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Digenean Trematode Fauna Parasitic in Fishes from the Ogasawara Islands

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Abstract. Fifteen species and four unidentified forms of 16 genera from nine families of digenan trematodes were recognized from 13 species of fishes caught around the Ogasawara Islands. In addition to the previously reported 14 species, 22 species and four unidentified forms of 22 genera from 10 families were listed finally in the study area. These species were divided into four groups almost equally: widely distributed species in the Pacific Ocean, common species between off the Ogasawara Islands and Japan main lands, common species between off the Ogasawara Islands and the Nansei Islands, and common species to the areas far away from the Ogasawara Islands.
Key words: Digenea, fish parasite, the Ogasawara Islands, inventory

Introduction

During the course of a research project entitled "Biological Properties of Biodiversity Hotspots in Japan" conducted by National Museum of Nature and Science (NMNS), several surveys on fish parasites around the Ogasawara Islands were carried out between 2014 and 2016. Information on helminth fauna parasitic in fishes of the Ogasawara Islands is quite limited. The only reference available is Kuramochi (2011), which reported digenean trematodes collected from fishes caught in Sagami Bay, off the Izu Islands and off the Ogasawara Islands. Fourteen species of digenean trematodes were recorded from the Ogasawara Islands for the first time, however the biodiversity of fish parasite in the study area has not yet been elucidated. In the present project, I carried on the inventory of digenean trematodes parasitic in fishes inhabiting the Ogasawara Islands.

A total of 112 individuals of 28 fish species were collected and examined for parasites, of which 13 species of 8 genera from 5 families were infested by some digenean trematodes. In the present study, these specimens were examined, identified and listed. The information on distribution of digenean species were also referred to discuss on the composition and origin of biodiversity in the study area.

Materials and Methods

Fishing boats were employed to collect fishes from varying depth between 22 and 100 m off Chichi-jima Island. Fishes ware preserved on ice until use, and identified to species, dissected and examined for parasite in the laboratory of Tokyo Metropolitan Ogasawara Fisheries Center. Digeneans were washed in saline, fixed in AFA under cover-slip pressure, and later in the laboratory of NMNS, stained with Heidenhain's hematoxylin, dehydrated by ethanol series and finally mounted in balsam. The specimens were deposited in NMNS (NSMT-Pl). The specimens collected by R/V *Koyo* and *Wentle* (Tokyo Metropolitan Ogasawara Fisheries Center) in 2009 were also used in this study.

Results

Fifteen species and four unidentified forms of 16 genera from nine families of digenan trematodes were recognized. Classification of digeneans was based on Olson *et al*. (2003) and Bray *et al*. (2016). Catch locality of the host fishes is off Chichi-jima Island unless otherwise mentioned.

Order **Plagiorchiida** La Rue, 1957
Suborder **Bivesiculata** Olson *et al.*, 2003
Superfamily **Bivesiculoidea** Yamaguti, 1934
Family **Bivesiculidae** Yamaguti, 1934

1. ***Bivesicula claviformis*** Yamaguti, 1934

Materials examined. Single gravid specimen each from the intestine of *Epinephelus retouti* Bleeker, 1868 (Serranidae) [Japanese name (hereafter Jn): Akahata-modoki] caught at 27°13.789′N, 142°11.408′E (106 m deep) in May 19, 2009, NSMT-Pl 6301, and *E. chlorostigma* (Valenciennes, 1828) [Jn: Housekihata] caught at 27°14.615′N, 142°11.454′E (100 m deep) in May 20, 2009, NSMT-Pl 6316, and single immature specimen from the pyloric caeca of *E. fasciatus* (Forsskål, 1775) [Jn: Akahata] caught at 27°08.289′N, 142°11.967′E in June 16, 2014, NSMT-Pl 6302.

