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Checklist of metazoan associated with grunts (Perciformes, Haemulidae) from the Nearctic and Neotropical regions

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Abstract: Using information from published articles, databases, and recent samples from the Brazilian coastal zone, a list of parasites of haemulid (grunts) fish known from the Neotropical and Nearctic regions was structured. A total of 231 species of parasites were listed totaling 775 records involving 48 hosts, distributed in 86 localities of the American Continent. Records were listed with information on hosts, habitat, distribution and new findings; a host-parasite list is also included herein.

Key words: Parasite diversity, marine fish parasites, parasite distribution, American continent, Brazil

INTRODUCTION

The new world (Americas) has an extraordinary biological richness, with several recognized biodiversity hotspots, adding up to 40% of the total plant and animal species on the planet (Heywood 1995; Luque and Poulin 2007). With the influence of both the Atlantic and Pacific oceans, this continent is divided into two ecozones, the Nearctic and Neotropical regions where concentrate a high number of fish species, including the Perciformes, the most diversified of all fish orders and the largest of vertebrates (Nelson 2006).

The family Haemulidae is one of the most conspicuous groups among the perciformes, represented by 150 species distributed in 17 genera distributed worldwide (Froese and Pauly 2014). Haemulids or grunts are found along the Atlantic, Indian, and Pacific oceans. In the Neotropical and Nearctic regions they are found near the rocky shores in marine environments, but some are brackish water and a few occur in freshwater (Nelson 2006; Froese and Pauly 2014).

An effective survey of parasites can contribute significantly to the understanding of global biodiversity, contributing as a paradigm for a number of factors that unites ecology, systematics, evolution, biogeography, and a number of biological patterns (Brooks and Hoberg 2000).

In the American Continent the first record of parasites in haemulid fish date of the beginning of the twentieth century performed by Linton (1910) and the more recent published by Cohen *et al.* (2013), however most records are very dispersed in the literature.

Herein, we provide a checklist of all species of metazoan parasites associated to fish of the family Haemulidae known from the Nearctic and Neotropical regions. The information is presented as parasite-host and host-parasite lists, including detailed data on locality, site of infection, references, and new records.

MATERIAL AND METHODS

The checklist was based on information collected from two main sources. Firstly, searches of databases including the *Zoological Record*, *Biological Abstracts, Helminthological Abstracts*, *Web of Knowledge*, *Google Scholar*, *Aquatic Sciences and Fisheries Abstracts*, *Biological and Agricultural Index Plus* and the *Scopus* databases were undertaken up to September, 2013. A second source of information was the analysis of our own original collections and data. Parasitological sampling were performed between April 2009 to July 2012; they included the examination of 200 fish specimens of four haemulid species (20 *Anisotremus surinamensis* (Bloch, 1791), 40 *A.virginicus* (Linnaeus, 1758), 120 *Conodon nobilis* (Linnaeus, 1758) and 20 *Haemulon plumierii* (Lacepède, 1801)) from the coast of the state of Rio de Janeiro (between 23°21′02″ S and 45°42′24″ W), Brazil, captured by fishermen; these specimens were identified following Menezes and Figueiredo (1980).

The checklist follows the parasite classification and systematic arrangement proposed by Amin (2013) for Acanthocephala; Khalil *et al.* (1994) for Cestoda; Boxshall and Halsey (2004) for Copepoda; Davies (1991) for Hirudinea; Bunkley-Williams and Williams (1981) for Isopoda; Cohen *et al.* (2013) for Monogenea; Gibbons (2010) for Nematoda; and Gibson *et al.* (2002), Jones *et al.* (2005) and Bray *et al.* (2008) for Trematoda.

The parasite species were arranged by phylum, class, order and family and are presented in alphabetical order, followed by information on their hosts, site of infection, localities and *ad hoc* references (between parentheses, in chronological sequence). The following abbreviations were used regarding to the status of parasitic records listed: NHR (new host record) and or NGR (new geographical record). Voucher specimens of parasites were deposited in the Helminthological Collection of Institute Oswaldo Cruz (CHIOC) of Rio de Janeiro, Brazil or in the Carcinological Collection of the National Museum of

Rio de Janeiro, Brazil (MNRJ). The specific name of the host species follows Froese and Pauly (2014). The species of fish in the host–parasite list are arranged according to the higher level classification of Nelson (2006).

The parasite species names were updated in agreement with the recent literature, but inclusion in the parasite or host lists does not necessarily imply that authors agree with their validity.

RESULTS

In this list we recorded a total of 231 species of metazoan parasites, distributed in 188 nominal species and 43 undetermined species (Table 1) associated with 48 species of grunts in 86 localities of the American Continent (75 in Neotropics and 11 in Nearctics), totaling 775 records in haemulid fish, 747 of these were obtained from the literature and 24 are new recorded, being five species of parasites recorded by the first time in South America. The Atlantic Ocean showed the major number of parasites recorded in relation the Pacific Ocean (149 versus 70) and 12 species of parasites are found in both oceans (Table 2). Brazil is the country with the largest number of recorded parasite, with 64 species (Table 3).

The highest number of taxonomic group species was observed for Digenea with 97 species recorded, which represents 42%, followed by Monogenea (17%); Copepoda (15%); Nematoda (8.7%); Cestoda (6.6%); Isopoda (4.7%); Acanthocephala (4.4%); Annelida (0.8%); Aspidogastrea (0.4%); and Branchiura (0.4%), of the total number.

We listed a total of 146 articles published in 104 years of study (1910 to 2014) of metazoan parasites in haemulid hosts from the Neotropical and Neartic region and the period of highest number of articles published in haemulid host date from 1962 to 1987 with 61 papers, which represents 42% of the total number of papers. The second period with major number of articles published is the last 26 years (1988 to 2014) with 57, which represents 39% of the total number of papers. The others periods are: 1936 to 1961 with 22 articles and 1910 to 1935 with 6 articles, representing 15% and 4% of the total number of articles, respectively.

Haemulid are reported into 43 determined and five undetermined hosts. The genus *Haemulon* with 19 hosts is the group with the major number of recorded parasite species and showed the highest diversity of determined and undetermined species of parasites: 115 and 22 respectively. The host species with the greatest number of parasites recorded is *Haemulon sciurus* (Shaw, 1803) with 54 species (Table 4).

Table 1. Total of nominal and undetermined parasite species according to taxonomic group.

Taxonomic Group	Nominal sp.	Undetermined sp.	Total
Digenea	83	14	97
Monogenea	36	3	39
Copepoda	33	2	35
Nematoda	9	11	20
Cestoda	9	6	15
Isopoda	7	4	11
Acanthocephala	8	2	10
Annelida	1	1	2
Aspidogastrea	1	—	1
Branchiura	1	—	1

PARASITE-HOST LIST

Phylum Acanthocephala Rudolphi, 1808

Class Palaeacanthocephala Meyer, 1931

Order Echinorhynchida Southwell & Macfie, 1925

Family Illiosentidae Golvan, 1960

Dollfusentis bravoae Salgado-Maldonado, 1976

Pomadasys crocro, intestine, Mexico (Veracruz) (Salgado-Maldonado 1976; Pérez-Ponce de León *et al.* 1996).

Dollfusentis chandleri Golvan, 1969

Haemulon melanurum, intestine, Mexico (Quintana Roo) (Salgado-Maldonado 1976).

Haemulon sciurus, H. steindachneri and *Orthopristis ruber,* intestine, Brazil **(**Rio de Janeiro) (Kohn and Macedo 1984; Luque *et al.* 1996a, b).

Orthopristis chrysoptera, intestine, United States of America (Florida and Mississippi) (Bullock 1960; Buckner *et al.* 1978; Overstreet 1978).

Koronacantha mexicana Monks & Pérez-Ponce de León, 1996

Anisotremus interruptus, Haemulon scudderii, *H. sexfasciatum* and *Haemulopsis leuciscus,* intestine, Mexico (Bay of Chamela) (Monks and Perez-Ponce de León 1996; Perez-Ponce de León *et al.* 1999).

Koronacantha pectinaria (Van Cleave, 1940)

Microlepdotus brevipinnis, intestine, Mexico (Bay of Chamela) (Monks *et al.* 1997; Perez-Ponce de León *et al.* 1999).

Family Rhadinorhynchidae Lühe, 1912

Gorgorhynchus medium Linton, 1908

Haemulon sp., intestine, Bermudas (undetermined locality) (Chandler 1934).

Serrasentis sagittifer (Linton, 1889)

Orthopristis chrysoptera, intestine, United States of America (Florida) (Yamaguti 1963a).

***Serrasentis* sp.** (cystacanth)

Anisotremus surinamensis, *A. virginicus* and *Conodon nobilis*, coelomic cavity, Brazil (Rio de Janeiro) (NHR) (CHIOC-37940\37941\37943).

Table 2. Number of parasite species in haemulids in relation to ocean.

Oceans	Taxonomic groups*										Total
	Endoparasites					Ectoparasites					
	Aca	Asp	Ces	Dig	Nem	Ann	Bra	Cop	Iso	Mon	
Atlantic	5	—	12	64	10	2	1	27	9	19	149
Pacific	5	1	3	23	10	—	—	8	1	19	70
Both	—	—	—	10	—	—	—	—	1	1	12

*Abbreviations: Aca. Acanthocephala; Ann. Annelida; Asp. Aspidogastrea; Bra. Branchiura; Ces. Cestoda; Cop. Copepoda; Iso. Isopoda; Mon. Monogenea; Nem. Nematoda.

Haemulon steindachneri and *Orthopristis ruber,* encysted in the mesentery, Brazil (Rio de Janeiro) (Luque *et al.* 1995; Luque *et al.* 1996a, b).

Order Polymorphida Petrochenko, 1956
Family Polymorphidae Meyer, 1931

Corynosoma obtuscens Lincicome, 1943 (cystacanth)
Isacia conceptionis, coelomic cavity, Peru (Trujillo) (Tantaleán *et al.* 2005).

***Corynosoma* sp**. (cystacanth)
Anisotremus scapularis and *Isacia conceptionis*, coelomic cavity, Chile (Antofagasta) (Oliva 1982). *Isacia conceptionis*, unspecified site of infection, Peru (Huanchaco) (Tantaleán *et al.* 2005).

Profilicollis altmani (Perry, 1942)
Anisotremus scapularis, coelomic cavity, gills and gonads, Peru (Chimbote, Ancash, Salaverry, La Libertad, Chorrillos, Playa de Conchán and Lima) (Tantalean *et al.* 2005; Iannacone and Alvariño 2009).

Phylum Annelida Lamarck, 1809
Class Hirudinea Lamarck, 1818
Order Rhynchobdellida Blanchard, 1893
Family Piscicolidae Johnson, 1865

Piscicolidae unidentified
Haemulon steindachneri, Orthopristis ruber, operculum cavity, Brazil (Rio de Janeiro) (Luque *et al.* 1996a).

Trachelobdella lubrica (Grube, 1840)
Haemulon album, *H. flavolineatum* and *H. sciurus,* gills and operculum cavity, Puerto Rico (undetermined locality) (Williams 1982).

Phylum Arthropoda Latreille, 1829
Class Malacostraca Latreille, 1802
Order Isopoda Latreille, 1817
Family Aegidae White, 1850

Rocinela signata Schioedte & Meinert, 1879
Haemulon aurolineatum, *H. steindachneri* and *Orthopristis ruber,* gills and body, Venezuela (Rio Caribe and Curúpano) (Bunkley-Williams *et al.* 2006).
Haemulon steindachneri gills and body, Venezuela (Rio Caribe and Curúpano) (Kensley and Schotte 1989).

Family Corallanidae Hansen, 1890

Excorallana tricornis (Hansen, 1890)
Anisotremus virginicus, gills, Colombia (Cartagena) (Williams *et al.* 1994).

Family Cymothoidae Leach, 1818

Table 3. Number of parasites species by countries or possessions in the American continent.

Country	Taxonomic groups*										Total
	Endoparasites					Ectoparasites					
	Aca	Asp	Ces	Dig	Nem	Ann	Bra	Cop	Iso	Mon	
South America											
Brazil	2	—	8	19	4	1	—	17	2	11	64
Chile	1	1	—	3	—	—	—	6	—	5	16
Colombia	—	—	—	5	—	—	—	3	2	—	10
Ecuador	—	—	—	8	—	—	—	1	—	—	08
Guyana	—	—	—	—	—	—	—	1	—	—	01
Peru	3	1	—	6	—	—	—	4	1	7	22
Venezuela	—	—	—	15	6	—	—	2	7	6	36
Central America											
Bahamas	—	—	—	9	—	—	—	3	—	1	13
Barbados	—	—	—	—	—	—	—	1	—	—	01
Belize	—	—	—	16	—	—	—	7	—	—	23
Bermudas	1	—	—	4		—	—	—	—	1	6
British Virgin Islands	—	—	—	1	—	—	—	—	1	—	2
Cayman Islands	—	—	—	3	—	—	—	—	—	—	3
Cuba	—	—	—	1	—	—	—	2	—	3	6
Curaçao	—	—	—	14	—	—	—	—	—	—	14
Dominica	—	—	—	—	—	—	—	1	—	—	1
El Salvador	—	—	—	—	—	—	—	1	—	—	1
Guatemala	—	—	—	—	—	—	—	1	—	—	1
Jamaica	—	—	—	20	—	—	—	3	1	—	24
Panama	—	—	—	1	—	—	—	4	—	—	5
Puerto Rico	—	—	—	25	—	1	—	—	1	—	27
Santa Lucia	—	—	—	—	—	—	—	1	—	—	1
West Indies	—	—	—	—	—	—	—	1	—	—	1
North America											
Mexico	4	—	3	19	10	—	—	6	2	12	56
United States of America	2	—	4	34	—	—	1	8	2	4	55

*Abbreviations: Aca. Acanthocephala; Ann. Annelida; Asp. Aspidogastrea; Bra. Branchiura; Ces. Cestoda; Cop. Copepoda; Iso. Isopoda; Mon. Monogenea; Nem. Nematoda.

