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Cover image:

Bloom of *Nymphaea* sp. in the internal courtyard of the National Museum of Natural History, Mdina, Malta, on the 6th of May of 2025.

CHECKLIST AND SYNONYMY OF CNIDARIA AND CTENOPHORA RECORDED FROM MALTESE WATERS

Constantine MIFSUD ¹

ABSTRACT

This paper presents an updated checklist of Cnidaria and Ctenophora species documented in Maltese waters, which consists of approximately 160 species. Five species of Ctenophora account for around 15% of the total Mediterranean diversity, while the figure for Cnidaria represents approximately 20% of the Mediterranean total. These are significant figures when considering the historical lack of dedicated research and the inherent challenges in species-level identification within these morphologically diverse groups. This provisional checklist functions as a foundation for future investigations aimed at expanding knowledge about the fauna of the sea surrounding the Maltese Islands.

Keywords: Anthozoa, Hydrozoa, Medusozoa, Scyphozoa, distribution, Mediterranean Sea

SINTEŻI

[Lista ta' kontroll u sinonimija ta' Cnidaria u Ctenophora ta' Malta irregistrati mill-ibħra Maltin.] Dan id-dokument jippreżenta lista ta' kontroll aġġornata tal-ispeċi Cnidaria u Ctenophora dokumentati fl-ilmijiet Maltin, li tikkonsisti f'madwar 160 speċi. Hames speċi ta' Ctenophora jirrapreżentaw madwar 50% tad-diversità ta' dan il-grupp fil-Mediterran, filwaqt li iċ-ċifra għall-Cnidaria tirrapreżenta madwar 20% tat-total tal-Mediterran. Dawn huma perċentaġġi sinifikanti meta jiġu kkunsidrati n-nuqqas storiku ta' riċerka ddedikata kif ukoll l-isfidi fl-identifikazzjoni għall-livell ta' speċi fi hdan dawn il-grupp morfologikament tant diversi. Din il-lista ta' kontroll proviżorja inħolqot sabiex isservi bħala bażi għal investigazzjonijiet futuri mmirati lejn l-iskoperti ta' fawna fil-baħar li jdawwar lill-Gżejjer Maltin.

Kliem muftieħ: Anthozoa, Hydrozoa, Medusozoa, Scyphozoa, distribuzzjoni, il-Baħar Mediterran

INTRODUCTION

Organisms in Cnidaria Hatschek, 1888 exhibit remarkable morphological diversity encompassing a wide range of forms, such as colonial siphonophores, large medusae, corals, feathery hydroids, and box jellies equipped with relatively complex eyes. Despite this extensive variation, all cnidarians are unified by the presence of cells known as nematocysts, which eject barbed, toxin-laden threads into their prey. In fact, the name '*Cnidaria*' is derived from the Greek '*cnidos*', meaning '*stinging nettle*', a descriptor apt for the sensation experienced upon casual contact with some species as their nematocysts are triggered.

Estimated to number from ~9,000 to 11,000 (DALY et al., 2007; TECHNAN & STEELE, 2011), cnidarian species inhabit the world's oceans in diverse environments, from tropical to polar regions, and from the surface to the abyssal plains. Many are pelagic, others are neustonic, benthic, sessile, burrow into the substrate, or are parasitic. The phylum is almost exclusively marine, but a small number of species are found in freshwater habitats, with at least one such species (likely *Hydra viridissima* Pallas, 1766) known from the Maltese Islands (SCHEMBRI, 2003).

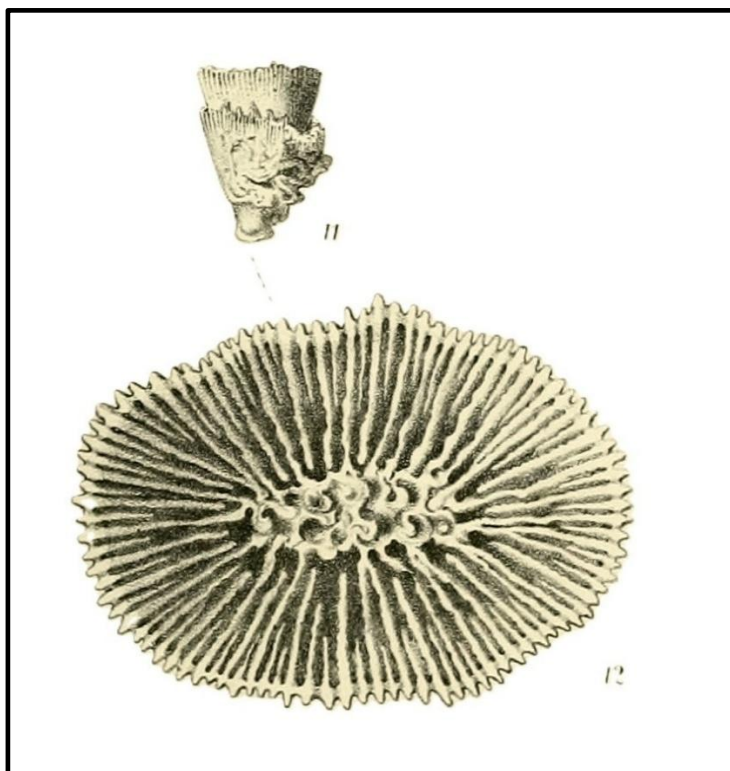
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The phylum is split into three subphyla:

1. Anthozoa Ehrenberg, 1834 (true corals, anemones, and sea pens),
2. Endocnidozoa Zrzavý & Hypša, 2003 (highly reduced obligate parasites), and
3. Medusozoa Petersen, 1979 (box jellies, siphonophores, hydroids, fire corals, and ‘true’ jellyfish).