Remarks. Kuramochi (2011) also recorded this species from fishes of the family Serranidae, Sparidae, and Lutjanidae caught off the Ogasawara Islands, under the name of *B. epinepheri* Yamaguti, 1938. *B. claviformis* was originally described based on the materials from *Seriola quinqueradiata* Cuvier, 1816 (Carangidae) [Jn: Buri] and *Parapristipoma trilineatum* (Thunberg, 1793) (Haemulidae) [Jn: Isaki] caught off Tarumi, Inland Sea of Japan (Yamaguti, 1934). It was also recorded from *E. akaara* (Temminck and Schlegel, 1842) [Jn: Kijihata] caught in the Inland Sea of Japan (Yamaguti, 1938a), and *E. trimaculatus* (Valenciennes, 1828) [Jn: Nominokuchi] caught off Tsushima Islands, Nagasaki (Machida *et al*., 1970). Dyer *et al*. (1988) collected several specimens that were probably thought to be *Bivesicula epinepheli* from *E. fasciatus* collected around the shallow waters around Okinawa-jima Island. However, due to that they inadvertently discarded the specimens, this species has not yet been recorded from the Ryukyu Islands. *E. retouti* was newly recorded as a host fish.

2. ***Bivesicula tarponis*** Sogandares-Bernal & Hutton, 1959

Materials examined. Single gravid specimen each from the pyloric caeca of *Epinephelus tauvina* (Forsskål, 1775) (Serranidae) [Jn: Hitomihata] caught at 26°35.056′N, 142°15.026′E–26°35.172′N, 142°15.010′E (110 m deep) off Haha-jima Island in October 16, 2009 NSMT-Pl 6314, and *E. morrhua* (Valenciennes, 1833) [Jn: Houkihata] caught at 26°45.106′N, 142°05.997′E–26°45.166′N, 142°05.994′E (106 m deep) off Haha-jima Island in October 17, 2009 NSMT-Pl 6315.

Remarks. This species was originally described based on the materials from *Megalops atlanticus* Valenciennes, 1847 caught in the west coast of Florida (Sogandares-Bernal and Hutton, 1959). This is the first record of this species in Japanese waters.

Suborder **Bucephalata** La Rue, 1926
Superfamily **Bucephaloidea** Poche, 1907
Family **Bucephalidae** Poche, 1907
Subfamily **Prosorhynchinae** Nicoll, 1914

3. ***Prosorhynchus crucibulum*** (Rudolphi, 1819)

Materials examined. Thirteen gravid specimens from the pyloric caeca of *Epinephelus tauvina* (Forsskål, 1775) (Serranidae) [Jn: Hitomihata] caught at 26°35.056′N, 142°15.026′E– 26°35.172′N, 142°15.010′E (110 m deep) off Haha-jima Island in October 18, 2009, NSMT Pl-6313.

Remarks. This species has been recorded from several host fishes caught in the waters of the Mediterranean, Atlantic, Red Sea, Philippines and Peter the Great Bay (cited from Yamaguti (1971)), and also from Japanese waters, i.e. Inland Sea of Japan, East China Sea, Suruga Bay, and the Ogasawara Islands (Kuramochi, 2011; Machida and Kamegai, 1997; Yamaguti, 1938a).

4. ***Prosorhynchus epinepheli*** Yamaguti, 1939

Materials examined. Sixteen gravid and single gravid specimens from the pyloric caeca and intestine of *Epinephelus cyanopodus* (Richardson, 1846) (Serranidae) [Jn: Tsuchihozeri] caught at 26°35.056′N, 142°15.026′E (110 m deep) off Haha-jima Island in October 16, 2009,

NSMT-Pl 6310, and 11 gravid and damaged specimens from the stomach of *Variola louti* (Forsskål, 1775) (Serranidae) [Jn: Barahata] caught at 27°01.665′N, 142°10.145′E (unknown depth) in June 22, 2014, NSMT Pl 6312.

Remarks. This species was originally described based on the materials from *E. akaara* (Temminck and Schlegel, 1842) [Jn: Kijihata] caught in the Inland Sea of Japan (Yamaguti, 1939). Kuramochi (2011) also recorded this species from *E. fasciatus* (Forsskål, 1775) (Serranidae) [Jn: Akahata] caught off Chichi-jima Island.