Table 4. Species of the family Haemulidae associated with the number of parasite species recorded from Nearctic and Neotropical regions

Host	Common Name	Number of parasite species recorded
Anisotremus davidsonii (Steindachner, 1876)	Xantic sargo	3
Anisotremus dovii (Günther, 1864)	Spotted head sargo	6
Anisotremus interruptus (Gill, 1862)	Burrito grunt	8
Anisotremus pacifici (Günther, 1864)	Carruco sargo	2
Anisotremus scapularis (Tschudi, 1846)	Peruvian grunt	22
Anisotremus surinamensis (Bloch, 1791)	Black margate	8
Anisotremus taeniatus Gill, 1861	Panama Porkfish	1
Anisotremus virginicus (Linnaeus, 1758)	Porkfish	33
Anisotremus sp.	—	1
Boridia grossidens Cuvier, 1830	Borriqueta porgy	1
Conodon nobilis (Linnaeus, 1758)	Barred grunt	16
Haemulon album Cuvier, 1830	White margate	21
Haemulon aurolineatum Cuvier, 1830	Tomtate grunt	25
Haemulon bonariense Cuvier, 1830	Black grunt	11
Haemulon boschmae (Metzelaar, 1919)	Bronzestripe grunt	2
Haemulon carbonarium Poey, 1860	Caesar grunt	17
Haemulon chrysargyreum Günther, 1859	Smallmouth grunt	12
Haemulon flaviguttatum Gill, 1862	Yellowspotted grunt	12
Haemulon flavolineatum (Desmarest, 1823)	French grunt	29
Haemulon macrostomum Günther, 1859	Spanish grunt	6
Haemulon maculicauda (Gill, 1862)	Spottail grunt	6
Haemulon melanurum (Linnaeus, 1758)	Cottonwick grunt	9
Haemulon parra (Desmarest, 1823)	Sailor's grunt	13
Haemulon plumierii (Lacepède, 1801)	White grunt	36
Haemulon sciurus (Shaw, 1803)	Bluestriped grunt	54
Haemulon scudderii Gill, 1862	Grey grunt	8
Haemulon sexfasciatum Gill, 1862	Greybar grunt	6
Haemulon steindachneri (Jordan & Gilbert, 1882)	Chere-chere grunt	31
Haemulon striatum (Linnaeus, 1758)	Striped grunt	5
Haemulon sp.	—	8
Haemulopsis leuciscus (Günther, 1864)	Raucous grunt	6
Isacia conceptionis (Cuvier, 1830)	Cabinza grunt	8
Microlepidotus brevipinnis (Steindachner, 1869)	Humpback grunt	21
Microlepidotus inornatus Gill, 1862	Wavyline grunt	4
Microlepidotus sp.	—	1
Orthopristis chalceus (Günther, 1862)	Brassy grunt	2
Orthopristis chrysoptera (Linnaeus, 1766)	Pigfish	24
Orthopristis reddingi Jordan & Richardson, 1895	Bronze-striped grunt	3
Orthopristis ruber (Cuvier, 1830)	Corocoro grunt	49
Orthopristis sp.	—	1
Pomadasys corvinaeformis (Steindachner, 1868)	Roughneck grunt	2
Pomadasys crocro (Cuvier, 1830)	Burro grunt	1
Pomadasys macracanthus (Günther, 1864)	Longspine grunt	1
Pomadasys sp.	—	2
Xenichthys xanti Gill, 1863	Longfin salema	1
Xenistius californiensis (Steindachner, 1876)	Californian salema	4
Xenistius peruanus Hildebrand, 1946	Peruvian salema	1
Xenistius sp.	—	1

Aegathoa oculata (Say, 1818)

Orthopristis ruber, cheek, gills, mouth and oral cavity, Venezuela (Punta de Piedras and Isla de Margarita) (Eslava de Gonzalez 1988).

Anilocra haemuli Bunkley-Williams & Williams, 1981

Haemulon aurolineatum, subocular region, Jamaica (Montego Bay) and Puerto Rico (Morrillito and LaParquera) (Bunkley-Williams and Williams 1981)

Haemulon boschmae, cheek, Venezuela (Blanca) (Bunkley-Williams *et al.* 2006).

Haemulon carbonarium, above the eye, Puerto Rico (Culebra Island) and above the eye, United States of America (Virgin Islands) (Bunkley-Williams and Williams 1981).

Haemulon chrysargyreum above the eye, United States of America (Virgin Islands) and Puerto Rico (La Parguera) (Bunkley-Williams and Williams 1981).

Haemulon flavolineatum, subocular region, British Virgin

Islands (Virgin Gorda); Puerto Rico (Culebra Island and La Parguera) and United States of America (Florida and Virgin Islands) (Bunkley-Williams and Williams 1981).

Haemulon macostromum, above the eye, Puerto Rico (La Parguera) (Bunkley-Williams and Williams 1981).

Haemulon plumierii, subocular region, Mexico (Cozumel) and United States of America (Florida) (Bunkley-Williams and Williams 1981).

Haemulon sciurus, subocular region, United States of America (Florida) (Bunkley-Williams and Williams 1981).

Orthopristis ruber, subocular region, Venezuela (Isla de Margarita) (Bunkley-Williams and Williams 1981).

Anilocra* cf. *haemuli Bunkley-Williams & Williams, 1981

Haemulon bonariense and *Orthopristis ruber,* check, Venezuela (Curúpano) (Bunkley-Williams *et al.* 2006).

Anilocra laticauda H.Milne-Edwards, 1840

Orthopristis ruber, cheek, gills, mouth and oral cavity, Venezuela (Punta de Piedras and Isla de Margarita) (Bowman and Diaz-Ungria 1957; Eslava de Gonzalez 1988; Bashirullah 1991).

***Anilocra* sp**.

Orthopristis ruber, mouth, Brazil (Rio de Janeiro) (Luque *et al.* 1996a).

***Cymothoa* sp**.

Anisotremus scapularis, mouth, Peru (Lima) (Iannacone and Alvariño 2009).

Orthopristis ruber, gills, Venezuela (Curúpano) (Bowman and Diaz-Ungria 1957; Bunkley-Williams *et al*. 2006).

Livoneca ovalis Say, 1818

Orthopristis chrysoptera, gills, United States of America (Florida) (Hutton 1964; Overstreet 1978; Williams and Williams 1978).

***Livoneca* sp**.

Haemulon bonariense, gills, Colombia (Bay Concha) (Bunkley-Williams *et al.* 1999).

Family Gnathiidae Leach, 1814

***Gnathia* sp**. (praniza larvae)

Anisotremus surinamensis and *A. virginicus*, body surface, Brazil (Rio de Janeiro) (NHR) (MNRJ-23884\23888).

Conodon nobilis, gills, Brazil (Para) (Diniz *et al.* 2008).

Haemulon plumierii and *H. sciurus,* gills, Mexico (Quintana Roo) (Suárez-Morales *et al.* 2010).

Orthopristis ruber, gills, Venezuela (Curúpano) (Bunkley-Williams *et al.* 2006).

Class Maxillopoda Dahl, 1956
Order Arguloidea Yamaguti, 1963
Family Argulidae Leach, 1819

Argulus fuscus Bere, 1936

Orthopristis chrysoptera, mouth, United States of America (Florida) (Bere 1936).

Order Cyclopoida Burmeister, 1835
Family Bomolochidae Claus, 1875

Acantholochus lamellatus Paschoal, Cezar & Luque, 2013

Conodon nobilis, gills and opercular cavity, Brazil (Rio de Janeiro) (Paschoal *et al.* 2013).

Acantholochus nasus Cressey, 1984

Anisotremus davidsonii and *Orthopristis reddingi,* nasal sinuses, Mexico (Pacific Coast) (Cressey 1984).

Anisotremus dovii, nasal sinuses, Colombia (Pacific Coast) (Cressey 1984).

Anisotremus interruptus, nasal sinuses, Panama (undetermined locality) (Cressey 1984).

Ceratocolax mykternastes Cressey, 1981

Haemulon sciurus, nasal sinuses, Belize (Caribbean Sea) (Cressey 1981).

Haemulon plumierii, nasal sinuses, Brazil (Rio de Janeiro) (NHR\ NGR) (MNRJ-23882).

Pseudoeucanthus uniseriatus Wilson, 1913

Haemulon sciurus, nasal sinuses, Belize (Caribbean Sea) (Cressey 1983).

Family Philychthyidae Vogt, 1877

Colobomatus belizensis Cressey & Schotte, 1983

Haemulon aurolineatum, mandibular canals, Brazil (undetermined locality) and United States of America (Florida) (Cressey and Schotte 1983).

Haemulon carbonarium, mandibular canals, Dominica (undetermined locality) and Panama (undetermined locality) (Cressey and Schotte 1983).

Haemulon chrysargyreum, mandibular canals, Barbados (Key West) and Santa Lucia (undetermined locality) (Cressey and Schotte 1983).

Haemulon macrostomum, mandibular canals, Bahamas (undetermined locality) and Panama (undetermined locality) (Cressey and Schotte 1983).

Haemulon melanurum, mandibular canals, Guyana (undetermined locality) and West Indies (undetermined locality) (Cressey and Schotte 1983).

Haemulon parra, mandibular canals, Panama (Toro Point) (Cressey and Schotte 1983).

Haemulon plumierii and *H. steindachneri,* mandibular canals, Colombia (Caribbean) (Cressey and Schotte 1983).

Haemulon plumierii, mandibular canals, Cuba (undetermined locality); Mexico (Quintana Roo) and United States of America (Virgin Islands) (Cressey and Schotte 1983).

Haemulon sciurus, mandibular canals, Belize (Carrie Bow Cay); Cuba; Mexico (Cozumel and Yucatan); United States of America (Florida) and West Indies (Cressey and Schotte 1983).

Haemulon steindachneri, mandibular canals, Brazil (Rio de Janeiro) (Cressey and Schotte 1983; Luque and Takemoto 1996).

Orthopristis chrysoptera, mandibular canals, United States of America (Louisiana and North Carolina) (Cressey and Schotte 1983).

Orthopristis ruber, mandibular canals, Guyana (undetermined locality) and Venezuela (undetermined locality) (Cressey and Schotte 1983).

Colobomatus caribbei Cressey & Schotte, 1983

Anisotremus surinamensis, mandibular canals, Panamá; United States of America (Florida) and Venezuela (Cressey and Schotte 1983).

Colobomatus quadrifarius Cressey & Schotte, 1983

Anisotremus davidsonii, mandibular canals, Mexico (Sonora)

(Cressey and Schotte 1983).

Anisotremus dovii, mandibular canals, Colombia and Panamá (Cressey and Schotte 1983).

Anisotremus pacifici, mandibular canals, El Salvador and Guatemala (Cressey and Schotte 1983).

Anisotremus interruptus, mandibular canals, Mexico (Nayarit) (Cressey and Schotte 1983).

Haemulon flaviguttatum, mandibular canals, Mexico (Baja California) and Panamá (Cressey and Schotte, 1983).

Haemulon steindachneri, mandibular canals, Mexico (Colima and Cape) (Cressey and Schotte 1983).

Orthopristis chalceus, mandibular canals, Ecuador (Galapagos) (Cressey and Schotte 1983).

Orthopristis reddingi, mandibular canals, Mexico (Baja California and Bay of Guaymas) (Cressey and Schotte 1983).

Family Shiinoidae Cressey, 1975

Parashiinoa bakeri (Cressey & Cressey, 1986)

Anisotremus surinamensis, nasal sinuses, Brazil (Rio de Janeiro) (NHR/NGR) (MNRJ-23887).

Haemulon carbonarium, nasal sinuses, Panama (Colon) (Cressey and Cressey 1986).

Haemulon sciurus, nasal sinuses, Cuba (undetermined locality) (Cressey and Cressey 1986).

Order Shiponostomatoida Thorell, 1859

Family Caligidae Burmeister, 1835

Caligus atromaculatus Wilson, 1913

Anisotremus virginicus, Haemulon plumierii and *H. sciurus,* gills, Belize (Carrie Bow Cay) (Cressey 1991).

Caligus biaculeatus Brian, 1914

Haemulon sciurus, gills, Belize (Carrie Bow Cay) (Cressey 1991).

Caligus haemulonis Krøyer, 1863

Anisotremus surinamensis and *Conodon nobilis*, gills, Brazil (Rio de Janeiro) (NHR) (MNRJ-23886\23420).

Anisotremus virginicus, Haemulon carbonarium and *H. macrostomum* gills, Belize (Carrie Bow Cay) (Cressey 1991).

Haemulon plumierii and *H. sciurus* gills, Mexico (Quintana Roo) (Suárez-Morales *et al.* 2010).

Haemulon steindachneri and *Orthopristis ruber,* gills, Brazil (Rio de Janeiro) (Luque and Takemoto 1996; Luque *et al.* 1996a, b).

Caligus longipedis Bassett-Smith, 1898

Anisotremus virginicus and *Conodon nobilis*, gills, Brazil (Rio de Janeiro) (NHR) (MNRJ-23890\ 23418).

