Zootaxa 3150: 1–35 (2012)
www.mapress.com/zootaxa/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

Recent and fossil Isopoda Bopyridae parasitic on squat lobsters and porcelain crabs (Crustacea: Anomura: Chirostyloidea and Galatheoidea), with notes on nomenclature and biogeography

CHRISTOPHER B. BOYKO[1, 2, 5], JASON D. WILLIAMS[3] & JOHN C. MARKHAM[4]

[1]*Department of Biology, Dowling College, 150 Idle Hour Boulevard, Oakdale, NY 11769, USA*
[2]*Division of Invertebrate Zoology, American Museum of Natural History, Central Park West @79th St., New York, NY 10024, USA. E-mail: cboyko@amnh.org*
[3]*Department of Biology, Hofstra University, Hempstead, NY 11549, USA. E-mail: jason.d.williams@hofstra.edu*
[4]*Arch Cape Marine Laboratory, Arch Cape, OR 97102, USA. E-mail: jmarkham@seasurf.net*
[5]*Corresponding author*

Table of contents

Abstract

The parasitic isopod family Bopyridae contains approximately 600 species that parasitize calanoid copepods as larvae and decapod crustaceans as adults. In total, 105 species of these parasites (~18% of all bopyrids) are documented from Recent squat lobsters and porcelain crabs in the superfamilies Chirostyloidea and Galatheoidea. Aside from one endoparasite, all the bopyrids reported herein belong to the branchially infesting subfamily Pseudioninae. Approximately 29% (67 of 233 species) of pseudionine species parasitize squat lobsters and 16% (38 of 233 species) parasitize porcelain crabs. Bopyrids are found in five of six squat lobster families (lacking only in Kiwaidae) and the sole porcelain crab family Porcellanidae. Six pseudionine genera are shared between squat lobsters and porcelain crabs. The deepest bathymetric records of bopyrids on squat lobster hosts（5210 m）, and records of swellings interpreted as indications of bopyrid presence in fossil host taxa are noted. Four nomenclatural issues are resolved and the proper form of citation for the French zoologist C. E. Hesse is provided. Biogeographic distributions for squat lobsters and porcelain crabs are discussed and compared to those of hermit crabs.

Key words: Bopyridae, Chirostyloidea, hermit crab, Galatheoidea, Isopoda, parasite, Porcellanidae, squat lobster, taxonomy

Accepted by J. Svavarsson: 1 Nov. 2011; published: 4 Jan. 2012

Introduction

The parasitic isopod family Bopyridae contains approximately 600 valid described species, all of which are parasitic on calanoid copepods as larvae and decapod crustaceans as adults (Boyko & Williams 2009). Adult females are highly modified parasites with a distorted, non-symmetrical body, non-motile pereopods and a well-developed marsupium devoted to the brooding of large numbers of eggs; males are dwarf and have a less modified, more typical isopod form. Bopyrids are found across a wide range of decapod hosts and ~12% of anomuran species are parasitized by bopyrids; anomurans are second only to caridean shrimps as the most common hosts for parasitic isopods (Boyko & Williams 2009). Nearly all bopyrids occurring on squat lobsters and porcelain crabs are members of the subfamily Pseudioninae and live ectoparasitically in the branchial chambers of hosts where they modify the shape of the branchiostegite, giving the host a lopsided appearance (e.g., Baba 2005: fig. 2). Only one species of bopyrid (subfamily Entophilinae) lives endoparasitically within the thorax of squat lobster hosts (Adkison & Collard 1990). Understanding of the phylogenetic relationships of squat lobsters and porcelain crabs has recently improved (see Ahyong *et al*. 2010; Schnabel & Ahyong 2010), and these new classifications are followed in this work. The term "squat lobsters" does not refer to a monophyletic group, because Chirostyloidea is more closely related to Lomisoidea and Aegloidea than to Galatheoidea (Ahyong *et al*. 2009). Therefore, we use terms "squat lobster" and "hermit crab" (another paraphyletic assemblage) as ecomorphotypes rather than as phylogenetic units (porcelain crabs are specialized for filter feeding and are a monophyletic group within the larger Galatheoidea).

The present work includes a complete list of the bopyrids of squat lobsters and porcelain crabs (with synonyms), and a summary of the total number of host species, including those fossil taxa bearing carapace swellings interpreted as evidence of bopyrid infestation. During the course of this survey, we resolved several nomenclatural problems that had either been addressed previously but not generally recognized or that were in need of resolution. Although no host was cited in the original and only description to date, *Cryptione laevis* Richardson, 1910 (now placed in *Pleurocryptella*, see Bourdon 1979; 1981) from the Philippines (198–247 m) is likely hosted by a squat lobster, as are all other species in *Pleurocryptella*. Additional collection of topotypic material is needed to confirm host identity and therefore we do not include this species in the tables or in the data used to generate Figure 1.

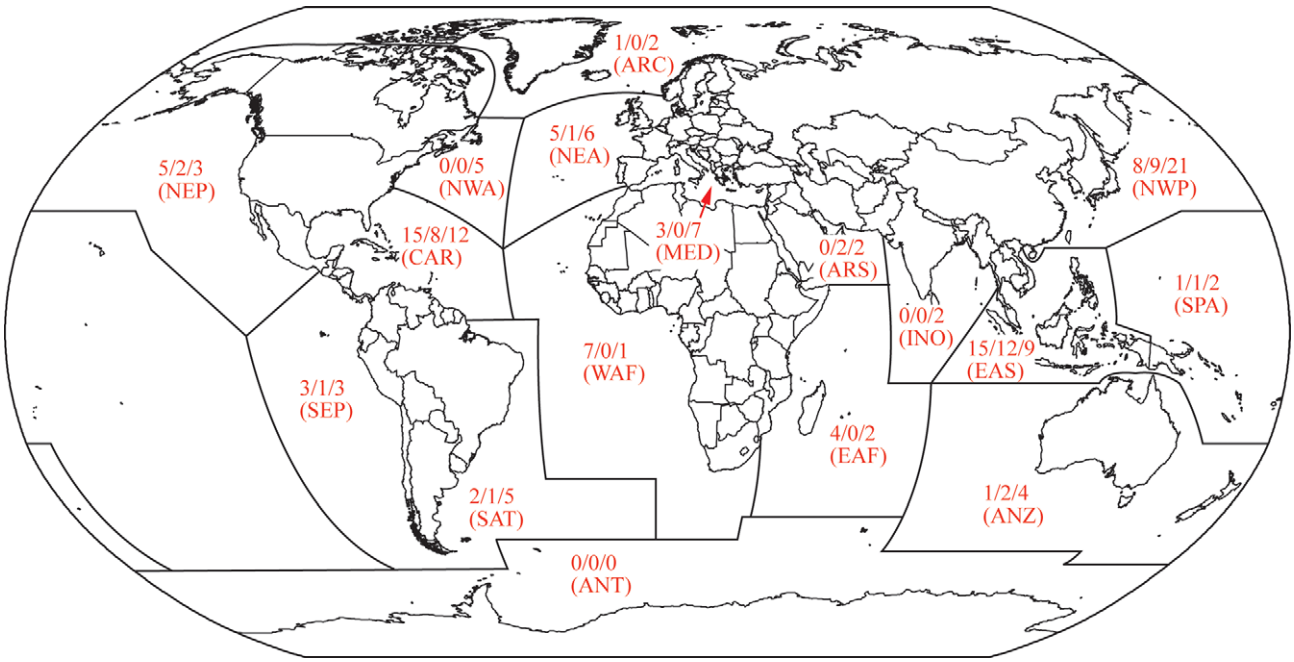

FIGURE 1. Biogeographic distribution of bopyrid parasitic isopods associated with squat lobster, porcelain crab, and hermit crab hosts across major marine ecoregions. Numbers of parasite species indicated for squat lobster/porcellanid/hermit crab hosts shown above ecoregional abbreviations in parentheses (ANT, Antarctic; ANZ, Australia/New Zealand; ARC, Arctic; ARS, Arabian Sea; CAR, Wider Caribbean; EAF, East Africa; EAS, East Asian Sea; INO, Central Indian Ocean; MED, Mediterranean; NEA, North East Atlantic; NEP, North East Pacific; NWA, North West Atlantic; NWP, North West Pacific; SAT, South Atlantic; SEP, South East Pacific; SPA, South Pacific; WAF, West Africa). Only described species included. Ecoregions based on "Marine Regions" of Kelleher *et al*. (1995).

This paper complements a summary of all parasites and other symbionts of squat lobsters (but not of porcelain crabs) (Boyko & Williams 2011). Reviews of bopyrids from hermit crabs have been published (Markham 2003; McDermott *et al*. 2010), and thus, excepting bopyrids from hosts in Hippoidea and Lithodoidea (no bopyrids are known from Lomisoidea or Aegloidea), the present work completes the cataloging all known parasitic isopods associated with anomuran hosts.

Material and methods

Data on the symbionts of squat lobsters were gathered from the literature since 1864 (inception of the *Zoological Record*), examination of our own files, and searches made using the squat lobster literature database (http://decapoda.arthroinfo.org/references/squatlobsters.html). Names of host taxa follow Baba *et al*. (2008), whereas the higher taxon categories for hosts follow Ahyong *et al*. (2010) and Schnabel & Ahyong (2010). We provide currently accepted names for all host and parasite species; species of unknown taxonomic status and/or questionable identity are noted but cited as in the original references. Taxonomic authorities of hosts discussed in the text are provided in Table 2. All of the bopyrids cited by Mayo (1974) were identified by JCM as *Pseudione* spp., but the concept of *Pseudione* was considerably broader at that time and they are cited here as "*Pseudione*" sp. Hosts listed as *Munida* sp. may belong to other genera in Munididae. Only fossil squat lobster and porcelain crab hosts are listed in Table 3, as their swellings are only identified as bopyrids by implication and no fossil bopyrids have ever been named.

Biogeographic distribution is based on the "Marine Regions" of Kelleher *et al*. (1995). We have used these biogeographic divisions of Kelleher *et al*. (1995) rather some other more recent conceptions with more fine grained divisions (e.g., Spalding *et al*. 2007) because our data are more appropriately displayed in Kelleher's "Marine Regions." With many gaps in our knowledge of bopyrid species' distributions, we lack sufficient data for so many species within the "Provinces" or "Ecoregions" of Spalding *et al*. (2007) that their use would show many of these subdivisions with no data points, which would give misleading "patterns" of distribution for bopyrids that are in large part an artifact of lack of sampling. Using the Spalding *et al*. (2007) larger scale "Realms" (which combine some of Kelleher's "Marine Regions") obscures biogeographic patterns in areas where our data is more robust (such as the divisions between the western and eastern temperate North Atlantic). Future collections and identifications of bopyrids, especially in the Indo–Pacific, will no doubt allow use of finer scale biogeographic divisions, such as those of Spalding *et al*. (2007). Data for hermit crab biogeography is taken from McDermott *et al*. (2010).

Results and discussion

Bopyridae contains nine subfamilies, most of which infest their hosts branchially. This is the condition found for all porcelain crab and squat lobster parasites, aside from the single entophiline bopyrid (*Entophilus omnitectus* Richardson, 1903), an endoparasite of five species of munidids. All other parasites cited herein belong to the Pseudioninae, which is considered the basal and most speciose subfamily of bopyrids (233 total species). Most pseudionines are known from anomurans, although some species occur on caridean shrimp, nephropid lobsters, axiidean and gebiidean shrimp, and brachyuran crabs (Shiino 1952; 1965; Markham 1986). On the basis of fossil evidence, bopyrids appear to have begun their decapod parasitism using squat lobster hosts (Hessler 1969; Markham 1986) and today approximately 45% of pseudionine bopyrids are known from squat lobster and porcelain crab hosts. Species in the squat lobster genus *Munida* are parasitized by 33 species of bopyrids, which is nearly double the number of bopyrids found on species of *Pagurus* (McDermott *et al*. 2010), the next most parasitized genus of anomuran.
In total, 105 species of these parasites (~18% of all bopyrids) are documented from squat lobsters and porcelain crabs (Tables 1, 2). Approximately 29% (67 of 233 species) of pseudionine species parasitize squat lobsters and 16% (38 of 233 species) parasitize porcelain crabs. Percentages of described host species infested within each family are: Chirostylidae (1.7%; 3 of 174 species), Eumunididae (3.3%; 1 of 30 species), Galatheidae (15.6%; 14 of 90 species), Munididae (12.3%; 46 of 375 species), Munidopsidae (10.7%; 26 of 242 species), Porcellanidae (22.7%; 63 of 277 species), Kiwidae (0 of 1 species).

TABLE 1. List of bopyrid isopods infesting squat lobsters and porcelain crabs. Refer to Table 2 for host classification and authors.

Parasite species	Host species	Locality (ies)	Depth (m)	Reference	Note
ENTOPHILINAE					
Entophilus omnitectus Richardson, 1903	*Agononida* cf. *incerta*	Madagascar	310-606	Bourdon 1976b	
	Agononida normani	Hawaii, USA	369-402	Richardson 1903	
	Munida microphthalma	Gulf of Mexico	430-690	Adkison & Collard 1990	
	Munida sanctipauli	Azores	784	Bourdon 1981	
	Munida valida	Gulf of Mexico	185-1010	Adkison & Collard 1990	
PSEUDIONINAE					
Allorbimorphus haigae Bourdon, 1976	*Aliaporcellana suluensis*	Indonesia	37-128	Bourdon 1976a	
Allorbimorphus lamellosus (Nierstrasz & Brender à Brandis, 1923)	*Porcellanella triloba*	Indonesia; Persian Gulf	23	Nierstrasz & Brender à Brandis 1923; Bourdon 1976a	
Allorbimorphus scabriculi Bourdon, 1976	*Petrolisthes scabriculus*	Philippines	unspecified	Bourdon 1976a	
Anuropodione australiensis Bourdon, 1976	*Pisidia dispar*	Western Australia; Queensland, Australia	14.5-18; intertidal	Bourdon 1976a; Markham 2010	
Anuropodione carolinensis Markham, 1974	*Munida iris*	North Carolina, USA; Norfolk Canyon	83-662	Markham 1974a; Wenner & Windsor 1979	
Anuropodione dubius (Nierstrasz & Brender à Brandis, 1929)	*Galathea* sp.	Thailand	unspecified	Nierstrasz & Brender á Brandis 1929	
Anuropodione megacephalon Markham, 1974	*Munida pusilla*	Gulf of Mexico	54	Markham 1974a	
Anuropodione senegalensis Bourdon, 1967	*Munida speciosa*	Senegal; Congo	200-300	Bourdon 1967a; Bourdon 1972b	
Aporobopyrina amboinae Bourdon, 1983	*Sadayoshia acroporae*	Indonesia	unspecified	Bourdon 1983	
Aporobopyrina anomala Markham, 1974	*Munida valida*	Colombia (Atlantic); Gulf of Mexico; Florida, USA	185-770	Markham 1974a; Adkison & Collard 1990	
Aporobopyrina javaensis Bourdon, 1972	*Munida andamanica*	Indonesia	200	Bourdon 1972b	
Aporobopyrina lamellata Shiino, 1934	*Petrolisthes coccineus*	Japan	unspecified	Shiino 1934	
	Petrolisthes hastatus	Japan; Moluccas	unspecified	Shiino 1936a; Bourdon 1983	
	Petrolisthes lamarckii	Madagascar; Philippines; Thailand	unspecified	Bourdon 1976a; Markham 1985	
	Petrolisthes rufescens	Pakistan	unspecified	Markham 1980	
	Petrolisthes scabriculus	Queensland, Australia	unspecified	Markham 2010	
	Petrolisthes tomentosus	Madagascar	unspecified	Bourdon 1976a	

continued next page

TABLE 1. (continued)

Parasite species	Host species	Locality (ies)	Depth (m)	Reference	Note
Aporobopyrus aduliticus Nobili, 1906	*Petrolisthes rufescens*	Eritrea	unspecified	Nobili 1906	
Aporobopyrus bonairensis Markham, 1988	*Petrolisthes marginatus*	Bonaire	0-1.5	Markham 1988	
	Petrolisthes politus	Bonaire	intertidal	Markham 1988	
	Petrolisthes quadratus	Bonaire; Netherlands Antilles	0-0.5	Markham 1988	
Aporobopyrus bourdonis Markham, 2008	*Petrolisthes edwardsii*	California, USA; Mexico (Pacific); Costa Rica	unspecified	Bourdon 1976a; Markham 2008	
Aporobopyrus calypso (Bourdon, 1976)	*Pachycheles ackleianus*	Brazil	45	Bourdon 1976a	
Aporobopyrus collardi Adkison, 1988	*Pachycheles rugimanus*	Gulf of Mexico	28-82	Adkison 1988	
Aporobopyrus curtatus (Richardson, 1904)	*Pachycheles greeleyi*	Brazil	unspecified	Brasil Lima 1998	
	Petrolisthes armatus	Florida (Atlantic & Gulf of Mexico), Louisiana, USA; Venezuela; Brazil	0-2	Richardson 1904; Markham 1975a; Camp *et al* . 1977; Lemos de Castro & Brasil Lima 1980; Oliviera & Masunari 1996, 1998, 2006	
	Petrolisthes galathinus	Florida, USA; Caribbean; Brazil	unspecified	Lemos de Castro & Brasil Lima 1980	
	Petrolisthes marginatus	North Carolina, Florida (Atlantic), USA; Barbados	unspecified	Markham 1975a	
	Petrolisthes politus	St. Eustatius	unspecified	Brasil Lima 1998	
	Petrolisthes quadratus	Curaçao	unspecified	Brasil Lima 1998	
	Petrolisthes sp.	Brazil	unspecified	Brasil Lima 1998	
	Porcellana sayana	North Carolina, USA; US Virgin Islands; Brazil	37-48	Markham 1975a; Bourdon 1976a	
Aporobopyrus dollfusi Bourdon, 1976	*Aliaporcellana suluensis*	Red Sea	unspecified	Bourdon 1980	
	Lissoporcellana quadrilobata	Red Sea	unspecified	Bourdon 1980	
Aporobopyrus enosteoidis (Markham, 1982)	*Enosteoides ornatus*	Hong Kong	18	Markham 1982	
Aporobopyrus galleonus Williams & Madad, 2010	*Petrolisthes* sp.	Philippines	intertidal	Williams & Madad 2010	

continued next page

TABLE 1. (continued)

