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[REVIEW]

A Taxonomic Catalogue of Japanese Nemerteans (Phylum Nemertea)

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A literature-based taxonomic catalogue of the nemertean species (Phylum Nemertea) reported from Japanese waters is provided, listing 19 families, 45 genera, and 120 species as valid. Applications of the following species names to forms previously recorded from Japanese waters are regarded as uncertain: *Amphiporus cervicalis*, *Amphiporus depressus*, *Amphiporus lactifloreus*, *Cephalothrix filiformis*, *Cephalothrix linearis*, *Cerebratulus fuscus*, *Lineus vegetus*, *Lineus bilineatus*, *Lineus gesserensis*, *Lineus grubei*, *Lineus longifissus*, *Lineus mcintoshii*, *Nipponnemertes pulchra*, *Oerstedtia venusta*, *Prostoma graecense*, and *Prostoma grande*. The identities of the taxa referred to by the following four nominal species require clarification through future investigations: *Cosmocephala japonica*, *Dicelis rubra*, *Dichilus obscurus*, and *Nareda serpentina*. The nominal species established from Japanese waters are tabulated. In addition, a brief history of taxonomic research on Japanese nemerteans is reviewed.

Key words: checklist, Pacific, classification, ribbon worm, Nemertinea

INTRODUCTION

The phylum Nemertea comprises about 1,200 species (Gibson, 1995). Nemerteans are distributed worldwide, mostly in marine benthic habitats, though some species have adapted to live in pelagic, freshwater, and land habitats. Nemerteans are basically carnivorous, feeding on small crustaceans, polychaetes, and mollusks (McDermott and Roe, 1985). They are distinct from other metazoans by possessing a unique organ, the proboscis, which is housed in a fluid-filled cavity, the rhynchocoel, and eversible when used in prey capture. The phylum is currently regarded as the sister taxon to the Neotrochozoa (comprising the Annelida, Echiura, Mollusca, and Sipuncula) (Jenner, 2004). Morphological characters supporting the close relationship between the Nemertea and Neotrochozoa include: 1) modified coelomic cavities derived by schizocoely (Turbeville, 1986) and lined by mesothelium, with at least some cells bearing rudimentary cilia (Turbeville and Ruppert, 1985; Turbeville, 1991, 2002); 2) a gliointerstitial cell system (Turbeville and Ruppert, 1985; Turbeville, 1991, 2002); and 3) the prototroch, a transitory larval structure consisting of a preblastoporal belt of specialized cells derived from the trochoblast cell lineage (Maslakova *et al.*, 2004a, b).

Despite considerable efforts by previous researchers, a number of undescribed nemerteans remain in Japanese waters, especially those in the southwestern part (Kajihara,

2001). The only recent listing of previously described Japanese species is the checklist of Crandall *et al.* (2002), but the relevant literature is scattered. The present catalogue, identifying 19 families, 45 genera, and 120 species so far reported from Japanese waters as valid, has been compiled to integrate this scattered nemertean literature and to point out taxonomic issues to be resolved for the species already described, in order to offer a perspective for future studies.

Generally, the ideal situation for taxonomic studies is that name-bearing type specimens for every nominal species are extant and available. The present study revealed, however, that type specimens are either unavailable or unlocated for 45 out of 101 nominal species established from Japanese waters (Tables 1, 2).

While modern nemertean taxonomy depends upon the examination of internal structures from serially sectioned material (Gibson, 1985), virtually all of the original descriptions made by Stimpson and Takakura lack such information (Stimpson, 1855, 1857; Takakura, 1898). Fortunately, most of these species can be identified by their external features, but their systematic position requires reappraisal based on their internal morphology. Since most of the type material of early researchers, viz., Stimpson, Takakura, and Yamaoka, is unavailable (Nishimura, 1992; Kajihara, 2004; see the following section, "Brief History..."), re-collection of the species established by them is essential to correctly determine taxonomic identity.

Throughout the text and tables, "Code" and "ICZN" refer to the International Code for Zoological Nomenclature and the International Commission on Zoological Nomenclature, respectively.

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Table 1. List of the nominal species established from Japanese waters arranged by their type locality from north to south. *Type specimen depository: FI Dr. Iwata's collection; LBM Lake Biwa Museum, Shiga, Japan; NHMW-EV Naturhistorisches Museum Wien, Evertebrata-Varia, Wien, Austria; U unavailable; ZIHU Hokkaido University Museum, Sapporo, Japan; ? unlocated.

Locality	Nominal species	Type specimen*	Further detailed locality and comments.
HOKKAIDŌ			
Rishiri Island	<i>Lineus fulvus</i> Iwata, 1954	FI	
	* <i>Oerstedea venusta</i> Iwata, 1954	FI	Also based on the material from Murooran; a <i>nomen dubium</i> .
Akkeshi	<i>Amphiporus antifuscus</i> Iwata, 1954	FI	
	<i>Amphiporus parvus</i> Yamaoka, 1940	U	
	<i>Cephalothrix notabilis</i> Iwata, 1954	FI	
	<i>Lineus spatiosus</i> Iwata, 1954	FI	
	* <i>Micrura akkeshiensis</i> Yamaoka, 1940	U	Also based on the material from Abashiri.
	<i>Micrura magna</i> Yamaoka, 1940	U	Daikokujima Island.
	<i>Nemertellina yamaokai</i> Kajihara et al., 2000	ZIHU-1260	
	<i>Oerstedea polyorbis</i> Iwata, 1954	FI	
	* <i>Tetrastemma pinnatum</i> Iwata, 1954	FI	
	* <i>Tetrastemma stimpsoni</i> Chernyshev, 1992	U	Also based on the material from Abashiri.
	<i>Tubulanus ezoensis</i> Yamaoka, 1940	U	Daikokujima Island.
	<i>Zygonemertes glandulosa</i> Yamaoka, 1940	U	
	<i>Zygonemertes jamsteci</i> Kajihara, 2002	ZIHU-1928	
Abashiri	* <i>Micrura akkeshiensis</i> Yamaoka, 1940	U	Also based upon the material from Akkeshi.
	* <i>Tetrastemma stimpsoni</i> Chernyshev, 1992	U	Also based upon the material from Akkeshi.
Oshoro	<i>Amphiporus musculus</i> Iwata, 1954	FI	
	<i>Tetrastemma yamaokai</i> Iwata, 1954	FI	
	<i>Tetrastemma verinigrum</i> Iwata, 1954	FI	
	<i>Zygonemertes shintai</i> Kajihara, 2002	ZIHU-1296	
Shizunai	<i>Potamostoma shizunaiense</i> Kajihara et al., 2003	ZIHU-2037	The mouth of the River Shizunai.
Murooran	<i>Amphiporus regius</i> Iwata, 1954	FI	
	<i>Micrura uchidai</i> Yamaoka, 1940	U	Now <i>Nipponomicrura uchidai</i> .
	* <i>Oerstedea venusta</i> Iwata, 1954	FI	Also based on the material from Rishiri; a <i>nomen dubium</i> .
Hakodate	<i>Tatsnoskia depressa</i> Stimpson, 1857	U	A <i>nomen dubium</i> .
	<i>Tetrastemma stigmatum</i> Stimpson, 1857	U	
Further detail of locality not specified	<i>Cerebratulus bellus</i> Stimpson, 1857	U	Now <i>Micrura bella</i> .
	<i>Cerebratulus fasciatus</i> Stimpson, 1857	U	
HONSHŪ			
AOMORI PREFECTURE			
	<i>Emplectonema kandai</i> Kato, 1939	U	Asamushi.
IWATE PREFECTURE			
	<i>Diopsonemertes acanthocephala</i> Kajihara et al., 2001	ZIHU-1290	Ôtsuchi.
	<i>Ototyphlonemertes dolichobasis</i> Kajihara, 2007	ZIHU-3200	Ôtsuchi.
IBARAKI PREFECTURE			
	<i>Hinumanemertes kikuchii</i> Iwata, 1970	FI	Lake Hinuma.
	<i>Sacconemertella lutulenta</i> Iwata, 1970	FI	Lake Hinuma.
	<i>Sacconemertopsis olivifera</i> Iwata, 1970	FI	Lake Hinuma.
CHIBA PREFECTURE			
	<i>Carcinonemertes mitsukurii</i> Takakura, 1910	U	Among egg masses of <i>Eriocheir japonicus</i> (Decapoda) at the mouth of the River Minatogawa.
	<i>Coeia ijimai</i> Takakura, 1922	U	Tateyama; now <i>Hubrechtella ijimai</i> .
	* <i>Lineus fuscoviridis</i> Takakura, 1898	U	Sunosaki, Tateyama, also based on the material from Misaki.
	* <i>Lineus mitellatus</i> Takakura, 1898	U	Sunosaki, Tateyama, also based on the material from Misaki; now <i>Notospermus geniculatus</i> .
	<i>Malacobdella japonica</i> Takakura, 1897	U	Kujūkuri, in the mantle cavity of <i>Mactra sachalinensis</i> (Bivalvia).
KANAGAWA PREFECTURE			
Misaki and its vicinity			
	<i>Carinella punctata</i> Takakura, 1898	U	Now <i>Tubulanus punctatus</i> .
	<i>Cerebratulus carnosus</i> Takakura, 1898	U	
	<i>Cerebratulus communis</i> Takakura, 1898	U	
	<i>Lineus alborostratus</i> Takakura, 1898	U	
	<i>Lineus bipunctatus</i> Takakura, 1898	U	
	<i>Lineus caputornatus</i> Takakura, 1898	U	
	* <i>Lineus fuscoviridis</i> Takakura, 1898	U	Also based on the material from Tateyama.
	* <i>Lineus mitellatus</i> Takakura, 1898	U	Also based on the material from Tateyama; now <i>Notospermus geniculatus</i> .
	<i>Lineus subcingulatus</i> Takakura, 1898	U	
	<i>Micrura dorsovittata</i> Takakura, 1898	U	
	<i>Micrura festiva</i> Takakura, 1898	U	Now <i>Micrura bella</i> .
Sagami Bay	<i>Amphiporus nagaiensis</i> Iwata, 1957	FI	Now <i>Sagaminemertes nagaiensis</i> .
	<i>Amphiporus parmionatus</i> Iwata, 1957	FI	Now <i>Kameginemertes parmionata</i> .

To be continued.

Tabel. 1. continued.

	<i>Amphiporus reduncus</i> Iwata, 1957	FI	
	<i>Amphiporus retrotumidus</i> Iwata, 1957	FI	
	<i>Cephalomastax brevis</i> Iwata, 1957	FI	
	<i>Cerebratulus albocirculus</i> Iwata, 1957	FI	
	<i>Cerebratulus formosus</i> Iwata, 1957	FI	
	<i>Cerebratulus macroren</i> Hubrecht, 1887	?	
	<i>Cerebratulus penniger</i> Iwata, 1957	FI	
	<i>Cerebratulus superniger</i> Iwata, 1957	FI	
	<i>Drepanophorus longiceps</i> Iwata, 1957	FI	
	<i>Euborlasia proteres</i> Iwata, 1957	FI	
	<i>Eupolia nipponensis</i> Hubrecht, 1887	?	Now <i>Baseodiscus nipponensis</i> .
	<i>Micrura multinotata</i> Iwata, 1957	FI	
	<i>Nectonemertes japonica</i> Foshay, 1912	?	
	<i>Paranemertes plana</i> Iwata, 1957	FI	
	<i>Pelagonemertes moseleyi</i> Bürger, 1895	?	
	<i>Tetramys ramicerebrus</i> Iwata, 1957	FI	
SHIZUOKA PREFECTURE			
Shimoda			
	<i>Amphiporus ogumai</i> Yamaoka, 1947	U	Now <i>Nipponnemertes ogumai</i> .
	<i>Cosmocephala japonica</i> Stimpson, 1857	U	Now <i>Amphiporus japonicus</i> , a <i>nomen dubium</i> .
	<i>Emplectonema mitsuji</i> Yamaoka, 1947	U	
	<i>Paranemertes katoi</i> Yamaoka, 1947	U	
	<i>Polina cervicalis</i> Stimpson, 1857	U	A <i>nomen dubium</i> .
	<i>Prostoma roseocephalum</i> Yamaoka, 1947	U	Now <i>Tetrastemma roseocephalum</i> .
Lake Hamanako			
	<i>Callinera nishikawai</i> Kajihara, 2006	ZIHU-3133	
	<i>Carinina plecta</i> Kajihara, 2006	ZIHU-3123	
	<i>Hubrechtella kimuraorum</i> Kajihara, 2006	ZIHU-3127	
MIE PREFECTURE			
	<i>Uchidana parasita</i> Iwata, 1967	FI	In mantle cavities of <i>Mactra sulcataria</i> in muddy sand at the mouth of Aikawa River.
WAKAYAMA PREFECTURE			
	<i>Amphiporus insolitus</i> Iwata, 1954	FI	Kushimoto.
	<i>Lineus cancelli</i> Iwata, 1954	FI	Shirahama.
	<i>Nemertopsis mitellicola</i> Kajihara, 2007	ZIHU-3204	Shirahama.
SHIGA PREFECTURE			
	<i>Prostoma ohmiense</i> Chernyshev <i>et al.</i> , 1998	LBM	Lake Biwa.
HIROSHIMA PREFECTURE			
	<i>Paralineopsis taki</i> Iwata, 1993	FI	Mukaishima.
	<i>Stichostemma grandis</i> Ikeda, 1913	U	Hiroshima, a <i>nomen dubium</i> .
KYŪSHŪ and OKINAWA			
KUMAMOTO PREFECTURE			
Tomioka			
	* <i>Micrura japonica</i> Iwata, 1952	FI	Also based on the material from Fukue.
	<i>Paranemertes incola</i> Iwata, 1952	FI	
	<i>Procephalothrix fasciculus</i> Iwata, 1952	FI	Now <i>Cephalothrix fasciculus</i> .
	* <i>Tetrastemma insolens</i> Iwata, 1952	FI	Also based on the material from Fukue.
NAGASAKI PREFECTURE			
Fukue			
	<i>Carinesta uchidai</i> Iwata, 1952	FI	
	<i>Euborlasia gotoensis</i> Iwata, 1952	FI	
	* <i>Micrura japonica</i> Iwata, 1952	FI	Also based on the material from Tomioka.
	<i>Procephalothrix simula</i> Iwata, 1952	FI	Now <i>Cephalothrix simula</i> .
	* <i>Tetrastemma insolens</i> Iwata, 1952	FI	Also based on the material from Tomioka.
	<i>Tubulanus lucidus</i> Iwata, 1952	FI	
KAGOSHIMA PREFECTURE			
Kagoshima Bay			
	<i>Diplopleura japonica</i> Stimpson, 1857	U	Kagoshima Bay.
Tanegashima			
	<i>Dicelis rubra</i> Stimpson, 1857	U	Tanegashima, a <i>nomen dubium</i> .
Nakanoshima			
	<i>Lineus nigrostriatus</i> Iwata, 1954	FI	Nakanoshima, Tokara Islands.
Amamiōshima			
	<i>Cerebratulus nigrofuscus</i> Stimpson, 1857	U	Amamiōshima, now <i>Lineus nigrofuscus</i> .
	<i>Dichilus obscurus</i> Stimpson, 1857	U	Amamiōshima, a <i>nomen dubium</i> .
	<i>Taeniosoma aequale</i> Stimpson, 1857	U	Amamiōshima, now <i>Baseodiscus quinquelineatus</i> .
Kikaijima			
	<i>Meckelia piperata</i> Stimpson, 1855	U	Kikaijima, now <i>Iwatanemertes piperata</i> .
OKINAWA PREFECTURE			
	<i>Meckelia albovittata</i> Stimpson, 1855	U	Now <i>Lineus albovittatus</i> .
	<i>Meckelia subacuta</i> Stimpson, 1857	U	Naha, a <i>nomen dubium</i> .
	<i>Nareda serpentina</i> Stimpson, 1855	U	A <i>nomen dubium</i> .
	<i>Prostoma specutaculum</i> Yamaoka, 1940	U	Naha and Chinen; now <i>Pantinonemertes specutacula</i> .
TYPE LOCALITY UNKNOWN			
	<i>Lineus nipponensis</i> Senz, 2001	NHMW-EV 17026/3990	
	<i>Tubulanus roretzi</i> Senz, 1997	NHMW-EV 3565/1886	

Table 2. List of the nominal species established from Japanese waters arranged taxonomically. *Type specimen depository: FI Professor Fumio Iwata's collection; LBM Lake Biwa Museum, Shiga, Japan; NHMW-EV Naturhistorisches Museum Wien, Evertebrata-Varia, Wien, Austria; U unavailable; ZIHU Hokkaido University Museum, Sapporo, Japan; ? unlocated.

Higer Taxa	Nominal species	Type specimen*	Type locality and comments.
PALAEONEMERTEA			
	<i>Callinera nishikawai</i> Kajihara, 2006	ZIHU-3133	Lake Hamanako, Shizuoka Prefecture.
	<i>Carinella punctata</i> Takakura, 1898	U	Misaki, Kanagawa Prefecture; now <i>Tubulanus punctatus</i> .
	<i>Carinesta uchidai</i> Iwata, 1952	FI	Fukue, Nagasaki Prefecture.
	<i>Carinina plecta</i> Kajihara, 2006	ZIHU-3123	Lake Hamanako, Shizuoka Prefecture.
	<i>Cephalothrix notabilis</i> Iwata, 1954	FI	Akkeshi, Hokkaidō Prefecture.
	<i>Procephalothrix fasciculus</i> Iwata, 1952	FI	Tomioka, Kumamoto Prefecture; now <i>Cephalothrix fasciculus</i> .
	<i>Procephalothrix simula</i> Iwata, 1952	FI	Fukue, Nagasaki Prefecture; now <i>Cephalothrix simula</i> .
	<i>Tubulanus ezoensis</i> Yamaoka, 1940	U	Daikokujima Island, Akkeshi, Hokkaidō Prefecture.
	<i>Tubulanus lucidus</i> Iwata, 1952	FI	Fukue, Nagasaki Prefecture.
	<i>Tubulanus roretzi</i> Senz, 1997	NHMW-EV 3565/1886	Precise type locality unknown.
PILIDIOPHORA			
	<i>Cephalomastax brevis</i> Iwata, 1957	FI	Sagami Bay, Kanagawa Prefecture.
	<i>Cerebratulus albocirculus</i> Iwata, 1957	FI	Sagami Bay, Kanagawa Prefecture.
	<i>Cerebratulus bellus</i> Stimpson, 1857	U	Hokkaidō; now <i>Micrura bella</i> .
	<i>Cerebratulus carnosus</i> Takakura, 1898	U	Misaki, Kanagawa Prefecture.
	<i>Cerebratulus communis</i> Takakura, 1898	U	Misaki, Kanagawa Prefecture.
	<i>Cerebratulus fasciatus</i> Stimpson, 1857	U	Hokkaidō.
	<i>Cerebratulus formosus</i> Iwata, 1957	FI	Sagami Bay, Kanagawa Prefecture.
	<i>Cerebratulus macroren</i> Hubrecht, 1887	?	Sagami Bay, Kanagawa Prefecture.
	<i>Cerebratulus nigrofuscus</i> Stimpson, 1857	U	Amamiōshima, Kagoshima Prefecture; now <i>Lineus nigrofuscus</i> .
	<i>Cerebratulus penniger</i> Iwata, 1957	FI	Sagami Bay, Kanagawa Prefecture.
	<i>Cerebratulus superniger</i> Iwata, 1957	FI	Sagami Bay, Kanagawa Prefecture.
	<i>Coeia ijimai</i> Takakura, 1922	U	Tateyama, Chiba Prefecture; now <i>Hubrechtella ijimai</i> .
	<i>Diplopleura japonica</i> Stimpson, 1857	U	Kagoshima Bay, Kagoshima Prefecture.
	<i>Euborlasia gotoensis</i> Iwata, 1952	FI	Fukue, Nagasaki Prefecture.
	<i>Euborlasia proteres</i> Iwata, 1957	FI	Sagami Bay, Kanagawa Prefecture.
	<i>Eupolia nipponensis</i> Hubrecht, 1887	?	Sagami Bay, Kanagawa Prefecture; now <i>Baseodiscus nipponensis</i> .
	<i>Hinumanemertes kikuchii</i> Iwata, 1970	FI	Lake Hinuma, Ibaraki Prefecture.
	<i>Hubrechtella kimuraorum</i> Kajihara, 2006	ZIHU-3127	Lake Hamanako, Shizuoka Prefecture.
	<i>Lineus alborostratus</i> Takakura, 1898	U	Misaki, Kanagawa Prefecture.
	<i>Lineus bipunctatus</i> Takakura, 1898	U	Misaki, Kanagawa Prefecture.
	<i>Lineus cancelli</i> Iwata, 1954	FI	Shirahama, Wakayama Prefecture.
	<i>Lineus caputornatus</i> Takakura, 1898	U	Misaki, Kanagawa Prefecture.
	<i>Lineus fulvus</i> Iwata, 1954	FI	Rishiri Island, Hokkaidō Prefecture.
	<i>Lineus fuscoviridis</i> Takakura, 1898	U	Sunosaki, Tateyama, Chiba Prefecture; Misaki, Kanagawa Prefecture.
	<i>Lineus mitellatus</i> Takakura, 1898	U	Sunosaki, Tateyama, Chiba Prefecture; Misaki, Kanagawa Prefecture; now <i>Notospermus geniculatus</i> .
	<i>Lineus nigrostriatus</i> Iwata, 1954	FI	Nakanoshima, Tokara Islands, Kagoshima Prefecture.
	<i>Lineus nipponensis</i> Senz, 2001	NHMW-EV 17026/3990	Precise type locality unknown.
	<i>Lineus spatiosus</i> Iwata, 1954	FI	Akkeshi, Hokkaidō Prefecture.
	<i>Lineus subcingulatus</i> Takakura, 1898	U	Misaki, Kanagawa Prefecture.
	<i>Meckelia albovittata</i> Stimpson, 1855	U	Okinawa; now <i>Lineus albovittatus</i> .
	<i>Meckelia piperata</i> Stimpson, 1855	U	Kikaijima, Kagoshima Prefecture; now <i>Iwatanemertes piperata</i> .
	<i>Meckelia subacuta</i> Stimpson, 1857	U	Naha, Okinawa; <i>nomen dubium</i> .
	<i>Micrura akkeshiensis</i> Yamaoka, 1940	U	Abashiri and Akkeshi, Hokkaidō Prefecture.
	<i>Micrura dorsovittata</i> Takakura, 1898	U	Misaki, Kanagawa Prefecture.
	<i>Micrura festiva</i> Takakura, 1898	U	Misaki, Kanagawa Prefecture; now <i>Micrura bella</i> .
	<i>Micrura japonica</i> Iwata, 1952	FI	Tomioka, Kumamoto Prefecture; Fukue, Nagasaki Prefecture.
	<i>Micrura magna</i> Yamaoka, 1940	U	Daikokujima Island, Akkeshi, Hokkaidō Prefecture.
	<i>Micrura multinetata</i> Iwata, 1957	FI	Sagami Bay, Kanagawa Prefecture.
	<i>Micrura uchidai</i> Yamaoka, 1940	U	Muroran, Hokkaidō Prefecture; now <i>Nipponomicrura uchidai</i> .
	<i>Paralineopsis taki</i> Iwata, 1993	FI	Mukaishima, Hiroshima Prefecture.
	<i>Taeniosoma aequale</i> Stimpson, 1857	U	Amamiōshima, Kagoshima Prefecture; now <i>Baseodiscus quinquelineatus</i> .
	<i>Tetramys ramicerebrus</i> Iwata, 1957	FI	Sagami Bay, Kanagawa Prefecture.
	<i>Uchidana parasita</i> Iwata, 1967	FI	Mouth of Aikawa River, Mie Prefecture.
HOPLONEMERTEA			
	<i>Amphiporus antifuscus</i> Iwata, 1954	FI	Akkeshi, Hokkaidō Prefecture.
	<i>Amphiporus insolitus</i> Iwata, 1954	FI	Kushimoto, Wakayama Prefecture.
	<i>Amphiporus musculus</i> Iwata, 1954	FI	Oshoro, Hokkaidō Prefecture.
	<i>Amphiporus nagaiensis</i> Iwata, 1957	FI	Sagami Bay, Kanagawa Prefecture; now <i>Sagaminemertes nagaiensis</i> .
	<i>Amphiporus ogumai</i> Yamaoka, 1947	U	Shimoda, Shizuoka Prefecture; now <i>Nipponnemertes ogumai</i> .
	<i>Amphiporus parmiornatus</i> Iwata, 1957	FI	Sagami Bay, Kanagawa Prefecture; now <i>Kameginemertes parmiornata</i> .

To be continued.

Table 2. continued.

<i>Amphiporus parvus</i> Yamaoka, 1940	U	Akkeshi, Hokkaidô Prefecture.
<i>Amphiporus reduncus</i> Iwata, 1957	FI	Sagami Bay, Kanagawa Prefecture.
<i>Amphiporus regius</i> Iwata, 1954	FI	Muroran, Hokkaidô Prefecture.
<i>Amphiporus retrotumidus</i> Iwata, 1957	FI	Sagami Bay, Kanagawa Prefecture.
<i>Carcinonemertes mitsukurii</i> Takakura, 1910	U	Mouth of River Minatogawa, Chiba Prefecture.
<i>Cosmocephala japonica</i> Stimpson, 1857	U	Shimoda, Shizuoka Prefecture; <i>nomen dubium</i> .
<i>Dicelis rubra</i> Stimpson, 1857	U	Tanegashima Island, Kagoshima Prefecture; <i>nomen dubium</i> .
<i>Diopsonnemertes acanthocephala</i> Kajihara <i>et al.</i> , 2001	ZIHU-1290	Ôtsuchi, Iwate Prefecture.
<i>Drepanophorus longiceps</i> Iwata, 1957	FI	Sagami Bay, Kanagawa Prefecture.
<i>Emplectonema kandai</i> Kato, 1939	U	Asamushi, Aomori Prefecture.
<i>Emplectonema mitsuii</i> Yamaoka, 1947	U	Shimoda, Shizuoka Prefecture.
<i>Malacobdella japonica</i> Takakura, 1897	U	Kujûkuri, Chiba Prefecture.
<i>Nareda serpentina</i> Stimpson, 1855	U	Okinawa Prefecture; <i>nomen dubium</i> .
<i>Nectonemertes japonica</i> Foshay, 1912	?	Sagami Bay, Kanagawa Prefecture.
<i>Nemertellina yamaokai</i> Kajihara <i>et al.</i> , 2000	ZIHU-1260	Akkeshi, Hokkaidô Prefecture.
<i>Nemertopsis mitellicola</i> Kajihara, 2007	ZIHU-3204	Shirahama, Wakayama Prefecture.
<i>Oerstedtia polyorbis</i> Iwata, 1954	FI	Akkeshi, Hokkaidô Prefecture.
<i>Oerstedtia venusta</i> Iwata, 1954	FI	Rishiri Island and Muroran, Hokkaidô Prefecture; <i>nomen dubium</i> .
<i>Ototyphlonemertes dolichobasis</i> Kajihara, 2007	ZIHU-3200	Ôtsuchi, Iwate Prefecture.
<i>Paranemertes incola</i> Iwata, 1952	FI	Tomioka, Kumamoto Prefecture.
<i>Paranemertes katoi</i> Yamaoka, 1947	U	Shimoda, Shizuoka Prefecture.
<i>Paranemertes plana</i> Iwata, 1957	FI	Sagami Bay, Kanagawa Prefecture.
<i>Pelagonemertes moseleyi</i> Bürger, 1895	?	Sagami Bay, Kanagawa Prefecture.
<i>Polina cervicalis</i> Stimpson, 1857	U	Shimoda, Shizuoka Prefecture; <i>nomen dubium</i> .
<i>Potamostoma shizunaiense</i> Kajihara <i>et al.</i> , 2003	ZIHU-2037	The mouth of the River Shizunai, Hokkaidô Prefecture.
<i>Prostoma ohmiense</i> Chernyshev <i>et al.</i> , 1998	LBM	Lake Biwa, Shiga Prefecture.
<i>Prostoma roseocephalum</i> Yamaoka, 1947	U	Shimoda, Shizuoka Prefecture; now <i>Tetrastemma roseocephalum</i> .
<i>Prostoma speculaculum</i> Yamaoka, 1940	U	Naha and Chinen, Okinawa; now <i>Pantinonemertes speculacula</i> .
<i>Sacconemertella lutulenta</i> Iwata, 1970	FI	Lake Hinuma, Ibaraki Prefecture.
<i>Sacconemertopsis olivifera</i> Iwata, 1970	FI	Lake Hinuma, Ibaraki Prefecture.
<i>Stichostemma grandis</i> Ikeda, 1913	U	Hiroshima Prefecture; <i>nomen dubium</i> .
<i>Tatsnoskia depressa</i> Stimpson, 1857	U	Hakodate, Hokkaidô Prefecture; <i>nomen dubium</i> .
<i>Tetrastemma insolens</i> Iwata, 1952	FI	Tomioka, Kumamoto Prefecture; Fukue, Nagasaki Prefecture.
<i>Tetrastemma pinnatum</i> Iwata, 1954	FI	Akkeshi, Hokkaidô Prefecture.
<i>Tetrastemma stigmatum</i> Stimpson, 1857	U	Hakodate, Hokkaidô Prefecture.
<i>Tetrastemma stimpsoni</i> Chernyshev, 1992	U	Abashiri and Akkeshi, Hokkaidô Prefecture.
<i>Tetrastemma yamaokai</i> Iwata, 1954	FI	Oshoro, Hokkaidô Prefecture.
<i>Tetrastemma verinigrum</i> Iwata, 1954	FI	Oshoro, Hokkaidô Prefecture.
<i>Zygonemertes glandulosa</i> Yamaoka, 1940	U	Akkeshi, Hokkaidô Prefecture.
<i>Zygonemertes jamsteci</i> Kajihara, 2002	ZIHU-1928	Akkeshi, Hokkaidô Prefecture.
<i>Zygonemertesshintai</i> Kajihara, 2002	ZIHU-1296	Oshoro, Hokkaidô Prefecture.
INCERTAE CEDIS		
<i>Dichilus obscurus</i> Stimpson, 1857	U	Amamiôshima, Kagoshima Prefecture; <i>nomen dubium</i> .