Haemulon sciurus, gills, Belize (Carrie Bow Cay) (Cressey, 1991).

Caligus praetextus Bere, 1936

Orthopristis chrysoptera, gills, United States of America (Florida) (Bere 1936).

Orthopristis ruber, gills, Brazil (Rio de Janeiro) (Luque *et al.* 1998).

Caligus rapax H. Milne-Edwards, 1840

Haemulon sciurus and *Orthopristis chrysoptera,* gills, United States of America (Florida) (Bere 1936).

Caligus robustus Basset-Smith, 1898

Conodon nobilis, gills, Brazil (Rio de Janeiro) (NHR) (MNRJ-23991).

Haemulon aurolineatum, body surface, Jamaica (undetermined locality) (Yamaguti 1963b).

Caligus rufimaculatus Wilson, 1905

Conodon nobilis, gills, Brazil (Rio de Janeiro) (NHR) (MNRJ-23422).

Haemulon plumierii and *Orthopristis chrysoptera,* gills, United States of America (Florida, Gulf of Mexico) (Cressey 1991).

Caligus sepetibensis Luque & Takemoto, 1996

Haemulon steindachneri and *Orthopristis ruber,* gills, Brazil (Rio de Janeiro) (Luque and Takemoto 1996).

***Caligus* sp.**

Haemulon steindachneri and *Orthopristis ruber,* gills, Brazil (Rio de Janeiro) (Luque *et al.* 1996a).

Caligus xystercus Cressey, 1991

Anisotremus virginicus, gills, Belize (Carrie Bow Cay) (Cressey 1991) and Brazil (Rio de Janeiro) (NGR) (MNRJ-23889).

Conodon nobilis, gills, Brazil (Rio de Janeiro) (NHR) (MNRJ-23423).

Family Hatschekiidae Kabata, 1979

Hatschekia linearis Wilson, 1913

Conodon nobilis, Haemulon album and *H. sciurus,* gills, Bahamas (Bimini) (Pearse 1951).

Haemulon album, H. plumierii and *H. sciurus,* gills, Jamaica (undetermined locality) (Wilson 1913).

Haemulon aurolineatum, gills, Jamaica (undetermined locality) (Yamaguti 1963b).

***Hatschekia* sp.**

Haemulon plumierii and *H. sciurus,* gills, Mexico (Quintana Roo) (Suárez-Morales *et al*. 2010).

Anisotremus virginicus, gills, Brazil (Rio de Janeiro) (NHR) (MNRJ-23992).

Family Lernaepodidae Milne Edwards, 1840

Clavella applicata Castro-Romero & Baeza-Kuroki, 1985

Anisotremus scapularis, gills, Chile (Antofagasta) (Castro and Baeza 1985a) and gills and operculum, Peru (Chorrillos) (Iannacone and Alvariño 2009).

Clavella caudata Castro-Romero & Baeza-Kuroki, 1985

Anisotremus scapularis, gills, Chile (Antofagasta) (Castro and Baeza 1985a).

Clavella simplex (Richiardi, 1880)

Isacia conceptionis, gills, Chile (Antofagasta) (Castro and Baeza 1985b).

Clavellotis dilatata (Krøyer, 1863)

Haemulon steindachneri, gills, Brazil (Rio de Janeiro) (Luque and Takemoto 1996; Luque *et al.* 1996a).

Mixtio inversa (Wilson, 1913)

Haemulon aurolineatum, gills, intestine, Jamaica (undetermined locality) (Yamaguti 1963b).

Naobranchia variabilis Brian, 1924

Haemulon plumierii, gills, United States of America (Florida) (Pearse 1952).

Neobrachiella anisotremi Castro-Romero & Baeza-Kuroki, 1989

Anisotremus scapularis, gills, Chile (Antofagasta) (Castro

and Baeza 1989) and gills, Peru (Chorrillos) (Iannacone and Alvariño 2009).

Family Lernanthropidae Kabata, 1979

Lernanthropus amplitergum Pearse, 1951
Anisotremus virginicus, Conodon nobilis, Haemulon album and *H. sciurus,* gills, Bahamas (Bimini) (Pearse 1951).

Lernanthropus antofagastensis Castro-Romero & Baeza-Kuroki, 1985
Anisotremus scapularis, gills, Chile (Antofagasta) (Castro and Baeza 1985c) and Peru (Chorrillos) (Iannacone and Alvariño 2009).

Lernanthropus chacchi Suárez-Morales, Reyes-Lizama & González-Solís, 2010
Haemulon plumierii and *H. sciurus,* gills, Mexico (Quintana Roo) (Suárez-Morales *et al.* 2010).
Haemulon plumierii, gills, Brazil (Rio de Janeiro) (NGR) (MNRJ-23883).

Lernanthropus rathbuni Wilson, 1922
Anisotremus surinamensis and *Conodon nobilis,* gills, Brazil (Rio de Janeiro) (NHR) (MNRJ-23885/23424).
Haemulon steindachneri and *Orthopristis ruber,* gills, Brazil (Rio de Janeiro) (Luque and Takemoto 1996; Luque *et al.* 1996a, b).
Pomadasys corvinaeformis, gills, Brazil (Rio Grande do Norte) (Cavalcanti *et al.* 2006).
Orthopristis chrysoptera, gills, United States of America (Florida) (Bere 1936; Wilson 1922).

Family Pennellidae Burmeister, 1935

Lernaeolophus sultanus (Milne-Edwards, 1840)
Haemulon plumierii, gills, United States of America (Florida) (Wilson 1917).

Metapeniculus antofagastensis Castro-Romero & Baeza-Kuroki, 1985
Anisotremus scapularis, on rays of caudal dorsal and ventral fins, Chile (Antofagasta) (Castro and Baeza 1985d) and pectoral fins, Peru (Chorrillos) (Iannacone and Alvariño 2009).

Metapeniculus haemuloni (Alexander, 1983)
Haemulon steindachneri, tail fins, Brazil (São Paulo) (Alexander 1983).

Phylum Nematoda Rudolphi, 1808
Class Adenophorea Linstow, 1905
Order Enoplida Filipjev, 1929
Family Oncholaimidae Filipjev, 1916

Metoncholaimus amplus Hopper, 1967
Haemulon sciurus, intestine, Brazil (Rio de Janeiro) (Moravec *et al.* 1990).

Class Secernentea Linstow, 1905
Order Ascaridida Skrjabin & Shulz, 1940
Family Anisakidae Skrjabin & Karokhin, 1945

***Contracaecum* sp.** (larvae)
Haemulon flaviguttatum, H. sexfasciatum, Microlepidotus brevipinnis, Haemulopsis leuciscus and *Xenichthys xanti,* intestine and stomach, Mexico (Bay of Chamela) (Pérez-Ponce de León *et al.* 1999).

***Hysterothylacium* sp.** (larvae)
Anisotremus dovii, Haemulon flaviguttatum, H. maculicauda and *Microlepidotus brevipinnis,* intestine, Mexico (Bay of Chamela) (Pérez-Ponce de León *et al.* 1999).

***Pseudoterranova* sp.** (larvae)
Haemulon flaviguttatum, H. sexfasciatum and *Microlepidotus brevipinnis,* intestine and stomach, Mexico (Bay of Chamela) (Pérez-Ponce de León *et al.* 1999).

***Raphidascaris* sp.** (larvae)
Haemulon flaviguttatum, H. maculicauda, H. sexfasciatum, Haemulopsis leuciscus and *Microlepidotus brevipinnis,* intestine and stomach, Mexico (Bay of Chamela) (Pérez-Ponce de León *et al.* 1999).

Family Cucullanidae Cobbold, 1864

Cucullanus chrysophrydes Gendre, 1927
Orthopristis ruber, intestine, Venezuela (Margarita Islands) (Bashirullah and Diaz 2008).

***Cucullanus* sp.**
Haemulopsis leuciscus and *Microlepidotus inornatus,* intestine, Mexico (Bay of Chamela) (Pérez-Ponce de León *et al.* 1999).

***Cucullanus* sp. 1**
Orthopristis ruber and *Haemulon steindachneri,* intestine, Venezuela (Gulfo of Cariaco) (Centeno *et al.* 2002).

***Cucullanus* sp. 2**
Orthopristis ruber, intestine, Venezuela (Gulf of Cariaco) (Centeno *et al.* 2002).

Dichelyne* (*Cucullanellus*) *torniquisti Paschoal, Vieira, Cezar & Luque, 2014
Orthopristis ruber, intestine, Brazil (Rio de Janeiro) (Paschoal *et al.* 2014).

Dichelyne* (*Cucullanellus*) *tripapillatus (Gendre, 1927)
Orthopristis ruber, intestine, Venezuela (Margarita Islands) (Bashirullah and Diaz 2008).

***Dichelyne* sp.**
Haemulon maculicauda, H. sexfasciatum and *Microlepidotus brevipinnis,* intestine, Mexico (Bay of Chamela) (Pérez-Ponce de León *et al.* 1999).

Family Cystidicolidae Skrjabin, 1946

***Ascarophis* sp.**
Anisotremus taeniatus, intestine, Mexico (Bay of Chamela) (Pérez-Ponce de León *et al.* 1999).

Order Oxyurida Railliet, 1916
Family Oxyuridae Cobbold, 1864

Aspiculuris tetraptera (Nizch, 1921)
Haemulon sciurus, intestine, Brazil (Rio de Janeiro) (Kohn and Macedo 1984).

Family Pharyngodonidae Travassos, 1920

***Parasynodontisia* sp.**
Haemulon flaviguttatum, stomach, Mexico (Bay of Chamela) (Pérez-Ponce de León *et al.* 1999).

Order Spirurida Chitwood, 1933
Family Camallanidae Railliet & Henry, 1915

Procamallanus* (*Spirocamallanus*) *caballeroi Bashirullah, 1977

Haemulon chrysargyreum, intestine, Venezuela (Gulf of Cariaco) (Bashirullah 1977).

Procamallanus* (*Spirocamallanus*) *cumanensis (Bashirullah, 1977)

Orthopristis ruber, intestine, Venezuela (Gulf of Cariaco) (Centeno *et al.* 2002).

Family Philometridae Baylis & Daubney, 1926

Philometra lateolabracis Yamaguti, 1935

Haemulon plumierii, gonads, Brazil (Fortaleza) (Crisp and Klein 1973).

Family Rhabdochonidae (Travassos, Artigas & Pereira, 1928)

***Johnstonmawsonia* sp.**

Haemulopsis leuciscus, intestine, Mexico (Bay of Chamela) (Pérez-Ponce de León *et al.* 1999).

Vasorhabdochona cablei Martin & Zam, 1967

Haemulopsis leuciscus, intestine, Mexico (Jalisco) (Gonzalez-Solis 2004).

Phylum Platyhelminthes Gegenbaur, 1859
Class Cestoda Van Beneden, 1849
Order Cyclophyllidea Van Beneden & Braun, 1900
Family Incertae

Cyclophyllidea gen. sp.

Microlepidotus brevipinnis, stomach, Mexico (Bay of Chamela) (Pérez-Ponce de León *et al.* 1999).

Order Proteocephalidea Mola, 1928
Family Proteocephalidae La Rue, 1911

Proteocephalidae gen.sp.

Microlepidotus brevipinnis, intestine and stomach, Mexico (Bay of Chamela) (Pérez-Ponce de León *et al.* 1999).

Order Tetraphyllidea Carus, 1863
Family Pseudotobothriidae Ward, 1954

Pseudotobothrium dipsacum (Linton, 1897)

Haemulon plumierii, body cavity, Brazil (Pernambuco) (Palm 1997).

Family Tetraphyllidae (incertae sedis)

***Scolex* sp.**

Haemulon steindachneri and *Orthopristis ruber,* intestine, Brazil (Rio de Janeiro) (Luque *et al.* 1995; Luque *et al.* 1996a, b).

Tetraphyllidae gen. sp.

Microlepidotus brevipinnis, intestine and stomach, Mexico (Bay of Chamela) (Pérez-Ponce de León *et al.* 1999).

Order Trypanorhyncha Diesing, 1863
Family Lacistorhynchidae Guiart, 1937

Callitretarhynchus gracilis (Rudolphi, 1819)

Haemulon aurolineatum, body cavity and musculature, Brazil (Pernambuco) (Palm 1997).

***Callitetrarhynchus* sp.** (plerocercoid larvae)

Conodon nobilis, body cavity, Brazil (Rio de Janeiro) (NHR) (CHIOC-37934).

Family Otobotrhiidae Dollfus, 1942

Otobothrium crenacolle Linton, 1890

Orthopristis chrysoptera, intestine, United States of America (North Carolina) (Dollfus 1942).

Family Pterobothriidae Pintner, 1931

Pterobothrium heteracanthum Diesing, 1850

Haemulon plumierii, intestine, United States of America (New York) (Dollfus 1942).

Pterobothrium kingstoni Campbell & Beveridge, 1996

Haemulon aurolineatum, undetermined site of infestation, Brazil (undetermined locality) (Campbell and Beveridge 1996).

Pterobothrium lintoni (MacCallum, 1916)

Orthopristis chrysoptera, intestine, United States of America (North Carolina) (Dollfus 1942).

***Pterobothrium* sp.** (plerocercoid larvae)

Conodon nobilis, body cavity, Brazil (Rio de Janeiro) (NHR) (CHIOC-37949).

Family Tentacullariidae Poche, 1926

Nybelinia bisulcata Linton, 1889

Orthopristis chrysoptera, intestine, United States of America (North Carolina) (Dollfus 1942).