Cnidarian fauna in the Mediterranean is estimated to consist of c. 800 species (COLL et al., 2010). Documentation of these animals in the waters surrounding the Maltese archipelago has evolved significantly over several decades. One of the earliest publications in this regard was that by DUNCAN (1874), where a reference to specimens of *Caryophyllia smithii* Stokes & Broderip, 1828 dredged off Malta is made (**Text Fig. 1**). An initial comprehensive list was provided by EVANS (1968), detailing 15 local species. This was followed by MICALLEF & EVANS (1968), who expanded the inventory to 36 species, largely corroborating EVANS' (1968) prior observations. Their determinations were mostly based on RIEDL (1963).



Text Fig. 1. Reproduction of *Caryophyllia smithii* Stokes & Broderip, 1828 from DUNCAN (1874: pl. 48 figs. 11, 12, identified as *Caryophyllia clavus* Scacchi variety δ *smithii*).

Subsequent contributions to the field include those of SCHEMBRI in SULTANA & FALZON (1995, 1996), who recorded additional Cnidaria species, and SCHEMBRI et al. (2007) who focused on deep-water corals: *Corallium rubrum* (Linné, 1758), *Madrepora oculata* Linné, 1758, *Desmophyllum pertusum* (Linné, 1758), and *Desmophyllum dianthus* (Esper, 1794). More recently, FARRUGIA-RANDON (2010), with assistance from Alan DEIDUN, documented common shallow-water anthozoans, and SOTO-ÁNGEL & PEÑA-CANTERO (2013) identified 40 species of hydrozoans from shallow-water material collected by C. SAMMUT. Of these, one species was identified as a synonym, eight remained undetermined to species level, and one (*Clytia* sp.) is considered a potentially new species. Specimens of *Aglaophenia picardi* Svoboda, 1979 and *Dendrobrachia bonsai* López-González & Cunha, 2010 from Malta are among the material studied for the original descriptions (SVOBODA, 1979; LÓPEZ-GONZÁLEZ & CUNHA, 2010). MIFSUD (1997, 2015) added further species to the record, as did SVOBODA (1979), SVOBODA & CORNELIUS (1991), DEN HARTOG (1995), MOURA (2011), CANTAFARO et al. (2019), EVANS et al. (2016), TERRIBILE et al. (2016), CUTAJAR et al. (2020), and PULIDO-MANTAS et al. (2022).

The citizen science initiative *Spot The Jellyfish*, launched in July 2010, revealed the presence of certain pelagic species living around Malta for the first time, not only jellyfish like *Aequorea forskalea* Péron & Lesueur, 1810 and ctenophores like *Leucothea multicornis* (Quoy & Gaimard, 1824), but also some unrelated gelatinous zooplankton such as *Salpa maxima* Forskål, 1775 and *Pyrosoma atlanticum* Péron, 1804 (DRAGO et al., 2010; DEIDUN & SCIBERRAS, 2017; GATT et al, 2018; GAUCI et al., 2020; EDELST et al., 2025). Such observations could be uploaded by the public using a mobile phone application functioning in real time, together with georeferenced, photographic documentation.

Beyond these structured lists, other records are dispersed across various publications and media. So far, there are no studies on Endocnidozoa, even though this group is extraordinarily speciose (ATKINSON et al., 2018).

Complementing faunistic records, ABELA (1647), AGIUS DE SOLDANIS (1746), ZAMMIT-MAEMPEL (1974) and QUERCIA (2002) mention Maltese coral in ethnographic and archaeological contexts. BALZAN & DEIDUN (2010) and DEIDUN et al. (2010) have published historical accounts concerning the local red coral and its associated industry.

The phylum Ctenophora Eschscholtz, 1829 consists of planktonic organisms with transparent and gelatinous bodies in various body plans, often possessing rows of ciliary plates employed in locomotion. They are predatory and capture smaller organisms by means of colloblasts, multicellular organs analogous to the cnidarian nematocysts, common to virtually all ctenophore species, which adhere to their prey. The phylum is split into two classes: Nuda Chun, 1879, containing ctenophores with a complete absence of tentacles, and Tentaculata Eschscholtz, 1825, containing ctenophores possessing a pair of contractile tentacles. Two species recorded from Maltese waters were first mentioned by MICALLEF & EVANS (1968), and three additional species were treated by DEIDUN (2011b). The total Mediterranean ctenophore diversity consists of 32 species (PESTORIĆ et al., 2021).