Brief History of Taxonomic Research on Japanese Nemerteans

William Stimpson (1832–1872) first reported nemerteans from Japanese waters (Stimpson, 1855). During the cruise of the North Pacific Exploring Expedition (1852–1856), in which Stimpson participated as a naturalist in zoology at the age of 21, he established 15 nominal species of nemerteans from Naha (Okinawa), Kikaishima (Kagoshima), Amamiôshima (Kagoshima), Shimoda (Shizuoka), and Hakodate (Hokkaidô) (Stimpson, 1855, 1857). Regrettably, his nemertean samples were lost in the Great Chicago Fire of 1871, together with his manuscripts, drawings, and other invertebrate collections obtained by the expedition (Nishimura, 1992). Even though Stimpson's descriptions are brief and composed of only a few lines, eight of 15 species of nemerteans he described from Japanese waters are still regarded as valid.

Dr. Albrecht von Roretz (1846–1884), a medical doctor who graduated from the University of Wien, came to Japan towards the end of 1874 as Consultats-Arzt for the Austro-Hungarian embassy in East Asia. From 1875 to 1882, when

Roretz returned to Austria, he made sampling trips to the four major islands in Japan, namely Hokkaidô, Honshû, Shikoku, and Kyûshû. Roretz's Japanese animal collection, now deposited in the Naturhistorisches Museum Wien, Austria, consists of more than 1,450 individuals ranging from sponges to mammals and comprises about 360 species (Nishikawa and Sattmann, 2001). Senz (1997a, 2001) recently described two new species based on nemertean specimens in Roretz's collection.

In 1875 the British Naval research vessel H.M.S. *Challenger* dropped into Japanese harbors in the course of her round-the-world scientific voyage, making collections at about 10 locations in Japanese waters (Tizard *et al.*, 1885). Ambrosius Arnold Willem Hubrecht (1853–1915), Professor of Zoology at Utrecht University, reported the nemerteans obtained during the cruise; his report includes two species of nemerteans collected from Japanese waters (Hubrecht, 1887). One of the major zoological findings made by the *Challenger* expedition is the discovery of bathypelagic nemerteans. The first specimen was found on 7 March 1874 near the southern verge of the South-Australian current and

named *Pelagonemertes rollestoni* by Moseley (1875a). A second specimen, collected on 5 June 1875 off Sagami Bay, was first considered to be a young individual of the same species (Moseley, 1875b), but was later deemed to represent a different species and named *Pelagonemertes moseleyi* by Bürger (1895).

In 1906 the United States Fisheries Commission Steamer *Albatross* visited Japanese waters, with the ichthyologist Charles Henry Gilbert as the Naturalist-in-Charge. The nemerteans among the numerous specimens collected were studied by Coe (1944) and included several new locality records for species already known.

In the same year, 1906, Dr. Harold Heath secured from Mr. Alan Owston six specimens of pelagic nemertean species, which Foshay (1912) later described as *Nectonemertes japonica*.

Usamaro Takakura (1867–1944), Professor of Zoology first at the Higher Normal School (later renamed Tokyo Higher Normal School), then concurrently at Tokyo University of Literature and Science, was the first Japanese expert on nemerteans. Takakura reported 25 species and established 14 new species and one new genus, based primarily upon material from the Pacific coast of Honshū (Takakura, 1897, 1898, 1910, 1922, 1933). Takakura's principal work is his 1898 paper, which contains descriptions of 21 anoplan nemerteans from the vicinity of Misaki. Takakura's nemertean collection appears to have been lost during the relocation of Tokyo University of Education from Tokyo to Tsukuba (Kajihara, 2004).

Teiichi Yamaoka (ca. 1918–1945?) carried out taxonomic studies on nemerteans in his graduate studies under the guidance of Professor Tohru Uchida at Hokkaido Imperial University. After graduating in 1939, he became a researcher at Mitsui Marine Biological Station at Izu before he moved to the capital of Manchuria as a teacher at Shinkyō First Junior High School in 1940. Before he moved to Manchuria, he published two papers in which he reported 23 species (including seven new species) of nemerteans from Japanese waters (Yamaoka, 1904a, b). In addition, he reported two species from Taiwan, of which one was new to science, based on the specimens obtained by Dr. Shirō Okuda (Yamaoka, 1939). Yamaoka also published a paper on the entocommensal species *Malacobdella japonica* Takakura, 1897 in collaboration with Saburō Kawai (Kawai and Yamaoka, 1940) and wrote a chapter on nemerteans in a treatise on systematic zoology (Yamaoka, 1943). When Yamaoka had been a researcher at Mitsui Marine Biological Station, he prepared a manuscript that contained descriptions of several 'new' species, but the manuscript was not published before his death. Later, Dr. Okuda included four of these 'new' species in the *Revised Edition Illustrated Encyclopedia of the Fauna of Japan (Exclusive of Insects)*, with each of the four entries accompanied by a brief description. Crandall *et al.* (2001) argued that these four names are available in terms of the Code (ICZN, 1999), with Yamaoka as the naming authority and the date of publication 1947, the date when the *Encyclopedia* was published. Crandall *et al.* (2001) provided additional information on these four species in Yamaoka's unpublished manuscript, which had been in the care of Dr. Fumio Iwata. Quite recently, the manuscript was posthumously published (Yamaoka, 2005), sub-

mitted by Professor Iwata.

Much of our knowledge of the Japanese nemertean fauna depends upon the works by Dr. Fumio Iwata (b. 1925), Professor Emeritus of Hokkaido University. As with Yamaoka, Fumio Iwata began his nemertean studies under the guidance of Professor Uchida at Hokkaido University. After graduation in 1950, he was appointed as Assistant Professor at Akkeshi Marine Biological Station (Moriyama, 1995). He energetically investigated the nemertean fauna in various regions of Japan, as well as engaged in embryological studies on nemerteans. He published nine nemertean papers (Iwata, 1951, 1952, 1954a, b, c, 1957a, b, 1958, 1960a) before obtaining his doctorate in 1959 with a dissertation on the comparative embryology of nemerteans (Iwata, 1960b), in which he proposed the new order Archinemertea that he considered to be the most primitive group in the phylum. Although adopted by some researchers (e.g., Gibson, 1994), Iwata's (1960b) hypothesis was later questioned by Sundberg and Hylbom (1994), who found no morphological support for the Archinemertea. This group has lost acceptance among other nemertean researchers, since it is now regarded to be a group within the palaeonemerteans (Thollesson and Norenburg, 2003). However, Iwata's (1960b) embryological observations themselves are highly valued and frequently cited by modern researchers (e.g., Maslakova *et al.*, 2004a, b; Nielsen, 2005). After receiving an Associate Professorship in Sapporo in 1963, Iwata wrote the chapter on nemerteans in a treatise on systematic zoology (Iwata, 1965a), descriptions of a parasitic nemertean in bivalves (Iwata, 1967) and three brackish-water nemerteans (Iwata, 1970a), another embryological paper (Iwata, 1972), and the chapter on nemerteans in a treatise on freshwater biology (Iwata, 1973). He was appointed to a Professorship in 1974. Iwata has attended all the international meetings on nemertean biology, held in 1983 (Philadelphia, USA), 1986 (Tjärnö, Sweden), 1991 (Bangor, UK), 1995 (Asilomar, California, USA), 2000 (Alcalá de Henares, Spain), and 2004 (Ogden, Utah, USA), and presented papers (Iwata, 1985, 1988, 1993, 2006). Even after retiring in 1988, Dr. Iwata is still quite active in research (Iwata, 2001).

Other taxonomic works on Japanese nemerteans include papers on freshwater nemerteans by Ikeda (1913), Ishizuka (1933), Sudzuki (1953), and Chernyshev *et al.* (1998); a report on the pelagic species *Pelagonemertes moseleyi* Bürger, 1895 by Kato and Tanaka (1938); Kato's (1939) description of the luminescent nemertean *Emplectonema kandai* Kato, 1939; Oki *et al.*'s (1987) report on the land nemertean *Geonemertes pelaensis* Semper, 1863; and reports on some marine benthic (Kajihara, 2002, 2006, 2007a, b; Kajihara *et al.*, 2000, 2001) and a brackish-water (Kajihara *et al.*, 2003) species.

Classification and Checklist of the Valid Japanese Nemertean Species

The higher classification system adopted here is based on Gibson (1982a, b, 1994), Chernyshev (1995, 2003), and Thollesson and Norenburg (2003).

Phylum NEMERTEA

1) Class PALAEONEMERTEA Hubrecht, 1879

1) Family CALLINERIDAE Bergendal, 1901

- 1) *Callinera nishikawai* Kajihara, 2006
- 2) Family CEPHALOTRICHIDAE McIntosh, 1874
 - 2) *Cephalothrix fasciculus* (Iwata, 1952)
 - 3) *Cephalothrix notabilis* Iwata, 1954
 - 4) *Cephalothrix simula* (Iwata, 1952)
- 3) Family TUBULANIDAE Bürger, 1904 (1874)
 - 5) *Carinesta uchidai* Iwata, 1952
 - 6) *Carinina plecta* Kajihara, 2006
 - 7) *Tubulanus capistratus* (Coe, 1901)
 - 8) *Tubulanus ezoensis* Yamaoka, 1940
 - 9) *Tubulanus lucidus* Iwata, 1952
 - 10) *Tubulanus punctatus* (Takakura, 1898)
 - 11) *Tubulanus roretzi* Senz, 1997
- 2) Class PILIDIOPHORA Thollesson and Norenburg, 2003
 - 4) Family HUBRECHTELLIDAE Chernyshev, 2003
 - 12) *Hubrechtella ijimai* (Takakura, 1922)
 - 13) *Hubrechtella kimuraorum* Kajihara, 2006
 - 14) *Tetramys ramicerebrus* Iwata, 1957
 - 5) Family LINEIDAE McIntosh, 1874
 - 15) *Cerebratulus albocirculus* Iwata, 1957
 - 16) *Cerebratulus carnosus* Takakura, 1898
 - 17) *Cerebratulus communis* Takakura, 1898
 - 18) *Cerebratulus fasciatus* Stimpson, 1857
 - 19) *Cerebratulus formosus* Iwata, 1957
 - 20) *Cerebratulus longiceps* Coe, 1901
 - 21) *Cerebratulus macroren* Hubrecht, 1887
 - 22) *Cerebratulus marginatus* Renier, 1804
 - 23) *Cerebratulus montgomeryi* Coe, 1901
 - 24) *Cerebratulus penniger* Iwata, 1957
 - 25) *Cerebratulus subacutus* (Stimpson, 1857)
 - 26) *Cerebratulus superniger* Iwata, 1957
 - 27) *Cerebratulus zebra* Punnett and Cooper, 1909
 - 28) *Diplopleura japonica* Stimpson, 1857
 - 29) *Euborlasia gotoensis* Iwata, 1952
 - 30) *Euborlasia proterus* Iwata, 1957
 - 31) *Hinumanemertes kikuchii* Iwata, 1970
 - 32) *Iwatanemertes piperata* (Stimpson, 1855)
 - 33) *Lineus alborostratus* Takakura, 1898
 - 34) *Lineus albovittatus* (Stimpson, 1855)
 - 35) *Lineus bipunctatus* Takakura, 1898
 - 36) *Lineus cancelli* Iwata, 1954
 - 37) *Lineus caputornatus* Takakura, 1898
 - 38) *Lineus fulvus* Iwata, 1954
 - 39) *Lineus fuscoviridis* Takakura, 1898
 - 40) *Lineus nigrofuscus* (Stimpson, 1857)
 - 41) *Lineus nigrostriatus* Iwata, 1954
 - 42) *Lineus nipponensis* Senz, 2001
 - 43) *Lineus spatiosus* Iwata, 1954
 - 44) *Lineus subcingulatus* Takakura, 1898
 - 45) *Lineus torquatus* Coe, 1901
 - 46) *Micrura akkeshiensis* Yamaoka, 1940
 - 47) *Micrura alaskensis* Coe, 1901
 - 48) *Micrura bella* (Stimpson, 1857)
 - 49) *Micrura dorsovittata* Takakura, 1898
 - 50) *Micrura japonica* Iwata, 1952
 - 51) *Micrura magna* Yamaoka, 1940
 - 52) *Micrura multinotata* Iwata, 1957
 - 53) *Nipponomicrura uchidai* (Yamaoka, 1940)
 - 54) *Notospermus geniculatus* (Delle Chiaje, 1828)
 - 55) *Paralineopsis taki* Iwata, 1993
 - 56) *Uchidana parasita* Iwata, 1967
- 6) Family VALENCINIIDAE Hubrecht, 1879
 - 57) *Baseodiscus curtus* (Hubrecht, 1879)
 - 58) *Baseodiscus delineatus* (Delle Chiaje, 1825)
 - 59) *Baseodiscus hemprichii* (Ehrenberg, 1831)
 - 60) *Baseodiscus nipponensis* (Hubrecht, 1887)
 - 61) *Baseodiscus princeps* (Coe, 1901)
 - 62) *Baseodiscus quinquelineatus* (Quoy and Gaimard, 1833)
 - 63) *Cephalomastax brevis* Iwata, 1957
- 3) Class HOPLOMERTEA Hubrecht, 1879
 - 1) Subclass MONOSTILIFERA Brinkmann, 1917
 - 7) Family AMPHIPORIDAE McIntosh, 1874
 - 64) *Amphiporus antifuscus* Iwata, 1954
 - 65) *Amphiporus formidabilis* Griffin, 1898
 - 66) *Amphiporus gelatinosus* Coe, 1905
 - 67) *Amphiporus imparispinosus* Griffin, 1898
 - 68) *Amphiporus insolitus* Iwata, 1954
 - 69) *Amphiporus musculus* Iwata, 1954
 - 70) *Amphiporus parvus* Yamaoka, 1940
 - 71) *Amphiporus reduncus* Iwata, 1957
 - 72) *Amphiporus regius* Iwata, 1954
 - 73) *Amphiporus retrotumidus* Iwata, 1957
 - 74) *Potamostoma shizunaiense* Kajihara, Gibson and Mawatari, 2003
 - 75) *Zygonemertes glandulosa* Yamaoka, 1940
 - 76) *Zygonemertes jamsteci* Kajihara, 2002
 - 77) *Zygonemertesshintai* Kajihara, 2002
 - 8) Family CARCINONEMERTIDAE Sumner, Osburn and Cole, 1913
 - 78) *Carcinonemertes mitsukurii* Takakura, 1910
 - 9) Family CRATENEMERTIDAE Friedrich, 1968
 - 79) *Nipponnemertes bimaculata* (Coe, 1901)
 - 80) *Nipponnemertes ogumai* (Yamaoka, 1947)
 - 81) *Nipponnemertes punctatula* (Coe, 1905)
 - 10) Family EMPLECTONEMATIDAE Bürger, 1904
 - 82) *Emplectonema buergeri* Coe, 1901
 - 83) *Emplectonema gracile* (Johnston, 1837)
 - 84) *Emplectonema kandai* Kato, 1939
 - 85) *Emplectonema mitsuui* Yamaoka, 1947
 - 86) *Nemertopsis mitellicola* Kajihara, 2007
 - 87) *Nemertopsis quadripunctata* (Quoy and Gaimard, 1833)
 - 88) *Paranemertes incola* Iwata, 1952
 - 89) *Paranemertes katoi* Yamaoka, 1947
 - 90) *Paranemertes peregrina* Coe, 1901
 - 91) *Paranemertes plana* Iwata, 1957
 - 11) Family MALACOBDELLIDAE Blanchard, 1847
 - 92) *Malacobdella japonica* Takakura, 1897
 - 12) Family OTOTYPHLOMERTIDAE Bürger, 1895
 - 93) *Ototyphlonemertes dolichobasis* Kajihara, 2007
 - 94) *Ototyphlonemertes martynovi* Chernyshev, 1993
 - 95) *Ototyphlonemertes nikolaii* Chernyshev, 1998
 - 13) Family POSEIDONEMERTIDAE Chernyshev, 2002
 - 96) *Diopsonemertes acanthocephala* Kajihara, Gibson and Mawatari, 2001
 - 14) Family PROSORHOCHMIDAE Bürger, 1895
 - 97) *Geonemertes pelaensis* Semper, 1863
 - 98) *Pantinonemertes spectacula* (Yamaoka, 1940)

- 15) Family TETRASTEMMATIDAE Hubrecht, 1879
 99) *Nemertellina yamaokai* Kajihara, Gibson and Mawatari, 2000
 100) *Oerstedia dorsalis* (Abildgaard, 1806)
 101) *Oerstedia polyorbis* Iwata, 1954
 102) *Prostoma ohmiense* Chernyshev, Timoshkin and Kawakatsu, 1998
 103) *QuasitetraSTEMMA nigrifrons* (Coe, 1904)
 104) *QuasitetraSTEMMA stimpsoni* (Chernyshev, 1992)
 105) *Sacconemertella lutulenta* Iwata, 1970
 106) *Sacconemertopsis olivifera* Iwata, 1970
 107) *TetraSTEMMA candidum* (Müller, 1774)
 108) *TetraSTEMMA insolens* Iwata, 1952
 109) *TetraSTEMMA melanocephalum* (Johnston, 1837)
 110) *TetraSTEMMA pinnatum* Iwata, 1954
 111) *TetraSTEMMA pseudocoronatum* Chernyshev, 1998
 112) *TetraSTEMMA roseocephalum* (Yamaoka, 1947)
 113) *TetraSTEMMA stigmatum* Stimpson, 1857
 114) *TetraSTEMMA verinigrum* Iwata, 1954
 115) *TetraSTEMMA yamaokai* Iwata, 1954
 2) Subclass POLYSTILIFERA Brinkmann, 1917
 1) Order REPTANTIA Brinkmann, 1917
 16) Family DREPANOPHORIDAE Verrill, 1892
 116) *Drepanophorus longiceps* Iwata, 1957
 117) *Kameginemertes parmiornata* (Iwata, 1957)
 17) Family SAGAMINEMERTIDAE Chernyshev, 2003
 118) *Sagaminemertes nagaiensis* (Iwata, 1957)
 2) Order PELAGICA Brinkmann, 1917
 18) Family NECTONEMERTIDAE Verrill, 1892
 119) *Nectonemertes japonica* Foshay, 1912
 19) Family PELAGONEMERTIDAE Moseley, 1875
 120) *Pelagonemertes moseleyi* Bürger, 1895

Taxonomic Catalogue of Japanese Nemerteans

The entries in the synonymy for each species are arranged chronologically. For convenience, each authority in the synonymy is indicated in bold letters. Bibliographic information is given in the synonymy for both primary and secondary literature. For primary literature, such information as locality, habitat, and date of collection are also provided. The prefecture of each locality is given, to facilitate relocation and avoid confusion by synonymy of place names. Where applicable, a long vowel in place names is marked by a macron (e.g., Ê, â), to avoid confusion between, e.g., "Ôshima" and "Oshima." The literature covered includes not only taxonomic papers, but also those on ecology and biochemistry, pictorial books, faunal reports, and field guides. Japanese common names that have previously been assigned are indicated for a number of species, but no attempt has been made to create new Japanese names for the remaining species. The following abbreviations are used to indicate museum depositories of specimens:

NHMW-EV: Naturhistorisches Museum Wien, Evertebrata-Varia, Wien, Austria.

USNM: National Museum of Natural History, Smithsonian Institution, Washington, D.C., USA.

ZIHU: Hokkaido University Museum, Sapporo, Japan.

Phylum NEMERTEA Class PALAEONEMERTEA Hubrecht, 1879 Family CALLINERIDAE Bergendal, 1901 Genus *Callinera* Bergendal, 1900

Callinera Bergendal, 1900: 313.

TYPE SPECIES: *Callinera buergeri* Bergendal, 1900, by monotypic designation.

Callinera nishikawai Kajihara, 2006

Callinera nishikawai Kajihara, 2006: 17–27, figs. 11–14; sandy to muddy tidal flat, 34°41'04"N, 137°35'59"E, Ikarise, Hamanako Lake, Shizuoka Prefecture.

TYPE MATERIAL: Holotype, ZIHU-3133, 12 May 2002, collected by Taeko Kimura, Sho-ichi Kimura, and Teruaki Nishikawa, female, 6-µm serial transverse sections of an anterior body fragment about 1.5 cm in length and 0.8–1.0 mm in width, fixed in Bouin's fluid without anaesthetization.

NOTE: The species was described on the basis of a fixed anterior fragment of the body, and the shape of the living animal is unknown.

Family CEPHALOTRICHIDAE McIntosh, 1874

NOTE: Although the family name was incorrectly spelled as "Cephalotrichidae" when established, the correct spelling of the family name should be "Cephalotrichidae" under Article 29.3 of the Code (ICZN, 1999), for the name of its type genus *Cephalothrix* gives the genitive singular "Cephalotrichos," and thus the stem "Cephalotrich-." Article 29.5 of the Code (ICZN, 1999) is not applicable, since the correct spelling has been widely used, e.g., by Bürger (1895: 533, 1904: 16), Wijnhoff (1913: 294), Coe (1930: 97, 1940: 257), Yamaoka (1940a: 215), Hylbom (1957: 553, 1993: 173), Moretto (1974: 9), Chernyshev (2004a: 152) and Tanu *et al.* (2004: 515).

Genus *Cephalothrix* Örsted, 1843

Cephalothrix Örsted, 1843: 573.

Procephalothrix Wijnhoff, 1913: 294; synonymized by Sundberg *et al.* (2003).

Cephalotrichella Wijnhoff, 1913: 298; synonymized by Sundberg *et al.* (2003).

TYPE SPECIES: *Cephalothrix coeca* Örsted, 1843, now regarded as a junior synonym of *Planaria linearis* Rathke, 1799 (Bürger, 1904), by subsequent designation.

NOTE: Gibson's (1995) assignment and Sundberg *et al.*'s (2003) statement of *Cephalothrix linearis* (Rathke, 1799) as the type species of the genus are irrelevant in terms of Articles 67.1.2 and 67.2 of the Code (ICZN, 1999), because the genus *Cephalothrix* contained only two nominal species, *Cephalothrix bioculata* and *Cephalothrix coeca*, when it was originally established.

Cephalothrix fasciculus (Iwata, 1952)

Procephalothrix fasciculus Iwata, 1952: 130, figs. 2, 8; under stones on stony beach near low-water level, Tomioka, Amakusa, Kumamoto Prefecture.

Procephalothrix fasciculus [sic]: Crandall *et al.*, 2002: 14, 16, 29, 36, 41.

NOTE: The species was originally classified in the genus *Procephalothrix*, which has been synonymized with *Cephalothrix* by Sundberg *et al.* (2003: 292); now it should be

known as *Cephalothrix fasciculus*. The species is characterized by the posterior end of its rhynchocoel reaching the hind end of the body. This character state is absent among its congeners and has only been recorded in this species. At the same time, however, this character state can be erroneously identified by misinterpretation of a body fragment as an intact specimen. If the anus cannot be confirmed in the holotype specimen, the name of the nominal species *Procephalothrix fasciculus* should be regarded as a *nomen dubium*.

***Cephalothrix notabilis* Iwata, 1954**

[Japanese name: shirayuki-himomushi or kita-hoso-himomushi]
Cephalothrix notabilis Iwata, 1954a: 8, fig. 1C, E, F; under stones near low-water level on stony beach, Akkeshi, Hokkaidō Prefecture. Yamaguchi and Yamada, 1955: 65. Uchida et al., 1963: 17. Iwata, 1965a: 201. Iwata, 1992: 196, fig. 7-2A. Iwata, 1997: 55. Crandall et al., 2002: 10, 16, 26, 33.

***Cephalothrix simula* (Iwata, 1952)**

[Japanese name: akahana-himomushi]

Procephalothrix simulus [sic] Iwata, 1952: 132; under stones near low-water level, Fukue, Gotō Islands, Nagasaki Prefecture; non *Procephalothrix simula sensu* Iwata (1954a), nec *Cephalothrix linearis sensu* Yamaoka (1940).

NOTE: The species was originally classified in the genus *Procephalothrix*, which was synonymized with *Cephalothrix* by Sundberg et al. (2003: 292); now it should be known as *Cephalothrix simula*. Iwata (1954a) synonymized *Cephalothrix linearis sensu* Yamaoka (1940) and *Procephalothrix simula sensu* Iwata (1954a) with *Procephalothrix simula sensu* Iwata (1952). *Cephalothrix* (= *Procephalothrix*) *simula sensu* Iwata (1952) is characterized by the absence between the rhynchocoel and alimentary canal of a longitudinal muscle plate (Iwata, 1952), which, however, is present in *Cephalothrix linearis sensu* Yamaoka (1940a) and *Procephalothrix simula sensu* Iwata (1954a). Therefore, I hesitate to apply the name *Cephalothrix simula* to the taxon to which the latter two authors referred. See NOTE under *Cephalothrix linearis*.

Family TUBULANIDAE Bürger, 1904 (1874)

NOTE: In response to Melville's (1986) proposal, ICZN (1988) ruled under Article 40b of the third edition of the Code (ICZN, 1985) that the name Tubulanidae has precedence over, but takes the date of, its senior subjective synonym Carinellidae. In his proposal, Melville (1986) stated that the name *Carinella trilineata* "has been regarded as a synonym of *Tubulanus polymorphus* since at least 1905," referring to Bürger (1897–1907), and that the family Tubulanidae "should be cited with the date '1905 (1874).'" The ICZN's ruling, basically following Melville's proposal, states that "the name Tubulanidae Bürger, 1905 (1874) ... is hereby placed on the Official List of Family-Group Names in Zoology." Bürger's (1897–1907) book was published in six different parts, and Melville (1986) was quite correct in that the relevant part about the replacement of Carinellidae with Tubulanidae was published in 1905 (pp. 401, 402, 405). However, the name Tubulanidae had already appeared prior to 1905 in Bürger (1904). Thus the family

name should be cited as "Tubulanidae Bürger, 1904 (1874)," with the date of priority being enclosed in parentheses in accordance with Recommendation 40A of the Code (ICZN, 1985, 1999).

Genus *Carinesta* Punnett, 1900

Carinesta Punnett, 1900: 569.

TYPE SPECIES: *Carinesta orientalis* Punnett, 1900 by monotypic designation.

***Carinesta uchidai* Iwata, 1952**

[Japanese name: kensaki-himomushi]

Carinesta uchidai Iwata, 1952: 128, fig. 7; under stones near low-water level, Fukue, Gotō Islands, Nagasaki Prefecture. Iwata, 1960c: 166, pl. 83, fig. 2. Iwata, 1965a: 201. Iwata, 1965b: 391, figs. a, b. Iwata, 1992: 197. Crandall et al., 2002: 10, 16, 26, 33.

NOTE: Sundberg and Hylbom's (1994) cladistic analysis based on morphological characters shows that the genus *Carinesta* is a polyphyletic group and that *Carinesta uchidai* comprises a monophyletic group together with members of the family Cephalotrichidae. The generic placement of this species, as well as the taxonomic status of the genus *Carinesta*, requires reassessment.

Genus *Carinina* Hubrecht, 1885

Carinina Hubrecht, 1885: 830.

