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Complementary list of crustacean and echinoderm type material in the Invertebrate Regional Collection, Unidad Académica Mazatlán, Instituto de Ciencias del Mar y Limnología, UNAM, Mexico

Lista complementaria de material tipo de crustáceos y equinodermos en la Colección Regional de Invertebrados, Unidad Académica Mazatlán, Instituto de Ciencias del Mar y Limnología, UNAM, México

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Abstract. In fulfillment of the International Code of Zoological Nomenclature recommendation 72F.4 (ICZN, 1999), an initial list of type material included in the Marine Invertebrates Regional Collection in the Unidad Académica Mazatlán, ICML, UNAM, in Mazatlán, Mexico, was published in 2003. A complementary list of all types that have been added since 2003 is presented. In addition, some type specimens not included in the 2003 list are also presented. This second list includes 52 lots of type material (15 of holotypes, 35 of paratypes and 2 of allotypes) totaling 82 specimens. The types correspond to species described from 1983 to 2012. In addition, a list of the 19 paratypes that have been deposited in other museums is also presented.

Key words: type material, Crustacea, Regional Marine Invertebrates Collection, Mazatlán, Mexico.

Resumen. En cumplimiento con la recomendación 72F.4 del Código Internacional de Nomenclatura Zoológica (ICZN), se presenta una lista de los tipos resguardados en la Colección Regional de Invertebrados Marinos de la Unidad Académica Mazatlán, ICML, UNAM, en Mazatlán, México. La lista contiene 52 lotes de material tipo (15 holotipos, 35 paratipos y 2 alotipos) con un total de 82 ejemplares. Los tipos corresponden a especies descritas entre 1983 y 2012. Adicionalmente, se presenta una lista de los 19 paratipos depositados en otros museos.

Palabras clave: material tipo, Crustacea, Colección Regional de Invertebrados Marinos, Mazatlán, México.

Introduction

Since 1979, a reference collection of marine and brackish water invertebrates was formally initiated in the Marine Station operated by the Universidad Nacional Autónoma de México (UNAM), in Mazatlán, Sinaloa, Mexico. The laboratory has considerably increased its activities in the last 3 decades and many new species have been described. In 1982, the reference collection officially adopted the acronym EMU (Estación Mazatlán UNAM) to designate material in its holdings, and in 1986, the first paratype was included in the collection. Among the most recent projects is one dealing with the study of deep-water (200-2500 m depth) communities and of the hermit crab fauna along the Pacific coast of Mexico. Consequently, several new species have been described and the collection

has increased significantly in size. It now contains over 1 820 species in about 12 000 lots.

In a previous contribution Hendrickx (2003) reported most of the type material that had been incorporated in the collection since it was founded. In fulfillment of the International Code of Zoological Nomenclature recommendation 72F.4 (ICZN, 1999), this is the second list of type material included in the Mazatlán collection. For different reasons, however, some types of species described prior to 2003 were not included by Hendrickx (2003). These are included in the present contribution. Additionally, a short table containing the list of types deposited in other collections or museums worldwide is presented (Table 1).

Abbreviations: St., station; col., collector; M, male; F, female; FF, ovigerous female; TL, total length; CL, carapace length; CLwr, carapace length without rostrum; SL, shield length; RL, rostrum length; LIB, Laboratorio de Invertebrados Bentónicos.

