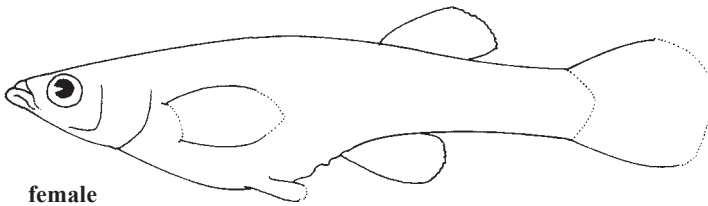


## POECILIIDAE

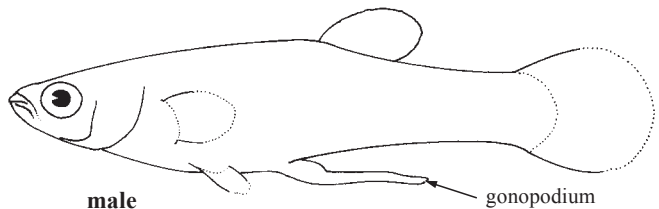
### Poeciliids (livebearers)

by M.J. Ghedotti, Regis University, Colorado, USA and E.O. Wiley, University of Kansas, Kansas, USA

**Diagnostic characters:** Small fishes (4 to 20 cm total length). Body elongate to moderately deep. Head flattened, scaled. Snout short except in *Belonesox*. Mouth wide, terminal, oblique, and protrusible. **No spines in fins.** Single dorsal fin with 6 to 19 soft rays; its position relative to anal fin variable. **Anal fin of male modified into a thin, elongate intromittent organ (gonopodium)** which is not tubular, not scaled, and not enclosing an extension of the sperm duct. Anal fin with 9 soft rays. **Third anal-fin ray unbranched in males and females.** Caudal fin rounded or emarginate. Pectoral fins with 9 to 16 soft rays, short, rounded, and inserted high on side of body. Pelvic fins with 6 soft rays; subthoracic in position in females and thoracic in position in adult males. Body with large cycloid scales. Lateral line reduced to series of separate pit organs along sides. Sexes usually dimorphic, males usually smaller than females. Adult females often obviously pregnant with distended abdomen. **Colour:** highly variable among species. Males usually more colourful than females and juveniles. **Pregnant females often with dark spot (gravid spot) anterior and dorsal to anus.**



female



male

gonopodium

**Habitat, biology, and fisheries:** Found naturally in the Americas from the USA to Argentina. Most species occur in fresh water, but some have wide salinity tolerance and may be found in brackish or marine coastal waters. Common in the fresh waters of Central America and the

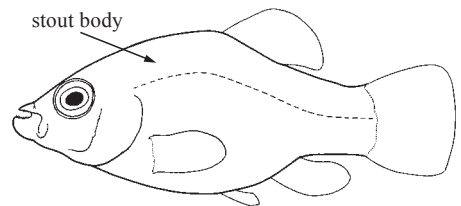
Greater Antilles. They feed chiefly on insects, other small invertebrates, and aquatic vegetation; some species (especially *Gambusia affinis*, *G. holbrooki*, and *Poecilia reticulata*) have been widely introduced to control insect-borne diseases. All are viviparous. The larger species may be consumed locally, but most species are too small to be of interest as food. Many have great commercial importance as aquarium fishes.

#### Similar families occurring in the area

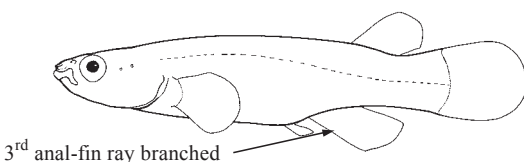
**Cyprinodontidae:** males without gonopodium; male and female anal fins approximately similar; oviparous; third anal-fin ray branched; usually stouter-bodied; jaw teeth tricuspid.

**Rivulidae:** males rare, without gonopodium, has larger anal fin than female; third anal-fin ray branched; oviparous; generally more cylindrical; pectoral fins set low on sides; dorsal fin set far back on body, its origin over last 2 or 3 anal-fin rays (saltwater species only).

**Fundulidae:** males without gonopodium, has larger anal fin than female; third anal-fin ray branched; oviparous; pectoral fin set low on sides.

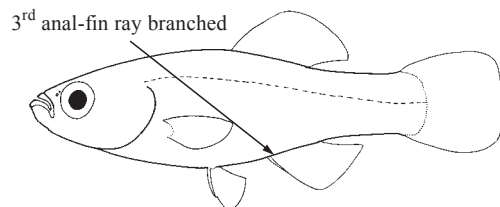


Cyprinodontidae



3<sup>rd</sup> anal-fin ray branched

Rivulidae

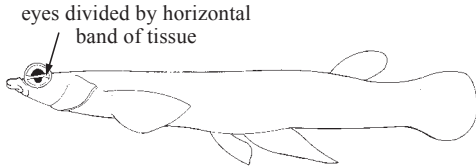


3<sup>rd</sup> anal-fin ray branched

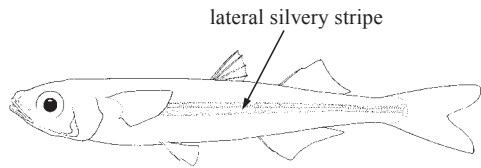
Fundulidae

Anablepidae: eyes divided by horizontal band of opaque tissue into upper and lower halves; anal fin in males forms scale-covered, tubular gonopodium enclosing an elongate sperm duct; dorsal fin set far back on body, approximately halfway between anal and caudal fins.