Procarinina Bergendal, 1902: 422; synonymized by Hylbom (1957).

TYPE SPECIES: *Carinina grata* Hubrecht, 1887, by monotypic designation; Hubrecht (1885) did not designate the type species when he erected the genus *Carinina*.

***Carinina plecta* Kajihara, 2006**

Carinina plecta Kajihara, 2006: 5–16, figs. 3–10; sandy to muddy tidal flat, 34°41'04"N, 137°35'59"E, Ikarise, Hamanako Lake, Shizuoka Prefecture.

TYPE MATERIAL: Holotype, ZIHU-3123, 31 July 2003, female; serial transverse (6 μm thick) and longitudinal (10 μm thick) sections of a fragment containing the head; total 116 slides.

Genus *Tubulanus* Renier, 1804

Tubulanus Renier, 1804: 20.

Carinella Johnston, 1833: 232; synonymized by Bürger (1904).

TYPE SPECIES: *Tubulanus polymorphus* Renier, 1804 by monotypic designation.

***Tubulanus capistratus* (Coe, 1901)**

Tubulanus capistratus: Coe, 1944: 27, "One specimen nearly a meter in length was collected by the *Albatross* in 1906 near Hakodate, Japan." Crandall et al., 2002: 15, 16, 30, 37, 42.

NOTE: Originally described as *Carinella capistrata* by Coe (1901: 16) from Orca and Virgin Bay in Prince William Sound, Alaska; transferred to the genus *Tubulanus* by Coe (1940: 255). Apart from the record from Japan, the species is known to be distributed along the Pacific coast of North America (Gibson, 1995: 316).

***Tubulanus ezoensis* Yamaoka, 1940**

[Japanese name: ezo-himomushi]

Tubulanus ezoensis **Yamaoka**, 1940a: 212–215, pl. XIV, figs. 3, 4, text figs. 3, 4; lower intertidal under stones, Daikokujima, Akkeshi, Hokkaidō Prefecture. **Okuda**, 1947: 1474, fig. 4158. **Iwata**, 1954a: 6. **Yamaguchi and Yamada**, 1955: 64. **Uchida et al.**, 1963: 17. **Okuda and Iwata**, 1965: 390; figs. a–c. **Crandall et al.**, 2002: 15, 16, 30, 37, 42.

NOTE: *Tubulanus ezoensis* has long been known only by Yamaoka's (1940) original description (Iwata, 1954a). Although the type material appears to have been lost (see "Brief History..."), some additional specimens referable to *T. ezoensis* were recently collected from the type locality (Kajihara, pers. obs.).

***Tubulanus lucidus* Iwata, 1952**

Tubulanus lucidus **Iwata**, 1952: 126–128, figs. 1, 6; lower intertidal under stones, Fukue Island, Gotō Islands, Nagasaki Prefecture. **Crandall et al.**, 2002: 15, 16, 30, 37. NOTE: Sundberg and Hylbom's (1994) cladistic analysis based on morphological characters indicates that this species is the sister taxon to hubrechtids, appearing in a clade which is different from that containing other *Tubulanus*, including the type species. The generic placement of this taxon thus needs reassessment.

***Tubulanus punctatus* (Takakura, 1898)**

[Japanese name: kurige-himomushi or kugi-himomushi]

Carinella punctata **Takakura**, 1898: 117–118, fig. 3; sublittoral from 2–3 fathoms depth, Jōgashima, Kanagawa Prefecture.

Tubulanus punctatus: **Kaburaki**, 1927: 1662, fig. 3180. **Yamaoka**, 1940a: 208–212, pl. XIV, figs. 1, 2, text figs. 1, 2; from lower intertidal under stones and in rock crevices to sublittoral among mud, Hokkaidō Prefecture (Akkeshi, Ochiishi, Nemuro, Abashiri, Usu and Muroran). **Kaburaki**, 1947: 1474, fig. 4157. **Iwata**, 1954a: 5; lower intertidal under stones, Hokkaidō Prefecture (Akkeshi, Muroran, Oshoro, Rishiri Island and Monbetsu). **Iwata**, 1954b: 34; habitat not recorded, northern coast near the Seto Marine Biological Laboratory, Wakayama Prefecture. **Yamaguchi and Yamada**, 1955: 64. **Utinomi**, 1956: 31; pl. 16, fig. 1. **Iwata**, 1960a: 96, fig. 2. **Iwata**, 1960b: 19–25, figs. 62–91; intertidal, Akkeshi, Hokkaidō Prefecture. **Iwata**, 1960c: 166, pl. 83, fig. 1. **Utinomi**, 1960: 31, pl. 16, fig. 1. **Satō and Itō**, 1961: 187, fig. 7.1.1. **Uchida et al.**, 1963: 17. **Iwata**, 1965a: 169, 201. **Iwata**, 1965b: 390, one figure. **Shiino**, 1969: 94, fig. 9-3A. **Utinomi**, 1969: 31, pl. 16, fig. 1. **Okada et al.**, 1971: 62. **Uchida et al.**, 1972: 62. **Kito**, 1975: 149; among the holdfasts of *Sargassum confusum*, Oshoro, Hokkaidō Prefecture. **Honma and Kitami**, 1978: 14; Sado Island, Niigata Prefecture. **Iwata**, 1983: 181, 182, figs. 8-5g, h, i, 8-13b. **Hieda and Takahashi**, 1986: 41, with two color photographs of a specimen taken in Yakumo, Hokkaidō Prefecture. **Inaba**, 1988: 225; lower intertidal to shallow sublittoral, under stones on gravelly to rocky shores, found rarely in the Inland Sea of Seto. **Miyazawa et al.**, 1988: 867–874; intertidal, habitat unknown, Hiroshima Prefecture (Iwashijima and Mukaishima), Yugesima, Ehime Prefecture, identified by Dr. T.

Hoshino, Mukaishima Marine Biological Station, Hiroshima University. **Iwata**, 1992: 196, pl. 44-1, fig. 7-2B. **Iwata**, 1997: 53 (with a color photograph taken in life by Fumio Iwata), 55. **Shimomura et al.**, 2001: 46; dredged sublittorally from two sites in Ōtsuchi Bay, Iwate Prefecture; 39°21'01"N, 141°58'31"E, 58.7 m depth, mixture of sand and shell debris; 39°20'43"N, 141°57'43"E, 49.0 m depth, muddy sand. **Crandall et al.**, 2002: 15, 16, 30, 37, 42.

NOTE: Apart from the records from Japanese waters, *Tubulanus punctatus* is also known from Posjet Bay (Peter the Great Bay) (Korotkevitch, 1971), Sakhalin, the Kuril Islands and Kamchatka Peninsula (Korotkevitch, 1982), Vostok Bay (Kulikova, 1988), and Shandon Province (Qingdao, Huangdao, and Jiaonan), China (Yin et al., 1988).

***Tubulanus roretzi* Senz, 1997**

Tubulanus roretzi **Senz**, 1997a: 424–430, figs. 1-4; locality and habitat unknown.

TYPE MATERIAL: Holotype, NHMW-EV 3565/1886; paratype, NHMW-EV 3566–3573.

NOTE: The material was collected by Dr. Albrecht von Roretz during his stay in Japan from 1874–1882.

Class PILIDIOPHORA Tholleson and Norenburg, 2003
Family HUBRECHTELLIDAE Chernyshev, 2003
Genus *Hubrechtella* Bergendal, 1902

Hubrechtella Bergendal, 1902: 9.

Coeia Takakura, 1922: 419; synonymized by Kajihara (2006).

TYPE SPECIES: *Hubrechtella dubia* Bergendal, 1902, by monotypic designation.

***Hubrechtella ijimai* (Takakura, 1922)**

[Japanese name: ijima-himomushi]

Coeia ijimai **Takakura**, 1922: 419–422, two figs.; among sandy gravel on beach, Enoura Bay, Shizuoka Prefecture and Tateyama Bay, Chiba Prefecture. **Crandall et al.**, 2002: 10, 16, 27, 34.

Coia [sic] *ijimai*: **Iwata**, 1960c: 166, pl. 83, fig. 3. **Iwata**, 1965a: 201. **Iwata**, 1965b: 391, figs. 6a, b; under stones on sandy beach in Asamushi, Aomori Prefecture, Onagawa, Miyagi Prefecture, Usa, Kōchi Prefecture, and Fukue, Nagasaki Prefecture. **Tsuchiya**, 1979: 82; intertidal, Hadakajima Island, Asamushi Aomori Prefecture. **Iwata**, 1992: 197, fig. 7-3B.

Hubrechtella ijimai: **Kajihara**, 2006: 28–37, figs. 15–19; sandy to muddy tidal flat, 34°41'04"N, 137°35'59"E, Ikarise, Hamanako Lake, Shizuoka Prefecture.

***Hubrechtella kimuraorum* Kajihara, 2006**

Hubrechtella kimuraorum **Kajihara**, 2000: 37–43, figs. 20–23; sandy to muddy tidal flat, 34°41'04"N, 137°35'59"E, Ikarise, Hamanako Lake, Shizuoka Prefecture.

TYPE MATERIAL: Holotype, ZIHU-3127, male, 1 August 2003, 72 slides, 6-μm serial transverse sections of the body except in the middle portion.

Genus *Tetramys* Iwata, 1957

Tetramys Iwata, 1957a: 2.

TYPE SPECIES: *Tetramys ramicerbrus* Iwata, 1957 by monotypic designation.

NOTE: Cladistic analyses by Sundberg and Hylbom (1994) and Sundberg *et al.* (2003) based on morphological characters indicate that the genus appears to be synonymous with *Hubrechtella*.

***Tetramys ramicerebrus* Iwata, 1957**

[Japanese name: miura-himomushi]

Tetramys ramicerebrum [sic] **Iwata**, 1957a: 3–5, pl. I, fig. 1, pl. II, figs. 1–6; dredged sublittorally from 20 m depth on 9 February 1955 by His Majesty Emperor Shōwa, sediment type not recorded, Higashiōne, Sagami Bay, Kanagawa Prefecture. **Iwata**, 1965a: 201. **Iwata**, 1965b: 391, figs. a–d. *Tetramys ramicerebrus*: **Crandall et al.**, 2002: 14, 16, 29, 41.

Family LINEIDAE McIntosh, 1874

Genus *Cerebratulus* Renier, 1804

Cerebratulus Renier, 1804: 21.

Meckelia Leuckart, 1828: 17; synonymized by Hubrecht (1879) (in part).

TYPE SPECIES: *Cerebratulus marginatus* by subsequent designation of Gibson (1995).

***Cerebratulus albocirculus* Iwata, 1957**

Cerebratulus albocirculus **Iwata**, 1957a: 17–18, pl. I, fig. 7, pl. V, figs. 6, 7; “Mosaki at Kamezyo,” dredged sublittorally from 10 m depth on 23 July 1956 by His Majesty Emperor Shōwa, Sagami Bay, off Kanagawa Prefecture. **Crandall et al.**, 2002: 10, 17, 26, 38.

NOTE: The place indicated by the name “Mosaki at Kamezyo” in Iwata’s (1957a) original description is uncertain. One possible candidate in Sagami Bay is “Kamegishō,” a bank located at approximately 139°35’N, 35°12’E.

***Cerebratulus carnosus* Takakura, 1898**

Cerebratulus L.C. *arnosus* [sic] **Takakura**, 1898: 426, fig. 23; mud, Misaki Harbour and Koajiro Bay, Kanagawa Prefecture.

Cerebratulus arnosus: **Crandall et al.**, 2002: 10, 17, 26, 33.

NOTE: The abbreviation “L.C.,” most probably denoting “lower-case letters,” was mistakenly inserted between the generic and specific names in the original publication, with the initial “c” dropped from “*carnosus*” (=Latin, meaning “fleshy”), which refers to the body coloration of the species treated in the original description. The original spelling *arnosus* is incorrect, due to a printer’s error, according to Article 32.5 of the Code (ICZN, 1999) (Crandall, pers. comm.).

***Cerebratulus communis* Takakura, 1898**

[Japanese name: nami-himomushi]

Cerebratulus L.C. *ommunis* [sic] **Takakura**, 1898: 425, fig. 22 (originally numbered as fig. 20); intertidal in sandy mud, Misaki Harbour, Koajiro Bay, Bishamon Bay, and Matsuwa Bay, Kanagawa Prefecture.

Cerebratulus communis: **Kaburaki**, 1927: 1666, fig. 3189.

Kaburaki, 1947: 1471, fig. 4149. **Iwata**, 1952: 140–141, fig. 5; lower intertidal among sandy mud, Tomioka, Amakusa, Kumamoto Prefecture. **Utinomi**, 1956: 31, pl. 16, fig. 6. **Iwata**, 1960c: 169, pl. 84, fig. 6; Asamushi,

Aomori Prefecture. **Utinomi**, 1960: 31, pl. 16, fig. 6. **Inaba**, 1963: 228; lower intertidal on sandy to muddy shores or under stones on gravelly to rocky shore, commonly found in the Inland Sea of Seto. **Kikuchi**, 1968: 167; among *Zostera marina*, Tomioka Bay, Amakusa, Kumamoto Prefecture. **Utinomi**, 1969: 31, pl. 16, fig. 6. **Inaba**, 1988: 225; lower intertidal on sandy to muddy shores or under stones on gravelly to rocky shores, commonly found in the Inland Sea of Seto. **Crandall et al.**, 2002: 10, 17, 24, 26, 33.

Cerebratulus comunis [sic]: **Kaburaki and Iwata**, 1965: 395, with one figure.

NOTE: As in the case with *Cerebratulus arnosus*, a nomenclatural consideration is required as to the correct spelling of the species name. The species has been also recorded from Alaid Island, northern Kurile Islands (Takakura, 1933).

***Cerebratulus fasciatus* Stimpson, 1857**

Cerebratulus fasciatus **Stimpson**, 1857: 161; obtained sublittorally from sandy to stony bottoms of about 7.4 m depth, Hokkaidō Prefecture. Originally recorded as “Apud oras insulae ‘Jesso’ Japoniae Borealis; in fundo arenoso-limoso profunditatis 4 orgyiarum” (near the region of Hokkaidō Island, northern Japan; in a bottom of muddy sand at a depth of 7.4 m). **Iwata**, 1954a: 14. **Yamaguchi and Yamada**, 1955: 67. **Crandall et al.**, 2002: 10, 17, 26, 38.

***Cerebratulus formosus* Iwata, 1957**

Cerebratulus formosus **Iwata**, 1957a: 15–17, pl. I, fig. 4, pl. V, figs. 1–5; dredged sublittorally from 100 m depth on 13 December 1952 by His Majesty Emperor Shōwa, Nakafukari at Hayama, Sagami Bay, off Kanagawa Prefecture. **Crandall et al.**, 2002: 10, 17, 26, 38.

***Cerebratulus longiceps* Coe, 1901**

Cerebratulus longiceps: **Coe**, 1944: 29, obtained by the United States Bureau of Fisheries Steamer *Albatross*, 250 m depth, off Ōshima, the Metropolis of Tōkyō. **Crandall et al.**, 2002: 10, 17, 27, 38.

NOTE: *Cerebratulus longiceps* was originally described from Yakutat, Alaska, USA, by Coe (1901: 77). The species is so far only known from Coe’s (1901, 1944) records.

***Cerebratulus macroren* Hubrecht, 1887**

Cerebratulus macroren **Hubrecht**, 1887: 46–47, pl. I, figs. 13, 14, 18, 19, pl. X, figs. 8, 9, pl. XI, fig. 11, pl. XII, figs. 1, 2, 7, 8, pl. XIII, figs. 7–9, pl. XIV, figs. 7, 8, 11, pl. XV, figs. 2, 3, 19, text fig. 4; sublittoral from 345 fathoms (about 640 m) depth on green mud, collected on 12 May 1875 by H.M.S. *Challenger*, 35°11’00”N, 139°28’00”E, Sagami Bay, off Kanagawa Prefecture.

***Cerebratulus marginatus* Renier, 1804**

[Japanese name: orochi-himomushi]

Cerebratulus marginatus: **Yamaoka**, 1940a: 222–224, pl. XV, figs. 6–8, text fig. 9; lower intertidal or sublittoral in soft mud or among fine sand under stones, Akkeshi, Hokkaidō Prefecture. **Coe**, 1944: 29. **Okuda**, 1947: 1472, fig. 4150. **Iwata**, 1954a: 14; sublittoral among soft mud, Hokkaidō Prefecture (Akkeshi, Kushiro and Nemuro); sublittoral among soft mud, Misaki, Kanagawa Prefecture. **Iwata**,

1954b: 37; sublittoral, obtained by trawling off the coast of the Kii Peninsula, Wakayama Prefecture. **Yamaguchi and Yamada**, 1955: 66. **Iwata** 1957a: 11–12, pl. I, fig. 6; dredged sublittorally from 200–280 m depth on 5 February 1955 by His Majesty Emperor Shōwa, “Southern Maruyamadashi at Aamadaiba” [sic], Sagami Bay, Kanagawa Prefecture. **Iwata**, 1960c: 169, pl. 84, fig. 5. **Uchida et al.**, 1963: 17. **Iwata**, 1965a: 169, 201. **Satō and Itō**, 1961: 187, fig. 7.1.5. **Okuda and Iwata**, 1965: 385, figs. a, b. **Shiino**, 1969: 94, fig. 9-3B-D. **Honma and Kitami**, 1978: 15; Sado Island, Niigata Prefecture. **Iwata**, 1992: 198, fig. 7-2D. **Iwata**, 1997: 55. **Shimomura et al.**, 2001: 46; obtained from a sediment of mixed sand, mud, and shell debris at a depth of 64 m, 39°23.363'N, 141°58.971'E, Ōtsuchi Bay, Iwate Prefecture. **Crandall et al.**, 2002: 10, 17, 24, 27, 38.

NOTE: *Cerebratulus marginatus* Renier, 1804 was originally described from the Adriatic Sea, Italy (presumably Padua). Apart from the records in Japanese waters, the species is also reported from the Pacific coast of North America (Alaska to California), the western North Atlantic (Greenland, Labrador, and Cape Cod southwards under the off-shore Arctic current), the Arctic (King Charles Land, Bremer Sound, Hinlopen Strait, Spitzbergen), Europe (Norway, the British Isles, the Mediterranean), and south to Madeira (Gibson, 1995: 340).

***Cerebratulus montgomeryi* Coe, 1901**

Cerebratulus montgomeryi: **Coe**, 1944: 29; obtained by the United States Bureau of Fisheries Steamer *Albatross*, 600 m depth, off Hokkaidō. **Crandall et al.**, 2002: 10, 17, 24, 27, 34, 38.

NOTE: Originally described from Alaska by Coe (1901: 80), *Cerebratulus montgomeryi* is distributed along Pacific coast of North America, the Aleutian Islands, Bering Sea, coast of Siberia, Japan Sea coasts of Russia, and Japan (Kulikova, 1988; Gibson, 1995: 341).

***Cerebratulus penniger* Iwata, 1957**

Cerebratulus penniger **Iwata**, 1957a: 13–14, pl. I, fig. 3, pl. IV, figs. 4–6; dredged sublittorally from 380 m depth on 28 September 1953 by His Majesty Emperor Shōwa, Nakafukari at Hayama, Sagami Bay, off Kanagawa Prefecture. **Crandall et al.**, 2002: 10, 17, 27, 38.

***Cerebratulus subacutus* (Stimpson, 1857)**

Meckelia subacuta **Stimpson**, 1857: 161; intertidal in mud, Naha, Okinawa Prefecture. Originally recorded as “In portu ‘Napa’ insulae ‘Loo Choo,’ littoralis in limo”; transferred to *Baseodiscus* by Bürger (1904: 120).

Cerebratulus subacutus: **Crandall et al.**, 2002: 10, 17, 30, 34.

***Cerebratulus superniger* Iwata, 1957**

Cerebratulus superniger **Iwata**, 1957a: 14–15, pl. I, fig. 5, pl. IV, figs. 7, 8; collected by His Majesty Emperor Shōwa from a depth of 10 m on 10 January 1930, “Ithishiki at Hayama” [sic], off Kanagawa Prefecture. **Crandall et al.**, 2002: 10, 17, 27, 39.

***Cerebratulus zebra* Punnett and Cooper, 1909**

Cerebratulus zebra: **Iwata**, 1957a: 12–13; dredged sublittorally

from 410 m depth on 16 July 1940 by His Majesty Emperor Shōwa, “Aamadaiba” [sic], Sagami Bay, off Kanagawa Prefecture. **Crandall et al.**, 2002: 10, 17, 27, 39.

NOTE: *Cerebratulus zebra* was originally described from Sri Lanka (Punnett and Cooper, 1909: 11). The species is currently known only from the two localities, Sri Lanka and Japan.

Genus *Diplopleura* Stimpson, 1857

Diplopleura Stimpson, 1857: 162.

Langia Hubrecht, 1879: 220; synonymized by Verrill (1895: 528).

TYPE SPECIES: *Diplopleura japonica* Stimpson, 1857 by monotypic designation.

NOTE: The genus *Diplopleura*, currently containing five nominal species, was established only on the basis of external characters, in which the lateral margins of the body are dorsally curled up.

***Diplopleura japonica* Stimpson, 1857**

[Japanese name: hida-himomushi]

Diplopleura japonica **Stimpson**, 1857: 162; shallow sublittoral in sandy bottom of 5 orgyia (=5 fathoms=9.3 m) depth, Kagoshima Bay, Kagoshima Prefecture. **Iwata**, 1965a: 201. **Crandall et al.**, 2002: 11, 17, 27, 39.

NOTE: *Diplopleura japonica* has not been reported since its original description. Stimpson’s specimen was light yellowish chestnut in color, measured 1.5 “pollex” (=1.5 inch=3.8 cm) in length and 0.12 “pollex” (=0.12 inch=0.3 cm) in width.

Genus *Euborlasia* Vaillant, 1890

Euborlasia Vaillant, 1890: 616.

TYPE SPECIES: *Borlasia elizabethae* McIntosh, 1874 by monotypic designation.

***Euborlasia gotoensis* Iwata, 1952**

[Japanese name: gotō-himomushi]

Euborlasia gotoensis **Iwata**, 1952: 133–134, figs. 3, 9, 10; lower intertidal under stones, Fukue, Gotō Islands, Nagasaki Prefecture. **Iwata**, 1960c: 166, pl. 83, fig. 8. **Iwata**, 1965a: 169, 201. **Iwata**, 1965b: 392, figs. a–c. **Honma and Kitami**, 1978: 15; Sado Island, Niigata Prefecture. **Iwata**, 1992: 198, pl. 44-3. **Crandall et al.**, 2002: 11, 17, 27, 34.

***Euborlasia proteres* Iwata, 1957**

Euborlasia proteres **Iwata**, 1957a: 8–9, pl. I, fig. 2, pl. IV, figs. 1–3; dredged sublittorally from 380 m depth on 28 September 1953 by His Majesty Emperor Shōwa, Nakafukari at Hayama, Sagami Bay, off Kanagawa Prefecture. **Crandall et al.**, 2002: 11, 17, 27, 39.

Genus *Hinumanemertes* Iwata, 1970

Hinumanemertes Iwata, 1970a: 134.

TYPE SPECIES: *Hinumanemertes kikuchii* Iwata, 1970 by original designation.

***Hinumanemertes kikuchii* Iwata, 1970**

[Japanese name: hinuma-himomushi]

Hinumanemertes kikuchii **Iwata**, 1970a: 136–142, fig. 1A–C,

pl. 1, figs. 1–8, pl. 2, figs. 9–17; obtained sublittorally in mud from a brackish-water lake, Lake Hinuma, Ibaraki Prefecture. **Iwata**, 1970b: 128. **Iwata**, 1973: 264. **Iwata**, 1992: 198, fig. 7-3E. **Crandall et al.**, 2002: 11, 17, 27, 43.

Genus *Iwatanemertes* Gibson, 1990

Iwatanemertes Gibson, 1990a: 75.

TYPE SPECIES: *Meckelia piperata* Stimpson, 1855 by original designation.

Iwatanemertes piperata (Stimpson, 1855)

[Japanese name: ryūkyū-himomushi]

Meckelia piperata **Stimpson**, 1855: 381; habitat not recorded, Kikaishima, Kagoshima Prefecture.

Lineus piperata [sic]: **Takakura**, 1898: 186–187, fig. 9; intertidal among algae, Enoshima and Misaki, Kanagawa Prefecture.

Lineus piperatus: **Stimpson**, 1857: 160; sublittoral between stones and among algae, Kikaishima, Kagoshima Prefecture; originally recorded as “In portu insulae ‘Kikaishima’ Japoniae Australis; sublittoralis inter lapillus et algas.” **Yamaoka**, 1940b: 13–15, figs. 1, 2; habitat not recorded, Shitaru, Minami-Izu, Shizuoka Prefecture; habitat not recorded, Naha, Okinawa Island, Okinawa Prefecture. **Iwata**, 1954b: 34; intertidal under stones, Shirahama, Wakayama Prefecture. **Iwata**, 1960c: 169, pl. 84, fig. 1; Aikawa, Sado Island, Niigata Prefecture. **Honma and Kitami**, 1978: 15; Sado Island, Niigata Prefecture. **Iwata**, 1965b: 394, with one figure.

Iwatanemertes piperata: **Crandall et al.**, 2002: 11, 17, 27, 31, 34, 39.

NOTE: Transferred to *Iwatanemertes* by Gibson (1990a: 75), based upon a study of material collected in Hong Kong. Apart from the records from Japanese waters, the species is also known from Hong Kong (Gibson, 1990a) and the Taiwan Straits (Sun, 1995).

Genus *Lineus* Soweby, 1806

Lineus Soweby, 1806: 15.

Heterolineus Friedrich, 1935a: 310; synonymized by Corrêa (1963: 43).

TYPE SPECIES: *Ascaris longissima* Gunnerus, 1770 by monotypic designation.

Lineus alborostratus Takakura, 1898

[Japanese name: takakura-himomushi]

Lineus alborostratus **Takakura**, 1898: 332, fig. 12; habitat not recorded, Misaki, Kanagawa Prefecture. **Yamaoka**, 1940a: 220–222, pl. XV, figs. 1–5, text fig. 8; lower intertidal under stones, Akkeshi and Ochiishi, Hokkaidō Prefecture. **Iwata**, 1951: 136–137, figs. 2, 3c; intertidal under stones, Mukaishima, Hiroshima Prefecture. **Iwata**, 1952: 138–139; lower intertidal under stones, Fukue, Gotō Islands, Nagasaki Prefecture. **Iwata**, 1954a: 12; lower intertidal under stones, Hokkaidō Prefecture (Akkeshi, Nemuro, Hiroo, Muroan, Monbetsu and Rishiri Island). **Yamaguchi and Yamada**, 1955: 66. **Iwata**, 1957c: 102. **Iwata**, 1960b: 26–27, figs. 92–96; intertidal, Akkeshi, Hokkaidō Prefecture. **Iwata**, 1960c: 166, pl. 83, fig. 9. **Inaba**, 1963: 227; lower intertidal to shallow sublittoral under stones on rocky to gravelly shores, commonly found in the Inland Sea of Seto.

Uchida et al., 1963: 17. **Iwata**, 1965b: 393, figs. a–c. **Iwata**, 1983: 182. **Inaba**, 1988: 225; lower intertidal to shallow sublittoral under stones on rocky to gravelly shores, commonly found in the Inland Sea of Seto. **Iwata**, 1992: 198, pl. 44-6. **Crandall et al.**, 2002: 11, 17, 27, 31, 34, 39.

NOTE: Apart from the records from Japanese waters, *Lineus alborostratus* is also known from Vostok Bay, Russia (Kulikova, 1988) and Shandong Province (Qingdao and Yantai), China (Yin et al., 1988). A similar-looking species, *Lineus hiatti* Coe, 1947, is known from Hawaii; the latter can be distinguished from *L. alborostratus* by the head having less distinct anterior white or colorless margins (Coe, 1947: 104).

Lineus albovittatus (Stimpson, 1855)

Meckelia albo-vittata [sic] **Stimpson**, 1855: 382; habitat not recorded, Okinawa Prefecture; originally recorded as “Loo Choo.”

Cerebratulus albovittatus: **Stimpson** 1857: 160; intertidal among algae and in rock crevices, Okinawa Prefecture. *Non Cerebratulus albo-vittatus*: Bürger, 1890: 11, pl. 1, fig. 1, pl. 2, figs. 1–8, pl. 8, figs. 153–154 (from Ambon, Indonesia). *Lineus albovittatus*: **Iwata**, 1954c: 27–29, figs. 1A, 2; habitat not recorded, Nakanoshima, Tokara Islands, Kagoshima Prefecture. **Crandall et al.**, 2002: 11, 17, 27, 34, 39. *Non Lineus albo-vittatus* [sic]: Punnett, 1900: 578, pl. LXI, figs. 46–47 (from Lifou, New Caledonia, South Pacific); *nec Lineus albovittatus*: Punnett and Cooper, 1909: 7, 14, pl. 1, fig. 10, pl. 2, fig. 14 (from Salomon, Indian Ocean).