Parasite species	Host species	Locality (ies)	Depth (m)	Reference	Note
Aporobopyrus gracilis Nierstrasz & Brender à Brandis, 1929	*Galathea* sp.	Senegal	5	Nierstrasz & Brender à Brandis 1929	
Aporobopyrus megacephalon (Nierstrasz & Brender à Brandis, 1929)	*Pachycheles pectinicarpus*	Hong Kong	unspecified	Markham 1982	
	Petrolisthes sp.	Northern Arabian Sea	unspecified	Kazmi *et al* . 2002	
	Porcellanidae	Thailand	55	Nierstrasz & Brender à Brandis 1929	
Aporobopyrus muguensis Shiino, 1964	*Pachycheles holosericus*	California, USA	8-10	Sassaman 1992	
	Pachycheles pubescens	California, USA	unspecified	Markham 2008	
	Pachycheles rudis	California, USA; Baja California, Mexico	9-11	Shiino 1964	
Aporobopyrus orientalis (Shiino, 1933)	*Galathea orientalis*	Japan	unspecified	Shiino 1933	
Aporobopyrus oviformis Shiino, 1934	*Pachycheles pubescens*	California, USA	9-11	Shiino 1964	
	Petrolisthes coccineus	Japan	unspecified	Shiino 1934	
Aporobopyrus parvulus (Bourdon, 1983)	*Lissoporcellana spinuligera*	Moluccas	unspecified	Bourdon 1983	
Aporobopyrus parvus Shiino, 1939	*Pisosoma* sp.	Japan	unspecified	Shiino 1939	
Aporobopyrus petrolistheae palpifera (Bourdon, 1976)	*Petrolisthes militaris*	Indonesia	91	Bourdon 1976a	
Aporobopyrus petrolistheae petrolistheae (Shiino, 1933)	*Petrolisthes japonicus*	Japan	unspecified	Shiino 1933, 1939	
Aporobopyrus pleopodatus (Bourdon, 1983)	*Polyonyx obesulus*	Moluccas	unspecified	Bourdon 1983	
Aporobopyrus retrorsa (Richardson, 1910)	*Munida andamanica*	Philippines	184-514	Boyko 2004	1
	Munida compressa	Taiwan	66-331	Boyko 2004	
	Munida heteracantha	Japan	50	Boyko 2004	
	Munida japonica	Taiwan	66-331	Boyko 2004	
	Paramunida scabra	Philippines	184-514	Boyko 2004	
Aporobopyrus ryukyuensis Shiino, 1939	*Petrolisthes asiaticus*	Japan	unspecified	Shiino 1939	
	Petrolisthes boscii	Pakistan	unspecified	Markham 1980	
	Petrolisthes fimbriatus	Palao, Philippines	unspecified	Bourdon 1976a	
	Petrolisthes hastatus	Japan	unspecified	Shiino 1939	
	Petrolisthes lamarckii	Palao, Philippines	unspecified	Shiino 1942	

continued next page

TABLE 1. (continued)

Parasite species	Host species	Locality (ies)	Depth (m)	Reference	Note
Aporobopyrus aff. *ryukyuensis* Shiino, 1939	*Petrolisthes scabriculus*	Moluccas	unspecified	Bourdon 1983	
Aporobopyrus trilobatus (Nierstrasz & Brender à Brandis, 1925)	*Neopisosoma angustifrons*	Curaçao	unspecified	Nierstrasz & Brender à Brandis 1925	
	Pachycheles pilosus	Curaçao	0.5	Markham 1988	
	Petrolisthes hians	Mexico (Pacific)	unspecified	Bourdon 1976a	
	Petrolisthes ortmanni	Costa Rica	intertidal	Markham 2008	
Aporobopyrus sp.	*Pachycheles sculptus*	Philippines	unspecified	Bourdon 1976a	
Astalione cruciaria Markham, 1975	*Madarateuchus vanderhorsti*	US Virgin Islands	intertidal	Markham 1975a	
Balanopleon tortuganus Markham, 1974	*Munida simplex*	Venezuela	68-80	Markham 1974a	
Bathione humboldtensis (Pardo, Guisado & Acuña, 1998)	*Cervimunida johni*	Chile	170-370	González & Acuña 2004	
	Pleuroncodes monodon	Chile	170-370	González & Acuña 2004	
Bathione magnafolia Román-Contreras & Boyko, 2007	*Munidopsis depressa*	Gulf of California	835-870	Román-Contreras & Boyko 2007	
Discomorphus magnifoliatus Markham, 2008	*Petrolisthes cinctipes*	California, USA	intertidal	Markham 2008	
Galathocrypta acudata Román-Contreras & Soto, 2002	*Munidopsis erinacea*	Gulf of Mexico	502	Román-Contreras & Soto 2002	
Goleathopseudione bilobatus Román-Contreras, 2008	*Munidopsis antonii*	California, USA	4100	Román-Contreras 2008a	2
Kolourione premordica Markham, 1978	*Pachycheles ackleianus*	Gulf of Mexico	3-38	Markham 1978	
Munidion cubense Bourdon, 1972	*Munida flinti*	Venezuela	134-161	Markham 1975b	
	Munida stimpsoni	Cuba	229-393	Chace 1942; Bourdon 1972b	
Munidion irritans Boone, 1927	*Munida iris*	Hudson Canyon to Norfolk Canyon	unspecified	Bursey 1978	
	Munida irrasa	Florida, USA; Belize	90-670	Markham 1975b	
Munidion laterale Richardson, 1910	"galatheid"	Philippines	247	Richardson 1910a	3
	Paramunida scabra	Indonesia	200	Bourdon 1972b	
Munidion longipedis Markham, 1975	*Agononida longipes*	Florida, USA; Norfolk Canyon; Isla de Providencia, Colombia	70-540	Markham 1975b; Wenner & Windsor 1979	
	Agononida schroederi	Cuba	405	Chace 1942; Markham 1975b	
Munidion parvum Richardson, 1904	*Munida quadrispina*	Washington, USA; British Columbia, Canada	278	Markham 1975b	

continued next page

TABLE 1. (continued)

Parasite species	Host species	Locality (ies)	Depth (m)	Reference	Note
Munidion pleuroncodis Markham, 1975	*Pleuroncodes planipes*	California, USA; Baja California, Mexico	unspecified	Markham 1975b	
Munidion princeps Hansen, 1897	*Munida refulgens*	Colombia (Pacific)	205	Markham 1975b	
Orbimorphus constrictus Richardson, 1910	*Petrolisthes armatus*	Peru	unspecified	Richardson 1910b	
Ovoionella obovata (Shiino, 1958)	*Munida japonica*	Japan; Taiwan	100	Boyko 2004	
Paragigantione americana (Markham, 1974)	*Munida microphthalma*	off Guyana; Norfolk Canyon	1220-1698	Markham 1974a; Wenner & Windsor 1979	
Paragigantione indica (Nierstrasz & Brender à Brandis, 1923)	*Munida curvirostris*	Indonesia	538	Nierstrasz & Brender à Brandis 1923	
Paragigantione papillosa Barnard, 1920	*Munida benguela*	South Africa	458	Barnard 1950	4
	Munida sanctipauli	South Africa; France	549-1810	Barnard 1920; Bourdon 1981	5
Parapleurocryptella elasmonoti Bourdon, 1972	*Munidopsis squamosa*	Martinique	unspecified	Bourdon 1972b	
Parapleurocryptella minuta Bourdon, 1972	*Uroptychus gracilimanus*	Indonesia	750	Bourdon 1972b	
Parapseudione dubia Nierstrasz & Brender à Brandis, 1931	*Galathea* sp.	Morocco	9-11	Nierstrasz & Brender à Brandis 1931	
Parione ischyrandra Bourdon, 1976	*Polyonyx pedalis*	Indonesia	40	Bourdon 1976a	
Parione lamellata Richardson, 1910	Galatheoidea	Philippines	unspecified	Richardson 1910a	6
Parione pachychelii Shiino, 1950	*Pachycheles stevensii*	Japan; Hong Kong	10	Shiino 1950; Markham 1992	
Parione pisidiae Bourdon, 1976	*Pisidia dispar*	South Australia	31	Bourdon 1976a	
Parionella decidens Nierstrasz & Brender à Brandis, 1929	Porcellanidae	China Sea	51	Nierstrasz & Brender à Brandis 1929	
Parionella elegans Nierstrasz & Brender à Brandis, 1923	*Munida japonica*	Indonesia	90	Nierstrasz & Brender à Brandis 1923	
Parionella notexocha Bourdon, 1972	*Eumunida balssi*	China	250	Bourdon 1972b	
Parionella richardsonae Nierstrasz & Brender à Brandis, 1923	*Petrolisthes asiaticus*	Indonesia	13	Nierstrasz & Brender à Brandis 1923	
Parionina chinensis Nierstrasz & Brender à Brandis, 1931	Galatheoidea	China	unspecified	Nierstrasz & Brender à Brandis 1931	6
Parionina pacifica Nierstrasz & Brender à Brandis, 1929	*Allogalathea elegans*	Madagascar	18	Bourdon 1976b	
	Galathea sp.	Japan	35	Bourdon 1976b	7

continued next page

TABLE 1. (continued)

Parasite species	Host species	Locality (ies)	Depth (m)	Reference	Note
Parioninella astridae Nierstrasz & Brender à Brandis, 1930	*Pachycheles sculptus*	Indonesia; Hong Kong	18	Nierstrasz & Brender à Brandis 1930; Markham 1982	
	Pachycheles sp.	Hong Kong	unspecified	Markham 1990	
	Polyonyx sp.	Hong Kong	unspecified	Markham 1990	
Parioninella pacifica (Shiino, 1942)	*Pachycheles sculptus*	Palao, Philippines	unspecified	Shiino 1942	
Pleurocrypta amphiandra Codreanu, Codreanu & Pike, 1966	*Munida ruttlanti*	Algeria; Adriatic Sea	110-230	Codreanu *et al* . 1966; Petric *et al* . 2010	
Pleurocrypta floridana Markham, 1974	*Galathea rostrata*	Florida, USA	42	Markham 1974b	
Pleurocrypta galateae Hesse, 1865	*Galathea dispersa*	UK; Norway; France; Monaco	unspecified	Hesse 1865; Bourdon 1968	
	Galathea nexa	Norway; France	unspecified	Bourdon 1968	
	Galathea squamifera	UK; France; Turkey	unspecified	Bourdon 1968; Geldıay & Kocataş 1972	
Pleurocrypta keiensis Nierstrasz & Brender à Brandis, 1931	*Paramunida scabra*	Indonesia	348	Nierstrasz & Brender à Brandis 1931; Bourdon 1968	
Pleurocrypta longibranchiata (Bate & Westwood, 1868)	*Galathea dispersa*	UK	unspecified	Bourdon 1968	
	Galathea nexa	Norway; France	unspecified	Bourdon 1968	
	Galathea squamifera	UK; France; Turkey	30-35	Bourdon 1968; Geldıay & Kocataş 1972	
Pleurocrypta macrocephala Nierstrasz & Brender à Brandis, 1923	*Pachycheles natalensis*	Persian Gulf	unspecified	Bourdon 1976a	8
	Petrolisthes asiaticus	Indonesia	unspecified	Nierstrasz & Brender à Brandis 1923	
	Petrolisthes boscii	Red Sea	unspecified	Bourdon 1976a	
	Petrolisthes japonicus	Japan; Korea	unspecified	Pearse 1930; Kim & Kwon 1988a, 1988b	
	Petrolisthes lamarckii	Singapore	intertidal	Markham 2009	
Pleurocrypta meridionalis Lemos de Castro & Brasil Lima, 1975	*Munida* sp.	Brazil	unspecified	Lemos de Castro & Brasil Lima 1975	
Pleurocrypta microbranchiata G. O. Sars, 1898	*Galathea intermedia*	UK; Norway; France; Spain; Turkey	20-25	Bourdon 1968; Geldıay & Kocataş 1972	
Pleurocrypta petrolisthis Markham, 1988	*Petrolisthes galathinus*	Bonaire	intertidal	Markham 1988	
Pleurocrypta piriformis Bourdon, 1968	*Galathea strigosa*	Spain	unspecified	Bourdon 1968	

continued next page

TABLE 1. (continued)

Parasite species	Host species	Locality (ies)	Depth (m)	Reference	Note
Pleurocrypta porcellanaelongicornis Hesse, 1876	*Pisidia* cf. *bluteli*	Turkey (Aegean Sea)	0-0.5	Geldıay & Kocataş 1972	
	Pisidia longicornis	UK; France (Atlantic); off Holland; Morocco	unspecified	Bourdon 1968; Huwae 1977	
	Pisidia longimana	Turkey (Aegean Sea)	0.5-30	Kirkim *et al* . 2008	
Pleurocrypta strigosa Bourdon, 1968	*Galathea strigosa*	France; Spain; Italy	unspecified	Bourdon 1968	
Pleurocryptella crassandra Bourdon, 1976	*Munidopsis cylindrophthalma*	Madagascar	460-500	Bourdon 1976b	
Pleurocryptella fimbriata Markham, 1974	*Munida constricta*	Jamaica	605-720	Markham 1974a	
	Munida miles	Cuba	400-500	Chace 1942; Markham 1974a	
Pleurocryptella formosa Bonnier, 1900	*Gastroptychus formosus*	Canary Islands; Ireland	822-914	Tattersall 1905; Bourdon 1968	
Pleurocryptella infecta infecta Nierstrasz & Brender à Brandis, 1923	*Munida gracilis*	New Zealand	558-1207	Page 1985	9
	Munida japonica	Japan	55-183	Shiino 1937	
	Munida militaris	Indonesia	289	Nierstrasz & Brender à Brandis 1923	
	Munida sp.	New Zealand	510	Page 1985	
Pleurocryptella infecta tuberculata Bourdon, 1976	*Paramunida tricarinata*	Madagascar	403-444	Bourdon 1976b	
Pleurocryptella latilamellaris (Nierstrasz & Brender à Brandis, 1931)	*Munida* sp.	Indonesia	250-290	Nierstrasz & Brender à Brandis 1931	
Pleurocryptella superba Bourdon, 1981	*Munidopsis crassa*	Spain (Atlantic)	4475	Bourdon 1981	
Pleurocryptella wolffi Bourdon, 1972	*Munidopsis antonii*	Gulf of Panama (Pacific)	2950-3190	Bourdon 1972a	
Pleurocryptina indica Nierstrasz & Brender à Brandis, 1929	*Galathea* sp.	Indonesia; Mauritius	1-20	Nierstrasz & Brender à Brandis 1929; Bourdon & Stock 1979	
Pseudione andamanicae Bourdon, 1976	*Munida andamanica*	Madagascar	150	Bourdon 1976b	
Pseudione confusa confusa (Norman, 1886)	*Agononida squamosa*	Indonesia	unspecified	Bourdon 1968	
	Galathea dispersa	UK; Ireland; Portugal	unspecified	Bourdon 1968	
	Galathea sp.	South Africa	unspecified	Bourdon 1968	
Pseudione confusa maxillipedis Bourdon, 1972	*Munida stimpsoni*	Virgin Islands; Cuba	229-393	Nierstrasz & Brender à Brandis 1931; Chace 1942; Bourdon 1972b; Kazmi & Boyko 2005	

continued next page

TABLE 1. (continued)