MATERIALS AND METHODS

An updated checklist was compiled by integrating existing historical records within an updated systematic framework and taxonomy. Newspaper reports about jellyfish from 2009 onwards were included, although not when the scientific name of the observed species was not reported. Records in open nomenclature are included for completeness; some of these may refer to species in the genus named elsewhere. The classification used herein adheres to BOUILLON et al. (2004) and was updated using the World Register of Marine Species [WoRMS] (<https://www.marinespecies.org/index.php>; last accessed Mar. 2025).

In the book by WOOD (2002), many Mediterranean species are treated, but their presence in Malta is not always confirmed. Therefore, records by WOOD (2002) that are not corroborated by other literature have been excluded from the checklist. Updated with the accepted names and in alphabetical order, these taxa are: *Actinothoe sphyrodeta* (Gosse, 1858), *Aiptasia mutabilis* (Gravenhorst, 1831), *Alcyonium acaule* Marion, 1878, *Alcyonium coralloides* (Pallas, 1766), *Alicia mirabilis* Johnson, 1861, *Calliactis palliata* (Müller, 1776), *Corynactis viridis* Allman, 1846, *Cribrinopsis crassa* (Andrès, 1881), *Eudendrium rameum* (Pallas, 1766), *Eunicella singularis* (Esper, 1791), *Eunicella verrucosa* (Pallas, 1766), *Gymnangium montagui* (Billard, 1912), *Leptogorgia sarmentosa* (Esper, 1791), and *Phyllangia americana mouchezii* (Lacaze-Duthiers, 1897).

SYSTEMATICS

Kingdom Animalia Linné, 1758
 Phylum Cnidaria Hatschek, 1888
 Subphylum Medusozoa Petersen, 1979
 Class Cubozoa Werner, 1973
 Order Carybdeida Gegenbaur, 1857

Family Carybdeidae Gegenbaur, 1857

Genus *Carybdea* Péron & Lesueur, 1810

Carybdea marsupialis (Linné, 1758)

Carybdea marsupialis Péron & Lesueur [sic] – MICALLEF & EVANS, 1968: 3.

Charybdea marsupialis [sic] – LANFRANCO, 1981: 83.

Charybdea marsupialis [sic] – AXIAK et al., 1991: 32.

Carybdea marsupialis – DEIDUN, 2010: 376.

Carybdea marsupialis – DRAGO et al., 2010: 39.

Carybdea marsupialis – SCHEMBRI, 2010a: 4.

Carybdea marsupialis – SCHEMBRI, 2010b.

Carybdea marsupialis – AGIUS, 2011.

Carybaea marsupialis – DEIDUN, 2011b: 12.

Carybdea marsupialis – ANONYMOUS, 2011k.

Carybdea marsupialis – ANONYMOUS, 2012b.

Carybdea marsupialis – ANONYMOUS, 2012g.

Carybdea marsupialis – BROTZ & PAULY, 2012: 219.

Carybdea marsupialis – ANONYMOUS, 2013d.

Carybdea marsupialis – DALLI, 2014.

Carybdea marsupialis – FSADNI, 2014.

Carybdea marsupialis (Linnaeus, 1758) – GUEROUN et al., 2015: 1.

Carybdea marsupialis – ANONYMOUS, 2016a.

Carybdea marsupialis – ANONYMOUS, 2016c.

Carybdea marsupialis – PULIS et al., 2016a: 444.

Carybdea marsupialis – PULIS et al., 2016b: 89.

Carybdea marsupialis – GATT et al., 2018: 317.

Carybdea marsupialis (Linnaeus, 1758) – BORDEHORE et al., 2020: 2.

Carybdea marsupialis – GAUCI et al., 2020: 2.

Carybdea marsupialis – GUEROUN et al., 2022: 13.

Class Hydrozoa Owen, 1843

Subclass Hydroidolina Collins, 2000

Order Anthoathecata Cornelius, 1992

Suborder Aplanulata Collins, Winkelman, Hadrys & Schierwater, 2005

Family Hydridae Dana, 1846

Genus *Hydra* Linné, 1758

Hydra* cf. *viridissima Pallas, 1766

Chlorohydra sp. – GIUSTI et al., 1995: 31.

Chlorohydra sp. – SCHEMBRI in SULTANA & FALZON, 1995: 155.

Chlorohydra sp. – SCHEMBRI in SULTANA & FALZON, 1996: 93.

Chlorohydra sp. – LANFRANCO, 2002: 136.

Hydra [cf.] *viridissima* – SCHEMBRI, 2019: 35.

Suborder Capitata Kühn, 1913 (*sensu stricto*)

Family Cladonematidae Gegenbaur, 1857

Genus *Cladonema* Dujardin, 1843

Cladonema radiatum Dujardin, 1843

Cladonema radiatum – AGIUS, 2011.

Cladonema radiatum – ANONYMOUS, 2011f.

Cladonema radiatum – ANONYMOUS, 2011g.

Cladonema radiatum – ANONYMOUS, 2011h.

Cladonema radiatum – ANONYMOUS, 2011i.