Atherinidae: 2 dorsal fins, the first with 3 to 9 slender spines, the second with 1 anterior spine; anal and pelvic fins also with spines, pectoral fins set high on body, pelvic fins thoracic; no lateral line; most species with lateral silvery stripe; caudal fin forked; males without gonopodium; oviparous.



Anablepidae



Atherinidae

**Key to the genera of Poeciliidae occurring in the area**

Note: No reliable key to females available. Distinguishing features of genera and species have traditionally been based on the male gonopodium and male pelvic-fin structure. When available, characters applicable to females are provided. Further, the key is designed for the brackish and marine members of each genus and hence does not work for representatives restricted to fresh water. Please note that many of the species are allopatric and that possible identification should be checked against geographic occurrence.

- 1a. Jaws elongate, forming a distinctive beak (Fig. 1) . . . . . *Belonesox*
- 1b. Jaws of normal proportions not elongated into a beak . . . . . → 2

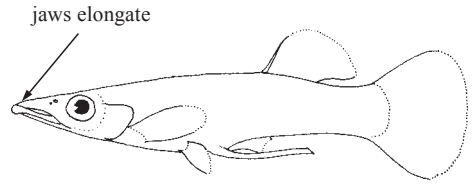


Fig. 1 *Belonesox*

- 2a. Tips of pelvic fins of adult males swollen, elongate, or both, due to elongation of the second fin ray (Fig. 2a,b); fleshy palp on gonopodial ray 3 . . . . . → 3
- 2b. Tips of pelvic fins of adult males not swollen or elongate, third fin ray approximately as long as second fin ray (Fig. 2c); no fleshy palp on gonopodial ray 3 . . . . . → 4

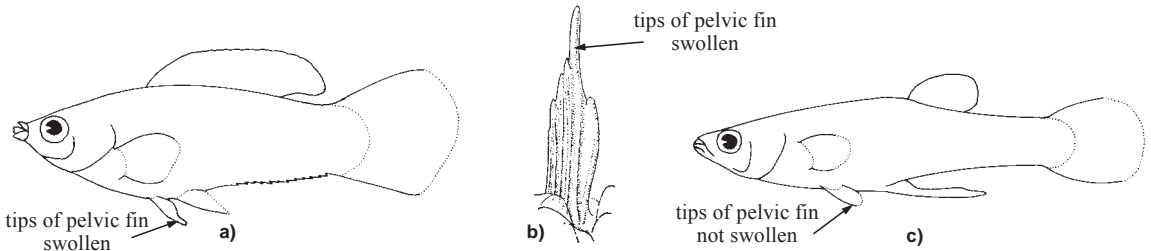


Fig. 2

- 3a. Subdistal segments of gonopodial ray 3 smooth, lacking spines and processes; gonopodial ray 5p distinctly shorter than 5a, extending distally only to within 10 to 15 segments of the tip of ray 5a (Fig. 3a) . . . . . *Limia*
- 3b. Subdistal segments of gonopodial ray with spines and processes; gonopodial ray 5p not distinctly shorter than 5a, extending distally to within 2 to 6 segments of the tip of ray 5a (Fig. 3b) . . . . . *Poecilia*

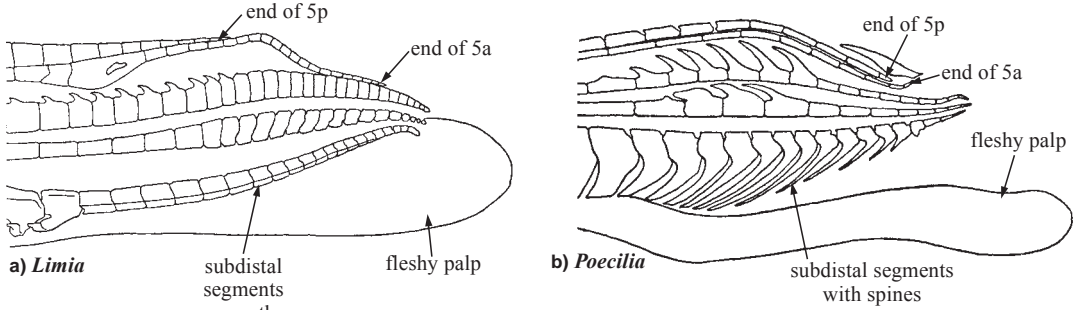


Fig. 3

- 4a. Tip of gonopodial ray 4a terminating in a decurved (downward curved) hook (Fig. 4a); distinct dark spot in anterior dorsal fin; jaw teeth compressed; females never larger than 3 cm total length . . . . . *Heterandria (H. formosa only)*
- 4b. Tip of gonopodial ray 4a terminating in a slightly recurved (upward curved) hook (Fig. 4b); no distinct dark spot in anterior dorsal fin (except melanistic *Gambusia holbrooki*); jaw teeth conical; females often larger than 3 cm total length . . . . . → 5