Parasite species	Host species	Locality (ies)	Depth (m)	Reference	Note
Pseudione crenulata G. O. Sars, 1898	*Munida intermedia*	Tyrrhenian Sea	200-330	Castriota *et al* . 2010	
	Munida rugosa	UK; Norway; France: Spain	unspecified	Bourdon 1968; Zariquiey Alvarez 1958	
	Munida tenuimana	Norway; Spain; Tyrrhenian Sea	354	Bourdon 1968	10
Pseudione fibriata Richardson, 1910	unspecified squat lobster	Philippines	1357	Richardson 1910a	
	Munida sp.	Indonesia	310	Nierstrasz & Brender à Brandis 1923	
Pseudione galacanthae Hansen, 1897	*Galacantha diomedeae*	Gulf of California, Mexico	1570	Hansen 1897	
	Munida gregaria	Falkland Islands; Chile	pelagic	Matthews 1932; Rayner 1935	
	Munida quadrispina	Washington, USA; British Columbia, Canada	unspecified	George & Strömberg 1968	
Pseudione hayi Nierstrasz & Brender à Brandis, 1931	*Munida gracilis*	New Zealand	366-732	Page 1985	9
	Munida gregaria	New Zealand	unspecified	Nierstrasz & Brender à Brandis 1931	11
Pseudione itsindrae Bourdon, 1976	*Munidopsis trifida*	Madagascar	745-810	Bourdon 1976b	
Pseudione japanensis Nierstrasz & Brender à Brandis, 1931	*Galathea* sp.	Japan	24-30	Nierstrasz & Brender à Brandis 1931	
Pseudione kossmanni Nierstrasz & Brender à Brandis, 1923	*Munida curvirostris*	Indonesia	unspecified	Nierstrasz & Brender à Brandis 1923	
Pseudione minimocrenulata Nierstrasz & Brender à Brandis, 1931	*Agononida* cf. *incerta*	Indonesia; Madagascar	348-460	Nierstrasz & Brender à Brandis 1931; Bourdon 1976b	
	Munida andamanica	Mozambique	660-665	Tirmizi & Javed 1993; Kazmi & Boyko 2005	
Pseudione munidae Barnard, 1920	*Munida benguela*	South Africa	458	Barnard 1950	4
	Munida sanctipauli	South Africa	549	Barnard 1920	5
Pseudione paucisecta (Richardson, 1904)	*Munida curvipes*	Chile	1890	Richardson 1904	
Pseudione sagamiensis Nierstrasz & Brender à Brandis, 1932	*Phylladiorhynchus pusillus*	Japan	146-512	Nierstrasz & Brender à Brandis 1932; Shiino 1936b	
Pseudione subcrenulata Nierstrasz & Brender à Brandis, 1923	*Paramunida scabra*	Indonesia	397	Nierstrasz & Brender à Brandis 1923	
"*Pseudione* " sp.	*Galacantha spinosa*	Colombia (Atlantic)	597-724	Mayo 1974	12
"*Pseudione* " sp.	*Galacantha spinosa*	Jamaica	878-906	Mayo 1974	

continued next page

TABLE 1. (continued)

Parasite species	Host species	Locality (ies)	Depth (m)	Reference	Note
"*Pseudione* " sp.	*Munidopsis abbreviata*	Jamaica	805-1089	Mayo 1974	
"*Pseudione* " sp.	*Munidopsis alaminos*	Guadeloupe	686-724	Mayo 1974	
"*Pseudione* " sp.	*Munidopsis erinacea*	Colombia (Atlantic)	408-576	Mayo 1974	
"*Pseudione* " sp.	*Munidopsis erinacea*	Venezuela	384-607	Mayo 1974	
"*Pseudione* " sp.	*Munidopsis erinacea*	Guadeloupe	476-686	Mayo 1974	
"*Pseudione* " sp.	*Munidopsis longimanus*	Florida Straits, USA	759-869	Mayo 1974	
"*Pseudione* " sp.	*Munidopsis nitida*	Campeche, Mexico	unspecified	Salazar-Vallejo & Leija-Tritán 1990	
"*Pseudione* " sp.	*Munidopsis riveroi*	Colombia (Atlantic)	408-576	Mayo 1974	
"*Pseudione* " sp.	*Munidopsis riveroi*	Guadeloupe	476-686	Mayo 1974	
"*Pseudione* " sp.	*Munidopsis robusta*	Florida Straits, USA	324	Mayo 1974	
"*Pseudione* " sp.	*Munidopsis serricornis*	Florida, USA	570-824	Mayo 1974	
"*Pseudione* " sp.	*Munidopsis serricornis*	Jamaica	805-1069	Mayo 1974	
"*Pseudione* " sp.	*Munidopsis serricornis*	Cuba	677-1107	Chace 1942; Mayo 1974	
unidentified	*Agononida longipes*	Cuba	512-694	Chace 1942	
unidentified	*Agononida squamosa*	New South Wales, Australia	406-414	Ahyong & Poore 2004	
unidentified	*Bathymunida polae*	Madagascar	150	Baba & de Saint Laurent 1996	
unidentified	*Galacantha diomedeae*	Mexico (Pacific)	1207	Faxon 1893	13
unidentified	*Galacantha diomedeae*	Mexico (Pacific)	1792-1875	Luke 1977	
unidentified	*Galacantha spinosa*	Cuba	868	Chace 1942	
unidentified	*Galathea australiensis*	Indian Ocean	unspecified	Tirmizi & Javed 1993	
unidentified	*Galathea balssi*	Indian Ocean	84-97	Tirmizi & Javed 1993	
unidentified	*Galathea inflata*	Torres Strait	unspecified	Potts 1915	
unidentified	*Galathea lenis*	Indian Ocean	63	Tirmizi & Javed 1993	
unidentified	*Galathea multilineata*	East China Sea	196	Miyake & Baba 1967	
unidentified	*Munida aequalis*	New South Wales, Australia	153	Ahyong & Poore 2004	
unidentified	*Munida arabica*	Indian Ocean	unspecified	Kazmi & Boyko 2005	
unidentified	*Munida benguela*	South Africa	580-610	Baba 2005	
unidentified	*Munida evermanni*	Cuba	384	Chace 1942	
unidentified	*Munida heteracantha*	Indian Ocean	unspecified	Kazmi & Boyko 2005	
unidentified	*Munida intermedia*	Adriatic Sea	200-256	Gramitto & Froglia 1998	
unidentified	*Munida militaris*	Queensland, Australia	732	Ahyong & Poore 2004	
unidentified	*Munida muscae*	Reunion Island	605-620	Macpherson & de Saint Laurent 2002	
unidentified	*Munida semoni*	Indonesia	unspecified	Macpherson & Baba 1993	

continued next page

TABLE 1. (continued)

Parasite species	Host species	Locality (ies)	Depth (m)	Reference	Note
unidentified	*Munidopsis crassa*	Venezuela	3934-5060	Gore 1983	
unidentified	*Munidopsis crassa*	West European Basin	4684-4718	Tiefenbacher 2001	
unidentified	*Munidopsis cylindrophthalma*	Solomon Islands	464-627	Macpherson 2007	
unidentified	*Munidopsis geyeri*	Venezuela Basin	3517-3549	Gore 1983	
unidentified	*Munidopsis latimana*	Vanuatu	450-490	Macpherson 2007	
unidentified	*Munidopsis longimanus*	Cuba	677-1106	Chace 1942	
unidentified	*Munidopsis petalorhyncha*	Kuril Trench	5025-5210	Birstein & Zarenkov 1970	14
unidentified	*Munidopsis recta*	Gulf of Panama (Pacific)	2950-3190	Baba 2005	
unidentified	*Munidopsis scobina*	Oman	900-1000	Creasey *et al* . 2000	
unidentified	*Munidopsis subsquamosa*	Oregon, USA	2692-3000	Ambler 1980	
unidentified	*Munidopsis tanneri*	Gulf of Panama (Pacific)	156-474	Faxon 1895	15
unidentified	*Munidopsis termaria*	New Caledonia	586-740	Macpherson 2007	
unidentified	*Sadayoshia lipkei*	French Polynesia	80-150	Macpherson & Baba 2010	
unidentified	*Uroptychus ciliatus*	Indonesia	233	Baba 2005	
unidentified	*Uroptychus gracilimanus*	East China Sea	570-740	Baba 1969	
unidentified	*Aliaporcellana pygmaea*	New Caledonia	20	Haig 1989	
unidentified	*Aliaporcellana suluensis*	Indonesia	unspecified	Bourdon 1976a	
unidentified	*Aliaporcellana testophila*	Singapore	unspecified	Ng & Goh 1996	
unidentified	*Lissoporcellana quadrilobata*	Seychelles	50-62	Haig 1983	
unidentified	*Megalobrachium festae*	Colombia (Pacific)	unspecified	Lazarus-Agudelo & Roccatagliata 2007	
unidentified	*Neopisosoma bicaillatum*	Colombia (Pacific)	unspecified	Lazarus-Agudelo & Roccatagliata 2007	
unidentified	*Neopisosoma mexicanum*	Colombia (Pacific)	unspecified	Lazarus-Agudelo & Roccatagliata 2007	
unidentified	*Pachycheles biocellatus*	Malpelo Island, Colombia (Pacific)	unspecified	Lazarus-Agudelo & Roccatagliata 2007	
unidentified	*Pachycheles calculosus*	Colombia (Pacific)	unspecified	Lazarus-Agudelo & Roccatagliata 2007	
unidentified	*Pachycheles crassus*	Colombia (Pacific)	unspecified	Lazarus-Agudelo & Roccatagliata 2007	
unidentified	*Pachycheles greeleyi*	Brazil	unspecified	Bourdon 1976a	

continued next page

TABLE 1. (continued)

Parasite species	Host species	Locality (ies)	Depth (m)	Reference	Note
unidentified	*Pachycheles natalensis*	Pakistan	intertidal	Ahmed & Mustaquim 1974	
unidentified	*Pachycheles panamensis*	Panama (Pacific); Colombia (Pacific)	intertidal	Gore 1982; Lazarus-Agudelo & Roccatagliata 2007	
unidentified	*Pachycheles sculptus*	Western Australia	15-24	Rathbun 1924	
unidentified	*Parapetrolisthes tortugensis*	Colombia (Pacific)	unspecified	Lazarus-Agudelo & Roccatagliata 2007	
unidentified	*Petrolisthes agassizi*	Colombia (Pacific)	unspecified	Lazarus-Agudelo & Roccatagliata 2007	
unidentified	*Petrolisthes boscii*	Pakistan	intertidal	Ahmed & Mustaquim 1974	
unidentified	*Petrolisthes edwardsi*	Colombia (Pacific)	unspecified	Lazarus-Agudelo & Roccatagliata 2007	
unidentified	*Petrolisthes haigae*	Colombia (Pacific)	unspecified	Lazarus-Agudelo & Roccatagliata 2007	
unidentified	*Petrolisthes lamarckii*	Micronesia	unspecified	Miyake 1942	
unidentified	*Petrolisthes lamarckii*	Pakistan	intertidal	Ahmed & Mustaquim 1974	
unidentified	*Petrolisthes lamarckii*	Seychelles	33-45	Haig 1983	
unidentified	*Petrolisthes militaris*	Australia	unspecified	Bourdon 1976a	
unidentified	*Petrolisthes militaris*	Philippines	81-84	Haig 1989	
unidentified	*Petrolisthes militaris*	Seychelles	50-60	Haig 1983	
unidentified	*Petrolisthes moluccensis*	Persian Gulf	unspecified	Bourdon 1976a	
unidentified	*Petrolisthes ortmanni*	Colombia (Pacific)	unspecified	Lazarus-Agudelo & Roccatagliata 2007	
unidentified	*Petrolisthes pubescens*	Marquesas Islands	intertidal	Kropp 1986	
unidentified	*Petrolisthes rufescens*	Pakistan	intertidal	Ahmed & Mustaquim 1974	
unidentified	*Petrolisthes tomentosus*	Coral Sea	intertidal	Haig 1987	
unidentified	*Petrolisthes tomentosus*	Mariana Islands	intertidal	Kropp 1986	
unidentified	*Petrolisthes zacae*	Colombia (Pacific)	unspecified	Lazarus-Agudelo & Roccatagliata 2007	
unidentified	*Pisidia magdalensis*	Colombia (Pacific)	unspecified	Lazarus-Agudelo & Roccatagliata 2007	
unidentified	*Polyonyx quadriunguiculatus*	California, USA	unspecified	Markham in prep.	
unidentified	*Porcellana sayana*	Colombia (Pacific)	29-42	Gore 1970	
unidentified	*Porcellana sigsbeiana*	Gulf of Mexico	329	Milne-Edwards & Bouvier 1923	

continued next page

TABLE 1. (continued)

Parasite species	Host species	Locality (ies)	Depth (m)	Reference	Note
unidentified	*Porcellanella triloba*	Zanzibar	unspecified	Bourdon 1976a	
unidentified (evidence of past infestation)	*Munidopsis profunda*	Taiwan	4430-4435	Osawa *et al*. 2006	16
"new species, probably even a new genus"	*Munida irrasa*	Cay Sal Bank	148-152	Markham 1974a	
"undescribed genus"	*Galacantha rostrata*	Norfolk Canyon	1876-2427	Wenner & Windsor 1979	

NOTES

(1) record for *Pseudione lenticeps* Shiino, 1958, a synonym
(2) host cited as *Munida beringana*
(3) host likely in Munididae based on identity of parasite
(4) host cited as *Munida sanctipauli*
(5) South African record may be *Munida benguela*
(6) host unknown, but based on generic indentification is either Galatheidae or Porcellanidae
(7) host may also be *Allogalathea elegans*
(8) record for *Pleurocrypta yatsui* (Pearse, 1930), a synonym
(9) Page (1985) cited the host(s) as *"Galathea* ?sp." (for *P. hayi*) and also *"Munida* ?sp." for *P. infecta infecta* under "Material Examined" but under "Host" in both cases he cited *Munida gracilis* only.
(10) Spanish record originally as *M. perarmata* A. Milne Edwards & Bouvier, 1894
(11) host cited as *Munida subrugosa*
(12) host cited as *Munidopsis spinosa*
(13) host cited as *Munidopsis diomedeae parvispina*
(14) host cited as *Munidopsis subsquamosa latimana* Birstein & Zarenkov, 1970, a junior homonym of *M. latimana* Miyake & Baba, 1966
(15) parasite cited as "*Bopyrus*" sp.
(16) A swelling on the right side of the host's carapace appears as one produced by a bopyrid, but was empty on inspection

TABLE 2. List of squat lobsters and porcelain crabs hosting Bopyridae. Number of described species infested over number described in each family. Refer to Table 1 for depths and references.

Host species	Parasite species	Locality (ies)	Note
GALATHEOIDEA			
Galatheidae or Porcellanidae	*Parione lamellata*	Philippines	1
Galatheidae or Porcellanidae	*Parionina chinensis*	China	1
UNSPECIFIED SQUAT LOBSTER			
Gen. et sp. indet.	*Pseudione fibriata*	Philippines	
CHIROSTYLOIDEA: CHIROSTYLIDAE (3/174)			
Gastroptychus formosus (Filhol, 1884)	*Pleurocryptella formosa*	Canary Islands; Ireland	
Uroptychus ciliatus (van Dam, 1933)	unidentified	Indonesia	
Uroptychus gracilimanus (Henderson, 1885)	unidentified	East China Sea	
	Parapleurocryptella minuta	Indonesia	
CHIROSTYLOIDEA: EUMUNIDIDAE (1/30)			
Eumunida balssi Gordon, 1930	*Parionella notexocha*	China	
GALATHEOIDEA: GALATHEIDAE (14/90)			
Allogalathea elegans (Adams & White, 1848)	*Parionina pacifica*	Madagascar	
Galathea australiensis Stimpson, 1858	unidentified	Indian Ocean	
Galathea balssi Miyake & Baba, 1964	unidentified	Indian Ocean	
Galathea dispersa Bate, 1859	*Pleurocrypta galateae*	UK; Norway; France; Monaco	
	Pleurocrypta longibranchiata	UK	
	Pseudione confusa confusa	UK; Ireland; Portugal	
Galathea inflata Potts, 1915	unidentified	Torres Strait	
Galathea intermedia Liljeborg, 1851	*Pleurocrypta microbranchiata*	UK; Norway; France; Spain; Turkey	
Galathea lenis Baba, 1969	unidentified	Indian Ocean	
Galathea multilineata Balss, 1913	unidentified	East China Sea	
Galathea nexa Embleton, 1834	*Pleurocrypta galateae*	Norway; France	
	Pleurocrypta longibranchiata	Norway; France	
Galathea orientalis Stimpson, 1858	*Aporobopyrus orietalis*	Japan	
Galathea rostrata A. Milne Edwards, 1880	*Pleurocrypta floridana*	Florida, USA	
Galathea squamifera Leach, 1814	*Pleurocrypta galateae*	UK; France; Turkey	
	Pleurocrypta longibranchiata	UK; France; Turkey	
Galathea strigosa (Linnaeus, 1761)	*Pleurocrypta piriformis*	Spain	
	Pleurocrypta strigosa	France; Spain; Italy	
Galathea sp.	*Anuropodione dubius*	Thailand	
	Aporobopyrus gracilis	Senegal	

continued next page

TABLE 2. (continued)