Nybelinia* cf. *lingualis Cuvier, 1817

Haemulon plumierii, intestine, Brazil (Pernambuco) (Palm 1997).

Nybelinia senegalensis Dollfus, 1960

Haemulon plumierii, intestine, Brazil (Pernambuco) (Palm 1997).

Class Monogenea Van Beneden, 1858
Order Capsalidea Lebedev, 1988
Family Capsalidae Baird, 1853

***Benedenia* sp.**

Isacia conceptionis, gills, Peru (North Coast) (Escalante *et al.* 1982).

Encotyllabe antofagastensis Sepúlveda, González & Oliva, 2014

Anisotremus scapularis, pharyngeal plates, Chile (Antofogasta) (Sepúlveda *et al.* 2014).

Encotyllabe pagrosomi MacCallum, 1917

Haemulon steindachneri and *Orthopristis ruber,* gills, Venezuela (Gulf of Cariaco) (Centeno *et al.* 2002; Cohen *et al.* 2013).

Pomadasys macracanthus, pharyngeal plate, Mexico (Mazatlán) (Bravo-Hollis 1957).

Encotyllabe spari Yamaguti, 1934

Anisotremus surinamensis and *Conodon nobilis,* gills, Brazil (Rio de Janeiro) (NHR) (CHIOC-37947\ 37948).

Haemulon sciurus, gills, Brazil (Rio de Janeiro) (Kohn *et al.* 1984; Cohen *et al.* 2013).

Orthopristis ruber, gills and pharyngeal plate, Brazil (Rio de Janeiro) (Luque *et al.* 1996a, b; Cohen *et al.* 2013).

Neobenedenia melleni (MacCallum, 1927)

Anisotremus virginicus, body surface, Brazil (Rio de Janeiro) (NHR) (CHIOC-37946).

Haemulon album, H. plumierii and *H. sciurus,* skin, head,

eyes and body, Bahamas (Exuma cays) (Mueller *et al.* 1994).

Order Dactylogyridea Bychowsky, 1937

Family Calceostomatidae Parona & Perugia, 1890

Paracalceostoma calceostomoides Caballero & Bravo-Hollis, 1959

Anisotremus interruptus, Haemulon scudderii, gills, Mexico (Jalisco) (Caballero and Bravo-Hollis 1959; Pérez-Ponce de León *et al.* 1999).

Family Dactylogyridae Bychowsky, 1933

Haliotrema longiangusticirrus Zhukov, 1981

Haemulon striatum, gill lamellae, Cuba (Havana) (Zhukov 1981).

***Haliotrema* sp.**

Haemulon steindachneri, gills, Venezuela (Gulf of Cariaco) (Centeno *et al.* 2002); *H. bonariense*, *H. chrysargyreum* and *H. boschmae,* Venezuela (Gulf of Cariaco) (Centeno and Bashirullah 2003).

Haliotrematoides brevispirocirrus (Zhukov, 1981)

Haemulon striatum, gill lamellae, Cuba (Havana) (Zhukov 1981).

Haliotrematoides striatohamatus (Zhukov, 1981)

Haemulon aurolineatum, H. carbonarium, H. flavolineatum, H. melanurum, H. plumierii and *H. sciurus,* gills, Cuba (Havana) (Zhukov 1981).

Haemulon aurolineatum, H. plumierii and *H. sciurus,* gills Mexico (Quintana Roo) (Mendoza-Franco *et al.* 2009).

Mexicana anisotremum Cezar, Paschoal & Luque, 2012

Anisotremus surinamensis and *A. virginicus,* gills, Brazil (Rio de Janeiro) (Cezar *et al.* 2012; Cohen *et al.* 2013).

Mexicana atlantica Luque, Takemoto & Amato, 1992

Haemulon steindachneri, gills, Brazil (Rio de Janeiro) (Luque *et al.* 1992; Luque *et al.* 1996a, b; Cohen *et al.* 2013).

Mexicana littoralis Caballero & Bravo-Hollis, 1961

Haemulon sexfasciatum, gills, Mexico (Gulf of California) (Caballero and Bravo-Hollis 1961).

Haemulon scudderii, gills, Mexico (Jalisco) (Lamothe-Argumedo *et al.* 1996).

***Mexicana* sp.**

Anisotremus scapularis, gills, Peru (Lima) (Iannacone and Alvariño 2012).

Pseudotetrancistrum skrjabini Caballero & Bravo-Hollis, 1961

Microlepidotus inornatus, gills, Mexico (Sonora) (Caballero and Bravo-Hollis 1961).

Order Mazocraeidea Bychowsky, 1957

Family Diclidophoridae Cerfontaine, 1895

Choricotyle anisotremi Oliva, 1987

Anisotremus scapularis, gills, Chile (Antofagasta) (Oliva 1987; Cohen *et al.* 2013) and Peru (Lima) (Iannacone and Alvariño 2009).

Choricotyle aspinachorda Hargis, 1955

Haemulon aurolineatum and *Haemulon steindachneri,* gills, Venezuela (Gulf of Cariaco) (Centeno and Bashirullah 2003).

Orthopristis chrysoptera, gills, United States of America (Florida) (Hargis 1955; Kingston *et al.* 1969).

Orthopristis ruber, gills, Brazil (Rio de Janeiro) (Luque *et al.* 1993a; Luque *et al.* 1996a,b; Cohen *et al.* 2013) and Venezuela (Gulf of Cariaco and Margarita Island) (Bashirullah and Rado 1987; Cohen *et al.* 2013).

Choricotyle brasiliensis Luque, Amato & Takemoto, 1993

Orthopristis ruber, gills, Brazil (Rio de Janeiro) (Luque *et al.* 1993a; Luque *et al.* 1996a, b; Cohen *et al.* 2013).

Choricotyle cynoscioni (MacCallum, 1917)

Orthopristis ruber, gills, Brazil (Rio de Janeiro) (Luque *et al.* 1993a; Luque *et al.* 1996a, b; Cohen *et al.* 2013) and Venezuela (Gulf of Cariaco and Margarita Island) (Bashirullah and Rado 1987; Cohen *et al.* 2013).

Choricotyle hysteroncha (Fujii, 1944)

Haemulon sciurus, gills, Brazil (Rio de Janeiro) (Kohn *et al.* 1984; Cohen *et al.* 2013).

Choricotyle isaciensis Oliva, González, Ruz & Luque, 2009

Isacia conceptionis, gills, Chile (San Jorge Bay) (Oliva *et al.* 2009; Cohen *et al.* 2013).

Choricotyle leonilavazquezae Lamothe-Argumedo, Aranda-Cruz & Pérez-Ponce de León, 1988

Microlepidotus brevipinnis, gills, Mexico (Bay of Chamela) (Lamothe-Argumedo *et al.* 1998; Pérez-Ponce de León *et al.* 1999).

Choricotyle orthopristis Luque, Amato & Takemoto, 1993

Orthopristis ruber and *Haemulon steindachneri,* gills, Brazil (Rio de Janeiro) (Luque *et al.* 1993a; Luque *et al.* 1996a, b; Cohen *et al.* 2013).

Choricotyle reynoldsi Frayne, 1943

Orthopristis ruber and *Haemulon steindachneri,* gills, Venezuela (Gulf of Cariaco and Margarita Island) (Bashirullah and Rado 1987; Cohen *et al.* 2013).

Choricotyle scapularis Oliva, González, Ruz & Luque, 2009

Anisotremus scapularis, gills, Chile (San Jorge Bay) (Oliva *et al.* 2009; Cohen *et al.* 2013).

Choricotyle sonorensis Caballero & Bravo-Hollis, 1962

Microlepidotus inornatus, gills, Mexico (Jalisco) (Caballero and Bravo-Hollis 1962a).

Echinopelma bermudae Raecke, 1945

Haemulon album, gills, Bermudas (undetermined locality) (Raecke 1945).

Pseudoeurysorchis travassosi Caballero & Bravo-Hollis, 1962

Isacia conceptionis, gills, Peru (Lima) (Tantaleán *et al.* 1985; Cohen *et al.* 2013).

Microlepidotus inornatus, gills, Mexico (Sonora) (Caballero and Bravo-Hollis 1962b).

Microlepidotus brevipinnis, gills, Mexico (Bay of Chamela) (Pérez-Ponce de León *et al.* 1999).

Family Heteraxinidae Unnithan, 1957

Cynoscionicola intermedia Tantaleán, Escalante & Martinez, 1988

Xenistius peruanos, gills, Peru (Lima) (Tantaleán *et al.* 1988).

Cynoscionicola srivastavai Bravo-Hollis & Caballero, 1970
Anisotremus dovii, gills, Mexico (Jalisco) (Mendoza-Garfias and Pérez-Ponce de León 1999).

Heteraxinoides hargisi Price, 1962
Haemulon album, gills, United States of America (New York) (Price 1962).

Family Macrovalvitrematidae Yamaguti, 1963

Macrovalvitrema sinaloense Caballero & Bravo-Hollis, 1955
Xenistius californiensis, gills, Mexico (Baja California) (Bravo-Hollis 1986).

Pseudotagia cupida (Hargis, 1956)
Haemulon sciurus, gills, Brazil (Rio de Janeiro) (Kohn and Macedo 1984; Cohen *et al.* 2013).
Orthopristis chrysoptera, gills, United States of America (Florida and North Carolina) (Hargis 1956; Kingston *et al.* 1969; Suydam 1971).
Orthopristis ruber, gills, Venezuela (Gulf of Cariaco) (Centeno *et al.* 2002; Cohen *et al.* 2013).

Pseudotagia rubri Luque, Amato & Takemoto, 1993
Orthopristis ruber, gills, Brazil (Rio de Janeiro) (Luque *et al.* 1993b; Luque *et al.* 1996a, b; Cohen *et al.* 2013).
Family Microcotylidae Taschenberg, 1879

Intracotyle neghmei (Villalba, 1987)
Anisotremus scapularis, gills, Chile (Arica) and Peru (Callao) (Oliva and Luque 1995; Cohen *et al.* 2013).

Magniexcipula lamothei Bravo-Hollis, 1980
Anisotremus dovii, gills, Mexico (Bay of Chamela) (Mendoza-Garfias and Pérez-Ponce de León 1999).

Microcotyle pomocanthi MacCallum, 1915
Anisotremus virginicus, gills, United States of America (Florida) (Manter 1940).

Neobivagina chita Tantaleán, Morales & Escalante, 1988
Anisotremus scapularis, gills, Peru (Lima) (Tantaleán *et al.* 1998; Cohen *et al.* 2013).

Polynemicola californica Bravo-Hollis, 1986
Xenistius californiensis, gills, Mexico (Baja California) (Bravo-Hollis 1986).

Class Trematoda Rudolphi, 1808
Order Aspidogastrida Dollfus, 1958
Family Aspidogastridae Poche, 1907

Lobatostoma anisotremum Oliva & Carvajal, 1984
Anisotremus scapularis, intestine, Chile (Antofagasta) (Oliva and Carvajal 1984) and Peru (Lima) (Oliva and Luque 1989; Luque *et al.* 1991; Iannacone and Alvariño 2009; Kohn *et al*. 2007).

Order Plagiorchiida La Rue, 1957
Family Acanthocolpidae Lühe, 1906

Pleorchis americanus (Lühe, 1906)
Pomadasys sp., intestine, Colombia (Choco) (Castañeda *et al.* 2003).

Stephanostomum anisotremi Manter, 1940
Anisotremus scapularis, intestine, Ecuador (Galapagos) (Manter 1940; Kohn *et al.* 2007).

Stephanostomum casum (Linton, 1910)
Microlepidotus brevipinnis, intestine, Mexico (Bay of Chamela) (Pérez-Ponce de León *et al*., 1999).

Stephanostomum sentum (Linton, 1910)
Anisotremus virginicus and *Haemulon sciurus,* intestine, Jamaica (North Shore) (Nahhas and Carlson 1994; Yamaguti 1971).
Haemulon album, small intestine, Curaçao (undetermined locality) (Nahhas and Cable 1964).
Haemulon flavolineatum, small intestine, Bahamas (undetermined locality) (Siddiqi and Cable, 1960); Belize (Caribbean Sea) (Fischthal 1977) and Puerto Rico (La Parguera) (Dyer *et al.* 1992).
Haemulon plumierii and *H. sciurus,* intestine, United States of America (Florida) (Yamaguti 1971).
Haemulon sciurus, small intestine, Cayman Islands (Caribbean Sea) (Nahhas and Cable, 1964), Curaçao (undetermined locality) (Nahhas 1993) and Jamaica (North Shore) (Nahhas and Carlson 1994).

Stephanostomum lopezneyrai Vigueras, 1955
Anisotremus virginicus, intestine, Cuba (undetermined locality) (Yamaguti 1971).
Haemulon carbonarium, intestine, United States of America (Florida) (Yamaguti 1971).

***Stephanostomum* sp.**
Pomadasys corvinaeformis intestine, Puerto Rico (Humacao) (Bunkley-Willians *et al.* 1996).

Family Apocreadiidae (Skrjabin, 1942)

Homalometron cryptum (Overstreet, 1969)
Anisotremus virginicus and *Haemulon flavolineatum,* pyloric ceca and small intestine, Belize (Caribbean Sea) (Fischthal 1977).
Anisotremus virginicus and *Haemulon parra,* intestine, United States of America (Florida) (Overstreet 1969).

Homalometron dowgialloi Dyer, Williams & Bunkley-Williams, 1992
Haemulon flavolineatum, intestine, Puerto Rico (La Parquera) (Dyer *et al.* 1992).