NOTE: Two forms have been known by the specific name of either *albovittatus* or *albo-vittatus*. These differ in the shape of the white line across the dorsal surface of the head. The transverse line in one form, reported from Japanese waters, is straight (Stimpson, 1855, 1857; Iwata, 1954c), while it is W-shaped in the other (Bürger, 1890; Punnett, 1900; Punnett and Cooper, 1909). The latter was synonymized with *Lineus tricuspispidatus* (Quoy and Gaimard, 1833) by Gibson (1981: 206) and later transferred to *Notospermus* by Riser (1991: 435), and is now known as *Notospermus tricuspispidatus*, a species that has not been reported from Japanese waters.

Lineus bipunctatus Takakura, 1898

Lineus bipunctatus **Takakura**, 1898: 335–336, fig. 18; Jōgashima, Kanagawa Prefecture; collected sublittorally among thecatid hydroids from 2–3 fathoms depth. **Crandall et al.**, 2002: 11, 17, 27, 34, 39.

Lineus cancelli Iwata, 1954

Lineus cancelli **Iwata**, 1954b: 34–35, fig. 1; intertidal under stones, Shirahama, Wakayama Prefecture. **Crandall et al.**, 2002: 11, 17, 27, 34, 39.

Lineus caputornatus Takakura, 1898

Lineus caputornatus **Takakura**, 1898: 334–335, fig. 15; obtained sublittorally among thecate hydroids from 2–3 fathoms depth, Jōgashima, Kanagawa Prefecture. **Crandall et al.**, 2002: 11, 17, 27, 34, 39.

Lineus fulvus Iwata, 1954

Lineus fulvus **Iwata**, 1954a: 13, fig. 2C; intertidal among

laminarian holdfasts, Rishiri Island, Hokkaidô Prefecture. **Yamaguchi and Yamada**, 1955: 66, fig. 17-3. **Crandall et al.**, 2002: 11, 18, 27, 34, 39.

Lineus fuscoviridis Takakura, 1898

[Japanese name: midori-himomushi or midori-hera-himomushi]

Lineus fuscoviridis **Takakura**, 1898: 332–333, fig. 13; intertidal under stones on muddy sand, sublittoral between rock crevices from 2–3 fathoms depth, Misaki and Jôgashima, Kanagawa Prefecture and Sunosaki, Tateyama, Chiba Prefecture. **Kaburaki**, 1927: 1665, fig. 3186. **Ohuye**, 1942: 187–191, figs. 1–3. **Kaburaki**, 1947: 1470, fig. 4146. **Ohuye**, 1950: 22. **Iwata**, 1952: 134–136; lower intertidal under stones, Tomioka, Amakusa, Kumamoto Prefecture. **Iwata**, 1954b: 36–37; habitat not recorded, Kada, Wakayama Prefecture. **Utinomi**, 1956: 31, pl. 16, fig. 5. **Iwata**, 1957a: 10–11; habitat not recorded, obtained by His Majesty Emperor Shôwa on 5 June 1928, Koajiro at Misaki, Kanagawa Prefecture. **Iwata**, 1960c: 166, pl. 83, fig. 11. **Utinomi**, 1960: 31, pl. 16, fig. 5. **Satô and Itô**, 1961: 187, fig. 7.1.6. **Inaba**, 1963: 228; sandy to muddy sediment or under stones on gravelly to rocky shores, lower intertidal to shallow sublittoral, commonly found in the Inland Sea of Seto; a specimen collected 21 May 1936 at Hakanjima, Hiroshima Prefecture, is deposited in Mukaishima Marine Biological Station, Hiroshima University, under registration number 70-1. **Iwata**, 1965a: 169, 201. **Kaburaki and Iwata**, 1965: 393, with one figure. **Shiino**, 1969: 93. **Utinomi**, 1969: 31, pl. 16, fig. 5. **Saito and Suzuki**, 1974: 38; intertidal, Niisaki Beach, Kanagawa Prefecture; identified by Dr. Iwata. **Honma and Kitami**, 1978: 15; Sado Island, Nigata Prefecture. **Ochi**, 1979: 640. **Inaba**, 1988: 225; sandy to muddy sediment or under stones on gravelly to rocky shores, lower intertidal to shallow sublittoral, commonly found in the Inland Sea of Seto. **Miyazawa et al.** 1988: 867–874; intertidal, Iwashijima and Mukaishima, Hiroshima Prefecture; intertidal, Yugesima, Ehime Prefecture; identified by Dr. T. Hoshino, Mukaishima Marine Biological Station, Hiroshima University. **Iwata**, 1992: 198, pl. 44-7. **Uchida**, 1994: 88, with a color photograph taken in life by Mr. Isamu Soyama in Ôsezaki, Shizuoka Prefecture. **Iwata**, 1997: 55. **Crandall et al.**, 2002: 11, 18, 27, 34, 39.

Lineus fuscoviridis [sic]: **Kikuchi**, 1968: 167; among *Zostera marina*, Tomioka Bay, Amakusa, Kumamoto Prefecture.

Lineus nigrofuscus (Stimpson, 1857)

Cerebratulus nigrofuscus **Stimpson**, 1857: 161; intertidal between stones, Amamiôshima, Kagoshima Prefecture. Originally reported as “Ad insulam ‘Ousima’ Japoniae Australis; littoralis inter lapillus”; transferred to *Lineus* by Bürger (1904: 102). **Crandall et al.**, 2002: 11, 27, 34, 39.

Lineus nigrostriatus Iwata, 1954

Lineus nigrostriatus **Iwata**, 1954c: 30, fig. 1B; habitat not recorded, Nakanoshima, Tokara Islands, Kagoshima Prefecture. **Crandall et al.**, 2002: 11, 18, 27, 34, 39.

Lineus nipponensis Senz, 2001

Lineus nipponensis **Senz**, 2001: 5–13, figs. 1–9; habitat and locality unknown.

TYPE MATERIAL: Holotype, NHMW-EV 17026/3990; paratype, NHMW-EV 17027/3991.

NOTE: The material was collected by Dr. Albrecht von Roretz during his stay in Japan from 1874–1882.

Lineus spatiosus Iwata, 1954

Lineus spatiosus **Iwata**, 1954a: 11–12, fig. 2B; lower intertidal under stones, Akkeshi, Hokkaidô Prefecture. **Yamaguchi and Yamada**, 1955: 65, fig. 17-2. **Uchida et al.**, 1963: 17. **Crandall et al.**, 2002: 11, 18, 27, 34, 39.

Lineus subcingulatus Takakura, 1898

[Japanese name: koajiro-himomushi]

Lineus subcingulatus **Takakura**, 1898: 335, fig. 16; intertidal among *Sargassum thunbergii*, Koajiro Bay, Kanagawa Prefecture. **Kaburaki**, 1927: 1665, fig. 3187. **Kaburaki**, 1947: 1471, fig. 4147. **Inaba**, 1963: 228; lower intertidal to shallow sublittoral, commonly occurring on algae, or on gravelly to rocky shores, the Inland Sea of Seto. **Kaburaki and Iwata**, 1965: 394. **Inaba**, 1988: 225; lower intertidal to shallow sublittoral, commonly occurring on algae, or on gravelly to rocky shores, the Inland Sea of Seto. **Crandall et al.**, 2002: 11, 18, 27, 34, 39.

Lineus torquatus Coe, 1901

[Japanese name: kasuri-himomushi or kasuri-hera-himomushi]

Lineus torquatus: **Yamaoka**, 1940a: 218–220, pl. XIV, figs. 9–14, text fig. 7; Hokkaidô Prefecture (Akkeshi, Ochiishi, and Nemuro), lower intertidal under stones. **Okuda**, 1947: 1471, fig. 4148 (1–3). **Iwata**, 1954a: 12; lower intertidal under stones or among laminarian holdfasts, Hokkaidô Prefecture (Akkeshi, Nemuro and Hiroo). **Yamaguchi and Yamada**, 1955: 66. **Utinomi**, 1956: 31, pl. 16, fig. 4. **Iwata** 1957b: 54–57, figs. 1–10; intertidal under stones, Akkeshi, Hokkaidô Prefecture. **Iwata**, 1957c: 102, figs. 5.1a–c, 5.2. **Iwata**, 1960b: 26. **Iwata**, 1960c: 166, pl. 83, fig. 13. **Utinomi**, 1960: 31, pl. 16, fig. 4. **Uchida et al.**, 1963: 17. **Okuda and Iwata**, 1965: 394, figs. a–c. **Utinomi**, 1969: 31, pl. 16, fig. 4. **Okada et al.**, 1971: 62. **Uchida et al.**, 1972: 62. **Iwata**, 1983: 182, 183, 187, 189, figs. 8-1, 8-2, 8-6. **Crandall et al.**, 2002: 11, 18, 27, 35, 39.

NOTE: Originally reported from Alaska (Coe, 1901: 66); also known to occur in San Francisco Bay, USA (Corrêa, 1964: 528) and Santa Maria Basin, California, USA (Blake, 1993: 118), on the coasts around northern China (Sun and Pan, 1994: 328), and the Japan Sea coast of Russia (Korotkevitsch, 1955, 1971; Kulikova, 1988). Manchenko and Kulikova (1996a) demonstrated on the basis of allozyme analyses that the species is a mixture of at least two cryptic species, which have been recognized since the original description by Coe (1901) as brown and reddish color morphs. A nomenclatural procedure, such as neotypification, may be required in the future to make it clear to which taxon the name *torquatus* will be applied. Even if some syntypes were extant, designating a lectotype would not solve the problem, for the body color might have been changed or not preserved by fixation.

Genus *Micrura* Ehrenberg, 1831

Micrura Ehrenberg, 1831: 57.

TYPE SPECIES: *Micrura fasciolata* Ehrenberg, 1831, by

monotypic designation.

Micrura akkeshiensis Yamaoka, 1940

[Japanese name: akkeshi-himomushi]

Micrura akkeshiensis **Yamaoka**, 1940a: 227–228, pl. XV, figs. 11, 12, pl. XVI, fig. 1, text fig. 11; upper intertidal under stones on sandy beaches, Akkeshi and Abashiri, Hokkaidô Prefecture. **Okuda**, 1947: 1473, fig. 4153. **Iwata**, 1954a: 14–15; intertidal under stones, Akkeshi and Muroran, Hokkaidô Prefecture. **Yamaguchi and Yamada**, 1955: 67. **Iwata**, 1957c: 106. **Iwata**, 1958: 104–127, figs. 1–60; in July 1955, intertidal, Daikokujiima Island, Akkeshi, Hokkaidô Prefecture. **Iwata**, 1960a: 96, figs. 3, 4. **Iwata**, 1960b: 27. **Iwata**, 1960c: 169, pl. 84, fig. 2. **Satô and Itô**, 1961: 187, fig. 7.1.4. **Uchida et al.**, 1963: 17. **Iwata**, 1965a: 169, 201. **Okuda and Iwata**, 1965: 395, figs. a, b. **Iwata**, 1983: 181, 182, 185, 191, figs. 8–12. **Crandall et al.**, 2002: 12, 18, 28, 35, 40.

NOTE: Apart from the records from Hokkaido, *Micrura akkeshiensis* is also known from Vostok Bay, Russia (Kulikova, 1988).

Micrura alaskensis Coe, 1901

Micrura alaskensis: **Yamaoka**, 1940a: 225–226, pl. XV, figs. 9, 10, text fig. 10; intertidal under stones on beaches, Akkeshi, Hokkaidô Prefecture. **Coe**, 1944: 29. **Iwata**, 1954a: 14; lower intertidal under stones, Akkeshi, Hokkaidô Prefecture. **Yamaguchi and Yamada**, 1955: 67. **Uchida et al.**, 1963: 17. **Crandall et al.**, 2002: 12, 18, 28, 35, 40.

NOTE: Originally described from Alaska (at New Metlakahtla on Annette Island, Glacier Bay, Sitka, Yakutat, and at Orca and Virgin Bay in Prince William Sound) by Coe (1901: 71), *Micrura alaskensis* is also reported from San Pedro and Monterey Bay, California, USA (Coe, 1904: 118), British Columbia, Canada (Coe, 1940: 271), and Ensenada, Mexico (Coe, 1940: 271); the record from Santa Maria Basin, California, USA (Blake, 1993: 119), based on fixed fragments of bodies collected from depths of 297 m and 591 m, might represent different species.

Micrura bella (Stimpson, 1857)

[Japanese name: kuchibeni-himomushi]

Cerebratulus bellus **Stimpson**, 1857: 161; obtained from an empty shell from a muddy bottom, 11 m depth, Hokkaidô Prefecture; originally reported as “Prope oras insulae ‘Jesso;’ in conchis desertis e fundo limoso profunditatis sex orgyiarum.”

Micrura festiva **Takakura**, 1898: 336, fig. 20; sublittoral 2–3 fathoms (=3.7–5.6 m) depth, Jôgashima, Kanagawa Prefecture. **Kaburaki**, 1927: 1666, fig. 3188. **Crandall et al.**, 2002: 12, 18, 28, 35, 40.

Micrura bella: **Yamaoka**, 1940a: 230–232, pl. XV, figs. 13–15; on floating rotten wood perforated by the shipworm *Teredo hibicola*, Usu, Hokkaidô Prefecture; habitat not recorded, Muroran, Hokkaidô Prefecture; habitat not recorded, Kushimoto, Wakayama Prefecture. **Okuda**, 1947: 1472, fig. 4151. **Iwata**, 1954a: 14; lower intertidal under stones or among holdfasts of seaweeds, Muroran and Oshoro, Hokkaidô Prefecture, Misaki, Kanagawa Prefecture, and Kushimoto, Wakayama Prefecture. **Iwata**,

1954b: 37; intertidal under stones, Yuzaki, Shirahama, Wakayama Prefecture. **Yamaguchi and Yamada**, 1955: 67. **Utinomi**, 1956: 32, pl. 16, fig. 10. **Iwata**, 1960c: 169, pl. 84, fig. 3; habitat not recorded, Usa, Kôchi Prefecture and Aikawa, Sado Island, Nîgata Prefecture. **Utinomi**, 1960: 32, pl. 16, fig. 10. **Okuda and Iwata**, 1965: 395, figs. a, b. **Utinomi**, 1969: 32, pl. 16, fig. 10. **Okada et al.**, 1971: 62. **Uchida et al.**, 1972: 62. **Honma and Kitami**, 1978: 15; Sado Island, Nîgata Prefecture. **Crandall et al.**, 2002: 12, 18, 28, 35, 40.

NOTE: *Micrura bella* possesses a striking body color pattern, which is an off-white background with a deep vermilion tip of the head and a longitudinal dorsal band composed of broad purple rectangles separated by narrow spaces. There are at least three different names for similar-looking forms: *Lineus striatus* Griffin, 1898, *Micrura impressa* Stimpson, 1857, and *Micrura verrilli* Coe, 1901. **Crandall et al.** (2002) pointed out that the difference among these forms is whether or not the head marking encircles the tip. **Crandall et al.** (2002) suggested that the head marking is complete in the western-Pacific forms, while it is restricted to the dorsal half in the eastern-Pacific forms. Future assessment will be required to delineate these forms for the proper application of their names.

Micrura dorsovittata Takakura, 1898

Micrura dorsovittata **Takakura**, 1898: 337, fig. 21; habitat not recorded, Jôgashima, Kanagawa Prefecture. **Crandall et al.**, 2002: 12, 18, 28, 35, 40.

NOTE: *Micrura dorsovittata* is so far known only by its original description. It resembles *Micrura kulikovae* Chernyshev, 1992, a new name given to a form identified as *Micrura bella* by Kulikova and Kutishchev (1984), in which the color of the dorsal band is brownish.

Micrura japonica Iwata, 1952

[Japanese name: kuro-himomushi]

Micrura japonica **Iwata**, 1952: 139–140, figs. 4, 11, 12; lower intertidal under stones on sandy beaches, Fukue, Gotô Islands, Nagasaki Prefecture; upper intertidal under stones in tide pools on a rocky shore, Tomioka, Amakusa, Kumamoto Prefecture; habitat not recorded, Shimoda, Shizuoka Prefecture. **Utinomi**, 1956: 32, pl. 16, fig. 9. **Iwata**, 1957a: 18–19; collected intertidally on 18 January 1930 by His Majesty Emperor Shôwa, Samejima at Hayama, Kanagawa Prefecture. **Iwata**, 1960c: 169; pl. 84, fig. 4; habitat not recorded, Sakurajima, Kagoshima Prefecture; habitat not recorded, Aikawa, Sado Island, Nîgata Prefecture. **Utinomi**, 1960: 32, pl. 16, fig. 9. **Satô and Itô**, 1961: 187, fig. 7.1.3. **Iwata**, 1965b: 396, figs. a, b. **Utinomi**, 1969: 32, pl. 16, fig. 9. **Saito and Suzuki**, 1974: 38; intertidal, Niisaki Beach, Kanagawa Prefecture; identified by Dr. Iwata. **Honma and Kitami**, 1978: 15; Sado Island, Nîgata Prefecture. **Iwata**, 1992: 198–199, fig. 7-3F. **Crandall et al.**, 2002: 12, 18, 28, 35, 40.

NOTE: The distinction between *Micrura japonica* Iwata, 1952 and *Micrura formosana* Yamaoka, 1939 will require future verification; the latter species, described from the northeastern coast of Taiwan, differs from the former by having a rhynchocoel diverticulum protruding ventrally into the lumen of the foregut, a character state that can be

interpreted as an artifact induced during fixation. Yamaoka's (1939) illustration of the external appearance of the preserved specimen shows strong shrinkage on the surface of the body, which suggests that the specimen was not, or not adequately, anaesthetized before fixation. This would further argue for conspecificity of these two nominal species, reinforced by the close proximity of their localities. Furthermore, *M. japonica* and *M. formosana* might be synonymous with *Cerebratulus niger* (Stimpson, 1855), described from Hong Kong, which is similar in having a truncated anterior end, lateral cephalic slits extending back to the mouth region, black body coloration, and white margins around the mouth.

***Micrura magna* Yamaoka, 1940**

Micrura magna Yamaoka, 1940a: 227–228, pl. XVI, figs. 2–4; lower intertidal under stones, Daikokujima, Akkeshi, Hokkaidō Prefecture. Iwata, 1954a: 14. Yamaguchi and Yamada, 1955: 67. Uchida et al., 1963: 17. Crandall et al., 2002: 12, 18, 28, 35, 40.

NOTE: Besides its original description, *Micrura magna* is also known from Vostok Bay, Russia (Kulikova, 1988).

***Micrura multinotata* Iwata, 1957**

Micrura multinotatum [sic] Iwata, 1957a: 19–20, pl. I, fig. 8, pl. V, figs. 8, 9; dredged from 30–40 m depth on 20 January 1949 by His Majesty Emperor Shōwa, Tateishi at Ogashima, Kanagawa Prefecture.

Micrura multinotata: Crandall et al., 2002: 12, 18, 28, 40.

Genus *Nipponomicrura* Chernyshev, 1995

Nipponomicrura Chernyshev, 1995: 15.

TYPE SPECIES: *Micrura uchidai* Yamaoka, 1940, by original designation.

***Nipponomicrura uchidai* (Yamaoka, 1940)**

[Japanese name: uchida-himomushi]

Micrura uchidai Yamaoka, 1940a: 232–234, pl. XVI, figs. 5–7, text fig. 12; lower intertidal under stones, Muroran, Hokkaidō Prefecture. Okuda, 1947: 1472, fig. 4152 (1–3). Iwata, 1954a: 14. Yamaguchi and Yamada, 1955: 67. Okuda and Iwata, 1965: 396, figs. a–c.

Nipponomicrura uchidai: Chernyshev, 1995: 15. Crandall et al., 2002: 13, 18, 28, 35, 40.

NOTE: Besides the original record from Muroran, *Nipponomicrura uchidai* is also known from Vostok Bay, Russia (Kulikova, 1988).

Genus *Notospermus* Huschke, 1830

Notospermus Huschke, 1830: 682.

TYPE SPECIES: *Notospermus drepanensis* Huschke, 1830 (from Sicilia, Italy; now regarded as a junior synonym of *Polia geniculata* Delle Chiaje, 1828) by monotypic designation.

***Notospermus geniculatus* (Delle Chiaje, 1828)**

[Japanese name: misaki-himomushi or kurohera-himomushi] *Lineus mitellatus* Takakura, 1898: 333–334, fig. 14; intertidal under stones on muddy sand, sublittoral in rock crevices from 2–3 fathoms depth, Misaki and Jōgashima, Kanagawa Prefecture and Sunosaki, Tateyama, Chiba

Prefecture. Iwata, 1952: 136–137, fig. 13; lower intertidal under stones, Tomioka, Amakusa, Kumamoto Prefecture.

Lineus geniculatus: Iwata, 1954b: 35–36; intertidal under stones, Kushimoto and Shirahama, Wakayama Prefecture. Utinomi, 1956: 31, pl. 16, fig. 3. Iwata, 1957a: 9–10; habitat not recorded, collected by His Majesty Emperor Shōwa on 16 July, 1939 Najima at Hayama, Kanagawa Prefecture. Iwata, 1960c: 166, pl. 83, fig. 10. Utinomi, 1960: 31, pl. 16, fig. 3. Inaba, 1963: 228; sandy to muddy sediment or under stones on gravelly to rocky shores, lower intertidal to shallow sublittoral, commonly found in the Inland Sea of Seto; a specimen collected on 20 June 1963 at Mukaishima, Hiroshima Prefecture, is deposited in Mukaishima Marine Biological Station, Hiroshima University, under registration number 70-2. Iwata, 1965b: 393, figs. a–c. Utinomi, 1969: 31, pl. 16, fig. 3. Saito and Suzuki, 1974: 38; intertidal, Niisaki Beach, Kanagawa Prefecture; identified by Dr. Iwata. Honma and Kitami, 1978: 15; Sado Island, Niigata Prefecture. Inaba, 1988: 225; sandy to muddy sediment or under stones on gravelly to rocky shores, lower intertidal to shallow sublittoral, commonly found in the Inland Sea of Seto. Iwata, 1992: 198, pl. 44-4, 5. Uchida, 1994: 88–89, with a color photograph taken in life by Mr. Isamu Soyama at Ōsezaki, Shizuoka Prefecture.

?*Lineus genicalatus* [sic]: Iwata, 1997: 53, a color photograph taken in life by Eiichi Kurasawa, possibly depicting a species of the genus *Cerebratulus* that lost its tail.

Notospermus geniculatus: Crandall et al., 2002: 13, 18, 28, 35, 40. Thollesson and Norenburg, 2003: 408; Shirahama, Wakayama Prefecture.

NOTE: Iwata (1954b) synonymized *Lineus mitellatus sensu* Takakura (1898) and *sensu* Iwata (1952) with *Lineus geniculatus*, which was originally described as *Polia geniculata* by Delle Chiaje (1828: 177) from Naples, Italy. The species has been redescribed as *Notospermus geniculatus* by Riser (1991: 428–434). Outside Japanese waters it is also known from the Black Sea, Mediterranean (France, Italy, Greece, Malta), Canary Is., Gulf of Guinea (West Africa), Australia, New Zealand, and the western coasts of tropical America (Gulf of California, Panama, and Peru) (Gibson, 1995: 480).

Genus *Paralineopsis* Iwata, 1993

Paralineopsis Iwata, 1993: 186.

TYPE SPECIES: *Paralineopsis taki* Iwata, 1993, by original designation.

***Paralineopsis taki* Iwata, 1993**

Zygeupolia littoralis: Iwata, 1951: 135–136; lower intertidal under stones on sand, Mukaishima, Hiroshima Prefecture.

Inaba, 1963: 227. Mukaishima, Hiroshima Prefecture.

Zygeupolia littoralis [sic]: Inaba, 1988: 225. Mukaishima, Hiroshima Prefecture.

Paralineopsis taki Iwata, 1993: 186–199, figs. 1–6.

Paralinoepsis taki [sic]: Crandall et al., 2002: 13, 18, 28, 36.

NOTE: Iwata (1951) originally identified his material as *Zygeupolia littoralis* Thompson, 1900 on the basis of its external features. Later he thoroughly redescribed the taxon as a new genus and species (Iwata, 1993).

Genus *Uchidana* Iwata, 1967

Uchidana Iwata, 1967: 123.

TYPE SPECIES: *Uchidana parasita* Iwata, 1967 by original designation.

***Uchidana parasita* Iwata, 1967**

[Japanese name: uchida-kisei-himomushi]

Uchidana parasita Iwata, 1967: 124–136, text fig. 1, pl. 1, figs. 1–8, pl. 2, figs. 9–16, pl. 3, figs. 17–24; in the mantle cavity of *Mactra sulcataria* in muddy sand, mouth of the River Aikawa, Tsu, Mie Prefecture. Iwata, 1970b: 128, 132. Iwata, 1973: 264. Iwata, 1992: 198, fig. 7-3D. Crandall et al., 2002: 15, 18, 30, 44.

NOTE: *Uchidana parasita* is the only heteronemertean species parasitizing bivalves.

Family VALENCINIIDAE Hubrecht, 1879**Genus *Baseodiscus* Diesing, 1850**

Polia Delle Chiaje, 1825: 406; non *Polia* Ochseneimer, 1816: 73 (Lepidoptera: Noctuidae).

Baseodiscus Diesing, 1850: 243.

Eupolia Hubrecht, 1887: 10; synonymized by Bürger (1904).

TYPE SPECIES: *Polia delineata* Delle Chiaje, 1825 by monotypic designation.

***Baseodiscus curtus* (Hubrecht, 1879)**

[Japanese name: tatejima-himomushi]

Eupolia curta: Takakura, 1898: 185, fig. 7; sublittoral from 2–3 fathoms, Jōgashima, Kanagawa Prefecture; intertidal, Matsuwa Bay, Miura, Kanagawa Prefecture.

Baseodiscus curtus: Kaburaki, 1927: 1664, fig. 3185. Kaburaki, 1947: 1473, fig. 4154. Iwata, 1952: 141–142, fig. 14; lower intertidal under stones, Fukue, Gotō Islands, Nagasaki Prefecture. Utinomi, 1956: 31, pl. 16, fig. 7. Iwata, 1960c: 166, pl. 83, fig. 6. Iwata, 1965a: 169, 201. Iwata, 1965b: 391, one fig. Utinomi, 1969: 31, pl. 16, fig. 7. Crandall et al., 2002: 9, 16, 26, 33, 38.

Baseodiscus delineatus var. *curtus*: Utinomi, 1960: 31, pl. 16, fig. 7. Saito and Suzuki, 1974: 38; intertidal, Niisaki Beach, Kanagawa Prefecture; identified by Dr. Fumio Iwata.

NOTE: *Baseodiscus curtus*, originally described as *Polia curta* Hubrecht, 1879, from Naples, Italy, was transferred to the genus *Baseodiscus* by Bürger (1904). *Baseodiscus curtus* was synonymized with *B. delinatus* by Gibson (1979). However, *B. curtus* can be distinguished from *B. delineatus* by lacking stripes on the ventral surface of the body (Hubrecht, 1879: 209). Although these two species have been regarded as conspecific (e.g., Gibson, 1995), they are treated as distinct species in the present paper. These two species appear to occur globally (Gibson, 1995), with virtually completely overlapping ranges of distribution (Coe, 1944).

***Baseodiscus delineatus* (Delle Chiaje, 1825)**

[Japanese name: iso-himomushi]

?*Eupolia* sp. Takakura, 1898: 185, fig. 8; intertidal, Moroiso and Matsuwa, Kanagawa Prefecture.

Baseodiscus delineatus: Coe, 1944: 28. Crandall et al., 2002: 9, 16, 26, 33, 38.

?*Baseodiscus takakurai* Gibson, 1995: 305.

NOTE 1: *Baseodiscus delineatus* was originally described as *Polia delineata* Delle Chiaje, 1825 from Naples, Italy, then transferred to *Baseodiscus* by Diesing (1850: 243). The species can be distinguished from *B. curtus* by its either striped or mottled ventral body surface. The species shows a circumglobal distribution; apart from the records from Japan, *Baseodiscus delineatus* is also known from the Mediterranean, the Adriatic and Atlantic coasts of Europe, Cape Verde Is., Bermuda, Barbados, southern Florida, USA, Puerto Rico, Gulf of California, Fiji Is., Mariana Is., Java, Torres Straits, Australia (the Great Barrier Reef and southern coast of Western Australia), Mauritius, Zanzibar, Brazil, and Chile (Gibson, 1995: 479).