Host species	Parasite species	Locality (ies)	Note
	Parapseudione dubia	Morocco	
	Parionina pacifica	Japan	2
	Pleurocryptina indica	Indonesia; Mauritius	
	Pseudione confusa confusa	South Africa	
	Pseudione japanensis	Japan	
Phylladiorhynchus pusillus (Henderson, 1885)	*Pseudione sagamiensis*	Japan	
GALATHEOIDEA: MUNIDIDAE (46/375)			
"galatheid"	*Munidion laterale*	Philippines	3
Agononida cf. *incerta* (Henderson, 1888)	*Entophilus omnitectus*	Madagascar	
	Pseudione minimocrenulata	Indonesia; Madagascar	
Agononida longipes (A. Milne Edwards, 1880)	*Munidion longipedis*	Florida, USA; Norfolk Canyon; Isla de Providencia, Colombia	
	unidentified	Cuba	
Agononida normani (Henderson, 1885)	*Entophilus omnitectus*	Hawaii, USA	
Agononida schroederi (Chace, 1939)	*Munidion longipedis*	Cuba	
Agononida squamosa (Henderson, 1885)	*Pseudione confusa confusa*	Indonesia	
	unidentified	New South Wales, Australia	
Bathymunida polae (Balss, 1914)	unidentified	Madagascar	
Cervimunida johni Porter, 1903	*Bathione humboldtensis*	Chile	
Munida aequalis Ahyong & Poore, 2004	unidentified	New South Wales, Australia	
Munida andamanica Alcock, 1894	*Aporobopyrina javaensis*	Indonesia	
	Aporobopyrus retrorsa	Philippines	4
	Pseudione andamanica	Madagascar	
	Pseudione minimocrenulata	Mozambique	
Munida arabica Tirmizi & Javed, 1992	unidentified	Indian Ocean	
Munida benguela de Saint Laurent & Macpherson, 1988	unidentified	South Africa	
	Paragigantione papillosa	South Africa	5
	Pseudione munidae	South Africa	5
Munida compressa Baba, 1988	*Aporobopyrus retrorsa*	Taiwan	
Munida constricta A. Milne Edwards, 1880	*Pleurocryptella fimbriata*	Jamaica	
Munida curvipes Benedict, 1902	*Pseudione paucisecta*	Chile	
Munida curvirostris Henderson, 1885	*Paragigantione indica*	Indonesia	
	Pseudione kossmani	Indonesia	
Munida evermanni Benedict, 1901	unidentified	Cuba	

continued next page

TABLE 2. (continued)

Host species	Parasite species	Locality (ies)	Note
Munida flinti Benedict, 1902	*Munidion cubense*	Venezuela	
Munida gracilis Henderson, 1885	*Pleurocryptella infecta infecta*	New Zealand	6
	Pseudione hayi	New Zealand	6
Munida gregaria (Fabricius, 1793)	*Pseudione hayi*	New Zealand	7
	Pseudione galacanthae	Falkland Islands; Chile	
Munida heteracantha Ortmann, 1892	*Aporobopyrus retrorsa*	Japan	
	unidentified	Indian Ocean	
Munida intermedia A. Milne Edwards & Bouvier, 1899	*Pseudione crenulata*	Tyrrhenian Sea	
	unidentified	Adriatic Sea	
Munida iris A. Milne Edwards, 1880	*Anuropodione carolinensis*	North Carolina, USA; Norfolk Canyon	
	Munidion irritans	Hudson Canyon to Norfolk Canyon	
Munida irrasa A. Milne Edwards, 1880	"new species, probably even a new genus"	Cay Sal Bank	
	Munidion irritans	Florida, USA; Belize	
Munida japonica Stimpson, 1858	*Aporobopyrus retrorsa*	Taiwan	
	Ovoionella obovata	Japan; Taiwan	
	Parionella elegans	Indonesia	
	Pleurocryptella infecta infecta	Japan	
Munida microphthalma A. Milne Edwards, 1880	*Entophilus omnitectus*	Gulf of Mexico	
	Paragigantione americana	Norfolk Canyon; off Guyana	
Munida miles A. Milne Edwards, 1880	*Pleurocryptella fimbriata*	Cuba	
Munida militaris Henderson, 1885	*Pleurocryptella infecta infecta*	Indonesia	
	unidentified	Queensland, Australia	
Munida muscae Macpherson & de Saint Laurent, 2002	unidentified	Reunion Island	
Munida pusilla Benedict, 1902	*Anuropodione megacephalon*	Gulf of Mexico	
Munida quadrispina Benedict, 1902	*Munidion parvum*	Washington, USA; British Columbia, Canada	
	Pseudione galacanthae	Washington, USA; British Columbia, Canada	
Munida refulgens Faxon, 1893	*Munidion princeps*	Colombia (Pacific)	
Munida rugosa (Fabricius, 1775)	*Pseudione crenulata*	UK; Norway; France; Spain	
Munida ruttlanti Zariquiey Álvarez, 1952	*Pleurocrypta amphiandra*	Algeria; Adriatic Sea	
Munida sanctipauli Henderson, 1885	*Entophilus omnitectus*	Azores	
	Paragigantione papillosa	France; South Africa	8
	Pseudione munidae	South Africa	9
Munida semoni Ortmann, 1894	unidentified	Indonesia	

continued next page

TABLE 2. (continued)

Host species	Parasite species	Locality (ies)	Note
Munida simplex Benedict, 1902	*Balanopleon tortuganus*	Venezuela	
Munida speciosa von Martens, 1878	*Anuropodione senegalensis*	Senegal; Congo	
Munida stimpsoni A. Milne Edwards, 1880	*Munidion cubense*	Cuba	
	Pseudione confusa maxillipedis	Virgin Islands; Cuba	
Munida tenuimana Sars, 1872	*Pseudione crenulata*	Norway; Spain; Tyrrhenan Sea	10
Munida valida Smith, 1883	*Aporobopyrina anomala*	Colombia (Atlantic); Gulf of Mexico; Florida, USA	
	Entophilus omnitectus	Gulf of Mexico	
Munida sp.	*Pleurocrypta meridionalis*	Brazil	
	Pleurocryptella infecta infecta	New Zealand	
	Pleurocryptella latilamellaris	Indonesia	
	Pseudione fibriata	Indonesia	
Paramunida scabra (Henderson, 1885)	*Aporobopyrus retrorsa*	Philippines	
	Munidion laterale	Indonesia	
	Pleurocrypta keiensis	Indonesia	
	Pseudione subcrenulata	Indonesia	
Paramunida tricarinata (Alcock, 1894)	*Pleurocryptella infecta tuberculata*	Madagascar	
Pleuroncodes monodon (H. Milne Edwards, 1837)	*Bathione humboldtensis*	Chile	
Pleuroncodes planipes Stimpson, 1860	*Munidion pleuroncodis*	California, USA; Baja California, Mexico	
Sadayoshia acroporae Baba, 1972	*Aporobopyrina amboinae*	Indonesia	
Sadayoshia lipkei Macpherson & Baba, 2010	unidentified	French Polynesia	
GALATHEOIDEA: MUNIDOPSIDAE (26/242)			
Galacantha diomedeae Faxon, 1893	*Pseudione galacanthae*	Gulf of California, Mexico	11
	unidentified	Mexico (Pacific)	
	unidentified	Mexico (Pacific)	
Galacantha rostrata A. Milne Edwards, 1880	"undescribed genus" and sp.	Norfolk Canyon, western Atlantic	
Galacantha spinosa A. Milne Edwards, 1880	*"Pseudione"* sp.	Colombia (Atlantic)	12
	"Pseudione" sp.	Jamaica	
	unidentified	Cuba	
Munidopsis abbreviata (A. Milne Edwards, 1880)	*"Pseudione"* sp.	Jamaica	
Munidopsis alaminos Pequegnat & Pequegnat, 1970	*"Pseudione"* sp.	Guadeloupe	
Munidopsis antonii (Filhol, 1884)	*Goleathopseudione bilobatus*	California, USA	13
	Pleurocryptella wolffi	Gulf of Panama (Pacific)	
Munidopsis crassa Smith, 1885	*Pleurocryptella superba*	Spain (Atlantic)	

continued next page

TABLE 2. (continued)

Host species	Parasite species	Locality (ies)	Note
	unidentified	West European Basin	
	unidentified	Venezuela	
Munidopsis cylindrophthalma (Alcock, 1894)	*Pleurocryptella crassandra*	Madagascar	
	unidentified	Solomon Islands	
Munidopsis depressa Faxon, 1893	*Bathione magnafolia*	Gulf of California	
Munidopsis erinacea (A. Milne Edwards, 1880)	*Galathocrypta acaudata*	Gulf of Mexico	
	"Pseudione" sp.	Venezuela	
	"Pseudione" sp.	Guadeloupe	
	"Pseudione" sp.	Colombia (Pacific)	
Munidopsis geyeri Pequegnat & Pequegnat, 1970	unidentified	Venezuela Basin	
Munidopsis latimana Miyake & Baba, 1966	unidentified	Vanuatu	
Munidopsis longimanus (A. Milne Edwards, 1880)	*"Pseudione"* sp.	Florida Straits, USA	
	unidentified	Cuba	
Munidopsis nitida (A. Milne Edwards, 1880)	*"Pseudione"* sp.	Campeche, Mexico	
Munidopsis petalorhyncha Baba, 2005	unidentified	Kuril Trench	14
Munidopsis profunda Baba, 2005	unidentified (evidence of past infestation)	Taiwan	15
Munidopsis recta Baba, 2005	unidentified	Gulf of Panama (Pacific)	
Munidopsis riveroi Chace, 1939	*"Pseudione"* sp.	Colombia (Atlantic)	
	"Pseudione" sp.	Guadeloupe	
Munidopsis robusta (A. Milne Edwards, 1880)	*"Pseudione"* sp.	Florida Straits, USA	
Munidopsis scobina Alcock, 1894	unidentified	Oman	
Munidopsis serricornis (Lovén, 1852)	*"Pseudione"* sp.	Florida, USA	
	"Pseudione" sp.	Jamaica	
	"Pseudione" sp.	Cuba	
Munidopsis squamosa (A. Milne Edwards, 1880)	*Parapleurocryptella elasmonoti*	Martinique	
Munidopsis subsquamosa Henderson, 1885	unidentified	Oregon, USA	
Mundiopsis tanneri Faxon, 1893	unidentified	Gulf of Panama (Pacific)	16
Munidopsis ternaria Macpherson, 2007	unidentified	New Caledonia	
Munidopsis trifida Henderson, 1885	*Pseudione itsindrae*	Madagascar	
GALATHEOIDEA: PORCELLANIDAE (63/277)			
Aliaporcellana pygmaea (de Man, 1902)	unidentified	New Caledonia	
Aliaporcellana suluensis (Dana, 1852)	*Allorbimorphus haigae*	Indonesia	
	Aporobopyrus dollfusi	Red Sea	

continued next page

TABLE 2. (continued)

Host species	Parasite species	Locality (ies)	Note
	unidentified	Indonesia	
Aliaporcellana testophila (Johnson, 1958)	unidentified	Singapore	
Enosteoides ornatus (Stimpson, 1858)	*Aporobopyrus enosteoidis*	Hong Kong	
Lissoporcellana quadrilobata (Miers, 1884)	*Aporobopyrus dollfusi*	Red Sea	
	unidentified	Seychelles	
Lissoporcellana spinuligera (Dana, 1853)	*Aporobopyrus parvulus*	Moluccas	
Madarateuchus vanderhorsti (Schmitt, 1924)	*Astalione cruciaria*	US Virgin Islands	
Megalobrachium festae (Nobili, 1901)	unidentified	Colombia (Pacific)	
Neopisosoma angustifrons (Benedict, 1901)	*Aporobopyrus trilobatus*	Curaçao	
Neopisosoma bicaillatum Haig, 1960	unidentified	Colombia (Pacific)	
Neopisosoma mexicanum (Streets, 1871)	unidentified	Colombia (Pacific)	
Pachycheles ackleianus A. Milne-Edwards, 1880	*Aporobopyrus calypso*	Brazil	
	Kolourione premordica	Gulf of Mexico	
Pachycheles biocellatus (Lockington, 1878)	unidentified	Malpelo Island, Colombia (Pacific)	
Pachycheles calculosus Haig, 1960	unidentified	Colombia (Pacific)	
Pachycheles crassus (A. Milne-Edwards, 1869)	unidentified	Colombia (Pacific)	
Pachycheles greeleyi (Rathbun, 1900)	*Aporobopyrus curtatus*	Brazil	
	unidentified	Brazil	
Pachycheles holosericus Schmitt, 1921	*Aporobopyrus muguensis*	California, USA	
Pachycheles natalensis (Krauss, 1843)	*Pleurocrypta macrocephala*	Persian Gulf	17
	unidentified	Pakistan	
Pachycheles panamensis Faxon, 1893	unidentified	Panama (Pacific); Colombia (Pacific)	
Pachycheles pectinicarpus Stimpson, 1858	*Aporobopyrus megacephalon*	Hong Kong	
Pachycheles pilosus (H. Milne Edwards, 1837)	*Aporobopyrus trilobatus*	Curaçao	
Pachycheles pubescens Holmes, 1900	*Aporobopyrus muguensis*	California, USA	
	Aporobopyrus oviformis	California, USA	
Pachycheles rudis Stimpson, 1859	*Aporobopyrus muguensis*	California, USA; Baja California, Mexico	
Pachycheles rugimanus A. Milne-Edwards, 1880	*Aporobopyrus collardi*	Gulf of Mexico	
Pachycheles sculptus (H. Milne Edwards, 1837)	*Aporobopyrus* sp.	Philippines	
	Parioninella astridae	Indonesia; Hong Kong	
	Parioninella pacifica	Palao	
	unidentified	Western Australia	
Pachycheles stevensii Stimpson, 1858	*Parione pachychelii*	Japan; Hong Kong	
Pachycheles sp.	*Parioninella astridae*	Hong Kong	

continued next page

TABLE 2. (continued)

Host species	Parasite species	Locality (ies)	Note
Parapetrolisthes tortugensis (Glassell, 1945)	unidentified	Colombia (Pacific)	
Petrolisthes agassizi Faxon, 1893	unidentified	Colombia (Pacific)	
Petrolisthes armatus (Gibbes, 1850)	A*porobopyrus curtatus*	Florida (Atlantic & Gulf of Mexico), Louisiana, USA; Venezuela; Brazil	
	Orbimorphus constrictus	Peru	
	unidentified	Brazil	
Petrolisthes asiaticus (Leach, 1820)	*Aporobopyrus ryukyuensis*	Japan	
	Parionella richardsonae	Indonesia	
	Pleurocrypta macrocephala	Indonesia	
Petrolisthes boscii (Audouin, 1826)	*Aporobopyrus ryukyuensis*	Pakistan	
	Pleurocrypta macrocephala	Red Sea	
	unidentified	Pakistan	
Petrolisthes cinctipes (Randall, 1840)	*Discomorphus magnifoliatus*	California, USA	
Petrolisthes coccineus (Owen, 1839)	*Aporobopyrina lamellata*	Japan	
	Aporobopyus oviformis	Japan	
Petrolisthes edwardsii (de Saussure, 1853)	*Aporobopyrus bourdonis*	California, USA; Mexico, Pacific	
	unidentified	Colombia (Pacific)	
Petrolisthes fimbriatus Borradaile, 1898	*Aporobopyus ryukyuensis*	Palao	
Petrolisthes galathinus (Bosc, 1802)	*Aporobopyus curtatus*	Florida, USA; Caribbean; Brazil	
	Pleurocrypta petrolisthis	Bonaire	
Petrolisthes haigae Chace, 1962	unidentified	Colombia (Pacific)	
Petrolisthes hastatus Stimpson, 1858	*Aporobopyrina lamellata*	Japan; Moluccas	
	Aporobopyus ryukyuensis	Japan	
Petrolisthes hians Nobili, 1901	*Aporobopyrus trilobatus*	Mexico (Pacific)	
Petrolisthes japonicus (de Haan, 1849)	*Pleurocrypta macrocephala*	Japan; Korea	
	Aporobopyrus petrolistheae petrolistheae	Japan	
Petrolisthes lamarckii (Leach, 1820)	*Aporobopyrina lamellata*	Madagascar; Philippines; Thailand	
	Aporobopyus ryukyuensis	Palao	
	Pleurocrypta macrocephala	Singapore	
	unidentified	Micronesia	
	unidentified	Pakistan	
	unidentified	Seychelles	
Petrolisthes marginatus Stimpson, 1859	*Aporobopyrus bonairensis*	Bonaire	

continued next page

TABLE 2. (continued)

Host species	Parasite species	Locality (ies)	Note
	Aporobopyrus curtatus	North Carolina & Florida, USA; Barbados	
Petrolisthes militaris (Heller, 1862)	*Aporobopyrus petrolistheae palpifera*	Indonesia	
	unidentified	Australia	
	unidentified	Philippines	
	unidentified	Seychelles	
Petrolisthes moluccensis (de Man, 1888)	unidentified	Persian Gulf	
Petrolisthes ortmanni Nobili, 1901	*Aporobopyrus trilobatus*	Costa Rica	
	unidentified	Colombia (Pacific)	
Petrolisthes politus (Gray, 1831)	*Aporobopyrus bonairensis*	Bonaire	
	Aporobopyrus curtatus	St. Eustatius	
Petrolisthes pubescens Stimpson, 1858	unidentified	Marquesas Islands	
Petrolisthes quadratus Benedict, 1901	*Aporobopyrus bonairensis*	Bonaire; Netherlands Antilles	
	Aporobopyrus curtatus	Curaçao	
Petrolisthes rufescens (Heller, 1861)	*Aporobopyrina lamellata*	Pakistan	
	Aporobopyrus aduliticus	Eritrea	
	unidentified	Pakistan	
Petrolisthes scabriculus (Dana, 1852)	*Allorbimorphus scabriculi*	Philippines	
	Aporobopyrina lamellata	Queensland, Australia	
	Aporobopyrus aff. *ryukyuensis*	Moluccas	
Petrolisthes tomemtosus (Dana, 1852)	*Aporobopyrina lamellata*	Madagascar	
	unidentified	Coral Sea	
	unidentified	Mariana Islands	
Petrolisthes zacae Haig, 1968	unidentified	Colombia (Pacific)	
Petrolisthes sp.	*Aporobopyrus curtatus*	Brazil	
Petrolisthes sp.	*Aporobopyrus galleonus*	Philippines	
Petrolisthes sp.	*Aporobopyrus megacephalon*	Northern Arabian Sea	
Pisidia cf. *bluteli* (Risso, 1816)	*Pleurocrypta porcellanaelongicornis*	Turkey (Aegean Sea)	
Pisidia dispar (Stimpson, 1858)	*Anuropodione australiensis*	Western Australia & Queensland, Australia	
	Parione pisidiae	South Australia, Australia	
Pisidia longicornis (Linnaeus, 1767)	*Pleurocrypta porcellanaelongicornis*	UK; France (Atlantic); Netherlands; Morocco	

continued next page

TABLE 2. (continued)