Family Corynidae Johnston, 1836

Genus *Codonium* Haeckel, 1879

Codonium proliferum (Forbes, 1848)

Sarsia prolifera Forbes – EVANS, 1968: 10.

Sarsia prolifera Forbes – MICALLEF & EVANS, 1968: 2.

Genus *Coryne* Gaertner, 1774

Coryne muscoides (Linné, 1761)

Coryne muscoides (Linnaeus, 1761) – SOTO-ÀNGEL & PEÑA-CANTERO, 2013: 179.

Coryne pusilla Gaertner, 1774

Coryne pusilla (Gaertner, 1774) – SOTO-ÀNGEL & PEÑA-CANTERO, 2013: 178.

Family Pennariidae McCrady, 1859

Genus *Pennaria* Goldfuss, 1820

Pennaria disticha Goldfuss, 1820

Halaocordyle disticha (Goldf.) – MICALLEF & EVANS, 1968: 2.

Family Porpitidae Goldfuss, 1818

Genus *Porpita* Lamarck, 1801

Porpita porpita (Linné, 1758)

Porpita umbella Otto – MIFSUD, 2004: 27. [junior synonym]

Porpita porpita – ANONYMOUS, 2010e.

Porpita porpita – ANONYMOUS, 2010f.

Porpita porpita (L., 1758) – DEIDUN, 2010: 377.

Porpita porpita – DRAGO et al., 2010: 39.

Porpita porpita – FARRUGIA-RANDON, 2010: 61.

Porpita porpita – SCHEMBRI, 2010b.

Porpita porpita – AGIUS, 2011.

Porpita porpita – ANONYMOUS, 2011h.

Porpita porpita – DEIDUN, 2011b: 12.

Porpita porpita – DEIDUN, 2011d.

Porpita porpita – ANONYMOUS, 2012e.

Porpita porpita – DEIDUN et al., 2015: 33.

Genus *Velella* Lamarck, 1801

Velella velella (Linné, 1758)

Velella spirans (Forskal) – CACHIA, 1999: 73. [junior synonym]

Velella velella (Linn.) – MIFSUD, 2003: 42.

Velella [sp.] – MIFSUD, 2005: 132.

Velella velella – ANONYMOUS, 2010b.

Velella velella – ANONYMOUS, 2010d.

Velella velella (L., 1758) – DEIDUN, 2010: 377.

Velella velella – DRAGO et al., 2010: 39.

Velella velella – FARRUGIA-RANDON, 2010: 62.

Velella velella – AGIUS, 2011.

Velella velella – ANONYMOUS, 2011d.

- Verella vellella* – DEIDUN, 2011b: 11.
Verella vellella – DEIDUN, 2011c.
Verella vellella – ANONYMOUS, 2012c.
Verella vellella – ANONYMOUS, 2012e.
Verella vellella – ANONYMOUS, 2012f.
Verella vellella – ANONYMOUS, 2013b.
Verella vellella – ANONYMOUS, 2013c.
Verella vellella – ANONYMOUS, 2014c.
Verella vellella – ANONYMOUS, 2014e.
Verella vellella – ANONYMOUS, 2014f.
Verella vellella – FSADNI, 2014.
Verella vellella – PORTELLI, 2014.
Verella vellella – ZAMMIT, 2014.
Verella vellella (Linnaeus) – MILISENDA et al., 2015: 1065.
Verella vellella – ANONYMOUS, 2016a.
Verella vellella – SCHEMBRI, 2016: 3.
Verella vellella – GATT et al., 2018: 317.
Verella vellella – MARTIN, 2019.
Verella vellella – GAUCI et al., 2020: 2.
Verella vellella – MARAMBIO et al., 2021: 8.
Verella vellella – CALLEJA, 2023.
Verella vellella – BONANNO, 2025.

Suborder Filifera Kühn, 1913

Family Bougainvilliidae Lütken, 1850

Genus *Bougainvillia* Lesson, 1830

***Bougainvillia* sp.**

Perigonimus sp. – MICALLEF & EVANS, 1968: 2.

Remarks: The genus *Perigonimus* Sars, 1846 is a synonym of *Bougainvillia* Lesson, 1830.

Family Eudendriidae Agassiz, 1862

Genus *Eudendrium* Ehrenberg, 1834

***Eudendrium* sp.**

Eudendrium sp. – SAMMUT & PERRONE, 1998: 231.

***Eudendrium* sp. 1 sensu SOTO-ÀNGEL & PEÑA-CANTERO (2013)**

Eudendrium sp. 1 – SOTO-ÀNGEL & PEÑA-CANTERO, 2013: 178.

***Eudendrium* sp. 2 sp. 1 sensu SOTO-ÀNGEL & PEÑA-CANTERO (2013)**

Eudendrium sp. 2 – SOTO-ÀNGEL & PEÑA-CANTERO, 2013: 179.

***Eudendrium armatum* Tichomiroff, 1890**

Eudendrium armatum Tichomiroff, 1890 – SOTO-ÀNGEL & PEÑA-CANTERO, 2013: 179.

Family Hydractiniidae Agassiz, 1862

Genus *Hydractinia* Van Beneden, 1844

***Hydractinia* sp.**

Hydractinia sp. – SOTO-ÀNGEL & PEÑA-CANTERO, 2013: 178.

