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A NEW POECILIID KILLIFISH, *Limia rivasi*, FROM HAITI

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ABSTRACT: ***Limia* (*Limia*) *rivasi* n. sp., a member of the *dominicensis* species group, is described from a series collected in a shallow, tidal creek on Ile de la Gonâve, Haiti. The new species is distinct among congeners in possessing uniserial inner teeth and a short membranous swelling on the gonopodium.**

As part of a broad survey of Hispaniolan fishes by Richard Franz, collections were made on Ile de la Gonâve, Haiti in 1980. Included in a collection from a red mangrove swamp near Anse à Galet was a series of poeciliid fishes representing an undescribed species of the genus *Limia*.

Rosen and Bailey (1963) considered *Limia* a subgenus of the genus *Poecilia* and recognized 13 species confined to the Greater Antilles. Rivas (1978) presented evidence that *Limia* warranted generic status, included a key to the two genera, and recognized three subgenera of *Poecilia* (*Lebistes, Pamphorichthys, Poecilia*). *Limia* was subsequently divided into two subgenera, *Odontolimia* and *Limia*, based on tooth characters (Rivas 1980). As presently understood, *Odontolimia* includes six species, all endemic to Étang Miragoâne, Haiti. The subgenus *Limia* is more widespread, with single species present on Cuba, Grand Cayman Island and Jamaica, and ten species on Hispaniola. We add here a new species, *Limia* (*Limia*) *rivasi*; in addition, Rivas (pers. comm.) has at least one other undescribed species in this subgenus from Hispaniola.

METHODS AND MATERIALS

Collections were made with a 8′ x 4′, 3/8″ mesh seine on 27 January 1980. Specimens were preserved in the field in 10% formalin, and were later transferred to 50% isopropyl alcohol. Counts and measurements were made according to Miller (1948). Gonopodial characters were counted as described by Rivas (1963). Vertebral and epipleural rib counts were made from radiographs produced by a Faxitron 43805N X-Ray System; vertebral counts are expressed as precaudal + caudal. Measurements are expressed as percentages of standard length. Counts and measurements were compared between males and females, with no significant differences except for gonopodial features.

Limia (*Limia*) *rivasi*, new species

Figs. 1, 2 and 3

Types: Holotype (UF 31434), an adult male 19.5 mm SL collected by R. Franz and D. Gicca 1 km SE of Anse à Galet, Ile de la Gonave, Dept. de L'Ouest, Haiti on 27 January 1980. The female allotype (UF 31435), 31.1 mm SL, and the paratypic series were collected with the holotype. Paratypes are deposited at the American Museum of Natural History (AMNH 49735); Field Museum of Natural History (FMNH 94412); Florida State Museum (UF 28007); Museo Nacional de Historia Natural, Santo Domingo (MNHNSD 340-041-1); National Museum of Natural History (USNM 232484); and University of Michigan Museum of Zoology (UMMZ 209797).