Host species	Parasite species	Locality (ies)	Note
Pisidia longimana (Risso, 1816)	*Pleurocrypta porcellanaelongicornis*	Turkey (Aegean Sea)	
Pisidia magdalensis (Glassell, 1936)	unidentified	Colombia (Pacific)	
Pisosoma sp.	*Aporobopyrus parvus*	Japan	
Polyonyx obesulus Miers, 1884	*Aporobopyrus pleopodatus*	Moluccas	
Polyonyx pedalis Nobili, 1905	*Parione ischyrandra*	Indonesia	
Polyonyx quadriunguiculatus Glassell, 1935	unidentified	California, USA	
Polyonyx sp.	*Parioninella astridae*	Hong Kong	
Porcellana sayana (Leach, 1820)	*Aporobopyrus curtatus*	North Carolina, USA; US Virgin Islands; Brazil	
	unidentified	Colombia (Pacific)	
Porcellana sigsbeiana A. Milne-Edwards, 1880	unidentified	Gulf of Mexico	
Porcellanella triloba White, 1852	*Allorbimorphus lamellosus*	Indonesia; Persian Gulf	
	unidentified	Zanzibar	
Porcellanidae	*Aporobopyrus megacephalon*	Thailand	
Porcellanidae	*Parionella decidens*	China Sea	

NOTES

(1) host unknown, but based on generic indentification is either Galatheidae or Porcellanidae

(2) host may also be *Allogalathea elegans*

(2) host likely in Munididae based on identity of parasite

(4) record for *Pseudione lenticeps* Shiino, 1958, a synonym

(5) host cited as *Munida sanctipauli*

(6) Page (1985) cited the host(s) as *"Galathea* ?sp." (for *P. hayi*) and also *"Munida* ?sp." for *P. infecta infecta* under "Material Examined" but under "Host" in both cases he cited *Munida gracilis* only.

(7) host cited as *Munida subrugosa* Dana, 1852

(8) South Africa record may be *Munida benguela* de Saint Laurent & Macpherson, 1988

(9) may be *Munida benguela* de Saint Laurent & Macpherson, 1988

(10) Spanish record originally as *Munida perarmata* A. Milne Edwards & Bouvier, 1894

(11) host cited as *Munidopsis diomedeae parvispina* Faxon, 1893

(12) host cited as *Munidopsis spinosa*

(13) host cited as *Munida beringana*

(14) host cited as *Munidopsis subsquamosa latimana* Birstein & Zarenkov, 1970, a junior homonym of *M. latimana* Miyake & Baba, 1966

(15) A swelling on the right side of the host's carapace appears as one produced by a bopyrid, but was empty on inspection

(16) parasite cited as "*Bopyrus*" sp.

(17) record for *Pleurocrypta yatsui* (Pearse, 1930), a synonym

TABLE 3. List of fossil squat lobsters andporcelain crabs hosting Bopyridae as evidenced by carapace swellings. All records from Weinberg Rasmussen *et al*. 2008.

Host species	Geologic period	Locality (ies)
GALATHEOIDEA: GALATHEIDAE		
Mesogalathea striata (Remes, 1895)	Jurassic fossil	Czechoslovakia, Austria
GALATHEOIDEA: MUNIDIDAE		
Protomunida munidoides (Segerberg, 1900)	Jurassic fossil	Denmark
GALATHEOIDEA: MUNIDOPSIDAE		
Gastrosacus latirostris Beurlen, 1929	Jurassic fossil	France
Gastrosacus meyeri (Moericke, 1889)	Jurassic fossil	Austria
Gastrosacus weinfurteri Bachmeyer, 1950	Miocene fossil	Hungary
Gastrosacus wetzleri von Meyer, 1851	Jurassic fossil	Germany, France, Czechoslovakia
Gastrosacus zitteli (Moericke, 1889)	Jurassic fossil	Czechoslovakia, Austria
Paragalathea verrucosa (Moericke, 1889)	Jurassic fossil	Czechoslovakia
GALATHEOIDEA: PORCELLANIDAE		
Petrolisthes magnus Müller, 1984	Miocene fossil	Hungary
Pisidia cf. *kokayi* (Müller, 1974)	Miocene fossil	Hungary

Six pseudionine genera (*Anuropodione* Bourdon, 1967, *Aporobopyrina* Shiino, 1934, *Aporobopyrus* Nobili, 1906, *Parionella* Nierstrasz & Brender à Brandis, 1923, *Pleurocrypta* Hesse, 1865 and *Pseudione* Kossmann, 1881) contain species found parasitizing both squat lobsters and porcelain crabs. The only genus with species parasitizing hosts outside these two groups is *Pseudione*, but it is not monophyletic (Boyko & Williams 2009). Most species of bopyrids infesting squat lobsters and porcelain crabs have only been recorded from a single host species, but 20 (19%) species are known to occur on more than one squat lobster host species, and 12 (11%) from more than one porcelain crab host species. *Aporobopyrus retrorsa* (Richardson, 1910) parasitizes at least five species of squat lobsters from Japan, the Philippines, and Taiwan (Boyko 2004) while *Aporobopyrus curtatus* (Richardson, 1904) parasitizes seven host porcelain crabs in the western Atlantic (Lemos de Castro & Brasil Lima, 1980).

The deepest known described bopyrid is *Goleathopseudione bilobatus* Román-Contreras, 2008 from *Munidopsis antonii* collected at 4100 m. This record is exceeded by three unidentified bopyrids from 4430–4435 m (*Munidopsis profunda*, but without an actual bopyrid present in the carapace bulge), 4684–4718 m (*Munidopsis crassa*) and 5025–5210 m (*Munidopsis petalorhyncha*) (see Table 1 for further details). Most porcelain crab parasites are from the intertidal zone, with the rest nearly all from less than 100 m, although a record exists of a *Porcellana sigsbeiana* from 329 m in the Gulf of Mexico bearing an unidentified bopyrid.

The highest diversity of bopyrids associated with anomuran hosts is found in areas of the Indo–West Pacific such as the East Asian Sea (Fig. 1), which reflects the diversity patterns of bopyrids as a whole (Markham 1986; Williams & Boyko unpublished), of their hosts (Macpherson *et al*. 2010), and of marine biodiversity in general. The biogeography of bopyrids (Fig. 1) is influenced both by the distributions of definitive decapod and intermediate copepod hosts, the identities of the latter being largely unknown (Boyko & Williams 2009).

Bopyrids of squat lobsters show (Fig. 1) the highest diversity in the East Asian Sea and the Caribbean, with moderate numbers of species in the North West Pacific and West Africa. No species are known from the North West Atlantic, Central Indian Ocean, Arabian Sea, and Antarctic. Bopyrids of porcelain crabs also have the highest diversity in the East Asian Sea and the Caribbean, as well as the North West Pacific. No species are known from the Arctic, North West Atlantic, Mediterranean, West Africa, Central Indian Ocean, East Africa, and Antarctic.

Comparison of squat lobster and porcelain crab bopyrid diversity with that of hermit crabs (Fig. 1) shows similar patterns, with bopyrids of hermit crabs also having highest numbers in the East Asian Sea, Caribbean, and North West Pacific. Unlike for the bopyrids from the other taxa, hermit crab bopyrids are lacking only from the Antarctic.

The lack or low numbers of bopyrid species for all three host types in the Arctic and Antarctic reflects the low numbers (or absence of) suitable hosts in these regions. In the North West Atlantic, hermit crabs have moderate

diversity and are hosts for five bopyrid parasite species, whereas there are no porcelain crab hosts in this region. Squat lobster hosts do occur in deeper waters in the North West Atlantic, but no bopyrids have been described from them, although unidentified species are known (Boyko unpublished). The situation in the Central Indian Ocean is different, in that there are many suitable hosts present for all three groups but only two species of bopyrids are known from hermit crab hosts. This is clearly a reflection of limited sampling, rather than a real biogeographic pattern. The small numbers of known bopyrid species from these hosts in other regions, such as the South Pacific and Australia/New Zealand, are also underestimates of biodiversity (Boyko unpublished).

Nomenclatural issues

Aporobopyrus Nobili, 1906

Aporobopyrus dollfusi Bourdon, 1976

Aporobopyrus aduliticus: Monod, 1933: 224–227, figs. 47(1–3), 48, 49 (not *A. aduliticus* Nobili, 1906).
Aporobopyrus dollfusi Bourdon, 1976a: 188–189, 240; Bourdon, 1980: 237–242, figs. 1–2; Bourdon *et al*., 1981: 498–499; Markham, 1988: 27; Kensley, 2001: 222.

Remarks. Bourdon (1976a) included an entry for "*Aporobopyrus dollfusi* Bourdon" with a note that the description was "sous presse" but that paper (which he apparently assumed would be published first) was not published until 1980. Bourdon (1976a) not only introduced the specific name, but also provided characters to differentiate it from other taxa in the genus, thereby making the name available from the earlier work.

Parionella Nierstrasz & Brender à Brandis, 1923

Remarks. Bourdon (1976a: 219) stated that the type species of *Parionella* Nierstrasz & Brender à Brandis, 1923 was *P. richardsonae* Nierstrasz & Brender à Brandis, 1923. However, Nierstrasz & Brender à Brandis (1923) described two species (*P. richardsonae* and *P. elegans* Nierstrasz & Brender à Brandis, 1923) in their new genus without indication of which was the type species. Therefore, the type species of *Parionella* was selected as *P. richardsonae* by the subsequent designation of Bourdon (1976a).

Pleurocrypta Hesse, 1865

Pleurocrypta porcellanaelongicornis Hesse, 1876

Pleurocrypta Porcellanae longicornis Hesse, 1876: 24–27, pl. 9, figs. 22–33 (improper formation, see below).
Pleurocrypta porcellanae Giard, 1887: 1115; Giard & Bonnier, 1887a: 1309; Giard & Bonnier, 1887b: 104, 175, fig. 6.IV; Giard, 1888: 29; Giard & Bonnier, 1889: 258; Stebbing, 1893: 410; Giard, 1896: 250; Giard, 1899a: 497; Giard, 1899b: 47; Bonnier, 1900: 317–318, pl. 16; Richard, 1900: 71; Bohn, 1901: 508; Stebbing, 1908: 58; Tattersall, 1912a: 5–6; Tattersall, 1912b: 27–28; Nierstrasz & Brender à Brandis, 1923: 80; Pérez, 1923a: 1765; Pérez, 1923b: 1935–1936; Pérez, 1925: 472–473; Nierstrasz & Brender à Brandis, 1926: 24–25, figs. 60–61; Pérez, 1927: 264; Nierstrasz & Brender à Brandis, 1931: 174–175; Shiino, 1933: 262; Pérez, 1935: 199; Moore, 1937: 116; Reverberi & Pitotti, 1943: 116; Caroli, 1946: 64; Reinhard, 1949: 26; Pike, 1953: 219, 225; Stock, 1960: 28–30, fig. 2; Bourdon, 1963: 428; Naylor, 1963: 148; Bourdon, 1965: 173–179, figs. 1a, b, 3c; Codreanu *et al*., 1966: 1071; Bourdon, 1967b: 285; Bourdon, 1968: 218–220, 222, 281–299, 301, figs. 113–121; Danforth, 1970: 15, 17; Danforth, 1971: 101; Bourdon, 1972b: 833; Geldiay & Kocataş, 1972: 28; Naylor, 1972: 69, 74, table 1; Smaldon & Naylor, 1972: 310–311; Hamond, 1974: 209; Markham, 1974b: 270–271, table 1; Bourdon, 1976a: 166, 224–225, 230, 232, 241; Huwae, 1976: 65–69, figs. 1, 2; Martin, 1976: 457–458, 460–463, pl. 2, fig. 2, pl. 3, figs. 1–4; Vervoort, 1976: 220, fig. 11; Huwae, 1977: 27, fig. B3; Huwae, 1979: 71; Wenner & Windsor, 1979: 302; Adema & Huwae, 1982: 47–49, fig. 6; Isaac *et al*., 1990: 402, 404; Hayward *et al*., 1995: 358, 360; Hansson, 1998: 64; Trilles, 1999: 289, fig. 8.9; Van der Land, 2001: 322; Müller, 2004: 107, 261; Román-Contreras, 2008b: 101, fig. 10.
Pleurocryptus (sic) *porcellanae*: Gerstaecker, 1901: 260.
Pseudione sp. Tattersall, 1912a: 5: Farran, 1915: 55.

Pleurocrypta perezi Nierstrasz & Brender à Brandis, 1931: 174–175, figs. 52–53.
Pleurocrypta [sp.] Nouvel-Van Rysselberge, 1936a: 43; Nouvel-Van Rysselberge, 1936b: 43.
Pleurocrypta longicornis: Bourdon, 1960: 146.
Pseudione convergens Stock, 1960: 28–30, fig. 1; Bourdon, 1965: 173–179, figs. 1i, 2, 3a, b; Danforth, 1970: 17; Danforth, 1971: 101.
Pleurocrypta porcellana [sic]: Wimpenny, 1966: 125.
Pleurocrpta [sic] Geldįay & Kocataş, 1970: 28.
Pleurocrypta porcellanea [sic]: Kirkim *et al*., 2008: 382, 384.

Remarks. Hesse (1876) did not name this species in the usual sense of the concept in that he merely provided a Latin translation of the French vernacular phrase "pleurocrypte de porcellane longicorne" (the *Pleurocrypta* of *Porcellana longicornis*), although he did include the notation of "Nobis" after the Latin text. Therefore, in accordance with ICZN Article 11.9.5, the species name cannot be cited as either "*porcellanae*" or "*longicornis*", but rather must bear the unwieldy form of "*porcellanaelongicornis*," as the name is based on that of the host species. Giard & Bonnier (1887b) cited Hesse (1876, p. 202 footnote) in the context of another species discussed in that paper to lament the publication of Hesse's entire series, *Crustaces rares ou nouveaux des côtes de France*, which they considered to be of substandard quality. Interestingly, Giard & Bonnier (1887b) did not place the blame for the "déplorable gâchis introduit dans la Carcinologie" on Hesse, but rather on the professors of La Sorbonne and the Museum who allowed these "plus bizarres élucubatrions" to be published in their journals.

It should be noted that Hesse's first initial is given as "M." in his publications, but that this stood for "Monsieur", as his given name was Charles Eugène Hesse (see Delamare Deboutteville 1965) and he was an amateur zoologist. For reasons unexplained, he is most often cited in copepod publications (e.g., Özdikmen 2008) as "E. Hesse" (a usage which never appeared in any of his papers). Hesse should be cited in bibliographies as "Hesse, [C. E.]", as this is the most accurate form.

Pleurocrypta strigosa Bourdon, 1968

Pleurocrypta galatheae (*sic*): Lo Bianco, 1888: 409 (not *Pleurocrypta galateae* Hesse, 1865).
Pleurocrypta strigosa Giard & Bonnier, 1890: 386 (*nomen nudum*); Stebbing, 1893: 410; Bonnier, 1900: 222, 317, 380; Richard, 1900: 72; Bohn, 1901: 508; Norman, 1905: 17; Norman, 1907: 363; Pike, 1953: 225; Le Sueur, 1954: 216; Bourdon, 1963: 428.
Pleurocrypta strigosa Bourdon, 1968: 220, 222–226, 264–265, figs. 79–81; Markham, 1974b: 271; Lemos de Castro & Brasil Lima, 1975: 129; Trilles, 1999: 329, 331; Junoy & Castelló, 2003: 303; Van der Land, 2001: 322.
Pleurocrypta strigosa Codreanu, Codreanu & Pike *in* Codreanu, 1968: 611–612 (new synonymy).