Hydractinia monocarpa Allman, 1876

Hydractinia monocarpa Allman, 1847 – SOTO-ÁNGEL & PEÑA-CANTERO, 2013: 179.

Family Oceaniidae Eschscholtz, 1829

Genus *Oceania* Péron & Lesueur, 1810

Oceania armata Kolliker, 1853

Oceania armata – DEIDUN et al., 2015: 33.

Oceania armata Kolliker, 1853 – GÜLŞAHİN et al., 2016: 187.

Genus *Turritopsis* McCrady, 1857

Turritopsis dohrnii (Weismann, 1883)

Turritopsis dohrnii (Weismann, 1883) – SOTO-ÁNGEL & PEÑA-CANTERO, 2013: 179.

Turritopsis nutricula McCrady, 1857

Podocoryne borealis (Mayer) – EVANS, 1968: 9. [non *borealis* Mayer, 1900]

Podocoryne borealis (Mayer) – MICALLEF & EVANS, 1968: 2. [non *borealis* Mayer, 1900]

Turritopsis nutricula McCrady – EDWARDS, 1972: 122.

Remarks: According to EDWARDS (1972) (who studied the EVANS material) and BOUILLON et al. (2004), the citation by EVANS (1968: 9) was a misidentification of *T. nutricula*.

Family Pandeidae Haeckel, 1879

Genus *Pandea* Lesson, 1843

Pandea conica (Quoy & Gaimard, 1827)

Pandea conica Quoy & Gaimard – EVANS, 1968: 9.

Pandea conica Quoy & Gaimard – MICALLEF & EVANS, 1968: 2.

Order Leptothecata Cornelius, 1992

Family Aequoreidae Eschscholtz, 1829

Genus *Aequorea* Péron & Lesueur, 1810

Aequorea forskalea Péron & Lesueur, 1810

Aequorea sp. – ANONYMOUS, 2010i.

Aequorea sp. – DEIDUN, 2010: 377.

Aequorea sp. – DRAGO et al., 2010: 39.

Aequorea sp. – AGIUS, 2011.

Aequorea sp. – ANONYMOUS, 2011h.

Aequorea sp. – DEIDUN, 2011b: 12.

Aequorea victoria – ANONYMOUS, 2013d. [non *victoria* Murbach and Shearer, 1902]

Aequorea forskalea – DEIDUN et al., 2015: 33.

Aequorea forskalea Péron & Lesueur, 1810 – DEIDUN & PIRAINO in TSAGARAKIS et al., 2021: 637.

Aequorea forskalea – MARAMBIO et al., 2021: 8.

Family Campanulariidae Johnston, 1836

Genus *Campanularia* Lamarck, 1816

Campanularia breviscyphia Sars, 1857

Orthopyxis asymmetrica Stechow, 1919 – SOTO-ÀNGEL & PEÑA-CANTERO, 2013: 178. [junior synonym]

Genus *Clytia* Lamouroux, 1812

Clytia sp.

Clytia sp. – SOTO-ÀNGEL & PEÑA-CANTERO, 2013: 178.

Clytia gracilis (Sars, 1850)

Clytia gracilis (M. Sars, 1850) – SOTO-ÀNGEL & PEÑA-CANTERO, 2013: 178.

Clytia hemisphaerica (Linné, 1767)

Phialidium hemisphaericum (L.) – EVANS, 1968: 9.

Phialidium hemisphaericum (L.) – MICALLEF & EVANS, 1968: 2.

Clytia hemisphaerica (Linnaeus, 1767) – SOTO-ÀNGEL & PEÑA-CANTERO, 2013: 178.

Clytia linearis (Thornely, 1900)

Clytia linearis (Thornely, 1900) – SOTO-ÀNGEL & PEÑA-CANTERO, 2013: 178.

Clytia noliformis (McCrary, 1859) *sensu* Calder, 1991

Clytia noliformis (McCrary, 1859) – SOTO-ÀNGEL & PEÑA-CANTERO, 2013: 178.

Clytia paulensis (Vanhöffen, 1910)

Clytia paulensis (Vanhöffen, 1910) – SOTO-ÀNGEL & PEÑA-CANTERO, 2013: 178.

Genus *Laomedea* Lamouroux, 1812

Laomedea sp.

Laomedea sp. – SOTO-ÀNGEL & PEÑA-CANTERO, 2013: 178.

Genus *Obelia* Péron & Lesueur, 1810

Obelia sp.

Obelia sp. – SOTO-ÀNGEL & PEÑA-CANTERO, 2013: 178.

Obelia geniculata (Linné, 1758)

Obelia geniculata (L.) – MICALLEF & EVANS, 1968: 2.

Obelia geniculata (Linnaeus, 1758) – MEDEL & VERVOORT, 2000: 54.

Genus *Orthopyxis* Agassiz, 1862

Orthopyxis crenata (Hartlaub, 1901)

Orthopyxis crenata (Hartlaub, 1901) – SOTO-ÀNGEL & PEÑA-CANTERO, 2013: 179.