Table 1. Paratypes deposited in other collections

<i>Species</i>	<i>No. Catalogue</i>	<i>Type</i>	<i>Institution</i>
<i>Epimeria morronei</i> Winfield, Ortiz and Hendrickx, 2012	CNCR 26576	Paratype	Colección Nacional de Crustáceos, Instituto de Biología, UNAM
	CNCR 26577	Paratype	Colección Nacional de Crustáceos, Instituto de Biología, UNAM
	CNCR 26578	Paratype	Colección Nacional de Crustáceos, Instituto de Biología, UNAM
<i>Prionocrangon incisum</i> Hendrickx and Ayón-Parente, 2012	OUMNH.ZC.2011-09-0051	Paratype	Oxford University Museum of Natural History
<i>Areopaguristes lemaitrei</i> Ayón-Parente and Hendrickx, 2012	LACM-C.R. 2004-034	Paratype	Los Angeles County Museum of Natural History
<i>Areopaguristes waldoschmitti</i> Ayón-Parente and Hendrickx, 2012	CNCR 26661	Paratype	Colección Nacional de Crustáceos, Instituto de Biología, UNAM
<i>Dardanus janethaigae</i> Ayón-Parente and Hendrickx, 2009	USNM-265359	Paratype	United States National Museum, Smithsonian Institution
	LACM-C.R. 1982-003.1	Paratype	Los Angeles County Museum of Natural History
<i>Dardanus nudus</i> Ayón-Parente and Hendrickx, 2009	LACM-C.R. 1939-033.2	Paratype	Los Angeles County Museum of Natural History
	SIO-C4085	Paratype	Scripps Institution of Oceanography
<i>Dardanus stimpsoni</i> Ayón-Parente and Hendrickx, 2009	LACM-C.R. 1968-372.2	Paratype	Los Angeles County Museum of Natural History
	USNM-1076122	Paratype	United States National Museum, Smithsonian Institution
<i>Tetralobistes bicentenarius</i> Ayón-Parente and Hendrickx, 2010	LACM-C.R. 2006-022.1	Paratype	Los Angeles County Museum of Natural History
	CNCR 26182	Paratype	Colección Nacional de Crustáceos, Instituto de Biología, UNAM
<i>Munida lipkeholthuisi</i> Hendrickx and Ayón-Parente, 2010	LACMNH-C.R. 2005-042	Paratype	Los Angeles County Museum of Natural History
<i>Synallactes virgulasolida</i> Massin and Hendrickx, 2010	IG.31487-HOL 1506	Paratype	Royal Belgian Institute of Natural Sciences
	ICML-UNAM 5.171.0	Paratypes	Colección Nacional de Equinodermos Dra. María Elena Caso ICML-UNAM
<i>Ypsilocucumis californiae</i> Massin and Hendrickx, 2011	IG 31487/HOL 1514 RBINS/HOL/738995	Paratype	Royal Belgian Institute of Natural Sciences
	ICML-UNAM 5.177.0	Paratypes	Colección Nacional de Equinodermos Dra. María Elena Caso ICML-UNAM

Results

List of type material

Subphylum Crustacea Brünnich, 1772

Class Maxillopoda Dahl, 1956

Subclass Thecostraca Gruvel, 1905

Superorder Thoracica Darwin, 1854

Order Sessilia Lamarck, 1818

Suborder Balanomorpha Pilsbry, 1916

Superfamily Chthamaloidea Darwin, 1854

Family Chthamalidae Darwin, 1854

Chthamalus hedgecocki Pitombo and Bourdon, 2007

EMU-6842.- Paratype. One specimen, 18/Feb/2002, Punta Camarón (23°14'15"N, 106°26'45"W), Mazatlán, Sinaloa, Mexico, manual, intertidal.

Chthamalus southwardorum Pitombo and Bourdon, 2007

EMU-6842.- Paratype. One specimen, 17/Feb/2002, San Blas (21°32'34"N, 105°18'17"W), Nayarit, Mexico,

manual, intertidal.

Class Malacostraca Latreille, 1802

Subclass Eumalacostraca Grobben, 1892

Superorder Peracarida Calman, 1904

Order Isopoda Latreille, 1817

Suborder Epicaridea Latreille, 1831

Family Bopyridae Rafinesque, 1815

Bathione magnafolia Román-Contreras and Boyko, 2007

EMU-5460A.- Holotype. One female, TL 6.0 mm, 26/Aug/2000, TALUD IV cruise, R/V *El Puma*, St. 25 (24°53'12"N, 108°59'24"W), off Altamura Island, Sinaloa, Mexico, benthic sledge, 778-800 m.