NOTE 2: Takakura (1898) recorded a form as *Eupolia* sp. that possessed black mottles on both the dorsal and ventral surfaces of the body. Similar specimens collected on Kakeroma Island (Kagoshima Prefecture) and Ishigaki Island (Okinawa Prefecture) show mottles becoming gradually fused together to form incomplete longitudinal stripes in the middle region of the body (Kajihara, pers. obs.). Takakura's *Eupolia* sp. is herein tentatively regarded as *Baseodiscus delineatus*, though future study must confirm this identification. Takakura (1898) did not identify his material to species, mentioning that it resembled *Eupolia antillensis* Bürger, 1895. Gibson (1995) misinterpreted this as Takakura's (1898) having established a new taxon with the specific name *antillensis*, and superfluously gave the new name *Baseodiscus takakurai* for Takakura's (1898) *Eupolia* sp.

***Baseodiscus hemprichii* (Ehrenberg, 1831)**

[Japanese name: sanada-himomushi]

Baseodiscus hemprichi [sic]: Iwata, 1954b: 37; habitat not recorded, Tōshima, Shirahama, Wakayama Prefecture. Iwata, 1954c: 30–31; habitat not recorded, Nakanoshima, Tokara Islands, Kagoshima Prefecture. Utinomi, 1956: 31, pl. 16, fig. 8. Utinomi, 1960: 31, pl. 16, fig. 8. Utinomi, 1969: 31, pl. 16, fig. 8.

Baseodiscus hemprichii: Iwata, 1960c: 166, pl. 83, fig. 7. Ooishi, 1964: 193; intertidal among dead reef corals, Ushuku, Amamiōshima, Kagoshima Prefecture. Okuda and Iwata, 1965: 392, figs. a, b. Crandall et al., 2002: 10, 16, 24, 26, 30, 33, 38.

NOTE: Originally described as *Nemertes hemprichii* Ehrenberg, 1831 from the Red Sea, subsequently transferred to *Baseodiscus* by Bürger (1904: 83). Apart from the records from Japanese waters and its type locality, this species is widely known from India, Pakistan, East Africa (off Mozambique and Zanzibar), Maldives, Laccadive Islands, Coetivy Island, Mauritius, Malay Peninsula, Java, Ambon, Taiwan, Australia (Great Barrier Reef), Papua New Guinea, New Britain (Solomon Is.), Loyalty Is., Caroline Is., Wake Is., West Samoa, and Hawaiian Islands (Gibson, 1995: 432–433).

***Baseodiscus nipponensis* (Hubrecht, 1887)**

Eupolia nipponensis Hubrecht, 1887: 14–15, pl. I, figs. 4, 5, 10, pl. VII, figs. 6, 11, 12; dredged from 345 fathoms (about 640 m) depth on green mud, collected on 12 May 1875 by H.M.S. *Challenger*, 35°11'00"N, 139°28'00"E, Sagami Bay, off Kanagawa Prefecture; transferred to

Baseodiscus by Bürger (1904: 84).

Baseodiscus nipponensis: Crandall et al., 2002: 10, 16, 26, 38.

NOTE: *Baseodiscus nipponensis* has not been reported since its original description. The species was described from preserved body fragments.

Baseodiscus princeps (Coe, 1901)

[Japanese name: arasuka-himomushi]

Baseodiscus curtus: Yamaoka, 1940a: 234–236, pl. XVI, fig. 8–11, text fig.13; lower intertidal between or under stones, Daikokujima, Akkeshi, Hokkaidô Prefecture; synonymized by Iwata (1954a: 15).

Baseodiscus princeps: Coe, 1944: 28, obtained by the United States Bureau of Fisheries Steamer *Albatross*, 340 m depth, south of Hokkaidô Island; 250 m depth, off Ôshima, the Metropolis of Tôkyô; 260 m depth, off Ôsezaki, Izu Peninsula, Shizuoka Prefecture; 135–290 m depth, Sea of Japan. Iwata, 1954a: 15; lower intertidal under stones, Akkeshi, Hokkaidô Prefecture. Yamaguchi and Yamada, 1955: 68. Uchida et al., 1963: 17. Iwata, 1965b: 392, figs. a–c. Crandall et al., 2002: 10, 16, 26, 33, 38.

NOTE: Originally described as *Taeniosoma princeps* Coe, 1901 from Alaska (Cape Fox, Yakutat, and Orca in Prince William Sound), transferred to *Baseodiscus* by Coe (1940: 262). Also known from Puget Sound, Washington, USA (Coe, 1944: 28).

Baseodiscus quinquelineatus (Quoy and Gaimard, 1833)

[Japanese name: kurosujii-himomushi]

Taeniosoma aequale Stimpson, 1857: 162; intertidal under stones, Amamiôshima, Kagoshima Prefecture. The locality and habitat were originally recorded as “in sinu insulae ‘Ousima;’ littorale sub lapidibus”; synonymized by Bürger (1904: 83).

Baseodiscus quinquelineatus: Iwata, 1992: 197, pl. 44-2. Crandall et al., 2002: 10, 16, 26, 33, 38.

NOTE: Originally described as *Borlasia quinquelineata* by Quoy and Gaimard (1833: 285) from Dorey, New Guinea, transferred to *Baseodiscus* by Bürger (1904: 83), *Baseodiscus quinquelineatus* is distributed in the western Pacific (Japan, Singapore, Indonesia [Java, Timor, Ambon], New Guinea, Solomon Is., Loyalty Is., Torres Straits, and east coast of Australia, including the Great Barrier Reef) (Gibson, 1995: 310).

Genus *Cephalomastax* Iwata, 1957

Cephalomastax Iwata, 1957a: 5.

TYPE SPECIES: *Cephalomastax brevis* Iwata, 1957 by monotypic designation.

Cephalomastax brevis Iwata, 1957

[Japanese name: amadaiba-himomushi]

Cephalomastax brevis Iwata, 1957a: 5–7, pl. I, fig. 9, pl. II, fig. 7, pl. III, figs. 1–7; dredged from 200–300 m depth on 7 August 1953 by His Majesty Emperor Shôwa, “Southern Maruyamadashi at Aamadaiba” [sic], Sagami Bay, off Kanagawa Prefecture. Iwata, 1965a: 201. Iwata, 1965b: 392, figs. a, b. Iwata, 1992: 197, fig. 7-3C. Crandall et al., 2002: 10, 17, 26, 38.

Class HOPLONEMERTEA Hubrecht, 1879

Subclass MONOSTILIFERA Brinkmann, 1917

Family AMPHIPORIDAE McIntosh, 1874

Genus *Amphiporus* Ehrenberg, 1831

Amphiporus Ehrenberg, 1831: 63.

TYPE SPECIES: *Planaria lactiflorea* Johnston, 1828, designated under the plenary power of the ICZN (ICZN, 1992); all previous designations of *Amphiporus albicans* as the type species for *Amphiporus*, including that of Friedrich (1955: 154), have thereby been set aside.

***Amphiporus antifuscus* Iwata, 1954**

Amphiporus antifuscus Iwata, 1954a: 24–25, fig. 6A; lower intertidal among algae, Akkeshi, Hokkaidô Prefecture.

Yamaguchi and Yamada, 1955: 70. Uchida et al., 1963: 17. Crandall et al., 2002: 9, 19, 25, 33.

NOTE: Gibson and Crandall (1989) listed this form as a *species inquirenda*.

***Amphiporus formidabilis* Griffin, 1898**

Amphiporus cervicalis: Yamaoka, 2005: 143, pl. 1, figs. 2, 4, text fig. 2; Susaki, Sotoura, and Manazuru, near Shimoda, Shizuoka Prefecture; Muroan, Hokkaidô Prefecture.

Amphiporus formidabilis: Iwata, 1952: 144–146, figs. 15, 16; intertidal under stones on sandy beaches, Tomioka, Amakusa Islands, Kumamoto Prefecture and Fukue, Gotô Islands, Nagasaki Prefecture. Okuda, 1947: 1467, fig. 4137. Crandall et al., 2002: 9, 19, 26, 33.

NOTE: *Amphiporus formidabilis* Griffin, 1898 was originally described from Puget Sound and Alaska, USA. Coe (1904: 115) synonymized *Amphiporus exilis* Coe, 1901 with *A. formidabilis*, but Gibson and Crandall (1989) regarded these taxa as *species inquirendae*, retaining them as separate species. *Amphiporus formidabilis* has also been reported from the Aleutian Islands (Coe, 1905: 252). Some earlier records under the name *Amphiporus cervicalis* (Stimpson, 1857) from Japanese waters may represent *Amphiporus formidabilis*.

***Amphiporus gelatinosus* Coe, 1905**

Amphiporus gelatinosus: Coe, 1944: 30; obtained by the United States Bureau of Fisheries Steamer *Albatross*, at 130 m depth in Uruga Strait, between the Metropolis of Tôkyô and Chiba Prefecture. Crandall et al., 2002: 9, 19, 26, 37.

NOTE: The original description by Coe (1905: 259) was based on a single specimen dredged by *Albatross* on 9 August 1888 at Station 2853, 56°00'N, 154°20'W, southwest of Kadiak Island, Alaska, at a depth of 159 fathoms (=290 m). Known to occur from Alaska to Puget Sound, Washington State, North America (Gibson, 1995: 283). Gibson and Crandall (1989) included it as a *species inquirenda*.

***Amphiporus imparispinosus* Griffin, 1898**

Amphiporus imparispinosus: Yamaoka, 2005: 145, text figs. 3, 4a; Sotoura and Mikimoto Island, near Shimoda, Shizuoka Prefecture.

NOTE: *Amphiporus imparispinosus* was originally described from Port Townsend, Washington and Sitka, Alaska, USA by Griffin (1898). The species is distributed from San

Pedro, California, to Puget Sound, Alaska, to the Commander Islands off the coast of Kamchatka, to the Bering Strait (Coe, 1905: 249). Some forms reported as *Amphiporus cervicalis* (Stimpson, 1857), *Amphiporus depressus* (Stimpson, 1857), and *Amphiporus lactifloreus* (Johnston, 1828) from Japanese waters appear to represent *A. imparispinosus*. *Pantinonemertes daguilarensis* Gibson and Sundberg, 1992, described from Hong Kong, might be conspecific with *Amphiporus imparispinosus*. The taxonomic identity of this species should be delineated by future studies.

***Amphiporus insolitus* Iwata, 1954**

Amphiporus insolitus Iwata, 1954b: 39–41; lower intertidal under stones, Kushimoto, Wakayama Prefecture. **Crandall et al.**, 2002: 9, 19, 26, 33.

NOTE: Gibson and Crandall (1989) regarded this form as a *species inquirenda*. *Amphiporus insolitus* resembles *Diplomma serpentina* (Stimpson, 1855) in body coloration, shape of the head, and arrangement of the eyes; these two may be conspecific.

***Amphiporus musculus* Iwata, 1954**

Amphiporus musculus Iwata, 1954a: 26–27, fig. 6B; intertidal among algal holdfasts, Oshoro, Hokkaidô Prefecture. **Yamaguchi and Yamada**, 1955: 70. **Okada et al.**, 1971: 62. **Uchida et al.**, 1972: 62. **Crandall et al.**, 2002: 9, 19, 26, 38.

NOTE: Listed as a *species inquirenda* by Gibson and Crandall (1989).

***Amphiporus parvus* Yamaoka, 1940**

Amphiporus parvus Yamaoka, 1940a: 243–244, pl. XVII, fig. 7, text figs. 20, 21; intertidal on sandy beaches, Akkeshi, Hokkaidô Prefecture. **Iwata**, 1954a: 19. **Yamaguchi and Yamada**, 1955: 69. **Uchida et al.**, 1963: 17. **Crandall et al.**, 2002: 9, 19, 26, 33.

NOTE: Listed as a *species inquirenda* by Gibson and Crandall (1989).

***Amphiporus reduncus* Iwata, 1957**

Amphiporus reduncus Iwata, 1957a: 23–24; dredged sublittorally from 100–130 m depth on 7 August 1950 by His Majesty Emperor Shôwa, northeastern Nakafukari near Nagai, Sagami Bay, off Kanagawa Prefecture. **Crandall et al.**, 2002: 9, 19, 26, 33, 38.

NOTE: Gibson and Crandall (1989) regarded this form as a *species inquirenda*, with the comment that it may be related to the genus *Nipponnemertes* or some similar taxon. It might also prove to be a reptant polystyliferan (Crandall, pers. comm.).

***Amphiporus regius* Iwata, 1954**

Amphiporus regius Iwata, 1954a: 27–29, fig. 7; lower intertidal under stones on rocky shores, Muroran, Hokkaidô Prefecture. **Yamaguchi and Yamada**, 1955: 70. **Crandall et al.**, 2002: 9, 19, 26, 33.

NOTE: Listed as a *species inquirenda* by Gibson and Crandall (1989). The presence of four well-developed eyes and a cephalic patch on the dorsal surface of the head indicates that this species may belong to the genus *Tetrastemma* or a related taxon.

***Amphiporus retrotumidus* Iwata, 1957**

Amphiporus retrotumidus Iwata, 1957a: 25–27, pl. I, fig. 13; dredged from 30–55 m depth on 6 August 1953 by His Majesty Emperor Shôwa, “Shuragane at Hayama” [sic], Kanagawa Prefecture. **Crandall et al.**, 2002: 9, 19, 26, 38.

NOTE: Gibson and Crandall (1989) regarded this form as a *species inquirenda*, with the comment that it may be related to the genus *Nipponnemertes* or some similar taxon. It might also prove to be a reptant polystyliferan (Crandall, pers. comm.).

Genus *Potamostoma* Kajihara, Gibson, and Mawatari, 2003

Potamostoma Kajihara et al., 2003: 492.

TYPE SPECIES: *Potamostoma shizunaiense* Kajihara, Gibson, and Mawatari, 2003, by original designation.

NOTE: The familial affiliation of the genus, not referred to in its original description, is here provisionally designated as the Amphiporidae because of similarities in eye pattern (multiple and grouped) and the nature of the rhynchocoel wall (two-layered). Confirmation of this familial placement will have to be resolved by future studies, hopefully involving molecular data.

***Potamostoma shizunaiense* Kajihara, Gibson, and Mawatari, 2003**

Potamostoma shizunaiense Kajihara et al., 2003: 491–500, figs. 1–7, tabs. 1–2; under stones on a sandy bottom, salinity at ebb tide 2 psu, mouth of the River Shizunai, 42°20'N, 142°22'E, Shizunai, Hokkaidô Prefecture.

TYPE MATERIAL: Holotype ZIHU-2037, immature female, complete series of transverse sections, 7 µm, 81 slides. Paratypes: ZIHU-1930, immature male, transverse sections of the anterior body region, 6 µm, 39 slides; ZIHU-2040, immature female, complete series of transverse sections, 6 µm, 84 slides. Eight sectioned voucher specimens are also accessioned as ZIHU-1931, -1932, -2038, -2039, -2041, -2042, -2043, and -2044. One voucher specimen, longitudinal sections of the anterior body region, 10 slides, is deposited under NHMW-EV 19875.

Genus *Zygonemertes* Montgomery, 1897

Zygonemertes Montgomery, 1897: 2.

TYPE SPECIES: *Amphiporus virescens* Verrill, 1879 by monotypic designation.

***Zygonemertes glandulosa* Yamaoka, 1940**

[Japanese name: fujikasa-himomushi]

Zygonemertes glandulosa Yamaoka, 1940a: 244–247, pl. XVII, fig. 8, text figs. 22–24; lower intertidal under stones, Akkeshi, Hokkaidô Prefecture. **Okuda**, 1947: 1468, fig. 4139 (1–4). **Iwata**, 1954a: 19. **Yamaguchi and Yamada**, 1955: 69. **Uchida et al.**, 1963: 17. **Crandall et al.**, 2002: 15, 22, 30, 37, 42.

Zygonemertes glandulosa [sic]: **Iwata**, 1960c: 169, pl. 84, fig. 12. **Iwata**, 1965a: 217. **Okuda and Iwata**, 1965: 399, figs. a–d. **Iwata**, 1992: 202, fig. 7-5C.

***Zygonemertes jamsteci* Kajihara, 2002**

Zygonemertes jamsteci Kajihara, 2002: 131–140, figs. 6–9; about 1 m deep, among eelgrass (*Zostera marina*),

Akkeshi Bay, Hokkaidô Prefecture.

TYPE MATERIAL: Holotype, ZIHU-1928, mature male, full series of transverse sections, 43 slides. Paratypes: ZIHU-1929, mature female, serial longitudinal sections of anterior portion of the body, nine slides; ZIHU-2045, mature male, full series of transverse sections, 41 slides; ZIHU-2046, mature male, full series of transverse sections, 36 slides; ZIHU-2047, mature female, serial transverse sections of anterior portion of the body, three slides; ZIHU-2048, mature female, serial transverse sections of the anterior portion of the body, 14 slides. All collected on 8 July 1997.

***Zygonemertesshintai* Kajihara, 2002**

Zygonemertesshintai Kajihara, 2002: 122–131, figs. 1–5; intertidal, among blue mussels (*Mytilus trossulus* Gould), Oshoro, Hokkaidô Prefecture.

TYPE MATERIAL: Holotype, ZIHU-1296, immature, full series of transverse sections, 16 slides, collected on 2 July 1998. Paratypes: ZIHU-1927, immature, full series of transverse sections, 31 slides, collected on 2 July 1998, ZIHU-2105, -2106; whole specimens, preserved in 100% EtOH for molecular analyses, collected on 3 March 2001.

Family CARCINONEMERTIDAE Sumner, Osburn and Cole, 1913

Genus *Carcinonemertes* Coe, 1902

Carcinonemertes Coe, 1902: 440.

TYPE SPECIES: *Nemertes carcinophilos* [originally spelled *cartinophilos*] Kôlliker, 1845, by subsequent designation of Friedrich (1955: 176).

***Carcinonemertesmitsukurii* Takakura, 1910**

[Japanese name: kani-himomushi]

Carcinonemertesmitsukurii Takakura, 1910: 111–116, figs. 1–4; obtained from egg masses of the crab *Eriocheir japonicus* De Haan, mouth of the River Minatogawa, Tateyama Bay, Chiba Prefecture. Satô and Itô, 1961: 187, fig. 7.1.12. Kaburaki and Iwata, 1965: 397, with one figure. Shiino, 1969: 94. Iwata, 1992: 203. Crandall et al., 2002: 10, 19, 26, 30.

Emplectonemamitsukurii: Kaburaki, 1927: 1663, fig. 3182.

Kaburaki, 1947: 1466, fig. 4132.

Carcinonemertesmitukuri [sic]: Iwata, 1965a: 218.

NOTE: Apart from the Japanese record, *Carcinonemertesmitsukurii* is also known from San Andreas Is. (between Marinduque and Luzon), Hong Kong, Hawaiian Is., Kingsmill Is., Society Is., and Singapore (Humes, 1942).

Family CRATENEMERTIDAE Friedrich, 1968

Genus *Nipponnemertes* Friedrich, 1968

Nipponnemertes Friedrich, 1968: 34.

TYPE SPECIES: Friedrich (1968) did not designate the type species, and the name *Nipponnemertes* was thus unavailable. This introduced nomenclatural confusion. Gibson and Crandall (1989: 463) designated *Amphiporus drepanophoroides* Griffin, 1898 as the type species. Gibson (1995: 442) later indicated *Nipponnemertespulchra* (Johnston, 1837) as the type species. Finally, Crandall (2001: 106) designated *Amphiporus punctatulus* Coe, 1905. Crandall (2001: 106) was correct in that Gibson's (1995) listing of

Nipponnemertespulchra as the type species of the genus was invalid, since the nominal species *Nemertespulchra* Johnston, 1837 was not included when the genus was established. The nominal species *Amphiporus drepanophoroides*, first designated by Gibson and Crandall (1989), is eligible for the type species of the genus, but Crandall (2001: 106) discussed that its original description is too brief and its type specimen has been lost by shipwreck. Confusion remains as to whether the author of the name is Gibson and Crandall (1989) or Crandall (2001) (Chernyshev, pers. comm.). Here, I follow the prevailing usage of the authority and date of the name *Nipponnemertes* as Friedrich (1968).

***Nipponnemertesbimaculata* (Coe, 1901)**

[Japanese name: rishiri-himomushi]

Amphiporusbimaculatus: Iwata, 1954a: 21–22, fig. 5D; sublittoral among laminarian holdfasts, Rishiri Island, Hokkaidô Prefecture. Yamaguchi and Yamada, 1955: 69. Iwata, 1960c: 169, pl. 84, fig. 14. Iwata, 1965b: 399, figs. a–e.

Nipponnemertesbimaculata Crandall et al., 2002: 12, 20, 28, 35, 40.

NOTE: The species, originally described as *Amphiporusbimaculatus* Coe, 1901 from Victoria, B.C., Canada, and Sitka, Alaska and Puget Sound, Washington, USA, was later transferred to the genus *Nipponnemertes* by Friedrich (1968). Crandall et al. (2002) noted that the form identified by Iwata (1954a) differs from Coe's (1901) taxon in having a pair of quadrangular head markings, rather than the long-triangular markings of Coe's form, and a quite different proboscis central armature.

***Nipponnemertesogumai* (Yamaoka, 1947)**

[Japanese name: oguma-himomushi]

Amphiporusogumai Yamaoka, 1947: 1468, fig. 4138 (1–3).

Okuda and Iwata, 1965: 399, figs. a–c.

Nipponnemertesogumai: Crandall et al., 2001: 179–180, pl. 1, figs. 8–10, pl. 2, fig. 18. Crandall et al., 2002: 12, 20, 28, 35, 40.

NOTE: Crandall et al. (2001) mentioned that the type locality for this species was not specified in the original manuscript; Yamaoka (1947) obtained specimens on sandy beaches at Itado, near Shimoda, Shizuoka Prefecture and Seto, Kishû (probably Shirahama, Wakayama Prefecture).

***Nipponnemertes punctatula* (Coe, 1905)**

[Japanese name: madara-himomushi]

Amphiporusnebulosus: Takakura, 1933: 226–227; Kitaura, Alaid Island (=Atlasova), Kurile Islands. Non Crandall et al., 2002: 9, 19, 24, 26, 33.

Amphiporus punctatulus: Iwata, 1951: 137–138, figs. 1, 2D; intertidal under stones, Mukaishima, Hiroshima Prefecture. Iwata, 1952: 143–144; lower intertidal under stones, Tomioka, Amakusa Islands, Kumamoto Prefecture and Fukue, Gotô Islands, Nagasaki Prefecture. Iwata, 1954a: 22–23; intertidal among algal holdfasts, Oshoro and Rishiri Island, Hokkaidô Prefecture. Iwata, 1954b: 39; intertidal under stones, Shirahama, Wakayama Prefecture. Yamaguchi and Yamada, 1955: 70. Utinomi, 1956: 32, pl. 16, fig. 12. Iwata, 1957a: 21–22; obtained by a hand-

reeled net on 16 March 1956 by His Majesty Emperor Shōwa, Samejima at Hayama, Kanagawa Prefecture. **Iwata**, 1960c: 169, pl. 84, fig. 13. **Utinomi**, 1960: 32, pl. 16, fig. 12. **Inaba**, 1963: 228; lower intertidal to shallow sublittoral, under stones on gravelly to rocky shores, commonly found in the Inland Sea of Seto. **Iwata**, 1965a: 169. **Iwata**, 1965b: 400, figs. a–c. **Utinomi**, 1969: 32, pl. 16, fig. 12. **Saito and Suzuki**, 1974: 38; intertidal, Niisaki Beach, Kanagawa Prefecture; identified by Dr. Iwata. **Inaba**, 1988: 226; lower intertidal to shallow sublittoral, under stones on gravelly to rocky shores, commonly found in the Inland Sea of Seto.

Amphiporus punctatus [sic]: **Okada et al.**, 1971: 62. **Kikuchi**, 1968: 167; among *Zostera marina*, Tomioka Bay, Amakusa, Kumamoto Prefecture.

Amphiporus punctatulus [sic]: **Honma and Kitami**, 1978: 15; Sado Island, Niigata Prefecture.

Cratnemertes punctatulus: **Iwata**, 1992: 202, pl. 44–9, fig. 7–2E.

Nipponnemertes punctatulus [sic]: **Uchida et al.**, 1972: 55; habitat not recorded, Horomui, Hokkaidō Prefecture. **Iwata**, 1997: 53 (with a color drawing), 55. **Shimomura et al.**, 2001: 46; intertidal on a rocky shore, Akahama, Ōtsuchi Bay, Iwate Prefecture. **Tholleson and Norenburg**, 2003: 408; Oshoro, Hokkaidō Prefecture.

Nipponnemertes punctatula: **Crandall et al.**, 2002: 12, 20, 25, 28, 35, 40.

NOTE: Takakura's (1933) record of *Amphiporus nebulosus* Coe, 1901 from the Kurile Islands was regarded as *Amphiporus punctatulus* by Iwata (1951), whereas *Amphiporus nebulosus* s. str., known only from its type locality Kukak Bay, Alaska Peninsula, was regarded as a *species inquirenda* by Gibson and Crandall (1989). Crandall et al. (2002) noted that there are two coexisting species of cratnemertids in Japanese waters that possess a brown dorsal blotch pattern, *Nipponnemertes arenaria* (Uschakov, 1927) and *Nipponnemertes punctatula* (Coe, 1905), and the records of the latter by Iwata in the 1950s were probably of *Nipponnemertes arenaria*.

Family EMPLECTONEMATIDAE Bürger, 1904

Genus *Emplectonema* Stimpson, 1857

Emplectonema Stimpson, 1857: 163.

TYPE SPECIES: *Emplectonema viride* Stimpson, 1857, was originally described from San Francisco, USA, and now is regarded as a junior synonym of *Nemertes gracilis* Johnston, 1837, by subsequent designation of Friedrich (1955: 172).

Emplectonema buergeri Coe, 1901

Emplectonema buergeri [sic]: **Coe**, 1944: 29, obtained by the United States Bureau of Fisheries Steamer *Albatross*, 250 m depth, off Ōshima, the Metropolis of Tōkyō.

Emplectonema buergeri: **Crandall et al.**, 2002: 11, 20, 24, 27, 34, 39.

NOTE: Originally described from Sitka and Glacier Bay, Alaska by Coe (1901: 28), known to be distributed in North Pacific (Japan, Pribilof Islands, Bering Sea, and the coast of North America from Alaska to California) (Gibson, 1995: 362).

Emplectonema gracile (Johnston, 1837)

[Japanese name: hoso-midori-himomushi]

Emplectonema gracile: **Yamaoka**, 1940a: 237–238, pl. XVII, figs. 1, 2, text fig. 14; lower intertidal on the surfaces of stones, Daikokujima, Akkeshi, Hokkaidō Prefecture. **Iwata**, 1954a: 15; intertidal on the surfaces of stones or in rock crevices, Akkeshi and Muroran, Hokkaidō Prefecture. **Yamaguchi and Yamada**, 1955: 68. **Iwata**, 1957c: 102. **Iwata**, 1960a: 96, fig. 5. **Iwata**, 1960b: 27–35, figs. 97–122; intertidal, Akkeshi, Hokkaidō Prefecture. **Iwata**, 1960c: 169, pl. 84, fig. 7; habitat not recorded, Asamushi, Aomori Prefecture. **Uchida et al.**, 1963: 17. **Iwata**, 1965a: 169, 218. **Iwata**, 1965b: 396, figs. a, b. **Tsuchiya**, 1979: 82; intertidal, Hadakajima Island, Asamushi, and Aomori Harbor, Aomori Prefecture. **Iwata**, 1983: 181, 182, 184, figs. 8–5j, i, 8–13c.. **Iwata**, 1992: 202–203, fig. 7–4K, 7–5D. **Crandall et al.**, 2002: 11, 20, 27, 34, 39.

NOTE: Originally described as *Nemertes gracilis* from the British Isles by Johnston (1837); transferred to *Emplectonema* by Verrill (1895: 528). Other than Japanese waters, the species is widely distributed in the northern hemisphere: Peter the Great Bay, Aleutian Islands, Pacific coast of North America, northern coast of Europe, Mediterranean, Rumanian coast of the Black Sea, and Madeira (Gibson, 1995: 432).