Family Campanulinidae Hincks, 1868

Genus *Lafoeina* Sars, 1874

Lafoeina tenuis Sars, 1874

Lafoeina tenuis G.O. Sars, 1874 – MOURA, 2011: 87.

Family Cirrholoveniidae Bouillon, 1984

Genus *Cirrholovenia* Kramp, 1959

Cirrholovenia tetranema Kramp, 1959

Egmundella amirantensis Millard & Bouillon, 1973 – SOTO-ÀNGEL & PEÑA-CANTERO, 2013: 178. [junior synonym]

Family Eirenidae Haeckel, 1879

Genus *Neotima* Petersen, 1962

Neotima lucullana (Delle Chiaje, 1823)

Neotima lucullana – ANONYMOUS, 2013g.

Neotima lucullana – DEIDUN et al., 2015: 33.

Family Haleciidae Hincks, 1868

Genus *Halecium* Oken, 1815

Halecium sp.

Halecium sp. – SOTO-ÀNGEL & PEÑA-CANTERO, 2013: 178.

Halecium pusillum Sars, 1856

Halecium pusillum (M. Sars, 1856) – SOTO-ÀNGEL & PEÑA-CANTERO, 2013: 178.

Halecium tenellum Hincks, 1861

Halecium tenellum Hincks, 1861 – SOTO-ÀNGEL & PEÑA-CANTERO, 2013: 179.

Family Halopterididae Millard, 1962

Genus *Antennella* Allman, 1877

Antennella secundaria (Gmelin, 1791)

Antennella secundaria (Gmelin, 1791) – MOURA, 2011: 87.

Genus *Halopteris* Allman, 1877

Halopteris liechtensternii (Marktanner-Turneretscher, 1890)

Halopteris liechtensternii (Marktanner-Turneretscher, 1890) – SOTO-ÀNGEL & PEÑA-CANTERO, 2013: 178.

Family Hebellidae Fraser, 1912

Genus *Anthohebella* Boero, Bouillon & Kubota, 1997

Anthohebella parasitica (Ciamician, 1880)

Anthohebella parasitica (Ciamician, 1880) – MOURA, 2011: 87.

Genus *Scandia* Fraser, 1912

Scandia gigas (Pieper, 1884)

Scandia gigas (Pieper, 1884) – SOTO-ÀNGEL & PEÑA-CANTERO, 2013: 179.

Scandia gigas (Pieper, 1884) – MOURA, 2011: 87.

Scandia gigas – MOURA et al., 2011b: 469.

Family Lafoeidae Hincks, 1868

Genus *Filellum* Hincks, 1869

***Filellum* sp.**

Filellum sp. – SOTO-ÀNGEL & PEÑA-CANTERO, 2013: 179.

Family Mitrocomidae Haeckel, 1879

Genus *Earleria* Collins, Ross, Genzano & Mianzan, 2006

Earleria panicula (Sars, 1874)

Earleria panicula (Sars, 1874) – MIFSUD, 2021: 22.

Family Syntheciidae Marktanner-Turneretscher, 1890

Genus *Synthecium* Allman, 1872

Synthecium evansi (Ellis & Solander, 1786)

Synthecium evansi (Ellis & Solander, 1786) – SOTO-ÀNGEL & PEÑA-CANTERO, 2013: 178.

Superfamily Plumularioidea Mccrady, 1859

Family Aglaopheniidae Marktanner-Turneretscher, 1890

Genus *Aglaophenia* Lamouroux, 1812

***Aglaophenia* sp.**

Aglaophenia sp. – SAMMUT & PERRONE, 1998: 231.

Aglophenia spp. [sic] – WOOD, 2002: 40.

Aglaophenia sp. – BORG et al., 2004: 14.

Aglaophenia elongata Meneghini, 1845

Aglaophenia elongata Meneghini, 1845 – SOTO-ÀNGEL & PEÑA-CANTERO, 2013: 179.

Aglaophenia harpago Schenck, 1965

Aglaophenia harpago von Schenck, 1965 – SVOBODA & CORNELIUS, 1991: 17.

Aglaophenia harpago Schenck, 1965 – MOURA, 2011: 87.

Aglaophenia harpago – MOURA et al., 2012: 723.

Aglaophenia harpago von Schenck, 1965 – SOTO-ÀNGEL & PEÑA-CANTERO, 2013: 178.

Aglaophenia kirchenpaueri (Heller, 1868)

Aglaophenia kirchenpaueri (Heller, 1868) – SVOBODA, 1979: 86.

Aglaophenia kirchenpaueri (Heller, 1868) – SOTO-ÀNGEL & PEÑA-CANTERO, 2013: 178.

Aglaophenia octodonta (Heller, 1868)

Aglaophenia octodonta (Heller, 1868) – SVOBODA, 1979: 65.

- Aglaophenia octodonta* (Heller, 1868) – SVOBODA & CORNELIUS, 1991: 23.
Aglaophenia octodonta (Heller, 1868) – ANSÍN-AGÍS et al., 2001: 48.
Aglaophenia octodonta (Heller, 1868) – SOTO-ÀNGEL & PEÑA-CANTERO, 2013: 178.