EMU-5460B.- Allotype. One male, TL 2.4 mm, 26/Aug/2000, TALUD IV cruise, R/V *El Puma*, St. 25 (24°53'12"N, 108°59'24"W), off Altamura Island, Sinaloa, Mexico, benthic sledge, 778-800 m.

EMU-5461.- Paratype. One female, 5.5 mm, 26/Aug/2000, TALUD IV cruise, R/V *El Puma*, St. 25 (24°53'12"N, 108°59'24"W), off Altamura Island, Sinaloa, Mexico, benthic sledge, 778-800 m.

EMU-7030.- Paratype. One male, 2.8 mm and 1 female, 5.5 mm, 26/Aug/2000, TALUD IV cruise, R/V *El Puma*, St. 25 (24°53'12"N, 108°59'24"W), off Altamura Island, Sinaloa, Mexico, benthic sledge, 778-800 m.

EMU-7031.- Paratype. One male, 2.8 mm and 1 female, 5.0 mm, 26/Aug/2000, TALUD IV cruise, R/V *El Puma*, St. 25 (24°53'12"N, 108°59'24"W), off Altamura Island, Sinaloa, Mexico, benthic sledge, 778-800 m.

Order Amphipoda Latreille, 1816

Suborder Gammaridea Latreille, 1802

Family Epimeriidae Boeck, 1871

Epimeria morronei Winfield, Ortiz and Hendrickx, 2012

EMU-9507.- Holotype. One female, TL 23.0 mm, 12/Feb/2007, TALUD X cruise, R/V *El Puma*, St. 18, (27°09'06"N, 111°46'54"W), central Gulf of California, benthic sledge, 1526 m.

EMU-9508.- Paratype. One female, TL 16.0 mm, 13/Feb/2007, TALUD X cruise, R/V *El Puma*, St. 22, (27°02'46"N, 111°52'57"W), central Gulf of California, benthic sledge, 1575-1586 m.

EMU-9509.- Paratype. One female, TL 19.0 mm, 13/Feb/2007, TALUD X cruise, R/V *El Puma*, St. 22, (27°02'46"N, 111°52'57"W), central Gulf of California, benthic sledge, 1575-1586 m.

EMU-9510.- Paratypes. Three females, TL 19.0-28.0 mm, 13/Feb/2007, TALUD X cruise, R/V *El Puma*, St. 22, (27°02'46"N, 111°52'57"W), central Gulf of California, benthic sledge, 1575-1586 m.

EMU-9510.- Paratypes. Three females, TL 19.0-28.0 mm, 13/Feb/2007, TALUD X cruise, R/V *El Puma*, St. 22, (27°02'46"N, 111°52'57"W), central Gulf of California, benthic sledge, 1575-1586 m.

EMU-9519.- Paratypes. Three females, TL 16.0-18.0 mm, 13/Feb/2007, TALUD X cruise, R/V *El Puma*, St. 22, (27°02'46"N, 111°52'57"W), central Gulf of California, benthic sledge, 1575-1586 m.

Order Decapoda Latreille, 1802

Suborder Pleocyemata Burkenroad, 1963

Infraorder Caridea Dana, 1852

Superfamily Alpheoidea Rafinesque, 1815

Family Alpheidae Rafinesque, 1815

Alpheus mazatlanicus Wicksten, 1983

EMU-1068.- Paratype. Two females, TL 48.3 - 51.5 mm, 24/Nov/1981, Walter Hubbard (col.), Mazatlán, Estero de Urias, Sinaloa, Mexico.

Superfamily Processoidea Ortmann, 1896

Family Processidae Ortmann, 1896

Processa peruviana Wicksten, 1983

EMU-1069.- Paratype. One ovigerous female, TL 34.1 mm, 22/Aug/1981, SIPCO II cruise, R/V *El Puma*, St. A1 (22°24'N, 105°55'W), off Mazatlán, Sinaloa, Mexico, Van Veen dredge, 37 m.