Remarks. Giard & Bonnier (1890) noted that the record of *Pleurocrypta galatheae* (*sic*) from a *Galathea strigosa* (Linnaeus, 1761) collected off Naples, Italy as reported by Lo Bianco (1888) belonged instead to a new species they named *Pleurocrypta strigosa*. Unfortunately, they provided no description or illustrations for the species, rendering a *nomen nudum* that has been subsequently repeated by several authors (see synonymy list above). Both Bourdon (1968) and Codreanu, Codreanu & Pike *in* Codreanu (1968) coincidentally made the name available in 1968, describing (and in Bourdon's case, also figuring) the species from the same host taxon in France (Bourdon 1968) and Spain (Bourdon 1968, Codreanu 1968). There is no additional evidence to specify the date of publication of Bourdon (1968) or of Codreanu (1968) beyond the year given in the papers themselves (Service des Publications scientifiques, Muséum national d'Histoire naturelle, pers. comm,; Iorgu Petrescu, pers. comm.), so their date of publication must be accepted as 31 Dec 1968 (fide ICZN Article 21.3.2). As both the *Pleurocrypta strigosa* of Bourdon (1968) and Codreanu, Codreanu & Pike *in* Codreanu (1968) are synonymous as well as homonymous, we select the taxon as described by Bourdon to be the senior synonym because his description is far superior and accompanied by illustrations of the species.

Names in synonymy

The following is a list of all the names of bopyrid parasites of squat lobsters and porcelain crabs which have been placed in synonymy, each given under the currently recognized valid name for their taxon.

Aporobopyrus curtatus (Richardson, 1904)
= *Aporobopyrus johannis* Nierstrasz & Brender à Brandis, 1929
Aporobopyrus retrorsa (Richardson, 1910)
= *Pseudione lenticeps* Shiino, 1958

Pleurocrypta galateae Hesse, 1865
= *Pleurocrypta galatheae* (*sic*) auct.
= *Pleurocrypta hendersoni* Giard & Bonnier, 1890 (*nomen nudum*)
= *Pleurocrypta nexa* Stebbing *in* Herdman, 1894
= *Pleurocrypta marginata* G. O. Sars, 1898
= *Pleurocrypta hendersoni* Bonnier, 1900
= *Pleurocrypta galatheae* (*sic*) var. *northumbriensis* Flattely, 1922
= *Pleurocrypta hessei* Nierstrasz & Brender à Brandis, 1931

Pleurocrypta macrocephala Nierstrasz & Brender à Brandis, 1923
= *Probopyrus yatsui* Pearse, 1930

Pleurocrypta microbranchiata G. O. Sars, 1898
= *Pleurocrypta intermedia* Giard & Bonnier, 1890 (*nomen nudum*)
= *Pleurocrypta intermedia* Bonnier, 1900

Pleurocrypta porcellanaelongicornis Hesse, 1876
= *Pleurocrypta Porcellanae longicornis* Hesse, 1876 (see above)
= *Pleurocrypta perezi* Nierstrasz & Brender à Brandis, 1931
= *Pseudione convergens* Stock, 1960

Pleurocryptella formosa Bonnier, 1900
= *Pleurocrypta formosa* Giard & Bonnier, 1888 (*nomen nudum*)

Pseudione crenulata G. O. Sars, 1898
= *Palaegyge insignis* Giard & Bonnier, 1890 (*nomen nudum*)
= *Pseudione insignis* Bonnier, 1900

Acknowledgements

Our thanks to Danièle Guinot (Muséum national d'Histoire naturelle, Paris) for discussion and translation of Giard & Bonnier's comments on the "mess of Hesse" and to Michael Engel (Universty of Kansas) for discussions on the proper formation of Hesse's host-based species name. Gary C. B. Poore (Museum Victoria) provided a most helpful and thorough review.

References

Adema, J.P.H.M. & Huwae, P.H.M. (1982) New and supplementary records of marine Isopoda for The Netherlands and the southern North Sea since 1956, with a note on *Peltogaster paguri* (Crustacea, Cirripedia). *Zoologische Bijdragen, 28*, 33–57.

Adkison, D.L. (1988) *Pseudione parviramus* and *Aporobopyrus collardi*, two new species of Bopyridae (Isopoda: Epicaridea) from the Gulf of Mexico. *Proceedings of the Biological Society of Washington, 101*, 576–584.

Adkison, D. L. & Collard, S.B. (1990) Description of the cryptoniscium larva of *Entophilus omnitectus* Richardson, 1903 (Crustacea: Isopoda: Epicaridea) and records from the Gulf of Mexico. *Proceedings of the Biological Society of Washington, 103*, 649–654.

Ahmed, M. & Mustaquim, J. (1974) Population structure of four species of porcellanid crabs (Decapoda: Anomura) occurring on the coast of Karachi. *Marine Biology, 26*, 173–182.

Ahyong, S.T. & Poore, G.C.B. (2004) Deep-water Galatheidae (Crustacea: Decapoda: Anomura) from southern and eastern Australia. *Zootaxa, 472*, 1–76.
Ahyong, S.T., Baba, K., Macpherson, E. & Poore, G.C.B. (2010) A new classification of the Galatheoidea (Crustacea: Decapoda: Anomura). *Zootaxa, 2676*, 57–68.
Ahyong, S.T., Schnabel, K.E. & Maas, E.W. (2009) Anomuran phylogeny: new insights from molecular data. *In:* J. W. Martin, K. A. Crandall & D. L. Felder (Eds), *Crustacean Issues 18. Decapod Crustacean Phylogenetics*. CRC Press, Boca Raton, pp. 399–414.
Ambler, J.W. (1980) Species of *Munidopsis* (Crustacea, Galatheidae) occurring off Oregon and in adjacent waters. *Fishery Bulletin, 78*, 13–34.
Baba, K. (1969) Chirostylids and galatheids from dredgings and trawlings operated in the East China Sea by the Japanese Fisheries Research Vessel Kaiyo Maru in 1967. *Ohmu, 2*, 41–57.
Baba, K. (2005) Deep-sea chirostylid and galatheid crustaceans (Decapoda: Anomura) from the Indo-Pacific, with a list of species. *Galathea Report, 20*, 1–317.
Baba, K., Macpherson, E., Poore, G.C.B., Ahyong, S.T., Bermudez, A., Cabezas, P., Lin, C.-W., Nizinski, M., Rodrigues, C., Schnabel, K.E. (2008) Catalogue of squat lobsters of the world (Crustacea: Decapoda: Anomura - families Chirostylidae, Galatheidae and Kiwaidae). *Zootaxa, 1905*, 1–220.
Baba, K. & Saint Laurent, M. de. (1996) Crustacea Decapoda: Revision of the genus *Bathymunida* Balss, 1914, and description of six new related genera (Galatheidae). *In:* A. Crosnier (Ed), *Résultats des Campagnes MUSORSTOM, Vol. 15. Memoires du Muséum national d'Histoire naturelle de Paris, 168*, 433–502.
Barnard, K.H. (1920) Contributions to the crustacean fauna of South Africa. No. 6. Further additions to the list of marine Isopoda. *Annals of the South African Museum, 17*, 319–348, pls. 15–17.
Barnard, K.H. (1950) Descriptive catalogue of South African decapod Crustacea. *Annals of the South African Museum, 38*, 1–837.
Birstein, Y.A. & Zarenkov, N.A. (1970) Bottom decapods (Crustacea Decapoda) of the Kurile-Kamchatka Trench area. *Akademiya Nauk SSSR. Trudy Instituta Okeanologii Im. P. P. Shirshova, 86*, 420–426.
Bohn, G. (1901) Des mécanismes respiratoires chez les crustacés décapodes. *Bulletin Scientifique de la France et de Belgique, 26*, 178–551.
Bonnier, J. (1900) Contribution a l'étude des épicarides. Les Bopyridae. *Travaux de la Station Zoologique de Wimereux, 8*, 1–476, pls. 1–41.
Bourdon, R. (1960) Rhizocephales et isopodes parasites des decapodes marcheurs de la Baie de Quiberon. *Bulletin de la Société de Sciences de Nancy, 19*, 134–153.
Bourdon, R. (1963) Épicarides et rhizocéphales de Roscoff. *Cahiers de Biologie Marine, 4*, 415–434.
Bourdon, R. (1965) Remarques au sujet de la nouvelle espèce "*Pseudione convergens*" Stock, 1960 (Epicaride de la famille des Bopyridae). *Cahiers de Biologie Marine, 6*, 173–179.
Bourdon, R. (1967a) Sur trois nouveaux Bopyridae du Sénégal. *Bulletin de l'Institut Fondamental d'Afrique Noire, sér. A, 29*, 107–122.
Bourdon, R. (1967b) Données complémentaires sur les épicarides et les rhizocéphales de Roscoff. *Bulletin de l'Académie de la Société Lorraines des Science, 6*, 279–286.
Bourdon, R. (1968) Les Bopyridae des mers européennes. *Mémoires du Muséum National d'Histoire Naturelle, Série A, Zoologie, 50*, 77–424.
Bourdon, R. (1972a) Epicarides de la Galathea Expedition. *Galathea Report, 12*, 101–112.
Bourdon, R. (1972b) Sur quelques Bopyridae (Crustacea, Isopoda) parasites de galathéides. *Bulletin du Muséum National d'Histoire Naturelle, 3e sér., 66*, 817–838.
Bourdon, R. (1976a) Les bopyres des porcellanes. *Bulletin du Muséum National d'Histoire Naturelle, 3e sér., 359*, 165–245.
Bourdon, R. (1976b) Épicarides de Madagascar. I. *Bulletin du Muséum National d'Histoire Naturelle, 3e sér., 371*, 353–392.
Bourdon, R. (1979) Bopyridae de la campagne Biaçores (Isopoda Epicaridea). *Bulletin du Muséum National d'Histoire* Naturelle, *4e sér., 1*, 507–512.
Bourdon, R. (1980) *Aporobopyrus dollfusi* n. sp. (Crustacea, Epicaridea, Bopyridae) parasite de porcellanes de la Mer Rouge. *Bulletin du Muséum National d'Histoire Naturelle, 4e sér., 2 (A)*, 237–244.
Bourdon, R. (1981) Bopyriens nouveaux pour la faune européenne de l'Atlantique (Isopoda Epicaridea). *Bulletin du Muséum National d'Histoire Naturelle, 4e sér., 3 (A)*, 615–634.
Bourdon, R. (1983) Expédition Rumphius II (1975). Crustacés parasites, commensaux, etc. (Th. Monod éd.). VIII. Crustacés isopodes (3e partie: épicarides Bopyridae). *Bulletin du Muséum National d'Histoire Naturelle, 4e sér., 5 (A)*, 845–869.
Bourdon, R., d'Hondt, J.-L. & Veillet, A. (1981) Note préliminaire sur les microsètes et les <<fentes céphaliques>> chez les bopyriens (crustacés épicarides). *Bulletin de la Société Zoologique de France, 105*, 495–504.
Bourdon, R. & Stock, J.H. (1979) On some Indo–West Pacific Bopyridae (Isopoda, Epicaridea) in the collections of the Zoölogisch Museum, Amsterdam. *Beaufortia, 28*, 205–218.
Boyko, C.B. (2004) The Bopyridae (Crustacea : Isopoda) of Taiwan. *Zoological Studies, 43*, 677–703.
Boyko, C.B. & Williams, J.D. (2009) Crustacean parasites as phylogenetic indicators in decapod evolution. *In:* J. W. Martin, K. A. Crandall & D. L. Felder (Eds), *Crustacean Issues 18. Decapod Crustacean Phylogenetics*. CRC Press, Boca Raton, FL, pp. 197–220.

Boyko, C.B. & Williams, J.D. (2011) Chapter 9. Parasites and other symbionts of squat lobsters. *In:* G. C. B. Poore, S. T. Ahyong & J. Taylor (Eds), *The Biology of Squat Lobsters*. CSIRO Publishing, Melbourne, pp. 271–295.

Brasil Lima, I.M. (1998) Malacostraca - Peracarida. Isopoda - Epicaridea. *In:* P. S. Young (Ed), *Catalogue of Crustacea of Brazil*. Museu Nacional, Rio de Janeiro, pp. 635–644.

Bursey, C.R. (1978) Histopathology of the parasitization of *Munida iris* (Decapoda: Galatheidae) by *Munidion irritans* (Isopoda: Bopyridae). *Bulletin of Marine Science, 28*, 566–570.

Camp, D. K., Whiting, N.H. & Martin, R.E. (1977) Nearshore marine ecology at Hutchinson Island, Florida: 1971–1974. V. Arthropods. *Florida Marine Research Publications, 25*, 1–63.

Caroli, E. (1946) Un bopiride parassita di un altro bopiride. *Pubblicazioni della Stazione Zoologica di Napoli, 20*, 61–65.

Castriota, L., Falautano, M., Vivona, P. & Andaloro, F. (2010) A new locality and host for *Pseudione crenulata* G. O. Sars, 1898 (Crustacea, Isopoda, Bopyridae) in the Mediterranean. *Acta Parasitologica, 55*, 291–295.

Chace, F.A., Jr. (1942) Reports on the scientific results of the Atlantis expeditions to the West Indies, under the joint auspices of the University of Havana and Harvard University. The anomuran Crustacea. I. Galatheidea. *Torreia, 11*, 1–106.

Codreanu, R. (1968) Y a-t-il des espèces biologiques (jumelles) chez les épicarides et les rhizocéphales? *Travaux du Muséum d'Histoire Naturelle "Grigore Antipa", 8*, 601–614.

Codreanu, R., Codreanu, M. & Pike, R.B. (1966) *Pleurocrypta amphiandra* n. sp., bopyrien parasite branchial de *Munida iris ruttlanti*, galatheide [sic] d'Algérie et les effets d'interbiomorphose. *In:* A. Corradetti (Ed), *Proceedings of the First International Congress of Parasitology (Roma, 21–26 September 1964)*. Pergamon Press, Oxford, pp. 1071–1072.

Creasey, S., Rogers, A., Tyler, P., Gage, J. & Jollivet, D. (2000) Genetic and morphometric comparisons of squat lobsters, *Munidopsis scobina* (Decapoda: Anomura: Galatheidae) populations, with notes on the phylogeny of the genus *Munidopsis*. *Deep Sea Research Part II: Topical Studies in Oceanography, 47*, 87–118.

Danforth, C. G. (1970) Epicaridea (Crustacea: Isopoda) of North America. University Microfilms, Ann Arbor, pp. ii + 1–191, pls. 1–48.

Danforth, C. G. (1971) Two bopyrids (Isopoda) from New Guinea. *Bulletin of the Southern California Academy of Sciences, 70*, 99–102.

Delamare Deboutteville, C. (1965) Documents inédits sur l'oeuvre parasitologique de Charles Eugène Hesse. *Bulletin du Muséum National d'Histoire Naturelle, 2e sér., 36*, 626–630.

Farran, G.P. (1915) Results of a biological survey of Blacksod Bay, Co. Mayo. *Fisheries of Ireland, Scientific Investigations, 1914(III)*, 1–72, pl. 1.

Faxon, W. (1893) Reports on the dredging operations off the west coast of Central America to the Galapagos, to the west coast of Mexico, and in the Gulf of California, in charge of Alexander Agassiz, carried on by the U. S. Fish Commission Steamer "Albatross" during 1891, Lieut. Commander Z. L. Tanner, U. S. N., commanding. VI. Preliminary descriptions of new species of Crustacea. *Bulletin of the Museum of Comparative Zoölogy at Harvard College, 24*, 149–200.

Faxon, W. (1895) Reports on an exploration off the west coasts of Mexico, Central and South America, and off the Galapagos Islands, in charge of Alexander Agassiz, by the U.S. Fish Commission Steamer "Albatross" during 1891, Lieut.-Commander Z.L. Tanner, U.S.N., commanding. XV. The stalk-eyed Crustacea. *Memoirs of the Museum of Comparative Zoölogy at Harvard College, 18*, 1–292, pls. A–K, 291–256, 1 map.

Geldıay, R. & Kocatas, A. (1970) Türkiyenin Ege denizi sahillerinden tespit edilen anomurlar (Crustacea Decapoda) Hakkinda / A report on the Anomura collected from the Aegean coast of Turkey (Crustacea Decapoda). *Ege Üniveritesi Fen Fakültesi ılmi Raporlar Serisi / Scientific Reports of the Faculty of Science, Ege University, 98*, 1–35.

Geldıay, R. & Kocataş, A. (1972) Isopods collected in Izmir Bay, Aegean Sea. *Crustaceana Supplement, 3*, 19–30.

George, M.J. & Strömberg, J.-O. (1968) Some new species and new records of marine isopods from San Juan Archipelago, Washington, U.S.A. *Crustaceana, 14*, 225–254.

Gerstaecker, A. (1901) *Die Klassen und Ordnungen der Arthropoden wissenschaftlich dargestellt in Wort und Bild. Fünfter Band. II Abtheilung. Crustacea (Zweite Hälfte: Malacostraca)*. Leipzig: C. F. Winter'sche Verlagshandlung.

Giard, A. (1887) Súr la castration parasitaire chez l'*Eupagurus bernhardus* Linné et chez la *Gebia stellata* Montagu. *Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences, 104*, 1113–1115.

Giard, A. (1888) La castration parasitaire, nouvelles recherches. *Bulletin Scientifique de la France et de la Belgique, 19*, 12–45.

Giard, A. (1896) *Exposé des Titres et Travaux Scientifiques (1869–1896)*. Paris: Imprimerie Générale Lahure.

Giard, A. (1899a) Coup d'oeil sur la faune et note sur la flore du Boulonnais. *In: Boulogne-sur-Mer et la Région Boulonnaise. Vol. 1*. Société Typographique et Lithographique, Boulogne-sur-Mer, pp. 453–517.