Emplectonema kandai Kato, 1939

[Japanese name: hikari-himomushi]

Emplectonema kandai **Kato**, 1939: 251–253, pl. XXXII, figs. 1–6; sublittoral on the tunic of *Chelyosoma siboja* collected from sandy or muddy bottom, 30–40 m depth, near Asamushi Marine Biological Station, Aomori Bay, Aomori Prefecture. **Kanda**, 1939: 166–173, figs. 1–4. **Kato**, 1947: 1466, fig. 4134. **Satō and Itō**, 1961: 187, fig. 7.1.13. **Iwata**, 1965a: 218. **Kato and Iwata**, 1965: 396, figs. a, b. **Crandall et al.**, 2002: 11, 20, 27, 39.

Emplectonema candai [sic]: **Iwata**, 1970b: 129.

NOTE: *Emplectonema kandai* is so far the only known luminescent species in the phylum.

Emplectonema mitsuui Yamaoka, 1947

[Japanese name: mitsuui-himomushi]

Emplectonema mitsuui **Yamaoka**, 1947: 1466, fig. 4133; intertidal among algae on rocky shores in southern Japan. **Satō and Itō**, 1961: 187, fig. 7.1.7. **Okuda and Iwata**, 1965: 397, figs. a–d. **Crandall et al.**, 2001: 177–178, pl. 1, figs. 1–4, pl. 2, figs. 16, 16a, 16b. **Crandall et al.**, 2002: 11, 20, 27, 34.

NOTE: Crandall et al. (2001) introduced Yamaoka's original data on the habitat and locality of this species as intertidal among rockweeds at Susaki, Sotoura, and Mikimoto Island, near Shimoda, Shizuoka Prefecture.

Genus *Nemertopsis* Bürger, 1895

Nemertopsis Bürger, 1895: 548.

TYPE SPECIES: *Nemertes peronea* Quatrefages, 1846 (now regarded as a junior synonym of *Polia bivittata* Delle Chiaje, 1841) by subsequent designation of Friedrich (1955: 173).

NOTE: Chernyshev (pers. comm.) indicated that the genus *Nemertopsis* Bürger, 1895 has a senior subjective syn-

onym, *Colpocephalus* Diesing, 1850 (type species *Borlasia quadripunctata* Quoy and Gaimard, 1833). As far as I am aware, the name *Colpocephalus* Diesing, 1850 has not been used as valid since the year 1899, meeting the condition in Article 23.9.1.1 of the Code (ICZN, 1999). The junior subjective synonym *Nemertopsis* was used during the decade from 1989 to 1998 in the following 27 works, published by 25 authors, and thus meets the condition in Article 23.9.1.2 of the Code (ICZN, 1999): Fish and Fish (1989), Morton (1989), Riser (1989), Britton (1990), Gibson (1990a, b, 1997a,b, 1998), Gibson and Knight-Jones (1990), Turbeville (1991), Iwata (1992), Roe (1993), Hansson (1994), Henry and Martindale (1994, 1996, 1997a, b), Sun and Pan (1994), Walker (1994), Martindale and Henry (1995), Senz (1997b), Boyer and Henry (1998), Envall (1998), Hochberg and Lunianski (1998), Norenburg and Roe (1998), and Stricker and Folsom (1998). The name *Nemertopsis* Bürger, 1895 is herein regarded to have precedence over *Colpocephalus* Diesing, 1850, whenever the two names are considered to be synonymous, according to Article 23.9.2 of the Code (ICZN, 1999).

***Nemertopsis mitellicola* Kajihara, 2007**

Nemertopsis mitellicola **Kajihara**, 2007a: 51–57, figs. 7–11; among the gooseneck barnacle, *Capitulum mitella* (Linnaeus), Shirahama, Wakayama Prefecture.

TYPE MATERIAL: Holotype, ZIHU-3204, serial transverse sections of the complete body, total 52 slides: 6 µm, anterior end of body (1 cm long), 12 slides; 8 µm, rest of the body, 40 slides. Paratypes: ZIHU-3205, serial transverse sections of head (1.5 cm long), 8 µm, 15 slides; ZIHU-3206, serial longitudinal sections, 12 µm, 12 slides.

***Nemertopsis quadripunctata* (Quoy and Gaimard, 1833)**

[Japanese name: yotsume-himomushi]

Nemertopsis gracilis: **Iwata**, 1954b: 38–39, fig. 2A; in the mantle cavity of *Capitulum mitella* (Linnaeus), Shirahama, Wakayama Prefecture. **Utinomi**, 1956: 32, pl. 16, fig. 14. **Iwata**, 1960c: 169, pl. 84, fig. 8; Onomichi, Hiroshima Prefecture; Tomioka, Amakusa Islands, Kumamoto Prefecture; Cape Muroto, Kōchi Prefecture. **Utinomi**, 1960: 32, pl. 16, fig. 14. **Inaba**, 1963: 228; upper to mid intertidal, in the mantle cavity of *Capitulum mitella* (Linnaeus), the Inland Sea of Seto. **Iwata**, 1965a: 218. **Iwata**, 1965b: 397; figs. a–c. **Shiino**, 1969: 94. **Utinomi**, 1969: 32, pl. 16, fig. 14. **Inaba**, 1988: 226; upper to mid intertidal, in the mantle cavity of *Capitulum mitella* (Linnaeus), the Inland Sea of Seto. **Iwata**, 1992: 203, fig. 7–5F.

Nemertopsis quadripunctata: **Crandall et al.**, 2002: 12, 20, 28, 31, 35, 40. **Kajihara**, 2007a: 45–51, figs. 2–6; from *Capitulum mitella* (Linnaeus), Shirahama, Wakayama Prefecture.

NOTE: *Nemertopsis quadripunctata* was originally described as *Borlasia quadripunctata* Quoy and Gaimard, 1833 from Ambon, Indonesia. The Japanese taxon identified as *Nemertopsis gracilis* Coe, 1904 was regarded as conspecific with *Nemertopsis quadripunctata* by Gibson (1990a). Apart from the records from Japanese waters, the species is currently known from Ambon (Quoy and Gaimard, 1833) and Hong Kong (Gibson, 1990a).

Genus *Paranemertes* Coe, 1901

Paranemertes Coe, 1901: 32.

TYPE SPECIES: *Paranemertes peregrina* Coe, 1901, by subsequent designation of Friedrich (1955: 173).

***Paranemertes incola* Iwata, 1952**

Paranemertes incola **Iwata**, 1952: 142–143; lower intertidal under stones, Tomioka, Amakusa Islands, Kumamoto Prefecture. **Crandall et al.**, 2002: 13, 21, 28, 36, 41.

***Paranemertes katoi* Yamaoka, 1947**

[Japanese name: katō-himomushi]

Paranemertes katoi **Yamaoka**, 1947: 1467, fig. 4135.

Okuda and Iwata, 1965: 397, figs. a–c. **Crandall et al.**, 2001: 178–179, pl. 1, figs. 5–7, pl. 2, fig. 15. **Crandall et al.**, 2002: 13, 21, 28, 36, 41.

NOTE: **Crandall et al.** (2001) noted that Yamaoka's manuscript reported the species as intertidally abundant from May to July under stones or on seaweeds at Susaki and Sotoura, near Shimoda, Shizuoka Prefecture.

***Paranemertes peregrina* Coe, 1901**

[Japanese name: onando-himomushi]

Paranemertes peregrina: **Yamaoka**, 1940a: 240–243, pl. XVII, figs. 3–5, text figs. 17–19; intertidal under or between stones; Akkeshi, Abashiri, and Muroran, Hokkaidō Prefecture. **Coe**, 1944: 29. **Okuda**, 1947: 1467, fig. 4136. **Iwata**, 1954a: 15; lower intertidal under stones or among laminarian holdfasts, Hokkaidō Prefecture (Akkeshi, Monbetsu, Muroran, Nemuro, Oshoro and Rishiri Island). **Yamaguchi and Yamada**, 1955: 68. **Utinomi**, 1956: 32, pl. 16, fig. 11. **Iwata**, 1960c: 169, pl. 84, fig. 9. **Utinomi**, 1960: 32, pl. 16, fig. 11. **Uchida et al.**, 1963: 17. **Iwata**, 1965a: 169. **Okuda and Iwata**, 1965: 398, figs. a–d. **Utinomi**, 1969: 32, pl. 16, fig. 11. **Okada et al.**, 1971: 62. **Uchida et al.**, 1972: 62. **Hieda and Takahashi**, 1986: 42, with two color photographs of a specimen taken at Yakumo, Hokkaidō Prefecture. **Iwata**, 1992: 203, figs. 7-4J, 7-5E. **Crandall et al.**, 2002: 13, 21, 25, 28, 36, 41.

NOTE: *Paranemertes peregrina* Coe, 1901 was originally described from Alaska. Yamaoka's (1940a) illustration in pl. XVII, fig. 6 depicts *Amphiporus parvus*, though the figure legend indicates *Paranemertes peregrina*. Besides the records from Japanese waters, the species is also known from the Commander Islands, Kamchatka Peninsula, Aleutian Islands, and the Pacific coast of North America from Alaska to Ensenada, Mexico (Gibson, 1995: 460).

***Paranemertes plana* Iwata, 1957**

[Japanese name: sagami-himomushi]

Paranemertes plana **Iwata**, 1957a: 20–21, pl. I, fig. 10, pl. VI, figs. 1–5; dredged sublittorally from 250–300 m depth on 16 July 1955 by His Majesty Emperor Shōwa, near “Gorombo of southern Minamiaamadaiba” [sic], Sagami Bay, off Kanagawa Prefecture. **Iwata**, 1960c: 169, pl. 84, fig. 10. **Iwata**, 1965b: 398, figs. a, b. **Crandall et al.**, 2002: 13, 21, 29, 41.

Family MALACOBDELLIDAE Blanchard, 1847

Genus *Malacobdella* Blainville, 1827

Malacobdella Blainville, 1827: 270.

TYPE SPECIES: *Hirudo glossa* Müller, 1776, by monotypic designation.

***Malacobdella japonica* Takakura, 1897**

[Japanese name: himobiru]

Malacobdella japonica Takakura, 1897: 105–112, pl. VII, figs. 1–6; in the mantle cavity of *Mactra sachalinensis*, Kujūkuri, Chiba Prefecture. **Kaburaki**, 1927: 1664, fig. 3184. **Yamaoka**, 1940a: 253–258, pl. XVII, figs. 14–16, text figs. 32, 33; in the mantle cavity of *Mactra sachalinensis*, Akkeshi, Hokkaidō Prefecture. **Kawai and Yamaoka**, 1940: 255–259, figs. 1–6; in the mantle cavity of *Mactra sachalinensis*, Akkeshi, Hokkaidō Prefecture. **Kaburaki**, 1947: 1470, fig. 4145. **Iwata**, 1954a: 36; in the mantle cavity of *Mactra sachalinensis*, Akkeshi, Hokkaidō Prefecture and Shimoda, Shizuoka Prefecture. **Yamaguchi and Yamada**, 1955: 73. **Iwata**, 1960c: 169, pl. 84, fig. 19. **Satō and Itō**, 1961: 187, fig. 7.1.11. **Uchida et al.**, 1963: 17. **Iwata**, 1965a: 169, 218. **Kaburaki and Iwata**, 1965: 401, figs. a, b. **Shiino**, 1969: 94, fig. 9-3F. **Okada et al.**, 1971: 63. **Uchida et al.**, 1972: 62. **Iwata**, 1992: 204, fig. 7-4M. **Iwata**, 1997: 55. **Crandall et al.**, 2002: 12, 23, 28, 44.

NOTE: Apart from the records from Japanese waters, *Malacobdella japonica* has also been reported from Sakhalin (Steksova, 2004).

Family OTOTYPHLONEMERTIDAE Bürger, 1895

Genus *Ototyphlonemertes* Diesing, 1863

Ototyphlonemertes Diesing, 1863: 180.

TYPE SPECIES: *Oerstedtia pallida* Keferstein, 1862, by monotypic designation.

***Ototyphlonemertes dolichobasis* Kajihara, 2007**

Ototyphlonemertes sp. **Shimomura et al.**, 2001: 47.

Ototyphlonemertes dolichobasis **Kajihara**, 2007b: 57–66, figs. 1–4; intertidal among coarse sand, Hakozaki, Ôtsuchi Bay, Iwate Prefecture.

TYPE MATERIAL: Holotype, ZIHU-3200, 22 July 1998, 23 slides. Paratypes: ZIHU-3199, 22 July 1998, 7 slides; ZIHU-3201, 25 September 1997, 16 slides; ZIHU-3202, 25 September 1997, 42 slides; ZIHU-3203, 25 September 1997, 31 slides; ZIHU-3208, 3209, 25 May 1998, unsectioned, fixed in Bouin's fluid, preserved in 70% EtOH; ZIHU-3210, 3211, 3212, 3214, 3215, 21 July 1998, unsectioned, fixed in Bouin's fluid, preserved in 70% EtOH; ZIHU-3213, 21 July 1998, fixed and preserved in 99% EtOH; ZIHU-3217, 3218, 22 July 1998, unsectioned, fixed in Bouin's fluid, preserved in 70% EtOH.

***Ototyphlonemertes martynovi* Chernyshev, 1993**

Ototyphlonemertes martynovi: **Kajihara**, 1998: 11, pls 1–2; intertidal in coarse sand, Oshoro, Hokkaidō Prefecture; Ôtsuchi, Iwate Prefecture; Shirahama, Wakayama Prefecture; Sugashima, Mie Prefecture; Mukaishima, Hiroshima Prefecture. **Shimomura et al.**, 2001: 46; intertidal in coarse sand, Hakozaki, Ôtsuchi Bay, Iwate Prefecture. **Crandall et al.**, 2002: 13, 20, 28, 43.

NOTE: *Ototyphlonemertes martynovi* Chernyshev, 1993 was originally described from Peter the Great Bay, Russia, and appears to have a wide range of distribution in Japanese waters.

***Ototyphlonemertes nikolaii* Chernyshev, 1998**

Ototyphlonemertes nikolaii: **Shimomura et al.**, 2001: 47; intertidal among coarse sand Hakozaki, Ôtsuchi Bay, Iwate Prefecture. **Crandall et al.**, 2002: 13, 20, 28, 43.

NOTE: *Ototyphlonemertes nikolaii* Chernyshev, 1998 was originally described from Peter the Great Bay, Russia. The species is currently known from Russia and Japan.

Family POSEIDONEMERTIDAE Chernyshev, 2002

Genus *Diopsonemertes* Kajihara, Gibson and Mawatari, 2001

Diopsonemertes Kajihara et al., 2001: 187.

TYPE SPECIES: *Diopsonemertes acanthocephala* Kajihara, Gibson and Mawatari, 2001, by original designation.

***Diopsonemertes acanthocephala* Kajihara, Gibson and Mawatari, 2001**

Diopsonemertes acanthocephala **Kajihara et al.**, 2001: 187–198, figs. 1–23; Ôtsuchi Bay, Iwate Prefecture; sublittoral, 59 m depth on shell gravel. **Crandall et al.**, 2002: 11, 20, 27, 34.

TYPE MATERIAL: Holotype, ZIHU-1290, immature male, complete series of transverse sections, 71 slides.

Family PROSORHOCHMIDAE Bürger, 1895

Genus *Geonemertes* Semper, 1863

Geonemertes Semper, 1863: 559.

TYPE SPECIES: *Geonemertes pelaensis* Semper, 1863, by monotypic designation.

***Geonemertes pelaensis* Semper, 1863**

[Japanese name: ogasawara-riku-himomushi]

Geonemertes pelaensis: **Oki et al.**, 1987: 69–75, figs. 1–4; among roadside bushes and under a flowerpot in a garden, Chichijima Island, Ogasawara Islands, the Metropolis of Tôkyô. **Kawakatsu**, 1991: 2, fig. 15. **Kawakatsu**, 1999: 11–12, figs. 1–5.

NOTE: Semper's (1863) original description of *Geonemertes pelaensis* was based upon material collected from the Palau Islands, Republic of Palau. The species is also known from Papua New Guinea, Sulawesi, Seychelle Islands, Peradeniya (Sri Lanka), Kei Island, Upolu Island (Samoa), Mauritius, Florida, Dominica (West Indies), Jamaica, Mangareva Island, Oahu (Hawaiian Islands), and Réunion (Gibson and Moore, 1998: 159).

Genus *Pantinonemertes* Moore and Gibson, 1981

Pantinonemertes Moore and Gibson, 1981: 176.

TYPE SPECIES: *Pantinonemertes winsori* Moore and Gibson, 1981, by original designation.

NOTE: The genus *Pantinonemertes* Moore and Gibson, 1981 now contains nine species (Sun, 2001), but the generic name has a subjective senior synonym *Neonemertes* Girard, 1893 (Chernyshev, pers. comm.). Moore and Gibson (1981) recognized the genus *Pantinonemertes* as including three nominal species: *Pantinonemertes winsori* Moore and Gibson, 1981, *Pantinonemertes enalios* Moore and Gibson, 1981, and *Tetrastemma agricola* Willemoes-Suhm, 1874 (the name-bearing type of the nominal genus *Neonemertes* Girard, 1893), while Moore

and Gibson (1981) designated *Pantionemertes winsori* Moore and Gibson, 1981 as the type species of the genus *Pantionemertes* Moore and Gibson, 1981. The name *Neonemertes* has been used as valid by six works, including Girard (1893: 238), Joubin (1894: 193), Friedrich (1955: 142, 143, 161, 1958: 22), Corrêa (1966: 365), and Riser (1974: 363, 364), whereas *Pantionemertes* has been used in at least 42 works since the year 1981. It is thus reasonable to conclude that the name *Pantionemertes* has been adopted as the prevailing usage, and that the senior synonym *Neonemertes* should be suppressed by plenary power by the ICZN under Article 23.9.3 of the Code (ICZN, 1999). Recently, Maslakova (2005) concluded that these two genera should be synonymized due to lack of morphological differences between them, on the basis of a reinvestigation of all available type and voucher material of species of *Pantionemertes* Moore and Gibson 1981 and *Prosadenoporus* Bürger, 1890. The name *Prosadenoporus* Bürger, 1890 has precedence over both *Neonemertes* Girard, 1893 and *Pantionemertes* Gibson and Moore, 1981. However, since Maslakova (2005) disclaimed nomenclatural acts, the name *Pantionemertes* Gibson and Moore 1981 is here used as valid.

***Pantionemertes spectacula* (Yamaoka, 1940)**

Prostoma spectaculum Yamaoka, 1940b: 16–17, fig. 3; habitat not recorded, Naha and Chinen, Okinawa Prefecture.

Pantionemertes speculaculata: Crandall et al., 2002: 13, 21, 31, 43.

NOTE: Gibson (1990a) redescribed the material from Hong Kong and transferred this species to the genus *Pantionemertes*. Currently known from Okinawa and Hong Kong.

Family TETRASTEMMATIDAE Hubrecht, 1879

NOTE: The correct spelling of the family name is “Tetrastemmatidae” under Article, 29.3. of the Code (ICZN, 1999), since the name of its type genus *Tetrastemma* (neuter gender) gives the genitive singular “Tetrastemmatos” and the stem “Tetrastemmat-.”

Genus *Nemertellina* Friedrich, 1935

Nemertellina Friedrich, 1935b: 10.

TYPE SPECIES: *Nemertellina oculata* Friedrich, 1935 by subsequent designation of Friedrich (1955: 164).

***Nemertellina yamaokai* Kajihara, Gibson and Mawatari, 2000**

[Japanese name: yamaoka-himomushi]

Nemertellina minuta: Yamaoka, 1940a: 239–240, text figs. 15, 16; sublittoral from several meters depth; in the canals of sponges; Akkeshi Bay, Hokkaidô Prefecture. Iwata, 1954a: 15. Yamaguchi and Yamada, 1955: 68. Uchida et al., 1963: 17. Crandall et al., 2002: 12, 20, 28, 35, 40. Non Friedrich, 1935a: 320.

Nemertellina yamaokai Kajihara et al., 2000: 265–276, figs. 1–33; sublittoral, 6–8 m depth among sponges, seaweeds, rocks, and mollusks (*Patinopecten* sp. and oysters), 43°00'N, 144°46'E and 43°42'N, 144°51'E, Akkeshi Bay, Hokkaidô Prefecture. Crandall et al. 2002: 12, 20, 28, 35. Thollessen and Norenburg, 2003: 408; Akkeshi Bay,

Hokkaidô Prefecture.

TYPE MATERIAL: Holotype, ZIHU-1260, immature male, complete series of transverse sections, 26 slides. Paratypes: ZIHU-1261, female, series of transverse sections, 24 slides; ZIHU-1262, male, complete series of longitudinal sections, 14 slides; USNM 186063, female, complete series of transverse sections, 17 slides. Three unsectioned voucher specimens are also deposited under ZIHU-1271, ZIHU-1272, and ZIHU-1273.

Genus *Oerstedtia* Quatrefages, 1846

Oerstedtia Quatrefages, 1846: 221.

TYPE SPECIES: *Oerstedtia maculata* Quatrefages, 1846, now regarded as a junior synonym of *Planaria dorsalis* Abildgaard, 1806.

NOTE: The genus *Oerstedtia* Quatrefages, 1846 had long been classified into the family Prosorhochmididae, before Moore and Gibson (1988) argued that the genus could no longer be retained in that taxon. The familial affiliation of the genus has been treated as uncertain (Gibson, 1994). A recent molecular phylogenetic study (Thollessen and Norenburg, 2003) indicated that members of the genus are closely related to tetrastemmatids, although Strand and Sundberg's (2005b) molecular phylogenetic analyses were not decisive about the familial classification. The genus is here provisionally included in the family Tetrastemmatidae.

***Oerstedtia dorsalis* (Abildgaard, 1806)**

[Japanese name: botan-himomushi]

Oerstedtia dorsalis: Iwata, 1954a: 17, fig. 4A; lower intertidal among algae or the hydrozoan *Eudendrium annulatum*, Akkeshi, Hokkaidô Prefecture. Yamaguchi and Yamada, 1955: 68. Iwata, 1960a: 96, fig. 6. Iwata, 1960c: 169; pl. 84, fig. 11. Uchida et al., 1963: 17. Iwata, 1965a: 169, 218. Iwata, 1965b: 398; figs. a–e. Iwata, 1983: 181. Iwata, 1992: 203, fig. 7-5H. Shimomura et al., 2001: 47; intertidal, Akahama, Ôtsuchi Bay, Iwate Prefecture. Crandall et al., 2002: 13, 20, 28, 35, 40.

Oerstedtia dorsalis var. *aequalis* Iwata, 1954a: 17, fig. 4A-4; lower intertidal among algae or the hydrozoan *Eudendrium annulatum*, Akkeshi, Hokkaidô Prefecture. Crandall et al., 2002: 10, 28.

Oerstedtia dorsalis var. *albolineata*: Iwata, 1954a: 17, fig. 4A-2, 4A-3 lower intertidal among algae or the hydrozoan *Eudendrium annulatum*, Akkeshi, Hokkaidô Prefecture. Iwata, 1960b: 35–40, figs. 123–142; intertidal, Akkeshi, Hokkaidô Prefecture. Iwata, 1983: 182, 187, 193, fig. 8-14c.

Oerstedtia dorsalis var. *viridis*: Iwata, 1954a: 17, fig. 4A-1 lower intertidal among algae or the hydrozoan *Eudendrium annulatum*, Akkeshi, Hokkaidô Prefecture.

NOTE: *Oerstedtia dorsalis*, originally described as *Planaria dorsalis* by Abildgaard (1806) from Denmark and Norway, was transferred to *Oerstedtia* by Bürger (1895: 592). The species is known to exhibit a high degree of polymorphism in body color pattern (Bürger, 1895; Iwata, 1954a; Brunberg, 1964). A series of studies based on morphological (Sundberg, 1984) and molecular (Sundberg and Janson, 1988; Sundberg and Andersson, 1995) evidence have revealed the existence of a cryptic species, *Oerstedtia striata*, that can be distinguished from *Oerstedtia dorsalis* by enzyme differences, external pigmentation, and the

general appearance of the body (Sundberg, 1988). The forms reported under the name *Oerstedtia dorsalis* are known from the coast of North America (from Puget Sound, Washington to Mexico), Gulf of Mexico, Atlantic coast of North America (Nova Scotia to Florida), western Baltic Sea, North Sea, Mediterranean Sea, Black Sea, northwestern Spain, and Madeira (Gibson, 1995: 467). Due to the high polymorphism, different taxa may be contained among these forms. Numerous varieties have been named, including three reported from Japanese waters: var. *aequalis* Iwata, 1954a, var. *albolineata* Bürger, 1895, and var. *viridis* Bürger, 1895. Until future studies determine whether or not these varieties warrant separate taxonomic status, these are regarded as synonymous with *Oerstedtia dorsalis*.

***Oerstedtia polyorbis* Iwata, 1954**

Oerstedtia polyorbis Iwata, 1954a: 18–19, fig. 4B; lower intertidal among the hydrozoan *Eudendrium annulatum* Norman, Daikokujima Island, Akkeshi, Hokkaidô Prefecture. Yamaguchi and Yamada, 1955: 69. Uchida et al., 1963: 17. Crandall et al., 2002: 13, 20, 28, 35, 40.

?*Oerstedtia zebra*: Tholleson and Norenburg, 2003: 408; Akkeshi Bay, Akkeshi, Hokkaidô Prefecture.

?*Oerstedtia venusta*: Tholleson and Norenburg, 2003: 408; Akkeshi Bay, Akkeshi, Hokkaidô Prefecture.

NOTE 1: Iwata (1954: 18) established *Oerstedtia polyorbis*, which is about 5 mm in body length, with about 30 transverse dorsal bands and cephalic glands that are not well developed and limited only to the anterior portion of the head. Later, Chernyshev (1993: 13) described a similar form, *Oerstedtiella (Paroerstedtiella) zebra* (now *Oerstedtia zebra*), which differs from *Oerstedtia polyorbis* in body length (8–13 mm), the number of the transverse dorsal bands (10–18), and in having cephalic glands extending behind brain. However, ten specimens obtained from the same population as those that Tholleson and Norenburg (2003) identified as *Oerstedtia zebra*, possessed 9–16 transverse bands, with body length varying from 2–4 mm and cephalic glands extending behind brain; there was a pair of pores on the ventral surface of the head, which represented the openings of the cerebral organ ducts, but there were no distinct anterior cephalic furrows (Kajihara, pers. obs.). This overlap in characters indicates that *Oerstedtia zebra* might be a junior synonym of *Oerstedtia polyorbis*.

NOTE 2: Tholleson and Norenburg (2003) identified their material from Akkeshi as *Oerstedtia venusta*. Specimens from the same locality (n=10) were almost identical with what these authors identified as *Oerstedtia zebra* in both external and internal morphology, except for the transverse dorsal bands that were present in the latter. However, the form identified as *Oerstedtia venusta* by Tholleson and Norenburg (2003) differs from Iwata's (1954a) original description in not having distinct anterior cephalic furrows. It remains uncertain whether *Oerstedtia venusta sensu* Tholleson and Norenburg (2003) represents the same taxon as Iwata's (1954a) form. *Oerstedtia venusta sensu* Tholleson and Norenburg (2003) also resembles *Oerstedtia oculata* (Kulikova, 1987) in external characters.

NOTE 3: Strand and Sundberg (2005a: 210) regarded *Oer-*

stedtia zebra (Chernyshev, 1993) *sensu* Tholleson and Norenburg (2003) and *Oerstedtia venusta* Iwata, 1954 *sensu* Tholleson and Norenburg (2003) as synonymous, on the basis of genetic similarity. However, as the taxonomic identity of the latter is unclear, Strand and Sundberg's (2005a) synonymization may require additional topotypic data before it is substantiated.

Genus *Prostoma* Dugès, 1828

Prostoma Dugès, 1828: 140.

Stichostemma Montgomery, 1894: 8; synonymized by Bürger (1904: 53).

TYPE SPECIES: The genus *Prostoma* was long used for species of *Tetrastemma*, until Stiasny-Wijnhoff (1938) circumscribed *Prostoma* to include only freshwater species. The single species included in the nominal genus *Prostoma* when it was established was *Prostoma clepsinoides* Dugès, 1828, which was the only nominal species eligible to be the type species of the genus. However, Friedrich (1955: 162) indicated "*Prostoma lumbricoideum* Dugès (1828) [sic]" (correctly *Prostoma lombricoideum* Dugès, 1830) as the type species of *Prostoma*, and recently Gibson (1995: 495) indicated *Prostoma graecense* (Böhmig, 1892). These nomenclatural acts cannot be regarded as valid designations of the type species, according to Article 67.2 of the Code (ICZN, 1999). Meanwhile, the taxonomic identity indicated by the name *Prostoma clepsinoides* has been regarded as vague (Stiasny-Wijnhoff, 1938; Gibson and Moore, 1976). When it becomes necessary to delineate the identity of *Prostoma*, especially in comparison with similar genera like *Limnertes*, nomenclatural actions will be required, such as either 1) removing the name-bearing function from *Prostoma clepsinoides* and bestowing it on a well-known species like *Prostoma graecense*, or 2) designating a neotype for *Prostoma clepsinoides*, ideally obtained from the type locality, probably Montpellier, France.