Superfamily Crangonoidea Haworth, 1825

Family Glyphocrangonidae Smith, 1884

Glyphocrangon taludensis Hendrickx, 2010

EMU-8595.- Holotype. One ovigerous female, CL 34.3 mm, TL 128.1 mm, 01/Apr/2008, TALUD XII cruise, R/V *El Puma*, St. 25 (18°26'45"N, 104°16'10"W), off Guerrero, Mexico, benthic sledge, muddy bottom, 1858-1879 m.

EMU-8596.- Allotype. One male, CL, 21.2 mm, TL, 85.2 mm, 06/06/2001, TALUD VII cruise, R/V *El Puma*, St. 13B (23° 30.3'N, 107°44.0'W), southern Gulf of California, benthic sledge, muddy bottom, 1400-1450 m.

EMU-8597.- Paratype. Two ovigerous females, CL 32.4-35.1 mm, TL, 124.2-128.2 mm, 01/Apr/2008, TALUD XII cruise, R/V *El Puma*, St. 25 (18°26'45"N, 104°16'10"W), off Guerrero, Mexico, benthic sledge, muddy bottom, 1858-1879 m.

EMU-8598.- Paratype. One ovigerous female, CL, 39.3 mm; TL, 141.5 mm, 01/Apr/2008, TALUD XII cruise, R/V *El Puma*, St. 25, (18°26'45"N, 104°16'10"W), off Guerrero, Mexico, benthic sledge, muddy bottom, 1858-1879 m (preserved in ethanol).

Family Crangonidae Haworth, 1825

Prionocrangon incisum Hendrickx and Ayón-Parente, 2012

EMU-8926.- Holotype. One female, CL 8.31 mm, 09/Apr/2011, TALUD XIV cruise, R/V *El Puma*, St. 21 (29°00'53" N, 112°51'31"W), benthic sledge, 412-425 m.

EMU-8927.- Paratype. Four females, CL 8.47-10.45 mm, 09/Apr/2011, TALUD XIV cruise, R/V *El Puma*, St. 21 (29°00'53" N, 112°51'31"W), benthic sledge, 412-425 m.

EMU-8929.- Paratype. Two females, CL 6.04 and 10.60 mm, 09/Apr/2011, TALUD XIV cruise, *R/V El Puma*, St. 22 (29°05'27"N, 112°46'44"W), benthic sledge, 380-390 m.

EMU-8930.- Paratype. One male, CL 8.38 mm, 09/Apr/2011, TALUD XIV cruise, *R/V El Puma*, St. 24 (29°08'06"N, 112°58'42"W), benthic sledge, 532-594 m.

EMU-8931.- Paratype. Two females, CL 9.24 and 10.68 mm, 09/Apr/2011, TALUD XIV cruise, *R/V El Puma*, St. 24 (29°08'06"N, 112°58'42"W), benthic sledge, 532-594 m.

EMU-8932.- Paratype. One male, CL 5.81 mm, 10/Apr/2011, TALUD XIV cruise, *R/V El Puma*, St. 26 (29°02'41"N, 113°17'44"W), benthic sledge, 1050-1165 m.

Infraorder Anomura MacLeay, 1838

Superfamily Paguroidea Latreille, 1802

Family Diogenidae Ortmann, 1892

Areopaguristes lemaitrei Ayón-Parente and Hendrickx, 2012

EMU-9520.- Holotype. One male, SL 3.40 mm, 15/Mar/2006, Estero de Urías (23°11'0"N, 106°21'42"W), Mazatlán, Sinaloa, Mexico, dredge, 1 m.

EMU-9249.- Paratype. One male, SL 3.97 mm, 09/Mar/2007, Bahía Kino (28°45'44"N, 111°56'30"W), Sonora, Mexico, dredge, 1 m.

EMU 9252.- Paratype. One male, SL 2.90 mm, 09/Mar/2007, Punta Central, Bahía Kino (28°45'43"N, 111°56'25"W), Sonora, Mexico, dredge, 1 m.

