genus *Limia* from Hispaniola. *Northeast Gulf Science*, 4(1):28–38, figures 1–4.
- Rivas, L.R., and W.L. Fink  
1970. A New Species of Poeciliid Fish of the Genus *Limia* from the Island of Grand Cayman, B.W.I. *Copeia*, 1970(2):270–274, figure 1.
- Rodriguez, L.H., A. Du-Bouchet, and M.L. Smith  
1992. Phylogenetic Position of the Cuban Poeciliid Fish, *Girardinus creolus* (Cyprinodontiformes). *Copeia*, 1992(2):474–477, figure 1.
- Rosa, R.S., and W.J.E.M. Costa  
1993. Systematic Revision of the Genus *Cnesterodon* (Cyprinodontiformes: Poeciliidae) with the Description of Two New Species from Brazil. *Copeia*, 1993(3):696–708, figures 1–18.
- Rosen, D.E.  
1979. Fishes from the Uplands and Intermontane Basins of Guatemala: Revisionary Studies and Comparative Geography. *Bulletin of the American Museum of Natural History*, 162(5):267–376, figures 1–50.
- Rosen, D.E., and R.M. Bailey  
1963. The Poeciliid Fishes (Cyprinodontiformes), Their Structure, Zoogeography, and Systematics. *Bulletin of the American Museum of Natural History*, 126(1):1–176, figures 1–61, plates 1, 2, maps 1–19.
- Schultz, L.P.  
1942. The Fresh-water Fishes of Liberia. *Proceedings of the United States National Museum*, 92(3152):301–348, plates 35, 36.  
1949. A Further Contribution to the Ichthyology of Venezuela. *Proceedings of the United States National Museum*, 99(3235):1–211, figures 1–44, plates 1–34.
- Schultz, R.J., and R.R. Miller  
1971. Species of the *Poecilia sphenops* Complex (Pisces: Poeciliidae) in México. *Copeia*, 1971(2):282–290, figures 1–5.
- Steindachner, F.  
1878. Ichthyologische Beiträge, VI. *Sitzungsberichte K. K. Akademie der Wissenschaften, Wien, Mathematisch-Naturwissenschaftlichen Classe*, 77(1):379–392, plates 1–3.  
1880. Zur Fisch-Fauna des Cauca und der Flüsse bei Guayaquil. *Denkschriften Kaiserlichen Akademie der Wissenschaften, Wien*, 42(1): 55–104, plates 1–9.
- Vari, R.P., and J.C. Howe  
1991. Catalog of Type Specimens of Recent Fishes in the National Museum of Natural History, Smithsonian Institution, 1: Characiformes (Teleostei: Ostariophysi). *Smithsonian Contributions to Zoology*, 517: 52 pages.
- Whitley, G.P.  
1951. New Fish Names and Records. *Proceedings of the Royal Zoological Society of New South Wales, for 1949–50*, pages 61–68, figures 8–10.
- Wildekamp, R.H., R. Romand, and J.J. Scheel  
1986. Cyprinodontidae. In J. Daget, J.-P. Gosse, and D.F.E. Thys van den Audenaerde, editors, *Check-list of the Freshwater Fishes of Africa*, 2:165–276. Brussels: Institut Royal des Sciences Naturelles.
- Woolman, A.J.  
1894. Report on a Collection of Fishes from the Rivers of Central and Northern Mexico. *Bulletin of the United States Fish Commission*, 14:55–66, plate 2.







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