Homalometron foliatum (Siddiqi & Cable, 1960)
Anisotremus virginicus, Haemulon flavolineatum and *H. sciurus,* intestine, Puerto Rico (La Parguera) (Dyer *et al.* 1992; Bunkley-Willians *et al.* 1996).
Haemulon album, H. flavolineatum and *H. sciurus,* intestine, Curaçao (undetermined locality) (Nahhas and Cable 1964).
Haemulon aurolineatum, H. carbonarium and *H. parra,* intestine, United States of America (Florida) (Overstreet 1969).
Haemulon flavolineatum, small intestine, Bahamas (undetermined locality) (Siddiqi and Cable 1960).
Haemulon flavolineatum and *H. sciurus,* small intestine, Jamaica (North Shore) (Nahhas and Carlson 1994).
Haemulon aurolineatum, H. bonariense, H. steindachneri and *Orthopristis ruber,* intestine, Venezuela (Gulf of Cariaco) (Centeno *et al.* 2002; Centeno and Bashirullah 2003; Kohn *et al.* 2007).

Family Cryptogonimidae Ward, 1917

Metadena globosa (Linton, 1910)
Haemulon scudderii, stomach, Mexico (Jalisco) (Bravo-Hollis 1956).

Siphodera vanclesvei Manter, 1940

Haemulon maculicauda, intestine, Colombia (Santa Marta) (Manter 1940).

Siphodera vinaledwardsii (Linton, 1901)

Orthopristis chrysoptera, intestine, United States of America (North Carolina) (Linton 1910).

Haemulon flavolineatum, intestine, Colombia (Santa Marta) (Velez 1978; Kohn *et al*. 2007).

Family Diplangidae Yamaguti, 1971

Diplangus mexicanus Bravo-Hollis & Manter, 1957

Microlepidotus brevipinnis, intestine, Mexico (Bay of Chamela) (Pérez-Ponce de León *et al.* 1999).

Microlepidotus sp., *Orthopristis* sp. and *Xenistius* sp., intestine, Mexico (Baja California) (Yamaguti 1971).

Orthopristis reddingi, intestine, Mexico (Baja California) (Arai 1963).

Diplangus miolecithus Manter, 1947

Haemulon album and *H. parra,* stomach, United States of America (Florida) (Manter 1947; Yamaguti 1971).

Diplangus ovalis (Siddiqi & Cable, 1960)

Haemulon plumierii, stomach, Puerto Rico (La Parguera) (Siddiqi and Cable 1960; Dyer *et al.* 1992).

Diplangus parvus Manter, 1947

Anisotremus virginicus, Haemulon carbonarium, H. flavolineatum, H. parra, H. plumierii and *H. sciurus,* pyloric caeca and anterior intestine, United States of America (Florida) (Manter 1947; Overstreet 1969).

Haemulon carbonarium, *H. flavolineatum* and *H. sciurus,* intestine, Jamaica (North Shore) (Nahhas and Cable 1964; Nahhas and Carlson 1994).

Haemulon flavolineatum, intestine, Belize (Caribbean Sea) (Fischthal 1977).

Diplangus paxillus Linton, 1910

Anisotremus virginicus, Haemulon carbonarium, H. flavolineatum, H. macrostomum, H. parra, H. plumierii and *H. sciurus,* intestine, pyloric caeca and anterior intestine, United States of America (Florida) (Linton 1910; Manter 1947; Overstreet 1969).

Anisotremus virginicus, Haemulon flavolineatum and *H. sciurus,* intestine, Jamaica (North Shore) (Nahhas and Carlson 1994).

Haemulon aurolineatum, H. bonariense, H. chrysargyreum, H. steindachneri and *Orthopristis ruber,* intestine, pyloric caeca and anterior intestine, Venezuela (Gulf of Cariaco) (Fischthal and Nasir 1974; Centeno *et al.* 2002; Centeno and Bashirullah 2003; Kohn *et al*. 2007).

Haemulon album, H. parra, H. plumierii and *H. sciurus,* intestine, Bahamas (Caribbean Sea) (Sogandares-Bernal 1959).

Haemulon flavolineatum, intestine, Puerto Rico (La Parguera) (Dyer *et al.* 1992).

Haemulon sciurus, intestine, Jamaica (Nahhas and Cable 1964) and Brazil (Rio de Janeiro) (Kohn *et al.* 1982; Kohn *et al*. 2007).

Orthopristis ruber, intestine, Brazil (Rio de Janeiro and Santa Catarina) (Amato 1982a; Luque *et al.* 1996a, b; Kohn *et al*. 2007).

Diplangus triradiatus Manter & Van Cleave, 1951

Microlepidotus brevipinnis, intestine, Mexico (Bay of Chamela) (Pérez-Ponce de León *et al.* 1999).

Family Fellodistomidae Nicoll, 1909

Infundibulostomum anisotremi Nahhas & Cable, 1964

Anisotremus virginicus, intestine, Jamaica (North Shore) (Nahhas and Carlson 1994; Yamaguti 1971).

Infundibulostomum spinatum Siddiqi & Cable, 1960

Haemulon flavolineatum, intestine, Puerto Rico (La Parguera) (Dyer *et al.* 1985; Dyer *et al.* 1992).

Haemulon sciurus, intestine, United States of America (Florida) (Overstreet 1969).

Proctoeces lintoni Siddiqi & Cable, 1960

Anisotremus scapularis and *Isacia conceptionis,* intestine, Chile (Peruvian Faunistic Province) and Peru (Peruvian Faunistic Province and Lima) (Luque and Oliva 1993; Iannacone and Alvariño 2009; Kohn *et al*. 2007).

***Proctoeces* sp.**

Anisotremus scapularis and *Isacia conceptionis,* intestine, Peru (undetermined locality) (Tantaleán *et al.* 1992; Kohn *et al*. 2007).

Steringotrema corpulentum (Linton, 1905)

Orthopristis chrysoptera, intestine, United States of America (North Carolina) (Yamaguti 1971).

Family Haploporidae Nicoll, 1914

***Megasolena* sp.**

Pomadasys sp., intestine, Colombia (Choco) (Castañeda *et al.* 2003).

Family Lepocreadiidae (Odhner, 1915)

***Lepocreadium* sp.**

Haemulon sciurus, small intestine, Puerto Rico (La Parguera) (Dyer *et al.* 1992).

Opechona chloroscombri Nahhas & Cable, 1964

Orthopristis ruber, stomach and intestine, Brazil (Santa Catarina) (Amato 1983a).

Opechona pharyngodactyla Manter, 1940

Microlepidotus brevipinnis, intestine, Mexico (Bay of Chamela) (Pérez-Ponce de León et al., 1999).

Myzoxenus lachnolaimi Manter, 1940

Haemulon carbonarium, small intestine, Puerto Rico (La Parguera) (Dyer *et al.* 1992).

Family Monorchiidae (Odhner, 1911)

Ametrodaptes mexicana Bravo-Hollis, 1956

Haemulon scudderii, Stomach, Mexico (Jalisco) (Bravo-Hollis 1956).

Bupharinx bupharinx (Bravo-Hollis, 1956)

Haemulon scudderii, Stomach, Mexico (Jalisco) (Bravo-Hollis 1956).

Diplomonorchis leiostomi Hopkins, 1941

Boridia grossidens, Haemulon sciurus, H. steindachneri and *Orthopristis ruber* intestine, Brazil (Rio de Janeiro) (Kohn *et al.* 1982; Fernandes *et al.* 1985; Luque *et al.* 1996a, b; Kohn *et al*. 2007).

Orthopristis chrysoptera, intestine, United States of America (North Carolina, Louisiana and Florida) (Hopkins 1941; Sparks 1958; Nahhas and Powell 1965; Overstreet 1969).

Genolopa ampullacea Linton, 1910

Anisotremus virginicus, Haemulon album, H. aurolineatum, H. carbonarium, H. flavolineatum, H. macrostomum, H. parra, H. plumierii, H. sciurus and *Haemulon* sp., pillory caeca, intestine and anterior intestine, United States of America (Florida) (Linton 1910; Manter 1942; Overstreet 1969).

Haemulon aurolineatum, H. bonariense, H. chrysargyreum, H. melanurum, H. parra, H. steindachneri and *Orthopristis ruber,* stomach and intestine, Venezuela (Gulf of Cariaco) (Centeno *et al.* 2002; Centeno and Bashirullah 2003; Kohn *et al*. 2007).

Haemulon album and *H. parra,* intestine, Bahamas (undetermined locality) (Sogandares-Bernal 1959).

Haemulon album, H. bonariense, H. sciurus and *H. striatum,* intestine, Curaçao (undetermined locality) (Nahhas and Cable 1964).

Haemulon album, H. bonariense, H. flavolineatum and *H. sciurus,* intestine, Jamaica (North Shore) (Nahhas and Carlson 1994).

Haemulon flavolineatum, intestine, Belize (undetermined locality) (Fischthal 1977) and Bermudas (undetermined locality) (Rees 1970).

Haemulon plumierii, H. sciurus, H. steindachneri and *Orthopristis ruber* intestine, Brazil (Rio de Janeiro and Santa Catarina) (Amato 1982a; Kohn *et al.* 1982; Fernandes *et al.* 1985; Luque *et al.* 1996a; Kohn *et al*. 2007).

Haemulon plumierii, intestine, Puerto Rico (La Parguera) (Siddiqi and Cable 1960; Dyer *et al.* 1992).

Genolopa anisotremi (Nahhas & Cable, 1964)

Anisotremus virginicus, intestine, Belize (undetermined locality) (Caribbean Sea) (Fischthal 1977) and Jamaica (undetermined locality) (Yamaguti 1971).

Genolopa brevicaecum (Manter, 1942)

Anisotremus virginicus, intestine, United States of America (Florida) (Yamaguti 1971).

Anisotremus interruptus, intestine, Ecuador (Galapagos) (Yamaguti 1971).

Genolopa pritchardae Nahhas & Cable, 1964

Haemulon album, stomach, Curaçao (Caribbean Sea) (Nahhas and Cable 1964).

Haemulon aurolineatum, intestine, Puerto Rico (La Parguera) (Bunkley-Willians *et al.* 1996).

Haemulon flavolineatum, stomach, Belize (Caribbean Sea) (Fischthal 1977).

Hurleytrema shorti (Nahhas & Powell, 1965)

Orthopristis ruber, stomach, Brazil (Santa Catarina) (Amato 1982a).

Lasiotocus asymmetricus Fischthal, 1977

Haemulon flavolineatum, stomach, Belize (Caribbean Sea) (Fischthal 1977).

Lasiotocus beauforti (Hopkins, 1941)

Haemulon sciurus, small intestine, Belize (Caribbean Sea) (Fischthal 1977) and Brazil (Rio de Janeiro) (Kohn *et al.* 1982; Kohn *et al*. 2007).

Orthopristis chrysoptera, intestine, United States of America (Florida, Gulf of Mexico and North Carolina) (Hopkins 1941; Nahhas and Powell 1965).

Orthopristis ruber, intestine, Brazil (Santa Catarina) (Amato 1982a; Kohn *et al*. 2007).

Lasiotocus costaricae (Manter, 1940)

Haemulon sp., intestine, Ecuador (Galapagos) (Manter 1940; Yamaguti 1971).

Lasiotocus haemuli Overstreet, 1969

Haemulon plumierii and *H. sciurus,* Intestine and pyloric caeca, United States of America (Florida) (Overstreet 1969).

Lasiotocus lintoni (Manter, 1931)

Orthopristis chrysoptera, United States of America (Florida and North Carolina) (Manter 1931; Hopkins 1941; Nahhas and Powell 1965; Nahhas and Powell 1971).

Lasiotocus longicaecum (Manter, 1940)

Anisotremus davidsonii and *A. pacifici,* intestine, Panama (undetermined locality) (Yamaguti 1971).

Anisotremus interruptus, intestine, Ecuador (Galapagos) (Manter 1940; Kohn *et al.* 2007).

Anisotremus scapularis, intestine, Chile (Peruvian Faunistic Province) and Peru (Peruvian Faunistic Province) (Luque and Oliva 1993; Kohn *et al*. 2007).

Anisotremus virginicus, intestine, United States of America (Dry Tortugas) (Manter 1940) and Intestine, Jamaica (North Shore) (Nahhas and Carlson 1994).

Lasiotocus longovatus (Hopkins, 1941)

Anisotremus virginicus, Haemulon aurolineatum, H. parra, H. sciurus and *Orthopristis chrysoptera,* intestine and pyloric caeca, United States of America (Florida) (Overstreet 1969).

Haemulon aurolineatum, H. bonariense, H. chrysargyreum, H. melanurum, H. steindachneri and *Orthopristis ruber,* stomach and intestine, Venezuela (Gulf of Cariaco) (Centeno *et al.* 2002; Centeno and Bashirullah 2003; Kohn *et al*. 2007).

Haemulon bonariense, H. flavolineatum and *H. sciurus,* intestine, Curaçao (Caribbean Sea) (Nahhas and Cable 1964).

Haemulon bonariense and *H. sciurus,* intestine, Jamaica (North Shore) (Nahhas and Carlson 1994).

Haemulon steindachneri and *Orthopristis ruber,* intestine, Brazil (Rio de Janeiro) (Luque *et al.* 1996a, b; Kohn *et al*. 2007).

Orthopristis chrysoptera, intestine, United States of America (North Carolina) (Hopkins 1941).

Orthopristis ruber, intestine, Brazil (Santa Catarina) (Amato 1982a).