EMU-9521.- Paratypes. One male, SL 1.89 mm, 1 female SL 1.87 mm and 1 ovigerous female, SL 3.05 mm, 19/May/2006, Estero de Urías (23°11'0"N, 106°21'42"W), Mazatlán, Sinaloa, Mexico, dredge, 1 m.

Areopaguristes waldoschmitti Ayón-Parente and Hendrickx, 2012

EMU-9535.- Holotype. One male, SL 1.34 mm, 05/May/1982, CORTES 1 cruise, *R/V El Puma*, St. 16, off Punta Arboleda (26°55'36"N, 110°05'06"W), Sonora, Mexico, trawl, 23 m.

EMU-9536.- Paratype. One male SL 1.10 mm, 05/May/1982, CORTES 1 cruise, *R/V El Puma*, off Punta Arboleda, St. 16 (26°55'36"N, 110°05'06"W), Sonora, Mexico, trawl, 23 m.

EMU-9537.- Paratypes. One male, SL 1.30 mm and 1 ovigerous female, SL 1.02 mm, 05/May/1982, CORTES 1 cruise, *R/V El Puma*, St. 16, off Punta Arboleda (26°55'36"N, 110°05'06"W), Sonora, Mexico, trawl, 23 m. *Dardanus janethaigae* Ayón-Parente and Hendrickx, 2009

EMU-4960.- Holotype. One male, SL 15.30 mm, 13/Jun/1996, (23°13'06"N, 106°26'11"W), Mazatlán, off Rocas Hermanas, Sinaloa, Mexico, gill net, 24 m.

EMU-203.- Paratypes. Four males, SL 4.5-7.8 mm and 1 female, SL 4.3 mm, 24/Apr/1981, SIPCO I cruise, *R/V El Puma*, St. C2 (23°34'0"N, 106°57'30"W), off Punta Piaxtla, Sinaloa, Mexico, trawl, 66 m.

EMU-4775.- Paratypes. Three males, SL 9.6-12.0 mm and 1 ovigerous female, SL 12.9 mm, 11/Aug/1995, (23°18'59"N, 106°28'48"W), Mazatlán, off Playa El Delfin, Sinaloa, Mexico, gill net.

EMU-8471.- Paratypes. One male, SL 11.90 mm, 13/Jun/1996, (23°13'06"N, 106°26'11"W), Mazatlán, off Rocas Hermanas, Sinaloa, Mexico, gill net, 24 m.

Dardanus nudus Ayón-Parente and Hendrickx, 2009

EMU-8463.- Holotype. One male, SL 16.0 mm, 11/May/1992, CEEMEX P7 cruise, *R/V El Puma*, St. 28, off Bahía Santa Cruz (15°08'48"N, 95°59'30"W), Oaxaca, Mexico, trawl, 28 m.

EMU-4809.- Paratype. One male, SL 12.0 mm, 13/May/1992, CEEMEX P7 cruise, *R/V El Puma*, St. 37, off Puerto Madero (14°41'48"N, 92°32'24"W), Chiapas, Mexico, trawl, 25 m.

Dardanus stimpsoni Ayón-Parente and Hendrickx, 2009

EMU-223.- Holotype. One male, SL 14.50 mm, 01/Aug/1987, GUAYTEC II cruise, *R/V El Puma*, St. 4, off Isla San Lorenzo (26°47'21"N, 110°06'20"W), Baja California Sur, Mexico, trawl, 85 m.

EMU-224.- Paratypes. Three males, SL 12.0-14.60 mm, and 1 ovigerous female, SL 13.40 mm, 04/Aug/1987, GUAYTEC II cruise, *R/V El Puma*, St. 25, off Isla San Lorenzo (27°59'32"N, 112°42'47"W), Baja California Sur, Mexico, trawl, 92 m.