Suborder **Hemiurata** Skrjabin & Guschanskaja, 1954
Superfamily **Hemiuroidea** Looss, 1899
Family **Didymozoidae** Monticelli, 1888
Subfamily **Didymodiclininae** Pozdnyakov, 1993

5. ***Didymodiclinus pacificus*** (Yamaguti, 1938)

Materials examined. Many gravid fragments of both sex from cysts in the gill of *Epinephelus fasciatus* (Forsskål, 1775) (Serranidae) [Jn: Akahata] and *E. retouti* Bleeker, 1868 [Jn: Akahata-modoki] caught at 27°01.000′N, 142°11.007′E–27°0.1975′N, 142°11.905′E (44–100 m deep) in February 12, 2014, NSMT-Pl 6307 and 6379, respectively.

Remarks. Kuramochi (2011) also recorded this species from *E. retouti*, *E. cyanopodus* (Richardson, 1846) [Jn: Tsuchihozeri], and *Pristipomoides filamentosus* (Valenciennes, 1830) (Lutjanidae) [Jn: Ōhime] caught around the Ogasawara Islands.

Family **Hemiuridae** Looss, 1899
Subfamily **Dinurinae** Looss, 1907

6. ***Erilepturus*** sp.

Materials examined. Two gravid specimens from the stomach of *Epinephelus retouti* Bleeker, 1868 (Serranidae) [Jn: Akahata-modoki] caught at 27°13.789′N, 142°11.408′E (106 m deep) in May 20, 2009, NSMT-Pl 6309.

Remarks. Although this form was thought to be closely related with *Erilepturus hamati* (Yamaguti, 1934) from *Seriola quinqueradiata* Temminck & Schlegel, 1845 (Carangidae) [Jn: Buri] caught in the Inland Sea of Japan, Toyama Bay, and Mutsu Bay, *S. aureovittata* [sic] (now addressed as *S. lalandi* Valenciennes, 1833) [Jn: Hiramasa] caught in the Inland Sea of Japan, and *E. fasciatus* (Forsskål, 1775) [Jn: Akahata] caught in the Inland Sea of Japan and the Pacific coast of Wakayama Prefecture (Yamaguti, 1934), I suspend species identification until precise comparisons are made.

Subfamily **Opisthadeninae** Yamaguti, 1970

7. ***Machidatrema akeh*** (Machida, 1989)

Materials examined. A total of 11 gravid specimens from the stomach of *Siganus argenteus* (Quoy & Gaimard, 1825) (Siganidae) [Jn: Hana-aigo] caught at 27°06.779′N, 142°11.80′E (depth unknown) in February 2, 2016, NSMT-Pl 6327.

Remarks. This species was originally described based on the materials from *S. virgatus* (Valenciennes) [Jn: Hime-aigo] caught off Amami-oshima Island under the name of *Neotheletrum akeh* (Machida, 1989) and also recorded from Okinawa-jima Island (cited from Machida (2003)). This is the first record of this species off the Ogasawara Islands.

Suborder **Lepocreadiata** Olson *et al.*, 2003
Superfamily **Lepocreadioidea** Odhner, 1905
Family **Enenteridae** Yamaguti, 1958

8. ***Cadenatella isuzumi*** Machida, 1993

Materials examined. Two and six gravis specimens from the intestine of *Kyphosus pacificus* Sakai & Nakabo, 2004 (Kyphosidae) [Jn: Minami-isuzumi] caught at 27°00.050′N, 142°08.410′E–27°04.004′N, 142°12.690′E (30–75 m deep) in February 13, 2014, NSMT-Pl 6332, and 27°05.857′N, 142°14.762′E (42 m deep) in June 18, 2014, NSMT-Pl 6331, respectively.

Remarks. This species was originally described based on the materials from the intestine of *K. cinerascens* (Forsskål, 1775) [Jn: Tenjiku-isaki] caught off Okinawa-jima Island (Machida, 1993). This is also collected from *Kyphosus* spp. caught in Great Barrier Reef, Australia (Bray and Cribb, 2001). This is the first record of this species off the Ogasawara Islands.

9. ***Enenterum elongatum*** Yamaguti, 1970

Materials examined. Two, four and seven gravid

specimens from the intestine of *Kyphosus pacificus* Sakai & Nakabo, 2004 (Kyphosidae) [Jn: Minami-isuzumi] caught at 27°00.050′N, 142°08.410′E–27°04.004′N, 142°12.690′E (30–75 m deep) in February 15, 2014, NSMT-Pl 6329, 27°06.779′N, 142°11.80′E (depth unknown) in February 21, 2016, NSMT-Pl 6330, and 27°05.857′N, 142°14.762′E (42 m deep) in June 18, 2014, NSMT-Pl 6331, respectively.