Lasiotocus minutus (Manter, 1931)

Orthopristis chrysoptera, intestine, United States of America (North Carolina) (Manter 1931).

Lasiotocus parvus (Manter, 1942)

Haemulon flavolineatum, intestine, United States of America (Florida) (Manter 1942).

Lasiotocus sparisomae Fischthal & Nasir, 1974

Haemulon flavolineatum and *H. sciurus,* intestine and small intestine, Belize (Caribbean Sea) (Fischthal and Nasir 1974; Fischthal 1977).

Lasiotocus truncatus (Linton, 1910)

Haemulon album, H. chrysargyreum and *H. flavolineatum,* intestine, Curaçao (Caribbean Sea) (Nahhas and Cable 1964).

Haemulon aurolineatum, H. bonariense, H. chrysargyreum and *H. sciurus,* intestine, Jamaica (undetermined locality) (Nahhas and Cable 1964).

Haemulon bonariense, H. flavolineatum and *H. sciurus,* intestine, Jamaica (North Shore) (Nahhas and Carlson 1994).

Haemulon flavolineatum and *H. sciurus,* small intestine, Belize (Caribbean Sea) (Fischthal 1977).

Haemulon flavolineatum, H. plumierii and *H. sciurus,* intestine and pyloric caeca, United States of America (Florida) (Linton 1910; Manter 1942; Overstreet 1969).

Haemulon parra, H. plumierii and *H. sciurus,* intestine, Bahamas (undetermined locality)(Sogandares-Bernal 1959).

Haemulon plumierii, intestine, Puerto Rico (La Parguera) (Bunkley-Willians *et al.* 1996).

Haemulon steindachneri, intestine, Mexico (Jalisco) (Bravo-Hollis 1956).

Monorchis latus Manter, 1942

Anisotremus scapularis, intestine, Chile (Peruvian Faunistic Province) and Peru (Peruvian Faunistic Province) (Luque and Oliva 1993; Kohn *et al*. 2007).

Anisotremus virginicus and *Haemulon plumierii,* intestine, United States of America (Florida) (Manter 1942; Yamaguti 1971).

Postmonorchis orthopristis Hopkins, 1941

Anisotremus virginicus, H. aurolineatum, H. flavolineatum, H. parra, H. plumierii and *H. sciurus,* intestine United States of America (Florida) (Manter 1942; Overstreet 1969).

Haemulon album, *H. carbonarium, H. flavolineatum* and *H. sciurus,* intestine, Jamaica (North Shore) (Nahhas and Carlson 1994).

Haemulon album, *H. flavolineatum* and *H. sciurus,* intestine, Curaçao (Caribbean Sea) (Nahhas and Cable 1964).

Haemulon flavolineatum and *H. sciurus,* small intestine, Belize (Caribbean Sea) (Fischthal 1977).

Haemulon flavolineatum and *Haemulon* sp., small intestine, Bermudas (Caribbean Sea) (Hanson 1950; Rees 1970).

Haemulon flavolineatum, intestine, Puerto Rico (La Parguera) (Dyer *et al.* 1985; Dyer *et al.* 1992).

Haemulon plumierii, intestine, Puerto Rico (La Parguera) (Siddiqi and Cable 1960).

Orthopristis chrysoptera, intestine, United States of America (North Carolina) (Hopkins 1941).

Orthopristis ruber, intestine, Brazil (Santa Catarina) (Amato 1982a; Kohn *et al*. 2007) and pyloric caeca, Venezuela (Gulf of Cariaco) (Centeno *et al.* 2002; Kohn *et al*. 2007).

Proctotrema anisotremi Nahhas & Cable, 1964

Anisotremus virginicus, intestine, Jamaica (North Shore) (Nahhas and Carlson 1994).

***Prolecithochirium* sp.**

Haemulon aurolineatum, stomach, Venezuela (Gulf of Cariaco) (Centeno and Bashirullah 2003; Kohn *et al*. 2007).

Family Opecoelidae Osaki, 1925

Cainocreadium lintoni (Siddiqi & Cable, 1960)

Haemulon sciurus, intestine, Curaçao (undetermined locality) (Nahhas and Cable 1964).

Cainocreadium oscitans (Linton, 1910)

Anisotremus virginicus, Haemulon carbonarium, H. chrysargyreum, H. plumierii and *H. sciurus,* intestine, United States of America (Florida, Dry Tortugas) (Linton 1910; Manter 1954).

Anisotremus interruptus, intestine, Ecuador (Galapagos) (Manter 1940; Kohn *et al*. 2007).

Anisotremus virginicus, Haemulon bonariense and *H. sciurus,* intestine, Jamaica (North Shore) (Nahhas and Carlson 1994).

Haemulon album, H. melanurum and *H. sciurus,* intestine, Curaçao (Caribbean Sea) (Nahhas and Cable 1964).

Haemulon aurolineatum, H. bonariense and *H. sciurus,* intestine, Jamaica, (Nahhas and Cable 1964).

Haemulon flavolineatum, intestine, Puerto Rico (La Parguera) (Dyer *et al.* 1992).

Haemulon sciurus, intestine, Cayman Islands (undetermined locality) (Nahhas 1993).

Orthopristis ruber, intestine, Brazil (Santa Catarina) (Amato 1983a; Kohn *et al*. 2007).

Dactylostomum vitellosum Manter, 1940

Haemulon flaviguttatum, intestine, Ecuador (Galapagos) (Manter 1940; Kohn *et al*. 2007).

Genitocotyle atlantica Manter, 1947

Haemulon flavolineatum, intestine, United States of America (Florida) (Manter 1947).

Haemulon sciurus, intestine, Bermudas (Caribbean Sea) (Hanson 1950).

Hamacraedium consuetum Linton, 1910

Haemulon flavolineatum and *H. sciurus*, small intestine, Belize (Caribbean Sea) (Fischthal 1977).

Haemulon sciurus, intestine, Curaçao (Caribbean Sea) (Nahhas and Cable 1964) and Jamaica (North Shore) (Nahhas and Carlson 1994).

Helicometrina execta (Linton, 1910)

Anisotremus virginicus, intestine, United States of America (Florida) (Overstreet 1969).

Haemulon plumierii and *Haemulon sciurus,* intestine, United States of America (Florida) (Yamaguti 1971).

Haemulon sciurus, intestine, Bahamas (Caribbean Sea) (Sogandares-Bernal 1959).

Helicometrina nimia Linton, 1910

Conodon nobilis, stomach, Puerto Rico (Humacao) (Bunkley-Willians *et al.* 1996).

Haemulon album and *H. sciurus,* intestine, Bahamas (Caribbean Sea) (Sogandares-Bernal 1959).

Haemulon flaviguttatum, intestine and stomach, Mexico (Baja California) (Arai 1962).

Haemulon sciurus, intestine, Curaçao (Caribbean Sea) (Nahhas and Cable 1964), Jamaica (North Shore) (Nahhas and Carlson 1994) and Puerto Rico (La Parguera) (Dyer *et al.* 1992).

Manteriella crassa (Manter, 1947)

Haemulon carbonarium, intestine, United States of America (Florida) (Manter 1947).

Haemulon plumierii, intestine, Puerto Rico (La Parguera) (Bunkley-Willians *et al.* 1996).

***Notoporus* sp.**

Orthopristis chalceus, intestine, Peru (undetermined locality) (Escalante *et al.* 1984; Kohn *et al*. 2007).

***Opecoeloides* sp.**

Orthopristis ruber, intestine, Brazil (Rio de Janeiro) (Luque *et al.* 1996a).

Opecoelus mexicanus Manter, 1940

Microlepidotus brevipinnis, intestine and stomach, Mexico (Bay of Chamela) (Pérez-Ponce de León *et al.* 1999).

Opecoelus xenistii Manter, 1940

Xenistius californiensis, intestine, Ecuador (Galapagos) (Manter, 1940).

Opegaster lutjani Bravo-Hollis & Manter, 1957

Microlepidotus brevipinnis, intestine and stomach, Mexico (Bay of Chamela) (Pérez-Ponce de León *et al.* 1999).

Pinguitrema lobatum Siddiqi & Cable, 1960

Haemulon plumierii, intestine, Puerto Rico (La Parguera) (Bunkley-Willians *et al.* 1996).

Pinguitrema multilobatum (Travassos, Freitas & Bührnheim, 1966)

Haemulon sp., stomach, Brazil (Espírito Santo) (Travassos *et al.*1966; Kohn *et al*. 2007).

Pseudoplagioporus brevivitellus Siddiqi & Cable, 1960

Haemulon flavolineatum, intestine, Puerto Rico (La Parguera) (Dyer *et al.* 1985).

Family Paramphistomidae Fishoeder, 1901

Cleptodiscus reticulatus Linton, 1910

Haemulon flavolineatum, intestine, Belize (Caribbean Sea) (Fischthal 1977).

Family Zoogonidae (Odhner, 1902)

Deretrema fusillus Linton, 1910

Haemulon album, intestine, Bermudas (Caribbean Sea) (Hanson 1950).

Diphtherostomum americanum Manter, 1947

Haemulon chrysargyreum, small intestine, United States of America (Florida) (Manter 1947).

Diphtherostomum brusinae (Stossich, 1889)

Anisotremus virginicus, Haemulon plumierii and *H. sciurus,* rectum, United States of America (Florida) (Overstreet 1969).

Anisotremus virginicus, intestine, Jamaica (North Shore) (Nahhas and Carlson 1994).

Haemulon aurolineatum and *Orthopristis ruber,* intestine, Venezuela (undetermined locality) (Fischthal and Nasir 1974; Centeno *et al.* 2002; Kohn *et al*. 2007).

Haemulon steindachneri and *Orthopristis ruber,* intestine, Brazil (Rio de Janeiro) (Luque *et al.* 1996a, b; Kohn *et al*. 2007).

Microlepidotus brevipinnis, intestine, Mexico (Bay of Chamela) (Pérez-Ponce de León *et al.* 1999).

Orthopristis ruber, intestine, Brazil (Santa Catarina) (Amato 1982b; Kohn *et al*. 2007).

***Diphtherostomum* sp.**

Anisotremus scapularis, intestine, Peru (Lima) (Tantaleán *et al.* 1992).

Order Strigeida (La Rue, 1926)

Family Bucephalidae Poche, 1907

Prosorhynchus ozakii Manter, 1934

Haemulon steindachneri, intestine, Brazil (Rio de Janeiro) (Luque *et al*. 1996 a, b; Kohn *et al*. 2007).

Orthopristis ruber, intestine, Brazil (Rio de Janeiro and Santa Catarina) (Amato 1982c; Luque *et al.* 1996 a, b; Kohn *et al*. 2007).

Rhipidocotyle nagatyi Manter, 1940

Haemulon sciurus, intestine, Puerto Rico (La Parguera) (Bunkley-Williams *et al.* 1996).

Family Derogenidae Nicoll, 1910

Derogenes crassus Manter, 1934

Haemulon flavolineatum, intestine, Puerto Rico (La Parguera) (Dyer *et al.* 1992).

Gonocercella pacifica Manter, 1940

Anisotremus dovii, stomach, Mexico (Bay of Chamela) (León-Règagnon *et al.* 1997; Pérez-Ponce de León *et al.* 1999).

Leurodera decora Linton, 1910

Anisotremus virginicus, Haemulon flavolineatum and *H. sciurus,* intestine, Jamaica (North Shore) (Nahhas and Carlson 1994).

Haemulon aurolineatum, H. bonariense and *H. melanurum,* intestine, Venezuela (Gulf of Cariaco) (Centeno and Bashirullah 2003; Kohn *et al*. 2007).

Haemulon album, H. flavolineatum, H. parra, H. plumierii and *H. sciurus,* intestine, Bahamas (Caribbean Sea) (Sogandares-Bernal 1959; Fischthal 1977).

Haemulon carbonarium, H. flavolineatum, H. melanurum, H. parra, H. plumierii and *H. sciurus,* intestine, Puerto Rico (La Parguera) (Dyer *et al.* 1985; Dyer *et al.* 1992; Bunkley-Willians *et al.* 1996).

Haemulon carbonarium, H. chrysargyreum, H. flavolineatum, H. parra, H. plumierii and *H. sciurus,* intestine, United States of America (Florida) (Manter 1954).

Haemulon flavolineatum, small intestine, Belize (Caribbean Sea) (Fischthal 1978).

Haemulon flavolineatum and *H. sciurus,* small intestine, Curaçao (Caribbean Sea) (Nahhas and Cable 1964).

Haemulon plumierii and *H. sciurus,* intestine, Mexico (Bay of Chamela) (León-Règagnon *et al.* 1997).

Leurodera distinctum (Nasir & Gomez, 1977)

Orthopristis ruber, stomach, Venezuela (undetermined locality) (Nasir and Gomez 1977; Kohn *et al*. 2007).

Leurodera ocyri Travassos, Freitas & Bührneim, 1965

Haemulon sp., intestine, Brazil (Espírito Santo) (Travassos *et al.* 1965).

Leurodera pacifica Manter, 1940

Anisotremus interruptus and *A. scapularis,* stomach, Ecuador (Galapagos) (Manter 1940; Kohn *et al*. 2007).

Haemulon scudderii and *Microlepidotus brevipinnis,* stomach and intestine, Mexico (Bay of Chamela) (León-Règagnon *et al.* 1997; Pérez-Ponce de León *et al.* 1999).

Haemulon sp., stomach, Mexico (Jalisco) (Manter 1940; Bravo-Hollis 1956).

Family Didymozoidae Monticelli, 1888

Didymozoidae gen. sp.