Tetralobistes bicentenarius Ayón-Parente and Hendrickx, 2010

EMU-8730.- Holotype. One female, SL 2.10 mm, 04/Nov/2006, Matanchen Bay (21°28.83'N, 105°12.02'W), Nayarit, Mexico, snorkel, 1.0-1.5 m.

EMU-8731.- Paratype. Three males, SL 0.95-1.36 mm and 1 female, SL 1.20 mm, 26/Jun/2005, Matanchen Bay (21°28.83'N, 105°12.02'W), Nayarit, Mexico, snorkel, 1.0-1.5 m.

EMU-8732.- Paratype. Five males, SL 0.90-1.90 mm, 1 female, SL 1.40 mm and 1 ovigerous female, SL 1.60 mm, 04/Nov/2006, Matanchen Bay (21°28.83'N, 105°12.02'W), Nayarit, Mexico, snorkel, 1.0-1.5 m.

EMU-8866.- Paratype. Three males, SL 0.88-1.68 mm, 07/Oct/2010, Matanchen Bay (21°28.83'N, 105°12.02'W), Nayarit, Mexico, snorkel, 1.0-1.5 m.

Family Paguridae Latreille, 1802

Pagurus findleyi Ayón-Parente and Hendrickx, 2012

EMU-9268.- Holotype. One female, SL 3.0 mm, 18/Aug/1987, GUAYTEC I cruise, *R/V El Puma*, St. 70b (28°47'N, 112°54'W), dredge, 360-380 m.

EMU-9511.- Paratype. One female, SL 3.7 mm, 09/

Apr/2011, TALUD XIV cruise, *R/V El Puma*, St. 22 (29°05'27"N, 112°46'44"W), dredge, 412-425 m.

Superfamily Galatheoidea Samouelle, 1819

Family Galatheididae Samouelle, 1819

Munida lipkeholthuisi Hendrickx and Ayón-Parente, 2010

EMU-8606.- Holotype. One ovigerous female, CL 44.6 mm, CLwr 31.6 mm, CW 28.8 mm, 16/Apr/2005, Soledad Ibarra (col.), B/P *Don Agustín*, St. 2 (28°47.860'N, 114°49.300'W), off Baja California, Mexico, otter trawl, 93 m.

EMU-8607.- Paratypes. One male damaged, CL 34.3 mm, CLwr 24.7 mm, CW 20.2 mm, 16/Apr/2005, Soledad Ibarra (col.), B/P *Don Agustín*, St. 2 (28°47.860'N, 114°49.300'W), off Baja California, Mexico, otter trawl, 93 m.

Phylum Echinodermata

Subphylum Echinozoa

Class Holothuroidea

Order Aspidochirotida Grube, 1840

Family Synallactidae Ludwig, 1894

Synallactes virgulasolida Massin and Hendrickx, 2010

EMU-8608.- Holotype. One specimen, 85 mm, 18/Apr/2005, TALUD VIII cruise, *R/V El Puma*, St. 16 (25°24'26"N, 110°37'36"W), benthic sledge, 1030 m.

Order Dactylochirotida Pawson and Fell, 1965

Family Vaneyellidae Pawson and Fell, 1965

Mitsukuriella unusordo Massin and Hendrickx, 2011

EMU-8629.- Holotype. One specimen, 13.4 mm, 10/Feb/2007, TALUD X cruise, *R/V El Puma*, St. 9 (27°52'51"N, 112°15'53"W), benthic sledge, 1205-1215 m.

Family Vaneyellidae Pawson and Fell, 1965

Ypsilocucumis californiae Massin and Hendrickx, 2011

EMU-8613.- Holotype. One specimen, 15 mm, 16/Mar/2001, TALUD VI cruise, *R/V El Puma*, St. 26 (24°56'17"N, 109°06'39"W), benthic sledge, 1190-1270 m.

EMU-8614.- Paratype. Two specimens, 12.0-15.0 mm, 17/Apr/2005, TALUD VIII cruise, *R/V El Puma*, St. 11 (24°54'24"N, 110°25'30"W), benthic sledge, 920 m.

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