Remarks. This species was originally described base on the materials from the intestine of *K. vaigiensis* (Quoy & Gaimard, 1825) [Jn: Isuzumi] caught in Hawaii (Yamaguti, 1970). It was also recorded from Okinawa-jima Island (cited from Machida (2003)) and southwestern Australia (Bray and Cribb, 2001). This is the first record of this species off the Ogasawara Islands.

Family **Gyliauchenidae** Fukui, 1929
Subfamily **Gyliaucheninae** Fukui. 1929

10. ***Gyliauchen papillatus*** (Goto & Matsudaira, 1918)

Materials examined. A total of 30 and 12 gravid specimens from the body cavity and intestine of *Siganus argenteus* (Quoy & Gaimard, 1825) (Siganidae) [Jn: Hana-aigo] caught at 27°06.779′N, 142°11.80′E in February 22, 2016, NSMT-Pl 6325 and 6326, respectively.

Remarks. This species was originally described based on the materials from *S. fuscescens* (Houttuyn, 1782) [Jn: Aigo] under the name of *Dissotrema papillatus*. Although the type locality was not described (Goto and Matsudaira, 1918), this species are widely distributed in the Pacific coast of Japan, Okinawa-jima Island (Machida, 2003), Sulawesi (Yamaguti, 1953), and New Caledonia and Australia (Durio and Manter, 1969).

Family **Lepocreadiidae** (Odhner, 1905)

11. ***Hypocreadium patellare*** Yamaguti, 1938

Materials examined. Six gravid specimens from the stomach of *Sufflamen fraenatum* (Latreille, 1804) (Balistidae) [Jn: Meganehagi] caught at 27°09.671′N, 142°10.867′E–27°11.034′N, 142°11.081′E (22–33 m deep) in May 17, 2009, NSMT-Pl 6333.

Remarks. This species was originally described based on the materials from the intestine of *Monacanthus cirrhifer* Temminck & Schlegel, 1850 (Monacantidae) [Jn: Kawahagi] caught in the Inland Sea of Japan (Yamaguti, 1938a). This is the first record of this species in the Ogasawara Islands.

12. ***Lepotrema clavatum*** Ozaki, 1932

Materials examined. Single gravid specimen from the stomach of *Sufflamen fraenatum* (Latreille, 1804) (Balistidae) [Jn: Meganehagi] caught at 27°09.671′N, 142°10.867′E–27°11.034′N, 142°11.081′E (22–33 m deep) in May 17, 2009, NSMT-Pl 6334.

Remarks. This species was originally described based on the materials from the intestine of *Monacanthus cirrhifer* Temminck & Schlegel, 1850 (Monacantidae) [Jn: Kawahagi]. Although the type locality was not indicated, Ozaki (1932) suggested that this species occurred frequently in *M. cirrhifer*. This is the first record of this species in the Ogasawara Islands.

13. ***Preptetos impar*** Bray & Cribb, 1996

Materials examined. A total of 26 gravid specimens from the pyloric caeca of *Paracaesio xanthura* (Bleeker, 1869) (Lutjanidae) [Jn: Umeiro] caught at 27°08.027′N, 142°13.001′E in June 17, 2014, NSMT-Pl 6319.

Remarks. This species was originally described based on the materials from the intestine of *Lutjanus erythropterus* Bloch, 1790 (Lutjanidae) caught in Lizard Island, Queensland, Australia (Bray and Cribb, 1996). This is the first record of this species in the Ogasawara Islands.

Suborder **Opisthorchiata** La Rue, 1957
Superfamily **Opisthorchioidea** Braun, 1901
Family **Cryptogonimidae** Ward, 1917

14. ***Siphoderina*** sp.