***Prostoma ohmiense* Chernyshev, Timoshkin, and Kawakatsu, 1998**

Prostoma ohmiense Chernyshev et al., 1998: 53–60, figs. 2–6; on rocks with overgrowing algae, 2 m depth, Lake Biwako, off Kitakomatsu, Shiga-chô, Shiga-gun, and off Shin-asahi-chô, Takashima-gun, Shiga Prefecture. Crandall et al., 2002: 14, 21, 29, 43.

TYPE MATERIAL: The holotype and two paratypes are supposed to be deposited in Biwako Museum, according to the original description. However, due to confusion arising during transportation of the specimens, the holotype cannot be identified among the specimens in the museum (Dr. Mark J. Grygier, pers. comm.).

Genus *Quasitetrastemma* Chernyshev, 2004

Quasitetrastemma Chernyshev, 2004b: 152.

TYPE SPECIES: *Tetrastemma nigrifrons* Coe, 1904, by original designation.

***Quasitetrastemma nigrifrons* (Coe, 1904)**

[Japanese name: nemoko-himomushi]

Prostoma nigrifrons: Yamaoka, 1940a: 249–251, pl. XVI, fig. 14, pl. XVII, figs. 9–12, text figs. 26–29; lower intertidal

under stones, Akkeshi and Abashiri, Hokkaidô Prefecture; sublittoral, among the canal system of sponges attached to gastropod shells collected from a depth of several meters, Akkeshi, Hokkaidô Prefecture. **Okuda**, 1947: 1469, fig. 4142 (1–8).

Tetrastemma nigrifrons: **Iwata**, 1954a: 30–32, fig. 8B. **Yamaguchi and Yamada**, 1955: 71, fig. 18-2. **Utinomi**, 1956: 32, pl. 16, fig. 15. **Iwata**, 1960c: 169, pl. 84, fig. 16. **Utinomi**, 1960: 32, pl. 16, fig. 15. **Uchida et al.**, 1963: 17. **Iwata**, 1965a: 169, 218. **Okuda and Iwata**, 1965: 400, figs. a–h. **Utinomi**, 1969: 32, pl. 16, fig. 15. **Okada et al.**, 1971: 62. **Uchida et al.**, 1972: 55; habitat not recorded, Horomui, Hokkaidô Prefecture. **Iwata**, 1992: 203, fig. 7–4I. **Shimomura et al.**, 2001: 47; shallow sublittoral, among sessile organisms on mooring floats, Akahama, Ôtsuchi Bay, Iwate Prefecture. **Crandall et al.** 2002: 14, 21, 29, 36, 41.

Tetrastemma nigrifrons var. *bilineatum*: **Iwata**, 1957a: 27, pl. I, fig. 14; collected subtidally from 4–6 m depth on 8 December 1953 by His Majesty Emperor Shôwa, Samejima at Hayama, Kanagawa Prefecture. **Crandall et al.**, 2002: 14, 21, 29, 36, 41.

Tetrastemma nigrifrons var. *punctatum*: **Crandall et al.**, 2002: 14, 21, 29, 36, 41.

Tetrastemma nigrifrons var. *spadix*: **Crandall et al.**, 2002: 14, 21, 29, 37, 41.

NOTE: Originally described as *Tetrastemma nigrifrons* by Coe (1904: 159) from Pacific Grove (36°38'N 121°56'W) and San Pedro, California, USA, the species was recently transferred to *Quasitetrastemma* by Chernyshev (2004b). Known from the Pacific coasts of North and Central America (Puget Sound, Washington, to Salinas Bay, Costa Rica) (Gibson, 1995: 520), the species shows a high degree of polymorphism in color pattern (Coe, 1940: 305). The following varieties have been named: var. *albino* Manchenko and Kulikova, 1996b; var. *bicolor* Coe, 1904; var. *bilineatum* Iwata, 1954a; var. *pallidum* Coe, 1904; var. *punctata* Iwata, 1954a; var. *purpureum* Coe, 1904; var. *spadix* Iwata, 1954a; and var. *zonatum* Coe, 1940. Manchenko and Kulikova (1996b) demonstrated by isozyme analyses that the five sympatric varieties *albino*, *bicolor*, *pallidum*, *punctata*, and *purpureum* are conspecific. Incidentally, Manchenko and Kulikova's (1996b) description of their var. *albino* that possesses no pigmentation gives the impression that it might represent *Quasitetrastemma stimpsoni*.

Quasitetrastemma stimpsoni (Chernyshev, 1992)

Prostoma stigmatum: **Yamaoka**, 1940a: 251–253, pl. XVII, fig. 13, text figs. 30, 31; intertidal under stones or among algae, Akkeshi and Abashiri, Hokkaidô Prefecture.

Tetrastemma stigmatum: **Iwata**, 1954a: 35; intertidal under stones and among algae, Hokkaidô Prefecture (Abashiri, Akkeshi and Hiroo). **Yamaguchi and Yamada**, 1955: 72. **Uchida et al.**, 1963: 17. *Non Stimpson*, 1857: 163.

Tetrastemma stimpsoni **Chernyshev**, 1992: 135. **Crandall et al.**, 2002: 15, 22, 25, 29, 37, 42.

Quasitetrastemma stigmatum: **Chernyshev**, 2004b: 154.

NOTE 1: Although Stimpson's (1857) original description of *Tetrastemma stigmatum* was brief and accompanied by no illustration, Yamaoka (1940a) and Iwata (1954a) considered their material as conspecific with Stimpson's.

Based upon literature, Chernyshev (1992) regarded *Prostoma stigmatum sensu* Yamaoka (1940a) as different from *Tetrastemma stigmatum* Stimpson, 1857 and gave to Yamaoka's taxon a new name, *Tetrastemma stimpsoni* Chernyshev, 1992, while he considered the name *Tetrastemma stigmatum* to be a *nomen dubium*. Later, Chernyshev (2004b) transferred *Tetrastemma stigmatum* (= *Prostoma stigmatum*) *sensu* Yamaoka (1940a) into *Quasitetrastemma stigmatum* Chernyshev, 2004, ascribing "*Quasitetrastemma stigmatum* (Yamaoka, 1940)." Chernyshev's (1992, 2004b) treatment of the names raises the following two issues: 1) Homonymy. Chernyshev (2004b) states "*Prostoma stigmatum* Yamaoka, 1940 was replaced by a new name *Tetrastemma stimpsoni*," although Yamaoka (1940a) did not establish any nominal species bearing the epithet *stigmatum*. Accordingly, there was no homonymy when Chernyshev (1992) created a new name. 2) Authorship. As mentioned, Chernyshev (2004b) appears to misinterpret Yamaoka (1940a) as establishing a new nominal species *Prostoma stigmatum*. Since Stimpson's material is deemed to belong to a different species from Yamaoka's, the latter taxon name should be ascribed as *Quasitetrastemma stimpsoni* (Chernyshev, 1992).

NOTE 2: It seems likely that Yamaoka did not have access to a copy of Stimpson's 1857 paper, and probably had to refer to Bürger (1904) for the identification of his material as *Prostoma stigmatum*. Unfortunately, the German translation of an excerpt of Stimpson's (1857) Latin description of the species in Bürger (1904) lacked an important sentence for the identification of tetrastemmatids, namely, the presence and coloration of the cephalic patch. Nothing equivalent to the sentence in Stimpson (1857: 163) "pone ocellos anteriores fascia transversa obscure rubra" [behind the anterior eyes there is a dark red transverse band] can be found in Bürger (1904). This could account for why Yamaoka (1940a) identified his material without a cephalic patch as *Tetrastemma stigmatum*, and also why he later established a new species that possessed a red cephalic patch as *Tetrastemma roseocephalum*.

Genus *Sacconemertella* Iwata, 1970

Sacconemertella Iwata, 1970a: 147.

TYPE SPECIES: *Sacconemertella lutulenta* Iwata, 1970 by original designation.

Sacconemertella lutulenta Iwata, 1970

[Japanese name: chibi-kisui-himomushi]

Sacconemertella lutulenta **Iwata**, 1970a: 148–151, fig. 1G-I, pl. 4, figs. 26–33; sublittoral in mud, brackish Lake Hinuma, Ibaraki Prefecture. **Iwata**, 1973: 264. **Crandall et al.**, 2002: 14, 21, 29, 43.

Genus *Sacconemertopsis* Iwata, 1970

Sacconemertopsis Iwata, 1970a: 142.

TYPE SPECIES: *Sacconemertopsis olivifera* Iwata, 1970 by original designation.

Sacconemertopsis olivifera Iwata, 1970

[Japanese name: hime-kisui-himomushi]

Sacconemertopsis olivifera **Iwata**, 1970a: 143–147, fig. 1D-

F, pl. 3, figs. 18–25; sublittoral in mud, brackish Lake Hinuma, Ibaraki Prefecture. **Iwata**, 1973: 264. **Crandall et al.**, 2002: 14, 21, 29, 43.

Genus *Tetrastemma* Ehrenberg, 1831

Tetrastemma Ehrenberg, 1831: 61.

TYPE SPECIES: *Tetrastemma flavidum* Ehrenberg, 1831, by monotypic designation.

***Tetrastemma candidum* (Müller, 1774)**

Tetrastemma candidum: **Iwata**, 1954a: 35–36; lower intertidal among algae, Akkeshi, Hokkaidô Prefecture. **Yamaguchi and Yamada**, 1955: 72. **Uchida et al.**, 1963: 17. **Crandall et al.**, 2002: 14, 21, 29, 36, 41.

NOTE: Originally described as *Fasciola candida* Müller, 1774 from Norway, this species was transferred to *Tetrastemma* by Örsted (1844: 88). The species has a circumpolar distribution in the northern hemisphere (British Isles, coasts of Scandinavia, North Sea, Mediterranean, Madeira, Faroe Islands, Iceland, Greenland, Caribbean, Atlantic and Pacific coasts of North America) (Gibson, 1995: 372).

***Tetrastemma insolens* Iwata, 1952**

Tetrastemma insolens **Iwata**, 1952: 146–147, figs. 17, 18; intertidal under stones, Tomioka, Amakusa, Kumamoto Prefecture and Fukue, Gotô Islands, Nagasaki Prefecture. **Crandall et al.**, 2002: 14, 21, 29, 36, 41.

***Tetrastemma melanocephalum* (Johnston, 1837)**

Tetrastemma melanocephalum: **Yamaoka**, 2005: 153, pl. 1, fig. 5, pl. 2, fig. 5, text fig. 9a–c; intertidal under stones and among algal holdfasts, Shimoda, Shizuoka Prefecture.

NOTE: *Tetrastemma melanocephalum* was originally described as *Nemertes melanocephala* by Johnston (1837). The species is reported from west coast of Sweden, Baltic Sea coasts of Germany, Denmark, British Isles, Mediterranean, Adriatic and Black Sea coasts, northern Spain, Madeira, and the Canary Islands (Gibson, 1995).

***Tetrastemma pinnatum* Iwata, 1954**

Tetrastemma pinnatum **Iwata**, 1954a: 34–35, fig. 9C; sublittoral among algae about 4 m deep, Akkeshi, Hokkaidô Prefecture. **Yamaguchi and Yamada** 1955: 72. **Uchida et al.** 1963: 17. **Crandall et al.**, 2002: 15, 21, 29, 37, 42.

***Tetrastemma pseudocoronatum* Chernyshev, 1998**

Prostoma coronatum: **Yamaoka** 1940a: 247–249, pl. XVI, figs. 12, 13, text fig. 25; lower intertidal on stones, Akkeshi and Abashiri, Hokkaidô Prefecture.

Tetrastemma coronatum: **Iwata**, 1954a: 32; lower intertidal, under stones and among algae, Akkeshi and Abashiri, Hokkaidô Prefecture. **Yamaguchi and Yamada**, 1955: 72. **Uchida et al.**, 1963: 17. **Shimomura et al.**, 2001: 47; intertidal, coarse sand, Akahama, Ôtsuchi Bay, Iwate Prefecture. **Crandall et al.**, 2002: 14, 21, 29, 36, 41.

Tetrastemma pseudocoronatum: **Crandall et al.**, 2002: 15, 21, 29, 37, 42.

NOTE: *Tetrastemma coronatum* was originally described as *Polia coronata* from Bréhat, France, by Quatrefages (1846: 213) and was later transferred to *Tetrastemma* by

Hubrecht (1879: 228). Gibson (1995: 478) stated that the species has been reported from the British Isles, Scandinavia, the Atlantic coast of France, the Mediterranean, the Adriatic and Black Seas, and Madeira, but questioned the validity of the records by Yamaoka (1940a) and Iwata (1954a). Chernyshev (1998) described *Tetrastemma pseudocoronatum* based upon material obtained from Kunashiri Island and regarded *Prostoma coronatum sensu* Yamaoka (1940a) as conspecific.

***Tetrastemma roseocephalum* (Yamaoka, 1947)**

Prostoma roseocephalum **Yamaoka**, 1947: 1469, fig. 4141 (1–4); under stones and among algal holdfasts; Shimoda, Shizuoka Prefecture.

Tetrastemma roseocephalum: **Okuda and Iwata**, 1965: 400; figs. a–d. **Crandall et al.**, 2001: 180, pl. 1, figs. 11–14, pl. 2, figs. 17, 17a. **Crandall et al.**, 2002: 15, 22, 29, 37, 42. **Yamaoka**, 2005: 155.

NOTE: *Tetrastemma roseocephalum* is potentially a junior synonym of *Tetrastemma stigmatum*. See NOTE under *Tetrastemma yamaokai*.

***Tetrastemma stigmatum* Stimpson, 1857**

Tetrastemma stigmatum **Stimpson**, 1857: 163; sublittoral, under stones or among algae at a depth of about 11 m, Hakodate, Hokkaidô Prefecture. **Crandall et al.**, 2002: 15, 22, 29, 37, 42.

NOTE: *Tetrastemma stigmatum* is potentially a senior synonym of the two nominal species *Prostoma roseocephalum* and *Tetrastemma yamaokai*. See NOTE for *Tetrastemma yamaokai*.

***Tetrastemma verinigrum* Iwata, 1954**

Tetrastemma verinigrum **Iwata**, 1954a: 32–33, fig. 9A; intertidal among algal holdfasts, Oshoro, Hokkaidô Prefecture.

Yamaguchi and Yamada, 1955: 72. **Okada et al.**, 1971: 62. **Uchida et al.**, 1972: 62. **Crandall et al.**, 2002: 15, 22, 30, 31, 37, 42.

Tetrastemma verinigrum var. *meridianum* **Iwata**, 1954b: 41, fig. 2C; lower intertidal under stones, Kushimoto, Wakayama Prefecture. **Crandall et al.**, 2002: 15, 22, 30, 37, 42.

NOTE: Apart from the records from Japanese waters, *Tetrastemma verinigrum* is also known from Hong Kong (Gibson, 1990a).

***Tetrastemma yamaokai* Iwata, 1954**

[saninuri-himomushi]

Tetrastemma yamaokai **Iwata**, 1954a: 33, fig. 9B; Oshoro, Hokkaidô Prefecture, intertidal among algal holdfasts.

Yamaguchi and Yamada, 1955: 72. **Okada et al.**, 1971: 63. **Uchida et al.**, 1972: 62. **Crandall et al.**, 2002: 15, 22, 30, 37, 42.

NOTE: Judging from the original description of *Tetrastemma yamaokai* Iwata, 1954, the taxonomic identity of this species can be regarded to be encompassed by that of *Tetrastemma roseocephalum* Yamaoka, 1947; thus the former name may possibly be a junior synonym of the latter. *Tetrastemma stigmatum* Stimpson, 1857 was regarded by Chernyshev (1992) as a *nomen dubium*, but Stimpson's (1857) original description contains such

important taxonomic characters for identifying tetrastemmatids as the coloration of the body and cephalic patch. These character states in *Tetrastemma stigmatum* Stimpson, 1857 also apply to *Tetrastemma yamaokai* Iwata, 1954 and *Tetrastemma roseocephalum* Yamaoka, 1947. These might be synonymized by future studies.

Subclass POLYSTILIFERA Brinkmann, 1917

Order REPTANTIA Brinkmann, 1917

Family DREPANOPHORIDAE Verrill, 1892

Genus *Drepanophorus* Hubrecht, 1874

Drepanophorus Hubrecht, 1874: 42.

TYPE SPECIES: *Drepanophorus rubrostriatus* Hubrecht, 1874 by subsequent designation of Gibson (1995: 360).

***Drepanophorus longiceps* Iwata, 1957**

[Japanese name: mikado-himomushi or tsurugi-himomushi]
Drepanophorus longiceps Iwata, 1957a: 27–30, pl. I, fig. 15, pl. VI, figs. 9, 10, pl. VII, figs. 1–8; dredged from a depth of 50 m on 7 November 1954 by His Majesty Emperor Shōwa, Shimoda, Shizuoka Prefecture. Iwata, 1960c: 169, pl. 84, fig. 17. Iwata, 1965a: 216. Iwata, 1965b: 401, figs. a, b. Iwata, 1992: 199, fig. 7-5B.

Hirohitonemertes longiceps [nomen nudum]: Crandall et al., 2002: 11, 22, 27, 39.

Genus *Kameginemertes* Iwata, 1998

Kameginemertes Iwata, 1998: 199.

TYPE SPECIES: *Amphiporus parmiornatus* Iwata, 1957 by original designation.

***Kameginemertes parmiornata* (Iwata, 1957)**

Amphiporus parmiornatus Iwata, 1957a: 24–25, pl. I, fig. 12, pl. VI, fig. 6; dredged from 50–55m depth on 6 December 1951 by His Majesty Emperor Shōwa, “Kamejyo” [sic], Sagami Bay, off Kanagawa Prefecture.

Kameginemertes parmiornatus Iwata, 1998: 199–213, figs. 1–9.

Kameginemertes parmiornata: Crandall et al., 2002: 11, 22, 27, 39.

NOTE: Iwata (1998) redescribed *Amphiporus parmiornatus* Iwata, 1957 based on the original material, establishing a new genus; in his 1998 paper, the locality is noted as “On off-shore reef at Kamegisho, near Nagai.”

Family SAGAMINEMERTIDAE Chernyshev, 2003

Genus *Sagaminemertes* Friedrich, 1968

Sagaminemertes Friedrich, 1968: 34.

TYPE SPECIES: *Amphiporus nagaiensis* Iwata, 1957 by monotypic designation.

***Sagaminemertes nagaiensis* (Iwata, 1957)**

[Japanese name: nagai-himomushi]

Amphiporus nagaiensis Iwata, 1957a: 23–24, pl. I, fig. 11, pl. VI, figs. 6, 7; dredged sublittorally from 100–130 m depth on 7 August 1950 by His Majesty Emperor Shōwa, northern Nakafukari near Nagai, Sagami Bay, Kanagawa Prefecture.

Sagaminemertes nagaiensis Iwata, 1988: 115–123, figs. 1–7; Iwata, 1992: 199, fig. 7-5A. Crandall et al., 2002: 14,

22, 29, 41.

NOTE: Iwata (1988) redescribed *Amphiporus nagaiensis* Iwata, 1957 based on the original material, establishing a new genus. Iwata (1988) indicated the depth as 100–110 m, whereas Iwata (1957) gave it as 100–130 m.

Order PELAGICA Brinkmann, 1917

Family NECTONEMERTIDAE Verrill, 1892

Genus *Nectonemertes* Verrill, 1892

Nectonemertes Verrill, 1892: 447.

TYPE SPECIES: *Nectonemertes mirabilis* Verrill, 1892 by monotypic designation.

***Nectonemertes japonica* Foshay, 1912**

[Japanese name: hoso-oyogi-himomushi]

Nectonemertes japonica Foshay, 1912: 50–53, fig. 1; off Misaki, Kanagawa Prefecture, “taken in the vicinity of Misaki..., but no depth is recorded.” Crandall et al., 2002: 12, 22, 28, 31, 42.

Nectonemertes mirabilis: Komai, 1919: 295, fig. 2. Kato, 1947: 1469, fig. 4143. Satō and Itō, 1961: 187, fig. 7.1.9.

Kato and Iwata, 1965: 401; with one figure. Shiino, 1969: 94, fig. 9-3E. Iwata, 1992: 201, fig. 7-4E. Iwata, 1997: 55.

NOTE: Brinkmann (1917: 9) synonymized *Nectonemertes japonica* Foshay, 1912 with *Nectonemertes mirabilis* Verrill, 1892. Coe (1926: 174) proposed separating these species, but later synonymized *Nectonemertes japonica* with *Nectonemertes mirabilis* (Coe, 1954: 259). Korotkevitch (1955: 72, 81–82; 1977: 17) retained *Nectonemertes japonica* under its original name. Gibson (1995: 425) listed *Nectonemertes japonica* as a valid species name. Future studies must settle the problem of which name should be applied to the Japanese species. *Nectonemertes mirabilis* was originally described from the Atlantic, but is known to be distributed in the North, equatorial and South Atlantic and North Pacific (Gibson, 1995: 426), while *Nectonemertes japonica* is only known from Japanese waters.

Family PELAGONEMERTIDAE Moseley, 1875

Genus *Pelagonemertes* Moseley, 1875

Pelagonemertes Moseley, 1875a: 168.

TYPE SPECIES: *Pelagonemertes rollestoni* Moseley, 1875 by monotypic designation.

***Pelagonemertes moseleyi* Bürger, 1895**

[Japanese name: oyogi-himomushi]

Pelagonemertes rollestoni Moseley, 1875b: 377–383, pl. XI, figs. 1–5; trawled from 420–755 fathoms by H.M.S. *Challenger* on 5 June 1875, obtained by Willemoes-Suhm, 34°58'N, 139°30'E, about halfway between Ōshima (the Metropolis of Tōkyō) and Cape Sagami (Kanagawa Prefecture).

Pelagonemertes moseleyi: Komai, 1919: 294, fig. 1. Kato and Tanaka, 1938: 595–598, pl. XL, figs. A–F, text figs. 1 and 2; “In the middle of November, 1937, one of the writers, Otohiko Tanaka, obtained several specimens of pelagic nemertean along with a large number of deep-sea medusae, copepods, arrow-worms, etc., by the vertical net from about 1,000 meters to the surface, at a station 3 miles off Hasima in Sagami Bay.” Kato, 1940: 101, two

figs. **Kato**, 1947: 1470, fig. 4144. **Iwata**, 1960c: 169; pl. 84, fig. 18. **Satō and Itō**, 1961: 187, fig. 7.1.8. **Iwata**, 1965a: 169, 217. **Kato and Iwata**, 1965: 401, one figure. **Iwata**, 1992: 201, fig. 7-4F. **Crandall et al.**, 2002: 13, 22, 29, 32.

NOTE: *Pelagonemertes moseleyi* was first reported by Moseley (1875b) as a young individual of *Pelagonemertes rollestoni*, which was also obtained during the scientific cruise of H.M.S. *Challenger* (Moseley, 1875a). Later, Bürger (1895: 596) regarded the former as different from the latter and gave it a new name, *Pelagonemertes moseleyi*; this species has been found in the North and tropical Atlantic and the North Pacific (Gibson, 1995: 463).

Records for Which Application of the Species Name is Doubtful

Class PALAEONEMERTEA Hubrecht, 1879
Family CEPHALOTRICHIDAE McIntosh, 1874
Cephalothrix filiformis (Johnston, 1829)

[Japanese name: daikoku-hoso-himomushi]

Procephalothrix filiformis: **Iwata**, 1954a: 7, fig. 1B, D; under stones near the low-water level on a stony beach, Daikokujima Island, Akkeshi, Hokkaidō Prefecture. **Yamaguchi and Yamada**, 1955: 65. **Iwata**, 1960b: 14–18, figs. 46–61; intertidal, Akkeshi, Hokkaidō Prefecture. **Uchida et al.**, 1963: 17. **Iwata**, 1983: 181, 182, 188, fig. 8-5d, e, f. **Crandall et al.**, 2002: 14, 16, 29, 36, 41. **Thollessen and Norenburg**, 2003: 409; Akkeshi Bay, Hokkaidō Prefecture.

NOTE: *Cephalothrix filiformis* was originally described as *Planaria filiformis* by Johnston (1828) from the British Isles. Johnston's type material is presumably not extant. The taxonomic identity of *Cephalothrix filiformis sensu* Iwata (1954a) requires further investigation, since the occurrence in Japanese waters is quite outside the range of this species based on other records from the British Isles, the coast of France, and northern Spain (Gibson, 1994: 60, 1995: 467).

Cephalothrix linearis (Rathke, 1799)

[Japanese name: hoso-himomushi]

Cephalothrix linearis: **Takakura**, 1898: 119, fig. 4; intertidal among *Sargassum thunbergii*, Jōgashima, Kanagawa Prefecture. **Kaburaki**, 1927: 1662, fig. 3181. **Kaburaki**, 1947: 1474, fig. 4156. **Iwata**, 1951: 135; habitat not recorded, Onomichi, Hiroshima Prefecture. **Iwata**, 1952: 132; intertidal under stones, Tomioka, Amakusa, Kumamoto Prefecture and Fukue, Gotō Islands, Nagasaki Prefecture. **Yamaoka**, 1940a: 215, pl. XIV, figs. 5–8, text figs. 5, 6; under stones on sandy beach near high-water level, Akkeshi, Hokkaidō Prefecture. **Utinomi**, 1956: 31, pl. 16, fig. 2. **Iwata**, 1960c: 166, pl. 83, fig. 4. **Utinomi**, 1960: 31, pl. 16, fig. 2. **Satō and Itō**, 1961: 187, fig. 7.1.2. **Inaba**, 1963: 227; lower intertidal to shallow sublittoral under stones on rocky to gravelly shores; commonly found in the Inland Sea of Seto. **Iwata**, 1965a: 169. **Kaburaki and Iwata**, 1965: 390, figs. 1a, b. **Utinomi**, 1969: 31, pl. 16, fig. 2. **Honma and Kitami**, 1978: 14; Sado Island, Niigata Prefecture. **Inaba**, 1988: 225; lower intertidal to shallow sublittoral under stones on rocky to gravelly shores; commonly found in the Inland Sea of Seto. **Ali et al.**, 1990: 1083; intertidal, Shimoda, Shizuoka Prefecture, identified by Dr.

Minoru Imajima. **Noguchi et al.**, 1991: 846; Shimoda, Shizuoka Prefecture. **Iwata**, 1992: 195, fig. 7-3A. **Asakawa et al.**, 2000: 764; among shells of the oyster, *Crassostrea gigas*, Hiroshima Bay, Hiroshima Prefecture, identified by Prof. Iwata. **Crandall et al.**, 2002: 10, 16, 24, 26, 33, 38.

Procephalothrix similus [sic]: **Iwata**, 1954a: 6, fig. 1A; under stones or among laminarian holdfasts, Hokkaidō Prefecture (Akkeshi, Muroran, Hiroo, Nemuro and Oshoro). **Yamaguchi and Yamada**, 1955: 65. **Iwata**, 1957c: 108. **Iwata**, 1960a: 96, fig. 1. **Iwata**, 1960b: 3–14, figs. 1–45; intertidal, Akkeshi, Hokkaidō Prefecture. **Iwata**, 1960c: 166, pl. 83, fig. 5. **Uchida et al.**, 1963: 17. **Iwata**, 1965a: 169, 201. **Iwata**, 1965b: 390, figs. a, b. **Okada et al.**, 1971: 62. **Honma and Kitami**, 1978: 14; Sado Island, Niigata Prefecture. **Iwata**, 1983: 181, 182, 193, figs. 8-5a, b, c, 8-13a. **Iwata**, 1992: 196. **Iwata**, 1997: 55. **Thollessen and Norenburg**, 2003: 409; Akkeshi Bay, Hokkaidō Prefecture.

Procephalothrix similus [sic]: **Uchida et al.**, 1972: 62.

Procephalothrix simula: **Crandall et al.**, 2002: 14, 16, 29, 36, 41.

Cephalothrix sp. **Asakawa et al.**, 2003: 748; among shells of the oyster, *Crassostrea gigas*, Hiroshima Bay, Hiroshima Prefecture. **Tanu et al.**, 2004: 516; Hiroshima Bay, Hiroshima Prefecture.