Aglaophenia picardi Svoboda, 1979

- Aglaophenia picardi* SVOBODA, 1979: 70.
Aglaophenia picardi Svoboda, 1979 – SVOBODA & CORNELIUS, 1991: 29.
Aglaophenia picardi Svoboda, 1979 – ANSÍN-AGÍS et al., 2001: 57.
Aglaophenia picardi Svoboda, 1979 – SOTO-ÀNGEL & PEÑA-CANTERO, 2013: 178.

Aglaophenia pluma (Linné, 1758)

- Aglaophenia pluma* (L.) – MICALLEF & EVANS, 1968: 2.
Aglaophenia pluma (Linnaeus, 1758) – MASSI et al., 2020: 5.

Aglaophenia tubiformis Marktanner-Turneretscher, 1890

- Aglaophenia tubiformis* Marktanner-Turneretscher, 1890 – SVOBODA, 1979: 90.
Aglaophenia tubiformis Marktanner-Turneretscher, 1890 – SVOBODA & CORNELIUS, 1991: 34.
Aglaophenia tubiformis Marktanner-Turneretscher, 1890 – SOTO-ÀNGEL & PEÑA-CANTERO, 2013: 179.

Genus *Lytocarpia* Kirchenpauer, 1872

Lytocarpia myriophyllum (Linné, 1758)

- Lytocarpia myriophyllum* – CANTAFARO et al., 2019: 16.

Family Kirchenpaueriidae Stechow, 1921

Genus *Kirchenpaueria* Jickeli, 1883

Kirchenpaueria halecioides (Alder, 1859)

- Ventromma halecioides* (Alder, 1859) – SOTO-ÀNGEL & PEÑA-CANTERO, 2013: 178.
Kirchenpaueria halecioides (Alder, 1859) – MASSI et al., 2020: 5.

Kirchenpaueria pinnata (Linné, 1758)

- Kirchenpaueria pinnata* (Linnaeus, 1758) – SOTO-ÀNGEL & PEÑA-CANTERO, 2013: 178.

Family Plumulariidae Agassiz, 1862

Genus *Monothea* Nutting, 1900

Monothea obliqua (Johnston, 1847)

- Monothea obliqua* (Johnston, 1847) – MOURA, 2011: 87.
Monothea obliqua (Johnston, 1847) – SOTO-ÀNGEL & PEÑA-CANTERO, 2013: 178.

Genus *Nemertesia* Lamouroux, 1812

Nemertesia sp.

- Nemertesia* sp. – TERRIBILE et al., 2016: 167.

Nemertesia ramosa (Lamarck, 1816)

Nemertesia ramosa – TERRIBILE et al., 2016: 167.

Nemertesia ramosa (Lamarck, 1816) – MASSI et al., 2020: 5.

Genus *Plumularia* Lamarck, 1816

***Plumularia* sp.**

Plumularia sp. – AGIUS et al., 1977: 57.

Plumaria [sp.] [sic] – FARRUGIA-RANDON, 2010: 60.

Remarks: The misspelled genus entry by FARRUGIA-RANDON (2010: 60) refers to this genus, as shown by the illustration in that work.

Superfamily Sertularioidea Lamouroux, 1812

Family Sertularellidae Maronna et al., 2016

Genus *Sertularella* Gray, 1848

Sertularella ellisii (Deshayes & Milne-Edwards, 1836)

Sertularella ellisii (Deshayes & Milne Edwards, 1836) – SOTO-ÁNGEL & PEÑA-CANTERO, 2013: 179.

Sertularella gayi (Lamouroux, 1821)

Sertularella gayi (Lamouroux, 1821) – MIFSUD, 2015: 17.

Sertularella ornata (Broch, 1933)

Sertularella ornata (Broch, 1933) – SOTO-ÁNGEL & PEÑA-CANTERO, 2013: 178.

Family Sertulariidae Lamouroux, 1812

Genus *Dynamena* Lamouroux, 1812

***Dynamena* sp.**

Dynamena sp. – SAMMUT & PERRONE, 1998: 231.

Dynamena disticha (Bosc, 1802)

Dynamena cavolinii (Neppi) – MICALLEF & EVANS, 1968: 2. [junior synonym]

Dynamena disticha (Bosc, 1802) – SOTO-ÁNGEL & PEÑA-CANTERO, 2013: 178.

Genus *Sertularia* Linné, 1758

Sertularia distans (Lamouroux, 1816)

Sertularia distans – SOTO-ÁNGEL & PEÑA-CANTERO, 2013: 179.

Sertularia distans (Lamorous, 1816) – MOURA, 2011: 87.

Sertularia perpusilla Stechow, 1919

Sertularia perpusilla Stechow, 1911 – MOURA, 2011: 87.

Sertularia perpusilla – MOURA et al., 2011a: 526.

Sertularia perpusilla Stechow, 1919 – SOTO-ÁNGEL & PEÑA-CANTERO, 2013: 178.