Materials examined. Single gravid specimens from the stomach and 32 gravid specimens from the pyloric caeca of *Pristipomoides argyrogrammicus* (Valenciennes, 1832) (Lutjanidae) [Jn: Hanafuedai] caught at 27°16.005′N, 140°52.343′E (300 m deep) off Nishinoshima Island in October 21, 2009, NSMT-Pl 6322 and 6323, respectively and single damaged specimen from the pyloric caeca of *Lutjanus stellatus* Akazaki, 1983 (Lutjanidae) [Jn: Fuedai] caught at 27°14.847′N, 140°51.801′E (95 m deep) off

Nishinoshima Island in October 21, 2009, NSMT-Pl 6324.

Remarks. Due to the fact that a total of 50 species have been described in this genus to date (Machida, 2009; Miller and Cribb, 2008), I suspend the species identification until precise comparisons are made.

Suborder **Xiphidiata** Olson *et al*., 2003
Superfamily **Allocreadioidea** Looss, 1902
Family **Opecoelidae** Ozaki, 1925
Subfamily **Helicometrinae** Bray *et al*., 2016

15. ***Helicometra epinepheli*** Yamaguti, 1934

Materials examined. One and four gravid specimens from the stomach and intestine of *Epinephelus retouti* Bleeker, 1868 (Serranidae) [Jn: Akahata-modoki] caught at 27°13.789′N, 142°11.408′E (106 m deep) in May 19, 2009, NSMT-Pl 6304 and 6305, respectively. And single gravid specimen from the intestine of the same species caught at 27°01.818′N, 142°13.987′E–27°01.792′N, 142°10.948′E (110 m deep) in May 25, 2009, NSMT-Pl 6306.

Remarks. Kuramochi (2011) recorded this species from *E. fasciatus* (Forsskål, 1775) [Jn: Akahata] caught in the Ogasawara Island. This species was originally described based on the materials from *E. akaara* (Temminck and Schlegel, 1842) [Jn: Kijihata] and *E. tsirimenara* (Temminck & Schlegeli, 1842) [sic] (the same host in the present study) caught in the Inland Sea of Japan (Yamaguti, 1938a), and has also been recorded from *Thalassoma purpureum* (Forsskål, 1775) (Labridae) [Jn: Kinubera] caught off Okinawa-jima Island (Yamaguti, 1942).

Subfamily **Plagioporinae** Manter, 1947

16. ***Hamacreadium epinepheli*** Yamaguti, 1934

Materials examined. Two gravid specimens from the pyloric caeca and single gravid specimen from the intestine of *Epinephelus morrhua* (Valenciennes, 1833) (Serranidae) [Jn: Houkihata] caught at 26°45.106′N, 142°05.997′E–26°45.166′N, 142°05.994′E (106 m deep) off Haha-jima Island in October 19, 2009, NSMT-Pl 2288 and 2289, respectively.

Remarks. This species was originally described based on the materials from *E. akaara* (Temminck & Schlegel, 1842) [Jn: Kijihata] caught in the Inland Sea of Japan, and *Lethrinus haematopterus* Temminck & Schlegel, 1844 (Lethrinidae) [Jn: Fuefukidai] caught off Wakayama Prefecture (Yamaguti, 1934). This species was also reported from Okinawa-jima Island (cited from Machida (2003)). Kuramochi (2011) erroneously identified this species from *E. fasciatus* (Forsskål, 1775) [Jn: Akahata] (NSMT-Pl S72 and 73a), and *Pristipomoides filamentosus* (Valenciennes, 1830) (Lutjanidae) [Jn: Ōhime] (NSMT-Pl S88) to be *Lepidapedoides querni* Yamaguti, 1970. This is the first record of this species in the Ogasawara Island.

17. ***Hamacreadium lethrini*** Yamaguti, 1934

Materials examined. Five and two gravid specimens from the intestine of *Epinephelus fasciatus* (Forsskål, 1775) (Serranidae) [Jn: Akahata] caught at 27°08.289′N, 142°11.967′E (depth unknown) in June 17, 2014, NSMT-Pl 6303, and 27°04.232′N, 142°15.264′E–27°05.415′N, 142°15.175′E (depth unknown) in February 23, 20160, NSMT-Pl 6306, respectively. And six and one gravid specimens from the pyloric caeca and intestine of *E. fasciatus* caught at 27°04.994′N, 142°14.454′E–27°08.027′N, 142°13.001′E (22–35 m deep) in June 17, 2014, NSMT-Pl 6304 and 6305, respectively.