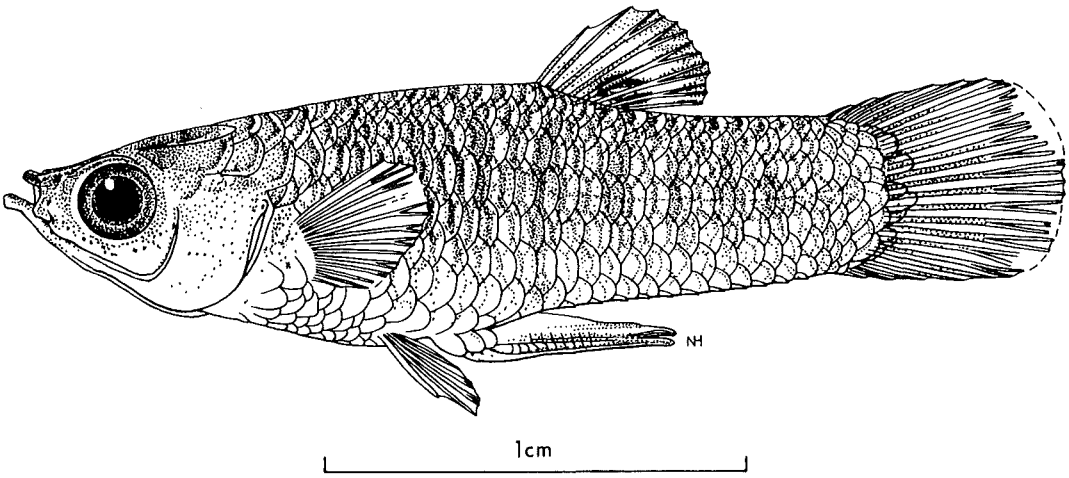

Figure 1. Holotype of *Limia* (*Limia*) *rivasi* n. sp., 19.5 mm SL (UF 31434).

Diagnosis: A species of *Limia*, subgenus *Limia*, differing from all other known species of the genus in possessing uniserial tricuspid inner teeth and a short membranous swelling of the gonopodium.

Description: Dorsal rays 7. Anal rays 9. Pectoral rays 13-15, usually 15 (Table 1). Pelvic rays 6. Branched caudal rays 13-16, usually 14. Lateral scales 25-27, usually 25. Scales above lateral series 3, below lateral series 3. Predorsal scales 14-17, usually 15 or 16. Gill rakers 15-18. Teeth tricuspid, those in outer row of each jaw larger than those in inner rows. Upper teeth approximately 32-50, lower teeth approximately 31-46 (five specimens examined). Preopercular pores 6-7, usually 7, without a groove. Preorbital pores 2-3, usually 3 without a groove (those with 2 pores with a groove). Gonopodium with 11-13 segments, 8-10 cirri and a short membranous swelling. Vertebrae 13 + 15. Epipleural ribs 11.

Head length 28.1-33.4 (mean 30.3). Head width 17.5-22.8 (20.8). Interorbital width 12.0-16.4 (14.8). Snout length 3.4-8.9 (6.3). Postorbital length 10.9-15.7 (13.0). Orbit diameter 9.5-11.5 (10.4).

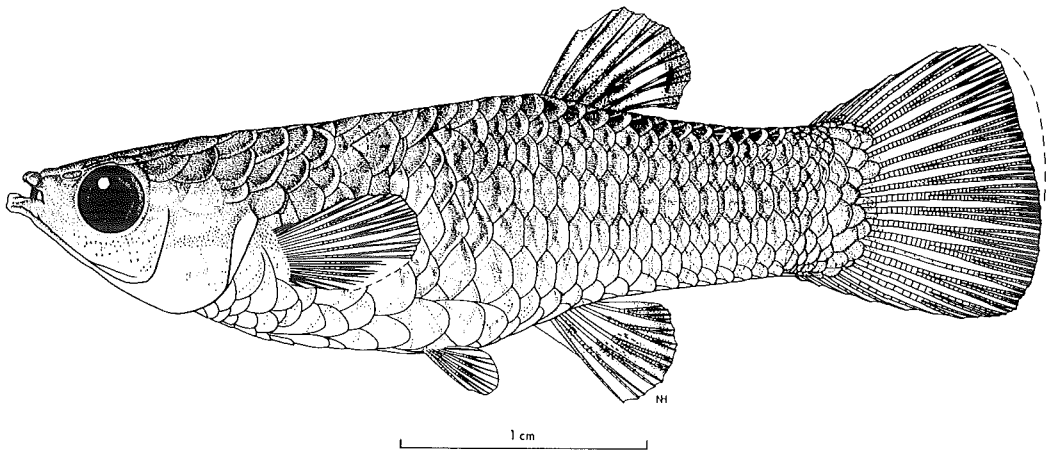

Figure 2. Allotype of *Limia* (*Limia*) *rivasi* n. sp., 31.1 mm SL (UF 31435).