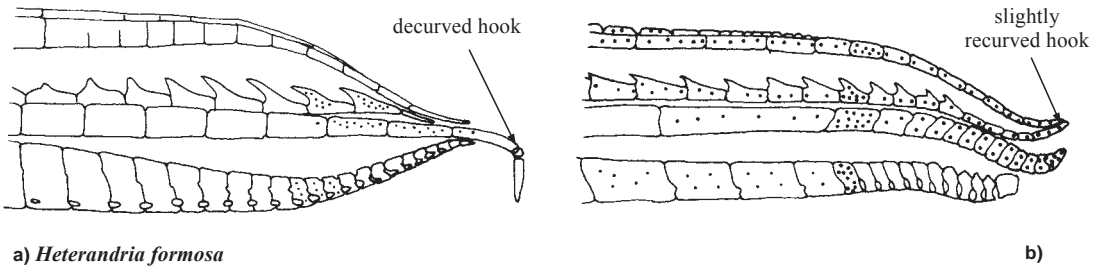


Fig. 4

- 5a. Distal tips of gonopodial rays 5a and 5p simple and slightly recurved, without distinct recurved hooks (Fig. 4b); posterior portion of male gonopodium distinctly black; distinct black spot or streak on female anal fin . . . *Brachyrhaphis (B. cascajalensis only)*
- 5b. Distal tips of gonopodial rays 5a and 5p slightly decurved and ornamented with distinct recurved hooks (Fig. 5); male gonopodium and female anal fin lack distinct black pigmentation . . . . . *Gambusia*

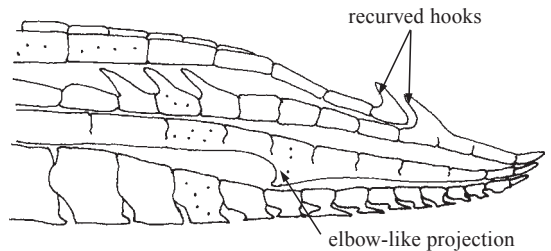


Fig. 5 *Gambusia*

### List of species occurring in the area

Note: List restricted only to those species entering brackish or salt water and those species whose salinity tolerance and geographic location might permit them to be found in these habitats sporadically. There are numerous fresh water members of the family found on the mainlands and islands of Area 31.

*Belonesox belizanus* Kner, 1860. Veracruz, Mexico to Nicaragua.

*Brachyrhaphis cascajalensis* (Meek and Hildebrand, 1913). SE Costa Rica to N central Panama.

*Gambusia affinis* (Baird and Girard, 1853). S central USA and NE Mexico, introduced elsewhere.

*Gambusia hispaniolae* Fink, 1971. Central Haiti and SW Dominican Republic.

*Gambusia holbrooki* Girard, 1859. S New Jersey to S Alabama, introduced elsewhere.

*Gambusia luma* Rosen and Bailey, 1963. Guatemala and Honduras.

*Gambusia manni* Hubbs, 1927. N Bahamas.

*Gambusia nicaraguensis* Günther, 1866. Guatemala to Panama.

*Gambusia puncticulata* Poey, 1854. Cuba, Isle of Youth, Jamaica, Cayman Islands, and the Bahamas.

*Gambusia rhizophorae* Rivas, 1969. S Florida and N Cuba.

*Gambusia xanthosoma* Greenfield, 1983. West Bay, Grand Cayman Island.

*Gambusia yucatanica* Regan, 1914. E Veracruz, Mexico to the Yucatan Peninsula.

*Heterandria formosa* Girard, 1859. SE North Carolina to S Louisiana.

*Limia caymanensis* Rivas and Fink, 1970. Grand Cayman Island.

*Limia rivasi* Franz and Burgess, 1983. E La Gonave Island, Haiti.

*Limia vittata* (Guichenot, 1853). Cuba.

*Poecilia latipinna* (Lesueur, 1821). SE North Carolina to the W Yucatán Peninsula.

*Poecilia mexicana* Steindachner, 1863. S Texas to Colombia.

*Poecilia orri* Fowler, 1943. Belize and Honduras.

*Poecilia petenensis* (Günther, 1866). E Yucatán Peninsula, Guatemala, and Belize.

*Poecilia reticulata* Peters, 1859. S Mexico to Guyana and the Lesser Antilles including Trinidad and the Virgin Islands, introduced elsewhere.

*Poecilia sphenops* Valenciennes, 1846. S Texas to Colombia.

*Poecilia velifera* (Regan, 1914). N Yucatán Peninsula.

*Poecilia vivipara* Bloch and Schneider, 1801. W Venezuela to Argentina and the islands of Aruba, Bonaire, Curaçao, the Leeward Islands, and Trinidad.

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