Remarks. This species was already recorded from the Ogasawara Islands (Kuramochi, 2011). The original description of this species was made on the materials from the stomach and intestine of *Lethrinus haematopterus* Temminck and Schlegel, 1844 (Lethrinidae) [Jn: Fuefukidai] caught off Wakayama, Japan (Yamaguti, 1934). This species was also recorded from *L. harak* (Forsskål, 1775) [Jn: Mato-fuefuki] and from *Lutjanus fulviflamma* (Forsskål, 1775) (Lutjanidae) [Jn: Nise-kurohoshi-fuefuki] caught off Okinawa-jima Island (Dyer *et al*., 1988).

18. ***Macvicaria*** sp.

Materials examined. Four gravid specimens from the intestine of *Sufflamen fraenatum* (Latreille, 1804) (Balistidae) [Jn: Meganehagi] caught at 27°09.671′N, 142°10.867′E–27°11.034′N, 142°11.081′E (22–33 m deep) in May 17, 2009, NSMT-Pl 6335.

19. ***Phyllotrema*** sp.

Materials examined. A total of 24 gravid and three gravid specimens from the pyloric caeca and intestine of *Pristipomoides argyrogrammicus* (Valenciennes, 1831) (Lutjanidae) [Jn: Hanafuedai] caught at 27°18.890′N, 142°17.938′E–27°18.919′N, 142°17.977′E (300 m deep) in May 21, 2009, NSMT-Pl 6320 and 6321, respectively.

Remarks. The present specimens were not identical with previously known species, i.e. *Phyllotrema bicaudatum* Yamaguti, 1934, *P. guangxiense* Li, Qiu & Liang, 1990, *P. microrchis* Jin, Zhang & Ji, 1979, *P. quadricaudatum*, and *P. tetracaudatum* Hussain, Rao & Shyamasundari, 1986 (Gu and Shen, 1979; Hussain, Rao and Shyamasundari, 1986; Jin, Zhang and Ji, 1979; Li, Qiu and Liang, 1990; Yamaguti, 1934). The hosts of these species are limited to the anguilliform eels at present.

Discussion

In the present study, 15 species and four unidentified forms of 16 genera from nine families of digenan trematodes were obtained from 13 species of eight genera from five families of fishes inhabiting the Ogasawara Islands. Summarizing the present results and those of Kuramochi (2011), 22 species and four unidentified forms were listed with the information on their distribution ranges (Table 1). The two species such as *Prosorhynchus crucibulum* and *Gyliauchen papillatus* are approximately a cosmopolitan species in the Pacific Ocean, followed by the four species such as *Helicometra epinepheli*, *Hamacreadium epinepheli*, *Hamacreadium lethrini*, and *Pseudopecoelus elongates*, which are also widely distributed although the ranges are limited to Japanese waters. While, the five species such as *Bivesicula claviformis*, *Prosorhynchus epinepheli*, *Hypocreadium patellare*, *Lepotrema clavatum*, and *Stephanostomum carangis* were only common off the Ogasawara Islands and Japan main lands. Among four species common off the Ogasawara Islands and the Nansei Islands, the three species *Machidatrema akeh*, *Cadenatella isuzumi*, and *Enenterum elongatum* were possibly limited in distribution range due to their high host specificity. The remained species excluding the unidentified forms, and *Didymodiclinus pacificus* of which type locality is undefined (Yamaguti, 1938b), were common to the area far away from the Ogasawara Islands showing a sporadic distribution. It is supposed to be due to limited information.

One of the major aims of this project is to find out and count up endemic species sustaining biodiversity of the Ogasawara Island. Among four unidentified forms, candidates for endemic species will be limited to *Erilepturus* sp. and *Phyllotrema* sp. due to the fact that taxonomy of the remained two genera *Siphoderina* and *Macvicaria* is complex and highly confused to make a precise species description. In contrast, it is clear that the inventory of digenean trematodes parasitic in fishes off the Ogasawara Islands has not yet been completed. Machida (2003) summarized the fish digenean trematodes off Ryukyu Islands to be 168 species of 115 genera from 25 families. Biodiversity in the Ogasawara Islands must be comparable with Ryukyu Islands. Further investigation will be needed.