Haemulon flaviguttatum, H. maculicauda, H. scudderii and *Microlepidotus brevipinnis,* intestine and gills, Mexico (Bay of

Chamela) (León-Règagnon *et al.* 1997; Pérez-Ponce de León *et al.* 1999).

Haemulon sciurus, intestine, Belize (Caribbean Sea) (Fischthal 1977).

Didymozoidae sp. "immature E" Fischthal & Thomas, 1977

Haemulon steindachneri, encysted in the mesentery, Brazil (Rio de Janeiro) (Luque *et al.* 1995; Luque *et al.* 1996a).

Gonapodasmius haemuli (MacCallum & MacCallum, 1916)

Haemulon flavolineatum, intestine, United States of America (New York) (Yamaguti 1971).

***Neotorticaecum* sp.** (larvae)

Conodon nobilis, intestine, Brazil (Rio de Janeiro) (NHR) (CHIOC- 37950).

Torticaecum fenestratum (Linton, 1907)

Haemulon plumierii and *H. sciurus,* intestine, United States of America (Florida) (Linton 1910).

Haemulon steindachneri, intestine, Colombia (Santa Marta) (Velez 1978) and Venezuela (Gulf of Cariaco) (Centeno *et al.* 2002).

Family Hemiuridae (Looss, 1899)

Brachyphallus parvus (Manter, 1947)

Haemulon flavolineatum, intestine, Puerto Rico (La Parguera) (Overstreet 1969; Dyer *et al.* 1992).

Haemulon striatum, intestine, Jamaica (Nahhas and Cable 1964).

Ectenurus yamagutii Nahhas & Powell, 1971

Haemulon sciurus, stomach, Brazil (Rio de Janeiro) (Fernandes *et al.* 1985).

Hemiuridae sp. 1

Haemulon aurolineatum, intestine, Venezuela (Gulf of Cariaco) (Centeno and Bashirullah 2003).

Hemiuridae sp. 2

Haemulon aurolineatum, intestine, Venezuela (Gulf of Cariaco) (Centeno and Bashirullah 2003).

Hemiuridae sp. 3

Haemulon melanurum, intestine, Venezuela (Gulf of Cariaco) (Centeno and Bashirullah 2003).

Lecithochirium microcercus (Manter, 1947)

Haemulon carbonarium and *H. chrysargyreum,* intestine, Puerto Rico (La Parguera) (Dyer *et al.* 1992).

Lecithochirium musculus (Looss, 1907)

Anisotremus virginicus, Haemulon aurolineatum, H. parra and *Orthopristis chrysoptera,* stomach, United States of America (Florida) (Overstreet 1969).*Haemulon album* and *H. sciurus,* intestine, Curaçao (Caribbean Sea) and Jamaica (Nahhas and Cable 1964; Nahhas and Carlson 1994).

Parahemiurus merus (Linton, 1910)

Haemulon flaviguttatum, H. maculicauda and *Microlepidotus brevipinnis*, intestine, Mexico (Bay of Chamela) (León-Règagnon *et al.* 1997; Pérez-Ponce de León *et al.* 1999).

Haemulon sciurus, stomach, Brazil (Rio de Janeiro) (Kohn *et al.* 1982; Kohn *et al.* 2007).

Orthopristis ruber, stomach, Venezuela (Gulf of Cariaco) (Centeno *et al.* 2002; Kohn *et al.* 2007).

Family Lecithasteridae Odhner, 1905

Aponurus intermedius Manter, 1934

Haemulon flaviguttatum and *Xenistius californensis,* intestine, México (Baja California) (Arai 1962).

Aponurus pyriformis (Linton, 1910)

Anisotremus virginicus, Haemulon carbonarium, H. macrostomum, H. parra, H. plumierii, *H. sciurus* and *Orthopristis chrysoptera,* stomach, United States of America (Florida) (Linton 1910; Manter 1931; Overstreet 1969).

Anisotremus virginicus, Haemulon bonariense, H. flavolineatum and *H. sciurus,* intestine, Jamaica (North Shore) (Nahhas and Carlson 1994).

Haemulon aurolineatum, H. bonariense, H. flavolineatum, H. melanurum, *H. parra*, *H. steindachneri* and *Orthopristis ruber,* stomach and intestine, Venezuela (Gulf of Cariaco) (Centeno *et al.* 2002; Centeno and Bashirullah 2003; Kohn *et al*. 2007).

Haemulon album, H. parra, H. plumierii and *H. sciurus,* intestine, Bahamas (Caribbean Sea) (Sogandares-Bernal 1959).

Haemulon album, intestine, Puerto Rico (Caribbean Sea) (Siddiqi and Cable 1960).

Haemulon aurolineatum, H. sciurus, H. steindachneri, Haemulon sp. and *Orthopristis ruber,* stomach, Brazil (Rio de Janeiro) (Travassos *et al.* 1967; Kohn *et al.* 1982; Fernandes *et al.* 1985; Luque *et al.* 1996a, b; Kohn *et al*. 2007).

Haemulon bonariense, *H. flavolineatum* and *H. striatum,* intestine, Curaçao (Caribbean Sea) and Jamaica (undetermined locality) (Nahhas and Cable 1964).

Haemulon flavolineatum, intestine, Belize (Caribbean Sea) (Fischthal 1977) and Cayman Islands (undetermined locality) (Nahhas 1993).

Haemulon sciurus, intestine, British Virgin Islands (undetermined locality) (Dyer 1983).

Haemulon sp., intestine, Brazil (Espírito Santo) (Travassos *et al.* 1965).

Orthopristis ruber, intestine, Brazil (Santa Catarina) (Amato 1983b).

Aponurus symmetrorchis Siddiqi & Cable, 1960

Haemulon album, intestine, Puerto Rico (undetermined locality) (Siddiqi and Cable 1960).

Lecithophyllum intermedium Manter, 1934

Haemulon flaviguttatum, intestine, Mexico (Baja California) (Arai 1962).

HOST-PARASITE LIST

Anisotremus davidsonii

Acantholochus nasus, Colobomatus quadrifarius, Lasiotocus longicacecum.

Anisotremus dovii

Acantholochus nasus, Colobomatus quadrifarius, Cynoscionicola srivastavai, Hysterothylacium, sp. (larvae), *Gonocercella pacifica, Magniexcipula lamothei.*

Anisotremus interruptus

Acantholochus nasus, Cainocreadium oscitans, Colobomatus quadrifarius, Genolopa brevicaecum, Koronacantha mexicana, Lasiotocus longicaecum, Leurodera pacifica, Paracalceostoma calceostomoides.

Anisotremus pacifici

Colobomatus quadrifarius, Lasiotocus longicaecum.

Anisotremus scapularis

Choricotyle anisotremi, C. scapularis, Clavella applicata, C. caudata, Corynosoma sp. (cystacanth), *Cymothoa* sp., *Diphtherostomum* sp., *Encotyllabe antofagastensis*, *Intracotyle neghmei, Lasiotocus longicaecum, Lernanthropus antofagastensis, Leurodera pacifica, Lobatostoma anisotremum, Metapeniculus antofagastensis, Mexicana* sp., *Monorchis latus, Neobivagina chita, Neobrachiella anisotremi, Proctoeces lintoni, Proctoeces* sp., *Profilicollis altami, Stephanostomum anisotremi*.

Anisotremus surinamensis

Caligus haemulonis, Colobomatus caribbei, Encotyllabe spari, Gnathia sp. (praniza larvae), *Lernanthropus rathbuni, Mexicana anisotremum, Parashiinoa bakeri, Serrasentis* sp. (cystacanth).

Anisotremus taeniatus

Ascarophis sp.

Anisotremus virginicus

Aponurus pyriformis, *Cainocreadium oscitans*, *Caligus atromaculatus*, *C. haemulonis*, *C. longipedis*, *C. xystercus*, *Diphtherostomum brusinae*, *Diplangus parvus*, *D. paxillus*, *Excorallana tricornis*, *Genolopa ampullacea*, *G.anisotremi*, *G. brevicaecum, Gnathia* sp. (Praniza larvae), *Hatschekia* sp., *Helicometrina execta*, *Homalometron cryptum*, *H. foliatum*, *Infundibulostomum anisotremi*, *Lasiotocus longicaecum*, *L. longovatus*, *Lecithochirium musculus*, *Lernanthropus amplitergum*, *Leurodera decora*, *Mexicana anisotremum*, *Microcotyle pomocanthi, Monorchis latus*, *Neobenedenia melleni, Postmonorchis orthopristis*, *Proctotrema anisotremi*, *Serrasentis* sp. (cystacanth), *Stephanostomum lopezneyrai*, *S. sentum*.

***Anisotremus* sp.**

Cainocreadium oscitans.

Boridia grossidens

Diplomonorchis leiostomi.

Conodon nobilis

Acantholochus lamellatus, Caligus haemulonis, C. longipedis, C. robustus, C. rufimaculatus, C. xystercus, Callitretarhynchus sp. (plerocercoid larvae), *Encotyllabe spari, Gnathia* sp. (praniza larvae), *Hatschekia linearis, Helicometrina nímia, Lernanthropus amplitergum, L. rathbuni, Neotorticaecum* sp. (larvae), *Pterobothrium* sp. (plerocercoid larvae), *Serrasentis* sp. (cystacanth).

Haemulon album

Aponurus pyriformis, A. symmetrorchis, Cainocreadium oscitans, Deretrema fusillus, Diplangus miolecithus, D. paxillus, Echinopelma bermudae, Genolopa ampullacea, G. pritchardae, Hatschekia linearis, Helicometrina nimia, Heteraxinoides hargisi, Homalometron foliatum, Lasiotocus truncatus, Lecithochirium musculus, Lernanthropus amplitergum, Leurodera decora, Neobenedenia melleni, Postmonorchis orthopristis, Stephanostomum sentum, Trachelobdella lubrica.

Haemulon aurolineatum

Anilocra haemuli, Aponurus pyriformis, Cainocreadium oscitans, Caligus robustus, Callitretarhynchus gracilis, Choricotyle aspinachorda, Colobomatus belizensis, Diphtherostomum brusinae, Diplangus paxillus, Genolopa ampullacea, G. pritchardae, Haliotrematoides striatohamatus, Hatschekia linearis, Hemiuridae sp. 1, Hemiuridae sp. 2, *Homalometron foliatum, Lasiotocus longovatus, L. truncatus, Lecithochirium musculus, Leurodera decora, Mixtio inversa, Postmonorchis orthopristis, Prolecithochirium* sp., *Pterobothrium kingstoni, Rocinela signata*.

Haemulon bonariense

Anilocra cf haemuli, Aponurus pyriformis, Cainocreadium oscitans, Diplangus paxillus, Genolopa ampullacea, Haliotrema sp., *Homalometron foliatum, Lasiotocus longovatus, L.truncatus, Leurodera decora, Livoneca* sp.

Haemulon boschmae

Anilocra haemuli, Haliotrema sp.

Haemulon carbonarium

Anilocra haemuli, Aponurus pyriformis, Cainocreadium oscitans, Caligus haemulonis, Colobomatus belizensis, Diplangus parvus, D.paxillus, Genolopa ampullacea, Haliotrematoides striatohamatus, Homalometron foliatum, Lecithochirium microcercus, Leurodera decora, Manteriella crassa, Myzoxenus lachnolaimi, Parashiinoa bakeri, Postmonorchis orthopristis, Stephanostomum lopezneyrai.

Haemulon chrysargyreum

Anilocra haemuli, Cainocreadium oscitans, Colobomatus belizensis, Diphtherostomum americanum, Diplangus paxillus, Genolopa ampullacea, Haliotrema sp., *Lasiotocus longovatus*

L. truncatus, Lecithochirium microcercus, Leurodera decora, Procamallanus (*Spirocamallanus*) *caballeroi*.

Haemulon flaviguttatum

Aponurus intermedius, Colobomatus quadrifarius, Contracaecum sp. (larvae), *Dactylostomum vitellosum,* Didymozoidae gen. sp., *Helicometrina nimia, Hysterothylacium* sp. (larvae), *Parahemiurus merus, Lecithophyllum intermedium, Parasynodontisia* sp., *Pseudoterranova* sp. (larvae), *Raphidascaris* sp. (larvae).

Haemulon flavolineatum

Anilocra haemuli, Aponurus pyriformis, Brachyphallus parvus, Cainocreadium oscitans, Cleptodiscus reticulatus, Derogenes crassus, Diplangus parvus, D. paxillus, Genolopa ampullacea, G.pritchardae, Genitocotyle atlantica, Gonapodasmius haemuli, Haliotrematoides striatohamatus, Hamacraedium consuetum, Homalometron cryptum, H.dowgialloi, H. foliatum, Infundibulostomum spinatum, Lasiotocus asymmetricus, L. longovatus, L. parvus, L. sparisomae, L. truncatus, Leurodera decora, Postmonorchis orthopristis, Pseudoplagioporus brevivitellus, Siphodera vinaledwardsii, Stephanostomum sentum, Trachelobdella lubrica.

Haemulon macrostomum

Anilocra haemuli, Aponurus pyriformis, Caligus haemulonis, Colobomatus belizensis, Diplangus paxillus, Genolopa ampullacea.

Haemulon maculicauda

Dichelyne sp., Didymozoidae gen. sp., *Hysterothylacium* sp. (larvae), *Parahemiurus merus*, *Raphidascaris* sp. (larvae), *Siphodera vanclesvei*.

Haemulon melanurum

Aponurus pyriformis, Cainocreadium oscitans, Colobomatus belizensis, Dollfusentis chandleri

Genolopa ampullacea, Haliotrematoides striatohamatus, Hemiuridae sp. 3, *Lasiotocus longovatus, Leurodera decora*.