Giard, A. (1899b) *Coup d'oeil sur la faune et note sur la flore du Boulonnais*. Boulogne-sur-Mer: Société Typographique et Lithographique.

Giard, A. & Bonnier, J. (1887a) Sur le phylogénie des bopyriens. *Comptes Rendus Hebdomadaires des Séances de l'Académie de Sciences, 104*, 1309–1311.

Giard, A. & Bonnier, J. (1887b) Contributions a l'étude des bopyriens. *Traveaux de l'Institut Zoologique de Lille et du Laboratoire de Zoologie Maritime de Wimereux, 5*, 1–272, pls. 1–10.

Giard, A. & Bonnier, J. (1889) Sur les épicarides de la famille des Dajidae. *Bulletin Scientifique de la France et de la Belgique, 20*, 252–292, pls. 256–258.

Giard, A. & Bonnier, J. (1890) Prodrome d'une monographie des épicarides du Golfe de Naples. *Bulletin Scientifique de la France et de la Belgique, 22*, 367–391.

González, M. T. & Acuña, E. (2004) Infestation by *Pseudione humboldtensis* (Bopyridae) in the squat lobsters *Cervimunida johni* and *Pleuroncodes monodon* (Galatheidae) off northern Chile. *Journal of Crustacean Biology, 24*, 618–624.

Gore, R.H. (1970) *Pachycheles cristobalensis*, sp. nov., with notes on the porcellanid crabs of the southwestern Caribbean. *Bulletin of Marine Science, 20*, 957–970.

Gore, R.H. (1982) Porcellanid crabs from the coasts of Mexico and Central America (Crustacea: Decapoda: Anomura). *Smithsonian Contributions to Zoology, 363*, i–iv + 1–34.

Gore, R.H. (1983) Notes on rare species of *Munidopsis* (Anomura: Galatheidae) and *Ethusina* (Brachyura: Dorippidae) collected by the USNS Bartlett in the Venezuela Basin, Caribbean Sea. *Proceedings of the Academy of Natural Sciences of Philadelphia, 135*, 200–217.

Gramitto, M.E. & Froglia, C. (1998) Notes on the biology and growth of *Munida intermedia* (Anomura: Galatheidae) in the western Pomo pit (Adriatic Sea). *Journal of Natural History, 32*, 1553–1566.

Haig, J. (1983) Porcellanidae (Decapoda, Anomura) from the Seychelles, western Indian Ocean. *Crustaceana, 45*, 279–289.

Haig, J. (1987) Porcellanid crabs from the Coral Sea. *The Beagle, Records of the Museums and Art Galleries of the Northern Territory, 4*, 11–14.

Haig, J. (1989) Porcellanidae (Decapoda, Anomura) collected during MUSORSTOM 1 and 2. *In*: Forest, J. (Ed) *Résultats des Campagnes MUSORSTOM, Volume 5. Mémoires du Muséum national d'Histoire naturelle, série A, Zoologie, 144*, 93–101.

Hamond, R. (1974) The marine and brackish-water non-amphipodan pericaridan Crustacea of Norfolk. *Cahiers de Biologie Marine, 15*, 197–213.

Hansen, H.J. (1897) Reports on the dredging operations off the west coast of Central America to the Galapagos, to the west coast of Mexico, and in the Gulf of California, in charge of Alexander Agassiz, carried on by the U. S. Fish Commission Steamer "Albatross," during 1891, Lieut. Commander Z. L. Tanner, U. S. N., commanding. XXII. The Isopoda. *Bulletin of the Museum of Comparative Zoölogy at Harvard College, 31*, 95–129, pls. 1–6, 1 map.

Hansson, H.G. (1998) NEAT (NorthEast Atlantic Taxa): South Scandanavian marine Crustacea check-list. Internet PDF edition, Aug. 1998. Accessed via http://www.tmbl.gu.se [23 Feb 2011].

Hayward, P.J., Isaac, M.J., Makings, P., Moyse, J., Naylor, E. & Smaldon, G. (1995) [Chapter] 8 Crustaceans. *In:* P.J. Hayward & J.S. Ryland (Eds), *Handbook of the Marine Fauna of North–West Europe*. Oxford University Press, Oxford, New York, Tokyo, pp. 289–461.

Hesse, [C.E.] (1865) Recherches sur les crustacés rares ou nouveaux des cotes de France. *Annales des Sciences naturelles, sér. 5, 3*, 221–242, pl. 4.

Hesse, [C.E.] (1876) Description des crustacés rares ou nouveaux des cotes de France. *Annales des Sciences Naturelles, Zoologie et Paléontologies, sér. 6, 4*, 1–48, pls. 7–9.

Hessler, R.R. (1969) Peracarida. *In:* R. C. Moore (Ed), *Treatise on Invertebrate Paleontology (R) Arthropoda 4(1) Crustacea (Except Ostracoda)[,] Myriapoda-Hexapoda*. Geological Society of America, Inc. and University of Kansas, Lawrence, pp. R360–R398.

Huwae, P.H.M. (1976) Waarnemingen van *Pleurocrypta porcellanae* Hesse en *Cirolana borealis* (Lilljeborg), (Crustacea, Isopoda) voor de Nederlandse kust. *Het Zeepaard, 36*, 65–70.

Huwae, P.H.M. (1977) De isopoden van de Nederlandse kust. *Wetenschappelijke Mededelingen van de Koninklijke Nederlandse Natuurhistorische Vereniniging, 118*, 25–44.

Huwae, P.H.M. (1979) De eerste melding van *Pseudione hyndmanni* (Bate & Westwood, 1868) - Crustacea, Isopoda, Epicaridae [sic] - voor Nederland. *Het Zeepaard, 39*, 71–73.

Isaac, M. J., Makings, P., Naylor, E., Smaldon, G. & Withers, R. G. (1990) Crustacea II: Malacostraca Peracarida. *In:* P. J. Hayward & J. S. Ryland (Eds), *The Marine Fauna of the British Isles and North-West Europe. Volume 1. Introduction and Protozoans to Arthropods*. Clarendon Press, Oxford, pp. 362–488.

Junoy, J. & Castelló, J. (2003) Catálogo de las especies Ibéricas y Baleares de isópodos marinos (Crustacea: Isopoda). *Boletín. Instituto Español de Oceanografía, 19*, 293–325.

Kazmi, Q.B. & Boyko, C.B. (2005) A new locality and host for *Pseudione minimocrenulata* Nierstrasz & Brender à Brandis, 1931 (Crustacea: Isopoda: Bopyridae) in the Indian Ocean, with comments on the identity of the type specimens. *Zootaxa, 925*, 1–10.

Kazmi, Q.B., Schotte, M. & Yousuf, F. (2002) An illustrated key to the Malacostraca (Crustacea) of the northern Arabian Sea Part-V: Isopoda. *Pakistan Journal of Marine Sciences, 2*, 47–116.

Kelleher, G., Bleakley, C. & Wells, S.W. (Eds) (1995) *A Global Representative System of Marine Protected Areas*. (1995). Washington, DC: GBRMPA, The World Bank and IUCN.

Kensley, B. (2001) Biogeography of the marine Isopoda of the Indian Ocean, with a check-list of species and records. *In:* B. Kensley & R.C. Brusca (Eds), *Crustacean Issues 13. Isopod Systematics and Evolution*. Balkema, Rotterdam, pp. 205–264.

Kim, H.S. & Kwon, D.-H. (1988a) Marine isopod crustaceans from Cheju Island, Korea. *Inje Journal, 4*, 195–220.

Kim, H.S. & Kwon, D.-H. (1988b) Bopyrid isopods parasitic on decapod crustaceans in Korea. *Korean Journal of Systematic Zoology, Special Issue 2*, 199–221.

Kirkim, F., Kocataş, A., Katağan, T. & Sezgİn, M. (2008) A report on parasitic isopods (Crustacea) from marine fishes and decapods collected from the Aegean Sea (Turkey). *Türkiye Parazitoloji Dergisi, 32*, 382–385.

Kropp, R.K. (1986) A neotype designation for *Petrolisthes tomentosus* (Dana), and description of *Petrolisthes heterochrous*, new species, from the Mariana Islands (Anomura: Porcellanidae). *Proceedings of the Biological Society of Washington, 99*, 452–463.

Lazarus-Agudelo, J.F. & Roccatagliata, D. (2007) On the bopyrid isopods from the Colombian Pacific coast. *In: The Crustacean Society Mid-year Meeting 14–17 October 2007*, La Serena/Coquimbo, Chile, p. 109.

Lemos de Castro, A. & Brasil Lima, I.M. (1975) Crustáceos isópodos epicarídeos do Brasil. VIII. Descrição de uma espéce nova do gênero *Pleurocrypta* (Isopoda, Bopyridae). *Atas da Sociedade de Biologia do Rio de Janiero, 17*, 129–131.

Lemos de Castro, A. & Brasil Lima, I.M. (1980) Crustáceos isópodes epicarídeos do Brasil. XIII. Variações intraespecíficas, distribuição geográfica e hospedeiros de *Aporobopyrus curtatus* (Richardson). *Boletim do Museu Nacional (Nova Série), Zoologia, 296*, 1–8.

Le Sueur, R.F. (1954) The Cumacea, Mysidacea, Amphipoda, Isopoda, and Tanaidacea, of the Channel Islands. (With revised nomenclature and new records to 1953). *Bulletin Annuel de la Société Jersiaise, 16*, 207–216.

Lo Bianco, S. (1888) Notizie biologiche riguardanti specialmente il periodo maturità sessuale degli animali del golfo di Napoli. *Mittheilungen aus der Zoologischen Station zu Neapel, 8*, 385–440.

Luke, S.R. (1977) Catalog of the benthic invertebrate collections of the Scripps Institution of Oceanography. I. Decapod Crustacea and Stomatopoda. *Scripps Institution of Oceanography Reference, 77-9*, i–iii + 1–72.

Macpherson, E. (2007) Species of the genus *Munidopsis* Whiteaves, 1784 from the Indian and Pacific Oceans and reestablishment of the genus *Galacantha* A. Milne-Edwards, 1880 (Crustacea, Decapoda, Galatheidae). *Zootaxa, 1417*, 1–135.

Macpherson, E. & Baba, K. (1993) Crustacea: Decapoda: *Munida japonica* Stimpson, 1858, and related species (Galatheidae). *In*: Crosnier, A. (Ed) *Résultats des Campagnes MUSORSTOM, Volume 10. Mémoires du Muséum National d'Histoire Naturelle, 156*, 381–420.

Macpherson, E. & Baba, K. (2010) Revision of the genus *Sadayoshia* (Anomura, Galatheidae), with description of four new species. *In:* C. H. J. M. Fransen, S. de Grave & P. K. L. Ng (Eds), *Studies on Malacostraca: Lipke Bijdeley Holthuis Memorial Volume*. Crustaceana Monographs 14, 415–452.

Macpherson, E., Richer de Forges, B., Schnabel, K.E., Samadi, S., Boisselier, M.-C. & Garcia-Rubies, A. (2010) Biogeography of the deep-sea galatheid squat lobsters of the Pacific Ocean. *Deep Sea Research Part I: Oceanographic Research Papers, 57*, 228–238.

Macpherson, E. & Saint Laurent, M. de. (2002) On the genus *Munida* Leach, 1820 (Decapoda, Galatheidae) from the western and southern Indian Ocean, with the description of four new species. *Crustaceana, 75*, 465–484.

Markham, J.C. (1974a) Six new species of bopyrid isopods parasitic on galatheid crabs of the genus *Munida* in the Western Atlantic. *Bulletin of Marine Science, 23*, 613–648.

Markham, J.C. (1974b) A new species of *Pleurocrypta* (Isopoda, Bopyridae), the first known from the western Atlantic. *Crustaceana, 26*, 267–272.

Markham, J.C. (1975a) Bopyrid isopods infesting porcellanid crabs in the northwestern Atlantic. *Crustaceana, 28*, 257–270.

Markham, J.C. (1975b) Biological results of the University of Miami deep-sea expeditions. 113. A review of the bopyrid isopod genus *Munidion* Hansen, 1897, parasitic on galatheid crabs in the Atlantic and Pacific Oceans. *Bulletin of Marine Science, 25*, 422–441.

Markham, J.C. (1978) A new genus and species of bopyrid isopod parasitic on the western Atlantic porcellanid *Pachycheles ackleianus* A. Milne Edwards. *Proceedings of the Biological Society of Washington, 91*, 483–489.

Markham, J.C. (1980) A new species of *Dicropleon* and new records of three other species of bopyrid isopods from the Indian Ocean. *Bulletin of Marine Science, 30*, 623–633.

Markham, J.C. (1982) Bopyrid isopods parasitic on decapod crustaceans in Hong Kong and Southern China. *In:* B. Morton & C. K. Tseng (Eds), *Proceedings of the First International Marine Biological Workshop: The Marine Flora and Fauna of Hong Kong and Southern China, Hong Kong, 1980*. Hong Kong University Press, Hong Kong, pp. 325–391.

Markham, J.C. (1985) Additions to the bopyrid isopod fauna of Thailand. *Zoologische Verhandelingen, 224*, 1–63.

Markham, J.C. (1986) Evolution and zoogeography of the Isopoda Bopyridae, parasites of Crustacea Decapoda. *In:* R. H. Gore & K. L. Heck (Eds), *Crustacean Issues 4. Crustacean Biogeography*. A.A. Balkema, Rotterdam, pp. 143–164.

Markham, J.C. (1988) Descriptions and revisions of some species of Isopoda Bopyridae of the north western Atlantic Ocean. *Zoologische Verhandelingen, 246*, 1–63.

Markham, J.C. (1990) Further notes on the Isopoda Bopyridae of Hong Kong. *In:* B. Morton (Ed), *Proceedings of the Second International Marine Biological Workshop: The Marine Flora and Fauna of Hong Kong and Southern China, Hong Kong, 1986*. Hong Kong University Press, Hong Kong, pp. 555–568.

Markham, J.C. (1992) Second list of additions to the Isopoda Bopyridae of Hong Kong. *In:* B. Morton (Ed), *The Marine Flora and Fauna of Hong Kong and Southern China III. Proceedings of the Fourth International Marine Biological Workshop: The Marine Flora and Fauna of Hong Kong and Southern China, Hong Kong, 11–29 April 1989*. Hong Kong University Press, Hong Kong, pp. 277–302.

Markham, J.C. (2003) A worldwide list of hermit crabs and their relatives (Anomura: Paguroidea) reported as hosts of Isopoda Bopyridae. *In*: Lemaitre, R., & C. C. Tudge (Eds), Biology of the Anomura. Proceedings of a symposium at the Fifth International Crustacean Congress, Melbourne, Australia, 9–13 July 2001. *Memoirs of Museum Victoria, 60*, 71–77.