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Table 1. Summary of previous reports on the localities of degenean trematodes parasitic in fishes from the Ogasawara Islands.

Family	Species	Records off the Ogasawara Islands	Localities Given by the Previous Reports		
			Off Japan Main Lands	Off the Nansei Islands	Other Areas
Bivesiculidae	*Bivesicula claviformis*	Kuramochi (2011), present study	Machida *et al*. (1970), Yamaguti (1934; 1938a)		
	Bivesicula tarponis	Present study			Florida (Sogandares-Bernal and Hutton, 1959)
Bucephalidae	*Bucephalus varicus*	Kuramochi (2011)		Yamaguti (1942)	The Pacific, Atlantic, Red Sea (Yamaguti, 1971),
	Prosorhynchus crucibulum	Kuramochi (2011), present study	Machida and Kamegai (1997), Yamaguti (1938a)	Yamaguti (1942)	The Mediterranean, Atlantic, Red Sea, Philippines, Peter the Great Bay (Yamaguti, 1971)
	Prosorhynchus epinepheli	Kuramochi (2011), present study	Yamaguti (1939)		
Didymozoidae	*Didymodiclinus pacificus*	Kuramochi (2011), present study			The Pacific (Yamaguti, 1938b)
Hemiuridae	*Erilepturus* sp.	Present study			
	Lecithochirium priacanthi	Kuramochi (2011)			Hawaii (Yamaguti, 1970), Sulawesi (Yamaguti, 1953)
	Machidatrema akeh	Present study		Machida (1989; 2003)	
Enenteridae	*Cadenatella isuzumi*	Present study		Machida (1993)	Australia (Bray and Cribb, 2001)
	Enenterum elongatum	Present study		Machida (2003)	Hawaii (Yamaguti, 1970), Australia (Bray and Cribb, 2001)
Gyliauchenidae	*Gyliauchen papillatus*	Present study	Goto and Matsudaira (1918)	Machida (2003)	Sulawesi (Yamaguti, 1953), New Caledonia and Australia (Durio and Manter, 1969)
Lepocreadiidae	*Hypocreadium patellare*	Present study	Yamaguti (1938a)		
	Lepidapedoides kalikali	Kuramochi (2011)			Hawaii (Yamaguti, 1970)
	Lepotrema clavatum	Present study	Ozaki (1932)		
	Opechona bacillaris	Kuramochi (2011)			North American and Russian coasts, Peter the Great Gulf (Zhukov, 1960)
	Preptetos impar	Present study			Australia (Bray and Cribb, 1996)
Cryptogonimidae	*Siphoderina* sp.	Present study			
Acanthocolpidae	*Stephanostomum carangis*	Kuramochi (2011)	Kuramochi (2005), Yamaguti (1951)		
	Stephanostomum casum	Kuramochi (2011)			Caribbean, Bermuda, Galápagos Islands; Red Sea, New Caledonia (Duria and Manter, 1969)
Opecoelidae	*Helicometra epinepheli*	Kuramochi (2011), present study	Yamaguti (1938a)	Yamaguti (1942)	
	Hamacreadium epinepheli	Present study	Yamaguti (1934)	Machida (2003)	
	Hamacreadium lethrini	Kuramochi (2011), present study	Yamaguti (1934)	Dyer *et al*. (1988)	
	Macvicaria sp.	Present study			
	Phyllotrema sp.	Present study			
	Pseudopecoelus elongatus	Kuramochi (2011)	Yamaguti (1938a)	Unpublished specimen of NSMT-Pl	

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小笠原諸島産魚類寄生の二生吸虫相

倉持利明

小笠原諸島の父島周辺を中心に，魚類に寄生する二生吸虫類の調査をなった結果，13種の魚類から9科16属16種と4未同定種を得ることができた．既存の報告と合わせると，10科22属22種4未同定種が報告されたことになる．これら二生吸虫は，ほぼ太平洋全域に分布する種を含む広域分布種，小笠原諸島と本州沿岸の共通種，小笠原諸島と南西諸島の共通種，小笠原諸島から遠く離れた海域との共通種の4グループに概ね均等に分かれた．