Haemulon parra

Aponurus pyriformis, Colobomatus belizensis, Diplangus miolecithus, D. parvus, D. paxillus, Genolopa ampullacea, Homalometron cryptum, H. foliatum, Lasiotocus longovatus, L. truncatus, Leurodera decora, Lecithochirium musculus, Postmonorchis orthopristis.

Haemulon plumierii

Anilocra haemuli, Aponurus pyriformis, Cainocreadium oscitans, Caligus atromaculatus, C. haemulonis, C. rufimaculatus, Ceratocolax mykternastes, Colobomatus belizensis, Diplangus ovalis, D. parvus, D. paxillus, Diphtherostomum brusinae, Genolopa ampullacea, Gnathia sp. (praniza larvae), *Haliotrematoides striatohamatus, Hatschekia linearis, Hatschekia* sp., *Helicometrina exacta, Lasiotocus haemuli, L. truncatus, Lernaeolophus sultanus, Lernanthropus chacchi, Leurodera decora, Manteriella crassa, Monorchis latus, Naobranchia variabilis, Neobenedenia melleni, Nybelinia c.f. lingualis, N. senegalensis, Philometra lateolabracis, Pinguitrema lobatum, Postmonorchis orthopristis, Pseudotobothrium dipsacum, Pterobothrium heteracanthum, Stephanostomum sentum, Torticaecum fenestratum*.

Haemulon sciurus

Anilocra haemuli, Aponurus pyriformis, Aspiculuris tetraptera, Dollfusentis chandleri, Cainocreadium lintoni, C. oscitans, Caligus atromaculatus, C. biaculeatus, C. haemulonis, C. longipedis, C. rapax, Ceratocolax mykternastes, Choricotyle hysteroncha, Colobomatus belizensis, Didymozoidae gen. sp., *Diphtherostomum brusinae, Diplangus parvus, D. paxillus, Diplomonorchis leiostomi, Dollfusentis chandleri, Ectenurus yamagutii, Encotyllabe spari, Genitocotyle atlantica, Genolopa ampullacea, Gnathia* sp. (praniza larvae), *Haliotrematoides striatohamatus, Hamacraedium consuetum, Hatschekia linearis, Hatschekia* sp., *Helicometrina exacta, H. nimia, Homalometron foliatum, Infundibulostomum spinatum, Lasiotocus beauforti, L. haemuli, L. longovatus, L. sparisomae, L. truncatus, Lecithochirium musculus, Lepocreadium* sp., *Lernanthropus amplitergum, L. chacchi, Leurodera decora, Metoncholaimus amplus*, *Neobenedenia melleni, Parahemiurus merus, Parashiinoa bakeri, Postmonorchis orthopristis, Pseudoeucanthus uniseriatus, Pseudotagia cupida, Rhipidocotyle nagatyi, Stephanostomum sentum, Torticaecum fenestratum, Trachelobdella lubrica*.

Haemulon scudderii

Ametrodaptes mexicana, Bupharinx bupharinx, Didymozoidae gen. sp., *Koronacantha mexicana, Leurodera pacifica, Metadena globosa, Mexicana littoralis, Paracalceostoma calceostomoides*.

Haemulon sexfasciatum

Contracaecum sp. (larvae), *Dichelyne* sp., *Koronacantha mexicana, Mexicana littoralis, Pseudoterranova* sp. (larvae), *Raphidascaris* sp. (larvae).

Haemulon steindachneri

Aponurus pyriformis, Caligus haemulonis, C. sepetibensis, Caligus sp., *Choricotyle aspinachorda, C. orthopristis, C. reynoldsi, Clavellotis dilatata, Colobomatus belizensis, C. quadrifarius, Cucullanus* sp.1, Didymozoidae sp. "immature E", *Diplangus paxillus, Diplomonorchis leiostomi, Diphtherostomum brusinae, Dollfusentis chandleri, Encotyllabe pagrosomi, Genolopa ampullacea, Haliotrema* sp., *Homalometron foliatum, Lasiotocus longovatus, L. truncatus, Lernanthropus rathbuni, Metapeniculus haemuloni*, *Mexicana atlantica,* Piscicolidae unidentified, *Prosorhynchus ozakii, Rocinela signata, Scolex* sp., *Serrasentis* sp. (cystacanth), *Torticaecum fenestratum*.

Haemulon striatum

Aponurus pyriformis, Brachyphallus parvus, Genolopa ampullacea, Haliotrema longiangusticirrus, Haliotrematoides brevispirocirrus.

***Haemulon* sp.**

Aponurus pyriformis, Genolopa ampullacea, Gorgorhynchus médium, Leurodera ocyri, Leurodera pacifica, Lasiotocus costaricae, Pinguitrema multilobatum, Postmonorchis orthopristis.

Haemulopsis leuciscus

Contracaecum sp. (larvae), *Cucullanus* sp., *Johnstonmawsonia* sp., *Koronacantha mexicana, Raphidascaris* sp. (larvae), *Vasorhabdochona cablei*.

Isacia conceptionis

Benedenia sp., *Choricotyle isaciensis, Clavella simplex, Corynosoma obtuscens* (cystacanth), *Corynosoma* sp. (cystacanth), *Proctoeces lintoni, Proctoeces* sp., *Pseudoeurysorchis travassosi*.

Microlepidotus brevipinnis

Choricotyle leonilavazquezae, Contracaecum sp. (larvae), Cyclophyllidea gen. sp., *Dichelyne* sp., Didymozoidae gen. sp., *Diphtherostomum brusinae, Diplangus mexicanus, D. triradiatus, Hysterothylacium* sp. (larvae), *Koronacantha pectinaria, Leurodera pacifica, Opechona pharyngodactyla, Opecoelus mexicanus, Opegaster lutjani, Parahemiurus merus,* Proteocephalidae gen.sp., *Pseudoeurysorchis travassosi, Pseudoterranova* sp. (larvae), *Raphidascaris* sp. (larvae), *Stephanostomum casum,* Tetraphyllidea gen.sp.

Microlepidotus inornatus

Choricotyle sonorensis, Cucullanus sp., *Pseudoeurysorchis travassosi, Pseudotetrancistrum skrjabini*.

***Microlepidotus* sp.**

Diplangus mexicanus.

Orthopristis chalceus

Colobomatus quadrifarius, *Notoporus* sp.

Orthopristis chrysoptera

Aponurus pyriformis, Argulus fuscus, Caligus praetextus, C. rapax, C. rufimaculatus, Choricotyle aspinachorda, Colobomatus belizensis, Diplomonorchis leiostomi, Dollfusentis chandleri, Lasiotocus beauforti, L. lintoni, L. longovatus, L. minutus, Lecithochirium musculus, Lernanthropus rathbuni, Livoneca ovalis, Nybelinia bisulcata, Otobothrium crenacolle, Postmonorchis orthopristis, Pterobothrium lintoni, Pseudotagia cupida, Serrasentis saggitifer, Siphodera vinaledwardsii, Steringotrema corpulentum.

Orthopristis reddingi

Acantholochus nasus, Colobomatus quadrifarius, Diplangus mexicanus.

Orthopristis ruber

Aegathoa oculata, Anilocra haemuli, A. cf haemuli, A. laticauda, *Anilocra* sp., *Aponurus pyriformis, Cainocreadium oscitans, Caligus haemulonis, C. praetextus, C. sepetibensis, Caligus* sp., *Choricotyle aspinachorda, C. brasiliensis, C. cynoscioni, C.*

orthopristis, C. reynoldsi, Colobomatus belizensis, Cucullanus chrysophrydes, Cucullanus sp.1, *Cucullanus* sp.2, *Cymothoa* sp., *Dichelyne* (*Cucullanellus*) *torniquisti, D.* (*C.*) *tripapillatus, Diplangus paxillus, Diphtherostomum brusinae, Diplomonorchis leiostomi, Dollfusentis chandleri, Encotyllabe pagrosomi, E. spari, Genolopa ampullacea, Gnathia* sp. (praniza larvae), *Homalometron foliatum, Hurleytrema shorti, Lasiotocus beauforti, L. longovatus, Lernanthropus rathbuni, Leurodera distinctum, Opechona chloroscombri, Opecoeloides* sp., *Parahemiurus merus,* Piscicolidae unidentified, *Postmonorchis orthopristis, Procamallanus* (*Spirocamallanus*) *cumanensis, Prosorhynchus ozakii, Pseudotagia cupida, P. rubri, Rocinela signata*, *Scolex* sp., *Serrasentis* sp. (cystacanth).

***Orthopristis* sp.**
Diplangus mexicanus.

Pomadasys corvinaeformis
Lernanthropus rathbuni, Stephanostomum sp.

Pomadasys crocro
Dollfusentis bravoae.

Pomadasys macracanthus
Encotyllabe pagrosomi.

***Pomadasys* sp.**
Pleorchis americanus, Megasolena sp.

Xenichthys xanti
Contracaecum sp. (larvae).

Xenistius californiensis
Aponurus intermedius, Macrovalvitrema sinaloense, Opecoelus xenistii, Polynemicola californica.

Xenistius peruanus
Cynoscionicola intermedia.

***Xenistius* sp.**
Diplangus mexicanus.

DISCUSSION

Studies of parasites are important components of the global biodiversity and can help to understand the functioning of natural ecosystems and the interactions among animal populations (Poulin and Morand 2004). In this checklist, a series of interactions and biological patterns in the parasites of haemulid fishes can be observed. With 97 species recorded, digeneans are the dominant group parasitizing these hosts, whereas *Aponurus pyriformis* showed the highest number of fish hosts (16). According to Luque *et al.* (1996a) this type of dominance can be associated with the feeding of grunts, where the most are opportunistically carnivorous, eating a wide variety of benthic invertebrates (crustaceans, polychaete worms, clams and echinoids) that can act as intermediate hosts in the life cycle of these digeneans (Konchina 1977; Estrada 1986; Almeida *et al.* 2005; Sanciangco *et al.* 2011).

In the current study, other species of parasites were detected in several haemulid hosts mainly the crustaceans of the genus *Anilocra, Caligus* and *Colobomatus*. According to Braga *et al.* (2009) studies with grunts demonstrate the advantages as more effective foraging and better vigilance against predators in the formation of mixed shoals or spatial overlap. The parasitic crustaceans have swimming skills and depending the degree of aggregation of the host population or community and biotic factors that are submitted, they can migrate to different hosts because these have a direct lifecycle (Byrnes 1987). In the case of helminths, Marcogliese (2002) comments that most of these can be considered generalist due to adaptations to long food chains, the low densities of organisms distributed over larger spatial scales that are characteristic of open marine systems and life cycles consisting of larval stages of long duration in different intermediate and parathenic host. However, such properties are predicted to lead the homogenization of parasite communities among fish species.

It was observed that of 86 recorded localities, 75 (87%) are in the Neotropical region and only 11 (13%) in the Nearctic region. The majority of haemulid species are distributed throughout the American continent, but the populations of some host species are more commonly found in tropical areas (Nelson 2006). The genus *Haemulon* exemplifies the theme above. The species of this genus comprises one of the most abundant reef fishes in the American continent (mainly in the Neotropical region), are numerically prevalent in shallow tropical reefs in the Caribbean and eastern Pacific (Lindeman and Toxey 2002; Ferreira *et al.* 2004) and it is the genus with highest record number of parasites. Thus, the tendency of the Neotropical region possesses more records of localities and parasites could be linked to the presence of *Haemulon* species in the Neotropics.

In the current study we listed 231 species of parasites, where 149 are recorded in the Atlantic Ocean, 70 in the Pacific and 12 in both. On the other hand in the host species 26 are reported in the Pacific Ocean, 21 in the Atlantic and one in both. Comparative studies among the two oceans were performed by Rodhe (1986), Poulin and Rohde (1997), Luque and Oliva (1999) and Luque and Poulin (2008), where these authors comment the higher values of parasite diversity in fishes from the Pacific Ocean than in those from the Atlantic or in both, suggesting an ecological time hypothesis might explain the difference (Rohde 1980; Luque and Poulin 2008). However, in the present list haemulid species from the Atlantic Ocean possess higher number of parasite records than haemulid species from Pacific or in both. Nevertheless, this situation could be a reflection of the highest number of studies carried out with haemulids from the Atlantic Ocean, which could hidden the actual parasite diversity of haemulids when comparing records from the two oceans. More studies with host species that occurs in both oceans (*e.g., Haemulon steindachneri*) would contribute to elucidate this issue.

In the last 50 years the number of studies on parasites of haemulids have increased considerably, especially o Cestoda, Copepoda, Monogenea, Nematoda and ecological studies. It is also noteworthy that the number of indeterminate species has increased in the last 25 years. Does the number of species recorded for each taxonomic group reflect true biological patterns or continue neglected? This question would be clarified with more accurate taxonomic studies about parasites of haemulid fishes.

According to Luque and Poulin (2007), the neotropics have one of major diversity of fish parasites (hotspots), but the majority of the haemulid species remains understudied and some do not have parasite records. Another problem is that

some taxa of parasites need a taxonomic revision. Therefore, more studies of parasite species in haemulid fishes should be made, to aid in a better understanding of the dynamics of parasites in haemulids throughout the Americas, and to improve our knowledge of the roles played by parasites in their natural ecosystems (Marcogliese 2005). Such studies would contribute to a better understanding of biodiversity in Nearctic and Neotropical regions, because the real diversity of parasite species is largely unknown.

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