NOTE: *Cephalothrix linearis* was originally described as *Planaria linearis* by Rathke (1799) from the North Sea coast of Denmark, based on two specimens. The original description was so brief and uninformative that Jensen (1878) even suspected that Rathke's two specimens represented two different species. Because of the vagueness of the taxonomic identity of this species, determining whether or not the Japanese population identified as *C. linearis* can be included in the same species will require further investigation. Comparative toxicological (Dr. Manabu Asakawa, unpublished) and molecular (Kajihara, unpublished) data from Hiroshima Bay, Ōtsuchi Bay, and Akkeshi Bay indicate that the species previously recorded as *Cephalothrix linearis* from Japanese waters appears to be conspecific with *Cephalothrix simula sensu* Iwata (1954a). The species possesses strong toxicity due to a high concentration of tetrodotoxin and/or related chemicals (Ali et al., 1990; Asakawa et al., 2000, 2003). Possible nominal species contained in this taxon include *Procephalothrix fasciculus* Iwata, 1952 and *Procephalothrix arenaria* Gibson, 1990.

Class PILIDIOPHORA Thollessen and Norenburg, 2003

Family LINEIDAE McIntosh, 1874

Cerebratulus fuscus (McIntosh, 1874)

Cerebratulus fuscus: **Takakura**, 1898: 426–427, fig. 24; on the surfaces of rocks obtained sublittorally from a depth of several fathoms on a muddy sand substrate, Jōgashima, Kanagawa Prefecture. **Crandall et al.**, 2002: 10, 17, 27, 38.

NOTE: *Cerebratulus fuscus* was originally described as *Micrura fusca* by McIntosh (1873–1874) from the British Isles and later transferred to *Cerebratulus* by Hubrecht (1879: 219). The species is distributed in European waters, including the Mediterranean (Gibson, 1994: 78). Records from North American and Greenland are related to *Cerebratulus marginatus* Renier, 1804 (Coe, 1940: 276, 1943: 255). Gibson

(1995: 417) doubted the validity of Wheeler's (1934: 232, 1940: 32) records from South Africa. Takakura's (1898) record of *C. fuscus* from Japan is based on external characters and thus requires further investigation.

Lineus vegetus Coe, 1931

Lineus cf. *vetatus* [sic]: **Inaba**, 1988: 225; lower intertidal to shallow sublittoral, sandy to muddy sediment; a specimen collected on May 1976 in Bizen, Okayama Prefecture, is deposited in Mukaishima Marine Biological Station, Hiroshima University.

Lineus vegetus: **Iwata**, 1997: 53, species name appearing as the caption of a color photograph taken by Fumio Iwata, locality not indicated.

NOTE: *Lineus vegetus* was originally described by Coe (1931) from California, USA, as possessing a strong capacity for regeneration. It was later synonymized with the nominal species *Ramphogordius sanguineus* Rathke, 1799 by Riser (1994), who established a new genus *Myoisophagos* to accommodate the species, along with the two nominal species *Planaria sanguinea* Rathke, 1799 and *Lineus pseudolacteus* Gontcharoff, 1951. However, as the genus *Myoisophagos* Riser, 1994 constitutes a junior synonym of *Ramphogordius* Rathke, 1843, the species should now be called *Ramphogordius sanguineus* Rathke, 1799 (Riser, 1998). There is no taxonomic account of any material of this species from Japanese waters, and the use of the species name by Inaba (1988) and Iwata (1997) should be regarded as questionable.

Lineus bilineatus (Renier, 1804) *sensu* Iwata (1954a)
[Japanese name: hutasuji-himomushi]

Lineus bilineatus: **Iwata**, 1954a: 9–10, fig. 2A; lower intertidal under stones, Akkeshi, Hokkaidô Prefecture. **Yamaguchi and Yamada**, 1955: 65, fig. 17-1. **Uchida et al.**, 1963: 17. **Iwata**, 1965b: 393, figs. a–c. **Crandall et al.**, 2002: 11, 17, 27, 34, 39.

NOTE: *Lineus bilineatus*, originally described as *Cerebratulus bilineatus* Renier, 1804 from the Adriatic Sea (presumably near Padua), has a color pattern and number of eyes different from the Japanese form identified under this name (Gibson, 1995: 330–331).

Lineus gesserensis (Müller, 1774) *sensu* Takakura, 1898

Lineus gesserensis: **Takakura**, 1898: 335, fig. 17; intertidal among algae, Koajiro Bay, Kanagawa Prefecture.

NOTE: *Lineus gesserensis*, originally described by Müller (1788: 32) as *Planaria gesserensis* from Denmark, was subsequently synonymized with *Lineus ruber* (Müller, 1774) by Bürger (1904: 101). However, Gibson (1982a: 90; 1994: 94) noted that forms identified as *Lineus gesserensis* also contain what should now be referred to as *Lineus viridis* (Müller, 1774). Takakura's (1898) description of the external features of what he called *Lineus gesserensis* equally applies to both *Lineus ruber* and *Lineus viridis*, so the identity of Takakura's material cannot be determined. *Lineus ruber* and *Lineus viridis* were recently transferred to the genus *Poseidon* Girard, 1852 by Chernyshev (2004c).

Lineus grubei (Hubrecht, 1879) *sensu* Takakura, 1898

Lineus grubei: **Takakura**, 1898: 331–332, fig. 11; among

algae from 2–3 fathoms depth, Misaki and Jôgashima, Kanagawa Prefecture.

NOTE: Originally reported from Naples as *Cerebratulus grubei* by Hubrecht (1879: 215–126), this species was transferred to *Lineus* by Bürger (1892: 160). Gibson (1995: 335) stated that Takakura's (1898) report of this species from Japan "cannot be substantiated."

Lineus longifissus (Hubrecht, 1887) *sensu* Takakura (1898) and Iwata (1952)

[Japanese name: murasaki-himomushi]

Lineus longifissus: **Takakura**, 1898: 336, fig. 19; obtained sublittorally from muddy sediment, Moroiso Bay, Kanagawa Prefecture. **Iwata**, 1952: 137–138; collected sublittorally among sandy mud at 30 cm depth; Tomioka, Amakusa, Kumamoto Prefecture. **Iwata**, 1960c: 166, pl. 83, fig. 12. **Iwata**, 1965b: 394, one figure. **Saito and Suzuki**, 1974: 38; intertidal, Niisaki Beach, Kanagawa Prefecture; identified by Dr. Iwata. **Crandall et al.**, 2002: 11, 18, 27, 34, 39.

NOTE: *Lineus longifissus* was originally described as *Cerebratulus longifissus* Hubrecht, 1887, based on material from Marion Island, South Africa obtained during the cruise of H.M.S *Challenger*. It was later transferred to *Lineus* by Wheeler (1934: 255), and more recently to *Heteronemertes* by Chernyshev (1995: 15). *Lineus longifissus* differs from Takakura's (1898) and Iwata's (1952) descriptions in the degree of posterior extension of the lateral cephalic grooves; the Japanese form belongs to a different species and will be given a different name when it is redescribed.

Lineus mcintoshii (Langerhans, 1880) *sensu* Takakura (1898)

Lineus Mcdntoshii [sic]: **Takakura**, 1898: 187, fig. 10; intertidal, Koajiro, Kanagawa Prefecture.

NOTE: Collected among algae on a rocky shore in Madeira and originally described as *Cerebratulus mcintoshii* by Langerhans (1880), this species was later transferred to *Lineus* by Bürger (1904: 95). It appears to differ from Takakura's (1898) material in the color pattern of the cephalic region. The taxon recognized by Takakura (1898) must be given a different name when additional material has been found and redescribed.

Class HOPLONEMERTEA Hubrecht, 1879

Subclass MONOSTILIFERA Brinkmann, 1917

Family AMPHIPORIDAE McIntosh, 1874

Amphiporus cervicalis (Stimpson, 1857)

[Japanese name: yajirobei-himomushi]

Polina cervicalis **Stimpson**, 1857: 165; intertidal under stones, Shimoda, Shizuoka Prefecture; transferred to *Amphiporus* by Bürger (1904: 39).

Amphiporus cervicalis: **Iwata**, 1954a: 25–26; intertidal among mussels, Muroran and Rishiri Island, Hokkaidô Prefecture; intertidal among mussels, Kominato, Chiba Prefecture; intertidal among mussels, Shimoda, Shizuoka Prefecture. **Yamaguchi and Yamada**, 1955: 70. **Utinomi**, 1956: 32, pl. 16, fig. 13. **Iwata**, 1960c: 169, pl. 84, fig. 15; habitat not recorded, Asamushi, Aomori Prefecture; habitat not recorded, Cape Muroto, Kôchi Prefecture. **Utinomi**, 1960:

32, pl. 16, fig. 13. **Iwata**, 1965a: 217. **Okuda and Iwata**, 1965: 399, figs. a–c. **Shiino**, 1969: 94. **Utinomi**, 1969: 32, pl. 16, fig. 13. **Tsuchiya**, 1979: 82; intertidal, Hadakajima Island, Asamushi, and Aomori Harbor, Aomori Prefecture. **Uchida et al.** 1972: 55; habitat not recorded, Horomui, Hokkaidō Prefecture. **Iwata** 1992: 202, pl. 44–8. **Crandall et al.**, 2002: 9, 19, 25, 33.

Amphiporus cervicaris [sic]: **Inaba**, 1988: 226; lower intertidal to shallow sublittoral, on algae or under stones on gravelly to rocky shores; a specimen collected 18 July 1977 at Shijūshima, Hiroshima Prefecture, is deposited in Mukaiyama Marine Biological Station, Hiroshima University.

NOTE: The original description of *Polina cervicalis* contains little information about the arrangement of the ocelli, and the description can be applied as well to the conditions in both *Amphiporus formidabilis* Griffin, 1898 and *A. imparispinosus* Griffin, 1898. Records of nemertean under the name *Amphiporus cervicalis* from Japanese waters probably represent either *A. formidabilis* or *A. imparispinosus*, or even another taxon.

Amphiporus depressus (Stimpson, 1857)

Tatsnoskia depressa **Stimpson**, 1857: 165; sublittoral on sandy bottom at a depth of about 3–5 m, Hakodate, Hokkaidō Prefecture; originally recorded as “In portu ‘Hakodadi’ insulae ‘Jesso,’ in fundo arenoso, e 6–10 org. profundo accepta”; transferred to *Amphiporus* by Bürger (1904: 44).

Amphiporus depressus: **Iwata**, 1954a: 19–21, fig. 5C; lower intertidal under stones, Muroran, Hokkaidō Prefecture. **Yamaguchi and Yamada**, 1955: 69. **Crandall et al.**, 2002: 9, 19, 26, 33, 37.

NOTE: Gibson and Crandall (1989: 458) regarded *Amphiporus depressus sensu* Stimpson (1857) as a *nomen dubium*, but *Amphiporus depressus sensu* Iwata (1954a) as a different taxon. The illustration of Iwata’s (1954a) taxon resembles *Amphiporus imparispinosus*.

Amphiporus lactiflores (Johnston, 1828)

Amphiporus lactiflores: **Iwata**, 1954a: 23–24; intertidal under stones, Akkeshi and Muroran, Hokkaidō Prefecture. **Yamaguchi and Yamada**, 1955: 70. **Uchida et al.**, 1963: 17. **Crandall et al.**, 2002: 9, 19, 26, 33, 38.

NOTE: *Amphiporus lactiflores* was originally described from the British Isles as *Planaria lactiflorea* by Johnston (1828: 489). Gibson (1995: 469) questioned the conspecificity between Iwata’s material and Johnston’s taxon. Iwata’s (1954a) taxon may represent *Amphiporus imparispinosus*.

Family CRATENEMERTIDAE

Nipponnemertes pulchra (Johnston, 1837)

Nipponnemertes pulchra: **Yamaoka**, 2005: 147, pl. 2, fig. 2, text fig. 5a–d; subtidal, 50 m depth, muddy sediment, off Kawazu, near Shimoda, Shizuoka Prefecture; habitat not recorded, Hashima Island, near Itō, Shizuoka Prefecture.

NOTE: *Nipponnemertes pulchra* was originally described as *Nemertes pulchra* from Berwickshire, UK, by Johnston (1837: 536). The species has been reported in the northern hemisphere from the east coast of North America, Greenland, the Faroe Islands, the White Sea, and northern

Europe from the Atlantic coast of France to Scandinavia; also reported in the southern hemisphere from Chile, South Africa, and Antarctica (Gibson, 1995). Yamaoka’s (2005) material differs from the other records of *N. pulchra* in possessing a white head, and probably represents a different species.

Family TETRASTEMMATIDAE Hubrecht, 1879

Oerstedtia venusta Iwata, 1954

[Japanese name: hime-himomushi]

Oerstedtia venusta **Iwata**, 1954a: 15–16, fig. 3; intertidal among algal holdfasts, Muroran and Rishiri Island, Hokkaidō Prefecture. **Yamaguchi and Yamada**, 1955: 68. **Iwata**, 1965b: 398, figs. a–f. **Crandall et al.**, 2002: 13, 20, 28, 35, 40.

NOTE: Envall and Sundberg (1993: 313) stated, “It is not possible from the brief description of this species to identify it to the genus *Oerstedtia*.” Gibson (1995: 447) regarded the name *Oerstedtia venusta* as a *nomen dubium*.

Prostoma graecense (Bömig, 1892)

[Japanese name: mamizu-himomushi]

Prostoma graecense: **Ishizuka**, 1933: 215–218, figs. A, B; paddy fields and ponds, especially in chalybeate water, Sapporo, Hokkaidō Prefecture. **Sudzuki**, 1953: 218; in paddy fields around Urawa, Saitama Prefecture; in paddy fields around Sugashima, Mie Prefecture. **Iwata**, 1954a: 29. **Iwata**, 1970b: 128, fig. 91; Urawa, Saitama Prefecture. **Iwata**, 1973: 262. **Iwata**, 1992: 203, fig. 7-5G; Sapporo, Urawa, Sugashima.

Prostoma hokkaidoensis [sic] **Stiasny-Wijnhoff**, 1938: 222. *Prostoma lacstre* [sic]: **Sudzuki**, 1953: 218; habitat not recorded, Sapporo, Hokkaidō Prefecture.

Prostoma graecens [sic]: **Iwata**, 1965a: 217; Urawa, Saitama Prefecture; Sapporo, Hokkaidō Prefecture.

Prostoma gracense [sic]: **Crandall et al.**, 2002: 14, 21, 29, 43.

Prostoma hokkaidoense: **Crandall et al.**, 2002: 14, 21, 29, 43.

NOTE: Ishizuka (1933) identified his material from Sapporo as *Prostoma graecense* (type locality: a local botanic garden in Graz, Austria). Stiasny-Wijnhoff (1938) created a new name, *Prostoma hokkaidoense*, to refer to the Sapporo form, attributing the naming authority to Ishizuka. Sudzuki (1953) regarded the Sapporo form as *Prostoma lacustre* (du Plessis, 1892) (type locality: under pebbles on a beach of Lac Léman at Anière, near Genève, Switzerland), while he identified the form from Urawa and Sugashima as *Prostoma graecense* (Bömig, 1892). Iwata (1954a) listed *Prostoma hokkaidoense* and *Prostoma lacustre sensu* Sudzuki (1953) as synonymous with *Prostoma graecense*. Chernyshev et al. (1998: 62) argued that since previous records of *Prostoma* from Japan lack histological information about internal morphology, the specimens involved cannot be identified with certainty, and concluded that “all previous records of *Prostoma* from Japan should be cited as *Prostoma* sp. (or spp.?).”

Prostoma grande (Ikeda, 1913)

[Japanese name: mimizu-himomushi]

Stichostemma grandis **Ikeda**, 1913:239–256, pl. IV, figs. 1–5;

a vessel planted with the aquatic plant *Lisichiton kamschatense* Schott in the Botanic Garden of the Hiroshima Normal School, Hiroshima Prefecture. **Iwata**, 1957c: 101.

Prostoma grandis: **Kaburaki**, 1927: 1663, fig. 3183. **Miyashita**, 1932: 328; among *Potamogeton cristatus* covering the bottom of a small river, Setagaya, the Metropolis of Tōkyō. **Kaburaki**, 1947: 1468, fig. 4140. **Satō and Itō**, 1961: 187, fig. 7.1.10. **Iwata**, 1965a: 217. **Kaburaki and Iwata**, 1965: 400, figs. a, b. **Iwata**, 1973: 262. **Iwata**, 1983: 181.

Prostoma grandis [sic]: **Okugawa**, 1932: 70; in paddy fields over much of Japan, including Hokkaidō, but excepting Kyushu and Shikoku.

Prostoma lubricoideum [sic]: **Sudzuki**, 1953: 217–218.

Prostoma grande: **Kawakatsu et al.**, 1989: 47. **Crandall et al.**, 2002: 14, 21, 29, 43.

NOTE: Described from Hiroshima by Ikeda (1913), *Prostoma grande* has been widely reported from Japan by various authors. Sudzuki (1953) regarded *Prostoma grande* (Ikeda, 1913) as synonymous with *Prostoma lombricoideum* Dugès, 1830 (type locality: Montpellier [?], France). The comments of Chernyshev *et al.* (1998: 62) above (see 'NOTE' under *Prostoma graecense*) equally apply to *Prostoma grande*. Chernyshev *et al.* (1998: 62) further commented, "Future taxonomic studies on the comparative morphology and histology of *Prostoma* samples from elsewhere in Japan, including the type localities of the nominal species *P. grande* and *P. hokkaidoense*, are necessary."

Species That Cannot With Certainty Be Assigned to Valid Genera

Cosmocephala japonica Stimpson, 1857

Cosmocephala japonica **Stimpson**, 1857: 165; intertidal under stones and in rock crevices, Shimoda, Shizuoka Prefecture.

?*Amphiporus angulatus* [in part]: **Coe**, 1944: 30. **Crandall et al.**, 2002: 9, 19, 24, 33, 37.

Amphiporus japonicus: **Crandall et al.**, 2002: 9, 19, 26, 33.

NOTE: Bürger (1904: 48) regarded this form as a subspecific taxon, *Amphiporus angulatus japonicus*. Iwata (1952: 144) mentioned the similarity between the cephalic marking of *Amphiporus angulatus japonicus* and those of *Amphiporus punctatulus* Coe, 1905 (now *Nipponnemertes punctatula*); the former, having a uniform dorsal body coloration, can be differentiated from the latter, in which the dorsal coloration is mottled. Gibson and Crandall (1989: 460) regarded *Amphiporus japonicus* as a *nomen dubium*. The external appearance of a specimen I recently collected in Hiroshima Bay agrees with the original description of this species, but also resembles that of the *Nipponnemertes* species. This might mean that *Cosmocephala* is a senior synonym of *Nipponnemertes*, which must be determined by future studies. If this proves to be the case, however, the nomenclature of Crateneimertidae will have to be altered to a large extent.

ORIGINAL DESCRIPTION: Stimpson (1857) gave the following diagnosis: "Corpus subelongatum, utrinque obtusum; lateribus in extentione fere parallelis. Color

supra brunnea, subtus alba; caput linea mediana et maculis minutis irregularibus incoloratis; fronte, et maculis cervicalibus triangularibus, albis. Caput breve subdiscretum fronte rotundata, ad aperturam profunde fissa. Cervix utrinque pseudorima obliqua, antrorsum curvata. Ocelli sat magni, in capitis marginibus antero-lateralibus, utrinque 10–15. Long. 4; lat. 0.18 poll." [Free translation: Body somewhat elongated, sometimes blunt; when extended the lateral margins are parallel. Dorsally brown, ventrally white; head with a white median line and irregularly-shaped small white dots; anterior end of the head and triangle-shaped neck spots are white. Head wide, somewhat discrete, anteriorly rounded, deeply splits toward proboscis pore. Neck on each side with pseudo-crevices antero-obliquely curved. Eyes sufficiently large, arranged on the antero-lateral margins of the head, 10–15 on each side. 10 cm long, 4.5 mm wide.].

Dicelis rubra Stimpson, 1857

Dicelis rubra **Stimpson**, 1857: 164; sublittoral, between barnacles and sponges at a depth of about 7–8 m, Tanegashima, Kagoshima Prefecture.

NOTE: Bürger (1904) included this species in a group of dubious nemertean taxa. Gibson (1995) regarded the name as invalid.

ORIGINAL DESCRIPTION: Stimpson (1857: 164) gave the following diagnosis for the genus *Dicelis*: "Corpus lineare, depressiusculum, utrinque obtusum. Caput continuum vel subdiscretum, fronte emarginata, apertura proboscidis terminali. Ocelli duo simplices, rotundati, subterminales. Maricolae." [Free translation: Body filiform, dorsoventrally flattened, blunt on both ends. Head continuous to, or somewhat discrete from, body; frontally convex, proboscis pore terminal. Two rounded eyes subterminally. Marine.]. The diagnosis for the species was given as: "Subfiliformis, depressiuscula, antice subattenuata; colore rubra vel purpurea. Cervix quam caput vix angustior. Caput antice rotundata et emarginata. Ocelli duo parvi subterminales. Long. 1.5; lat. 1.03 [sic. probably 0.03] poll." [Free translation: somewhat filiform, dorsoventrally flattened, anteriorly somewhat tapered; red or purple in color. Neck hardly narrower than head. Head anteriorly rounded and convex. Two eyes slightly subterminally. 3.75 cm long, 0.75 mm wide.].

Dichilus obscurus Stimpson, 1857

Dichilus obscurus **Stimpson**, 1857: 163; intertidal between stones, Amamiōshima, Kagoshima Prefecture; originally recorded as "In portu insulae 'Ousima,' littoralis inter lapillus."

NOTE: Bürger (1904) included this species in a group of dubious nemertean taxa. Gibson (1995) regarded the name as invalid.

ORIGINAL DESCRIPTION: Stimpson (1857: 163) gave the following diagnosis for the genus *Dichilus*: "Corpus lineare depressum, longitudine mediocre. Caput corpori continuum subquadratum, plica transversa terminali bilabiatum; labio inferiore emarginato. Ocelli duo subterminales. Cervix supra rimis obsoletis (pseudorimis) impressa. Maricolae." [Free translation: head somewhat rectangular, continuous to body, transverse fold terminally bilobed; lower lip concave. Two ocelli subterminally. Neck dorsally with

pseudo-crevices. Marine.]. The diagnosis for the species is given as: "Corpus supra pallide rubro-fulvum, maculis duabus oblongis in capite. Ocelli fusci, sat magni, subdistantes, in maculis siti. Pseudorimae cervicales tres; una mediana longitudinalis, ex cujus media aliae versus merginem utrinque oblique extendunt. Long. 3; lat. 0.08 poll." [Free translation: Body dorsally pale reddish brown, with two oblong cephalic patches. Ocelli brown, large, rather separately situated in the cephalic patch. Three pseudo-crevices on neck; one mediolongitudinal, from which other median ones extend obliquely towards the margins respectively. 7.5 cm long, 2mm wide.].

Diplomma serpentina (Stimpson, 1855)

Nareda serpentina **Stimpson**, 1855: 381; habitat not recorded, Okinawa Prefecture.

Diplomma serpentina: **Stimpson**, 1857: 164; intertidal under stones on muddy sand, Okinawa Prefecture.

NOTE: Bürger (1904) included this species in a group of dubious nemertean taxa. Gibson (1995) regarded the name as invalid. It appears that *Diplomma serpentina* is conspecific with *Amphiporus insolitus* Iwata, 1954 and *Paranemertes* sp. *sensu* Yamaoka (2005). The identity of this taxon should be clarified by future studies.

ORIGINAL DESCRIPTION: "Elongated, somewhat flattened, brownish; head broader than the body, emarginate in front; neck well contracted; eyes two, rather large, bilobate, placed one on each side at the middle of the head. Length 2 1/2 inches" (Stimpson, 1855: 381).

Records of Specimens Not Identified to Species

Class PALAEONEMERTEA Hubrecht, 1879

Family TUBULANIDAE Bürger, 1904 (1874)

Carinella sp.

Carinella sp. **Takakura**, 1898: 119; Misaki, Kanagawa Prefecture.

NOTE: The genus *Carinella* Johnston, 1833 was synonymized with *Tubulanus* Renier, 1804, by Bürger (1904). This form differs from *Tubulanus punctatus* (Takakura, 1898) in possessing continuous longitudinal stripes on the mid-dorsal and lateral surfaces of the body.

Class HOPLONEMERTEA Hubrecht, 1879

Subclass MONOSTILIFERA Brinkmann, 1917

Family AMPHIPORIDAE McIntosh, 1874

Amphiporus sp.

Amphiporus sp. **Yamaoka**, 2005: 147, pl. 1, fig. 3; text fig. 4b, c; among shelly bottom, several meters depth, Susaki, Shizuoka Prefecture.

NOTE: *Amphiporus* sp. *sensu* Yamaoka (2005) is well illustrated, which will facilitate identification when this species is again encountered; the external characters of this form include the ovoid-shaped head, the eyes arranged on the edges of the head in front of the anterior cephalic furrows, and the uniformly pinkish-red body coloration. The generic placement of this form may require further assessment based on new material in future studies.

Zygonemertes sp.

Zygonemertes sp. **Iwata**, 1954a: 19, fig. 5A; under a stone

near low tide mark, Muroran, Hokkaidô Prefecture. **Yamaguchi and Yamada**, 1955: 69.

NOTE: This form can be identified as a member of the genera *Zygonemertes* or *Pheroneonemertes* by possessing post-cerebral ocelli; proper generic identification of this form will require histological examination of its internal morphology. The body is about 3 cm long, 1 mm wide, pale blue in color without any marking. There are short, double longitudinal lines on the mid-dorsal surface of the head (Iwata, 1954a).

Family CRATENEMERTIDAE Friedrich, 1968

Nipponnemertes sp. 1

Nipponnemertes sp. 1. **Yamaoka**, 2005: 151, pl. 2, fig. 3; text figs. 6b, c, 7; intertidal, under stones, Shitaru, near Shimoda, Shizuoka Prefecture; shelly bottom, several meters depth, Susaki, Shimoda, Shizuoka Prefecture.

NOTE: The form can be identified as *Nipponnemertes* by the interwoven longitudinal and circular muscle fibers in the rhynchocoel wall. Detailed external features illustrated by Yamaoka (2005) will suffice for identification when this species is again encountered. The body is 2.5 cm long, 0.8 mm wide, yellowish brown in color, rarely with small brown dots; about 15 eyes are irregularly arranged on either side of head. Remarkably, Yamaoka's (2005) specimen possessed only one accessory stylet pouch.

Nipponnemertes sp. 2

Nipponnemertes sp. 2. **Yamaoka**, 2005: 152, text fig. 8; subtidal, several meters depth, Susaki, Shimoda, Shizuoka Prefecture.

NOTE: Yamaoka's (2005) specimens were 10–12 mm long, 0.7 mm wide; anterior cephalic furrows ventrally forming M-shape; posterior cephalic furrows encircling body in esophageal region, curving forward on both dorsal and ventral surfaces; body color pure white, yellowish white, or yellow, with scattered small brown patches. The large cerebral organs extending behind the brain in this form is characteristic of the Cratenemertidae.

Family EMPLECTONEMATIDAE Bürger, 1904

Paranemertes sp.

Paranemertes sp. **Yamaoka**, 2005: 142, pl. 1, fig. 6; text fig. 1; Itado, near Shimoda, Shizuoka Prefecture.

NOTE: Body 6 cm long, 0.7 mm wide; uniformly bright chestnut-brown in color, except for white margins on cephalic tip. This form may be conspecific with *Diplomma serpentina* (Stimpson, 1855) and *Amphiporus insolitus* Iwata, 1954. Future study should clarify the identity of this taxon.

Family TETRASTEMMATIDAE Hubrecht, 1879

Prostoma sp.

[Japanese name: toyama-mamizu-himomushi]

Prostoma sp. **Iwata**, 1997: 53, with two color photographs taken in life by Dr. Fumio Iwata; under stones near a spring in a small pond near a paddy field, Asahi-chô, Toyama Prefecture.

NOTE: The body is about 1 cm long, 0.5 mm wide, pale orange in color. The proboscis retractor muscle is well developed (Iwata, 1997).

Tetrastemma sp.

Tetrastemma sp. **Iwata**, 1954a: 30, fig. 8A; among seaweeds, Akkeshi, Hokkaidô Prefecture. **Yamaguchi and Yamada**, 1955: 71, fig.18-1.

NOTE: Body 2 cm long, 1 mm wide, yellowish green in basement body color, with four darker longitudinal stripes on the dorsal surface; with four eyes (Iwata, 1954a).

Tetrastemma sp.

Tetrastemma sp. **Yamaoka**, 2005: 155, pl. 2, fig. 1, text figs. 9d, e, 10; subtidal, about 5 fathoms deep, Shirahama, near Shimoda, Shizuoka Prefecture.

NOTE: Body 1 cm long, 2 mm wide; dorsally reddish brown, paler ventrally, with dark brown mid-dorsal stripe (Yamaoka, 2005).

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