Markham, J.C. (2008) New records of pseudionine bopyrid isopods, including two new species and one new genus, infesting porcellanid crabs (Decapoda: Anomura) on the Pacific coast of North and Central America. *Bulletin of the Southern Cali-*

fornia Academy of Sciences, 107, 145–157.
Markham, J.C. (2009) A review of the Bopyridae (Crustacea: Isopoda) of Singapore, with the addition of four species to that fauna. *Raffles Bulletin of Zoology Supplement, 22, 225-236.*
Markham, J.C. (2010) The isopod parasites (Crustacea: Isopoda: Bopyridae) of decapod Crustacea of Queensland, Australia, with descriptions of three new species. *In*: Davie, P. J. F. & Phillips, J. A. (Eds), Proceedings of the Thirteenth International Marine Biological Workshop, The Marine Fauna and Flora of Moreton Bay, Queensland. *Memoirs of the Queensland Museum - Nature, 54*, 151–197.
Martin, G. (1976) Nouvelles donées ultrastructurales sur les yeaux et les ocelles médians de deux espèces d'épicarides (crustacés isopodes). *Bulletin de la Societé Zoologique de France, 101*, 457–464, pls. 1–3.
Matthews, L.H. (1932) Lobster-krill. Anomuran Crustacea that are the food of whales. *Discovery Reports, 5*, 467–484, pl. 1.
Mayo, B. (1974) The systematics and distribution of the deep-sea genus *Munidopsis* (Crustacea, Galatheidae) in the Western Atlantic Ocean. Ph.D. Dissertation. University of Miami, Miami, pp. 1–342.
McDermott, J.J., Williams, J.D. & Boyko, C.B. (2010) The unwanted guests of hermits: A worldwide review of the diversity and natural history of hermit crab parasites. *Journal of Experimental Marine Biology, 394*, 2–44.
Milne-Edwards, A. & Bouvier, E.L. (1923) Reports on the results of dredging, under the supervision of Alexander Agassiz, in the Gulf of Mexico (1877–78), in the Caribbean Sea (1878–79), and along the Atlantic coast of the United States (1880), by the U. S. Coast Survey Steamer "Blake," Lieut.-Com. C.D. Sigsbee, U.S.N., and Commander J.R. Bartlett, U.S.N., Commanding. XLVII. Les porcellanides et des brachyures. *Memoirs of the Museum of Comparative Zoölogy at Harvard College, 47*, 283–395, pls. 1–12.
Miyake, S. (1942) Studies on the decapod crustaceans of Micronesia. III. Porcellanidae. *Palao Tropical Biological Station Studies, 2*, 329–379, pl. 1.
Miyake, S. & Baba, K. (1967) Galatheids of the East China Sea (Chirostylidae and Galatheidae, Decapoda, Crustacea). *Journal of the Faculty of Agriculture, Kyushu University, 14*, 225–246.
Monod, T. (1933) Mission Robert-Ph. Dollfus en Égypte. Tanaidacea et Isopoda. *Mémoires Présentés a l'Institut d'Égypte, 21*, 161–264.
Moore, H. B. (1937) Marine fauna of the Isle of Man. *Proceedings and Transactions of the Liverpool Biological Society, 50*, 1–293, charts A–C.
Müller, Y. (2004) *Faune et Flore du Littoral du Nord, du Pas-de-Calais et de la Belgique: Inventaire*. France: Commission Régionale de Biologie Région Nord Pas-de-Calais.
Naylor, E. (1963) Arthropoda: Isopoda. *In:* J.R. Bruce, J.S. Colman & N.S. Jones (Eds), *Marine fauna of the Isle of Man*. Liverpool University Press, Liverpool, pp. 143–148.
Naylor, E. (1972) *Synopses of the British Fauna (New Series) No. 3. British Marine Isopods*. New York: Academic Press.
Ng, P. K. L. & Goh, N. K. C. (1996) Notes on the taxonomy and ecology of *Aliaporcellana testophila* (Johnson, 1958) (Decapoda, Anomura, Porcellanidae), a crab commensal on the gorgonian *Solenocaulon*. *Crustaceana, 69*, 652–661.
Nierstrasz, H.F. & Brender à Brandis, G.A. (1923) Die Isopoden der Siboga-Expedition. II. Isopoda Genuina. I. Epicaridea. *Siboga-Expeditie, 32b*, 57–121, pls. 4–9.
Nierstrasz, H.F. & Brender à Brandis, G.A. (1925) Bijdragen tot de kennis der fauna van Curaçao. Resultaten eener reis van Dr. C.J. van der Horst in 1920. Epicaridea. *Bijdragen tot de Dierkunde, 24*, 1–8, pl. 1.
Nierstrasz, H.F. & Brender à Brandis, G.A. (1926) Isopoda. Epicaridea. *Die Tierwelt der Nord- und Ostsee, X(e)(1)*, 1–56.
Nierstrasz, H.F. & Brender à Brandis, G.A. (1929) Papers from Dr. Th. Mortensen's Pacific Expedition 1914–16. XLVIII. Epicaridea. I. *Videnskabelige Meddedelser fra den Dansk Naturhistoriske Forening i København, 87*, 1–44.
Nierstrasz, H.F. & Brender à Brandis, G.A. (1930) Résultats scientifiques du voyage aux Indes Orientales Néerlandaises de LL. AA. RR. le Prince et la Princesse Léopold de Belgique. Isopoda Epicaridea. *Mémoires du Musée Royal d'Histoire Naturelle de Belgique, Hors Série, 3*, 12–17.
Nierstrasz, H.F. & Brender à Brandis, G.A. (1931) Papers from Dr. Th. Mortensen's Pacific Expedition 1914–16. LVII. Epicaridea II. *Videnskabelige Meddedelser fra den Dansk Naturhistoriske Forening i København, 91*, 147–226, pl. 1.
Nierstrasz, H.F. & Brender à Brandis, G.A. (1932) Alte und neue Epicaridea. *Zoologischer Anzeiger, 101*, 90–100.
Nobili, G. (1906) Nuovi bopiridi. *Atti della Real Accademia della Scienze di Torino, 41*, 1098–1113, pl. 1.
Norman, A.M. (1905) *Museum Normanianum, or a Catalogue of the Invertebrata of the Arctic and North Atlantic Temperate Ocean and Palaerctic Region, Which are Contained in the collection of the Rev. Canon A. M. Norman, M.A., D.C.L., LL.D., F.R.S., F.L.S., &c. III. Crustacea Second Edition.* Durham: Thos. Caldcleugh & Son.
Norman, A.M. (1907) Notes on the Crustacea of the Channel Islands. *Annals and Magazine of Natural History, ser. 7, 20*, 356–371, pls. 16–17.
Nouvel-Van Rysselberge, L. (1936a) *Contribution à l'Étude de la Mue, de la Croissance et de la Régéneration chez les Crustacés Natantia. Thèses Présentées a la Faculté des Sciences de l'Université de Paris*. Bruxelles: Imprimerie Forton.
Nouvel-Van Rysselberge, L. (1936b) Contribution à l'Étude de la Mue, de la Croissance et de la Régéneration chez les Crustacés Natantia. *Recuel de l'Institut Zoologique Torley-Rousseau, 6*, 5–161, pls. 1–4.
Oliveira, E. & Masunari, S. (1996) Life history relationships between the bopyrid isopod *Aporobopyrus curtatus* (Richardson, 1904) and its porcelain crab host *Petrolisthes armatus* (Gibbes, 1850) from Farol Island in southern Brazil. *In: 6th Colloquium Crustacea Decapoda Mediterranea*. Museum of Zooogy of the University of Florence, Florence, pp. 68–69.
Oliveira, E. & Masunari, S. (1998) Population relationships between the parasite *Aporobopyrus curtatus* (Richardson, 1904)

(Isopoda: Bopyridae) and one of its porcelain crab hosts *Petrolisthes armatus* (Gibbes, 1850) (Decapoda: Porcellanidae) from Farol Island, southern Brazil. *Journal of Natural History, 32*, 1707–1717.

Oliveira, E. & Masunari, S. (2006) Distribuição temporal de densidade de *Aporobopyrus curtatus* (Richardson) (Crustacea, Isopoda, Bopyridae), um parasito de *Petrolisthes armatus* (Gibbes) (Crustacea, Anomura, Porcellanidae) na Ilha do Farol, Matinhos, Paraná, Brasil. *Revista Brasileira de Zolologia, 23*, 1188–1195.

Osawa, M., Lin, C.-W. & Chan, T.-Y. (2006) *Munidopsis* (Decapoda: Anomura: Galatheidae) from the abyssal depths of Taiwan, with description of one new species. *Journal of Crustacean Biology, 26*, 420–428.

Özdikmen, H. (2008) Nomenclatural changes for nine crustacean genera (Crustacea: Copepoda). *Munis Entomology & Zoology, 3*, 265–274.

Page, R.D.M. (1985) Review of the New Zealand Bopyridae (Crustacea: Isopoda: Epicaridea). *New Zealand Journal of Zoology, 12*, 185–212.

Pearse, A.S. (1930) Parasites of Japanese Crustacea. *Annotationes Zoologicae Japonenses, 13*, 1–8.

Pérez, C. (1923a) Sur la mue des crustacés décapodes parasités par des épicarides. *Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences, 176*, 1763–1766.

Pérez, C. (1923b) Sur la castration des crustacés décapodes parasités par des épicarides. *Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences, 176*, 1934–1936.

Pérez, C. (1925) Sur la transformation des formes cryptonisciennes en males chez les bopyriens. *Association Français pour l'Avancement des Sciences, Compte Rendu de la 48e Session, Liége, 1924*, 472–473.

Pérez, C. (1927) Études sur la morphologie des crustacés décapodes. I. Caractères sexuels de l'abdomen chez les galathéidés. *Bulletin Biologique de la France et de la Belgique, 61*, 264–292.

Pérez, C. (1935) *Titres et Travaux Scientifiques 2*. Paris: Hermann et Cie. (not seen)

Petric, M., Ferri, J. & Mladineo, I. (2010) Growth and reproduction of *Munida rutllanti* (Decapoda: Anomura: Galatheidae) and impact of parasitism by *Pleurocrypta* sp. (Isopoda: Bopyridae) in the Adriatic Sea. *Journal of the Marine Biological Association of the United Kingdom, 90*, 1395–1404.

Pike, R.B. (1953) The bopyrid parasites of the Anomura from British and Irish waters. *Journal of the Linnean Society of London (Zoology), 42*, 219–237, pls. 244–248.

Potts, F.A. (1915) The fauna associated with the crinoids of a tropical coral reef: with especial reference to its colour variations. *Papers from the Department of Marine Biology of the Carnegie Institution of Washington, 8*, 73–96, pl. 1.

Rathbun, M.J. (1924) Results of Dr. E. Mjöberg's Swedish scientific expeditions to Australia 1910–1913 37. Brachyura, Albuneidae and Porcellanidae. *Arkiv för Zoologi, 16*, 1–33, pl. 1.

Rayner, G.W. (1935) The Falkland species of the crustacean genus *Munida*. *Discovery Reports, 10*, 209–245.

Reinhard, E.G. (1949) Experiments on the determination and differentiation of sex in the bopyrid *Stegophryxus hyptius* Thompson. *Biological Bulletin, 96*, 17–31.

Reverberi, G. & Pittoti, M. (1943) Il ciclo biologico e la determinazione fenotipica del sesso di *Ione thoracica* Montagu, bopiride parassita di *Callianassa laticauda* Otto. *Pubblicazione della Stazione Zoologica di Napoli, 19*, 111–184.

Richard, J. (1900) *Essai sur les crustacés considérés dans leurs rapports avec l'hygiène, la médicine et la parasitologie*. Lille: Le Bigot Fréres.

Richardson, H. (1903) Isopods collected at the Hawaiian Islands by the U. S. Fish Commission Steamer Albatross. *Bulletin of the United States Fish Commission, 23*, 817–826.

Richardson, H. (1904) Contributions to the natural history of the Isopoda. *Proceedings of the United States National Museum, 27*, 1–89.

Richardson, H. (1910a) Marine isopods collected in the Philippines by the U. S. Fisheries steamer Albatross in 1907–8. *Bureau of Fisheries Document, 736*, 1–44.

Richardson, H. (1910b) Report on isopods from Peru, collected by Dr. R. E. Coker. *Proceedings of the United States National Museum, 38*, 79–85.

Román-Contreras, R. (2008a) A new genus of bopyrid isopod infesting *Munidopsis beringana* (Decapoda: Galatheidae) from deep waters. *Journal of Crustacean Biology, 28*, 378–384.

Román-Conteras, R. (2008b) Chapter 5. Estudios y registros de isópodos epicarideos en México: 1897–2005. *In:* F. Álvarez Noguera & G. A. Rodríguez Almaraz (Eds), *Crustáceos de México: Estado Actual de su Conocimiento*. Biblioteca Universitaria Raúl Rangel Frías, Monterrey, pp. 81–114.

Román-Contreras, R. & Boyko, C. B. (2007) A new genus and species of bopyrid isopod infesting the crab *Munidopsis depressa* (Anomura: Galatheidae) from the Gulf of California, with notes on its ecology. *Journal of Crustacean Biology, 27*, 370–379.

Román-Contreras, R. & Soto, L. A. (2002) A new deep-water genus and species of a branchial bopyrid infesting the galatheid crab *Munidopsis erinaceus* from the southwestern Gulf of Mexico. *Journal of Crustacean Biology, 27*, 370–379.

Salazar-Vallejo, S. I. & Leija-Tristán, A. (1990) *Progebiophilus bruscai* n. sp., a new bopyrid isopod parasitic on the mud shrimp, *Upogebia dawsoni* Williams (Thalassinoidea), from the Gulf of California. *Cahiers de Biologie Marine, 30*, 423–432.

Sassaman, C. (1992) Description of the mature female and epicaridium larva of *Cabirops montereyensis* Sassaman from southern California (Crustacea: Isopoda: Cabiropidae). *Proceedings of the Biological Society of Washington, 105*, 575–584.

Schnabel, K.E. & Ahyong, S.T. (2010) A new classification of the Chirostyloidea (Crustacea: Decapoda: Anomura). *Zootaxa,*

2687, 56–64.
Shiino, S.M. (1933) Bopyrids from Tanabe Bay. *Memoirs of the College of Science, Kyoto Imperial University, ser. B, 8*, 249–300.
Shiino, S.M. (1934) Bopyrids from Tanabe Bay II. *Memoirs of the College of Science, Kyoto Imperial University, ser. B, 9*, 257–287.
Shiino, S.M. (1936a) Bopyrids from Shimoda and other districts. *Records of Oceanographic Works in Japan, 8*, 161–176.
Shiino, S.M. (1936b) Bopyrids from Misaki. *Records of Oceanographic Works in Japan, 8*, 177–190.
Shiino, S.M. (1937) Some additions to the bopyrid fauna of Japan. *Annotationes Zoologicae Japonenses, 16*, 293–300.
Shiino, S.M. (1939) Bopyrids from Kyûsyû and Ryûkyû. *Records of Oceanographic Works in Japan, 10*, 79–99.
Shiino, S.M. (1942) Bopyrids from the south sea islands with description of a hyperparasitic cryptoniscid. *Palao Tropical Biological Station Studies, 2*, 437–458.
Shiino, S.M. (1950) Notes on some new bopyrids from Japan. *The Journal of Mie Medical College, 1*, 151–167.
Shiino, S.M. (1952) Phylogeny of the family Bopyridae. *Annual Report of the Prefectural University of Mie, section 2, Natural Science, 1*, 33–56.
Shiino, S.M. (1964) On three bopyrid isopods from California. *Report of Faculty of Fisheries, Prefectural University of Mie, 5*, 19–25.
Shiino, S.M. (1965) Phylogeny of the genera within the family Bopyridae. *Bulletin du Muséum National d'Histoire Naturelle de Paris, 37*, 462–465.
Smaldon, G. & Naylor, E. (1972) New records of *Pleurocrypta porcellanae* Hesse, 1876 (Isopoda Epicaridea) from South Wales and South Devon. *Crustaceana, 23*, 310–311.
Spalding, M.D., Fox, H.E., Allen, G.R., Davidson, N., Ferdaña, Z.A., Finlayson, M., Halpern, B.S., Jorge, M.A., Lombana, A., Lourie, S.A., Martin, K.D., McManus, E., Molnar, J., Recchia, C.A., Robertson, J. (2007) Marine ecoregions of the world: A bioregionalization of coastal and shelf areas. *BioScience, 57*, 573–583.
Stebbing, T.R.R. (1893) *A History of Crustacea Recent Malacostraca*. London: Kegan Paul, Trench, Trübner & Co.
Stebbing, T.R.R. (1908) South African Crustacea. Part IV. *Annals of the South African Museum, 6*, 1–96, pls. 28–40.
Stock, J.H. (1960) Notes on Epicaridea. *Crustaceana, 1*, 28–33, pl. 1.
Tattersall, W.M. (1905) Appendix, No. II. The marine fauna of the coast of Ireland. Part V. Isopoda. *Fisheries, Ireland, Scientific Investigations, 1904, 2*, 1–90, pls. 1–11, 2 unnumbered charts.
Tattersall, W.M. (1912a) Marine Isopoda and Tanaidacea. *Proceedings of the Royal Irish Academy, 31*, 1–6.
Tattersall, W. M. (1912b) [Additions to the fauna]. *Annual Report of the Liverpool Marine Biology Committee, 26*, 27–28.
Tiefenbacher, L. (2001) Recent samples of mainly rare decapod Crustacea taken from the deep–sea floor of the southern West European Basin. *Hydrobiologia, 449*, 59–70.
Tirmizi, N.M. & Javed, W. (1993) *Indian Ocean Galatheids (Crustacea: Anomura) International Indian Ocean Expedition (IIOE) 1963–64 Collection*. Islamabad: University Grants Commission.
Trilles, J.-P. (1999) Ordre des isopodes sous-ordre des épicarides (Epicaridea Latreille, 1825) *In*: Forest, J. (Ed). *Traité de Zoologie. Anatomie, Systématique, Biologie (Pierre-P. Grassé). Tome VII, Fascicule III A, Crustacés Péracarides. Memoires de l'Institut Oceanographique, Monaco, 19*, 279–352.
Van der Land, J. (2001) Isopoda. *In:* M.J. Costello, C. Emblow & R. White (Eds), *European Register of Marine Species. A Check-list of the Marine Species in Europe and a Bibliography of Guides to Their Identification. Patrimoines Naturels 50*, pp. 315–322.
Vervoort, W. (1976) Verslag van de directeur over het jaar 1975. Rijksmuseum van Natuurlijke Historie te Leiden. *Nederlandse Rijksmusea, 97*, 189–247.
Weinberg Rasmussen, H., Jakobsen, S.L. & Collins, J.S.H. (2008) Raninidae infested by parasitic Isopoda (Epicaridea). *Bulletin of the Mizunami Fossil Museum, 34*, 31–49.
Wenner, E.L. & Windsor, N.T. (1979) Parasitism of galatheid crustaceans from the Norfolk Canyon and the Middle Atlantic Bight by bopyrid isopods. *Crustaceana, 37*, 293–303.
Williams, J.D. & Madad, A.Z. (2010) A new species and record of branchial parasitic isopods (Crustacea: Isopoda: Bopyridae: Pseudioninae) of porcellanid crabs from the Philippines. *Experimental Parasitology, 125*, 23–29.
Wimpenny (1966) *The Plankton of the Sea*. New York: American Elsevier Publishing Company, Inc.
Zariquiey Alvarez, R. (1958) Decápodos españoles. XII. Acción de un bopírido sobre los caracteres sexuales de los especies del gén. *Munida* Leach. *Investigación Pesquera, 11*, 101–104.