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Table 1. Meristic variation in selected characters of *Limia* (*Limia*) *rivasi* n. sp.

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Pectoral rays												1	2	21												
Branched caudal rays												3	16		3											
Gill rakers														6	4	5	6									
Lateral scales																								15	6	1
Predorsal scales													1	10	10	1										
Gonopodial segments										1	4	2														
Gonopodial cirri							2	4	1																	
Preopercular pores					1	21																				
Preorbital pores	2	21																								

Mouth gape 7.3-12.0 (10.0). Predorsal length 58.5-69.2 (61.7). Prepelvic length 41.1-54.8 (48.2). Preanal length 44.9-66.8 (60.4). Dorsal origin to caudal base 36.2-43.7 (39.8). Body depth 22.4-33.7 (28.6). Body width 9.7-21.9 (16.9). Dorsal to lateral series 10.7-15.4 (17.8). Lateral series to belly 14.2-20.3 (17.8). Caudal peduncle depth 16.4-19.9 (18.5). Pectoral fin length 16.6-23.6 (19.7). Pelvic fin length 11.6-20.2 (14.5). Caudal fin length 22.6-30.8 (28.6). Anal fin length, females 16.5-20.8 (18.8). Anal base, females 5.9-8.5 (6.6). Gonopodium length 16.9-29.5 (26.1). Dorsal fin length 16.2-24.5 (20.3). Dorsal base 5.7-11.1 (8.4).

Distribution and Habitat: Known only from the type locality, 1 km east of Anse à Galet, on the northeast coast of Ile de la Gonâve, Dept. de L'Ouest, Haiti.

The type series was collected in a shallow tidal creek in a red mangrove swamp as the tide was receding. Immature specimens of *Cyprinodon* cf. *variegatus* were associated with the *Limia rivasi* at the site. Fishes were collected in 5-10 cm deep water over organic mud. Springs originating in the adjacent limestone bluff may have contributed some freshwater to the tidal stream. Further collecting in other mangrove areas in the vicinity may extend the range of *Limia rivasi* to include the rest of the island, and possibly adjacent mainland areas.

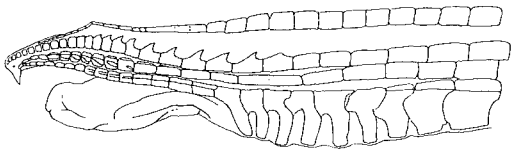

Figure 3. Gonopodium of *Limia* (*Limia*) *rivasi*. X115.

Relationships and Zoogeography: *Limia rivasi* is the first poeciliid fish reported from offshore islands of Hispaniola. According to Luis R. Rivas (pers. comm.), this species is a member of the *dominicensis* species group of the subgenus *Limia*, which also includes *Limia dominicensis*, *L. pauciradiata*, *L. sulphurophilia*, *L. tridens*, and *L. yaguajali*. Members of this group occur in streams on the north slope of Haiti and Republica Dominicana, on the Tiburon Peninsula in southwestern Haiti, and in a sulphur spring on the southeastern shore of Lago Enriquillo in southwestern Republica Dominicana.

The presence of *Limia rivasi* on la Gonâve possibly represents a relict population of an ancestral stock formerly widespread in Hispaniola. Present depths in the Gulf of Gonâve between Ile de la Gonâve and the adjacent mainland (near Port-au-Prince) suggest that during periods of lowered seas levels in the Pleistocene a land bridge existed in this area. Such a land bridge was

probably a lowland with extensive mangrove swamps and other brackish and salt water communities, which would have supported salt-tolerant *Limia*. As sea levels rose, La Gonâve became isolated, together with its *Limia* population.

ETYMOLOGY

We take pleasure in naming this species after Luis R. Rivas, in recognition of his long standing interest in the systematics of poeciliid fishes of the Greater Antilles. The vernacular name "Rivas' limia" is proposed for this fish.

ACKNOWLEDGMENTS

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