Order Siphonophorae Eschscholtz, 1829
Suborder Calycophorae Leuckart, 1854
Family Abylidae Agassiz, 1862
Subfamily Abylopsinae Totton, 1954
Genus *Abylopsis* Chun, 1888

Abylopsis tetragona (Otto, 1823)

Abylopsis tetragona (Otto) – EVANS, 1968: 10.
Abylopsis tetragona (Otto) – MICALLEF & EVANS, 1968: 3.
Abylopsis tetragona – DEIDUN, 2010: 376.

Genus *Bassia* Agassiz, 1862

Bassia bassensis (Quoy & Gaimard, 1833)

Bassia bassensis (Quoy et Gaimard) – EVANS, 1968: 10.
Bassia bassensis (Quoy & Gaimard) – MICALLEF & EVANS, 1968: 2.
Bassia bassensis – DEIDUN, 2010: 376.

Family Diphyidae Quoy & Gaimard, 1827
Subfamily Diphyinae Quoy & Gaimard, 1827
Genus *Chelophyes* Totton, 1932

Chelophyes appendiculata (Eschscholtz, 1829)

Chelophyes appendiculata – EVANS, 1968: 10.
Chelophyes appendiculata Eschscholtz – MICALLEF & EVANS, 1968: 3.
Chelophyes appendiculata – DEIDUN, 2010: 376.

Genus *Eudoxoides* Huxley, 1859

Eudoxoides spiralis (Bigelow, 1911)

Eudoxoides spiralis – EVANS, 1968: 10.
Eudoxoides spiralis (Bigelow) – MICALLEF & EVANS, 1968: 3.
Eudoxoides spiralis – DEIDUN, 2010: 376.

Genus *Lensia* Totton, 1932

Lensia multicristata (Moser, 1925)

Lensia multicristata – EVANS, 1968: 10.
Lensia multicristata (Moser) – MICALLEF & EVANS, 1968: 3.
Lensia multicristata [sic] – DEIDUN, 2010: 376.

Lensia subtilis (Chun, 1886)

Lensia subtilis – EVANS, 1968: 10.
Lensia subtilis (Chun) – MICALLEF & EVANS, 1968: 3.
Lensia subtilis – DEIDUN, 2010: 376.

Family Hippopodiidae Kölliker, 1853
Genus *Hippopodius* Quoy & Gaimard, 1827

Hippopodius hippopus (Forssskål, 1776)

Hippopodius hippopus [sic] – EVANS, 1968: 10.

Hippopodius hippopus (Forsskål) – MICALLEF & EVANS, 1968: 2.

Suborder Cystonectae Haeckel, 1887

Family Physaliidae Brandt, 1835

Genus *Physalia* Lamarck, 1801

Physalia physalis (Linné, 1758)

Physalia physalis (Linn.) – MIFSUD, 2003: 42.

Physalia physalis – CALLEJA, 2009a.

Physalia physalis – CALLEJA, 2009b.

Physalia physalis – ANONYMOUS, 2010b.

Physalia physalis – ANONYMOUS, 2010c.

Physalia physalis (L., 1758) – DEIDUN, 2010: 377.

Physalia physalis – DRAGO et al., 2010: 39.

Physalia physalis – FARRUGIA-RANDON, 2010: 59.

Physalia physalis – AGIUS, 2011.

Physalia physalis – ANONYMOUS, 2011b.

Physalia physalis – ANONYMOUS, 2011c.

Physalia physalis – ANONYMOUS, 2011e.

Physalia physalis – DEIDUN, 2011b: 12.

Physalia physalis – ANONYMOUS, 2013c.

Physalia physalis – ANONYMOUS, 2013d.

Physalia physalis – ANONYMOUS, 2014d.

Physalia physalis – FSADNI, 2014.

Physalia physalis – ANONYMOUS, 2015.

Physalia physalis – ANONYMOUS, 2018c.

Physalia physalis – DEIDUN, 2020b.

Physalia physalis – DEIDUN et al. in BO et al., 2020: 615.

Physalia physalis – MARAMBIO et al., 2021: 8.

Physalia physalis – MGHILI et al., 2022: 222.

Physalia physalis (Linnaeus, 1758) – TIRALONGO et al., 2022: 2.

Suborder Physonectae Haeckel, 1888

Family Apolemiidae Huxley, 1859

Genus *Apolemia* Eschscholtz, 1829

Apolemia uvaria (Lesueur, 1815)

Apolemia uvaria Lesueur – DEN HARTOG, 1980: 606.

Apolemia uvaria – DEIDUN & SCIBERRAS, 2017: 86.

Apolemia uvaria – GATT et al., 2018.

Apolemia uvaria (Lesueur, 1815) – DEIDUN & PIRAINO in DRAGIČEVIĆ et al., 2019: 642.

Apolemia cf. *uvaria* – BADREDDINE et al., 2022: 111.

Family Forskaliidae Haeckel, 1888

Genus *Forskalia* Kolliker, 1853

Forskalia edwardsii Kolliker, 1853

Forskalia edwardsi [sic] – ANONYMOUS, 2011c.

Forskalia edwardsii – GALEA-DEBONO, 2023.

Family Physophoridae Eschscholtz, 1829

Genus *Physophora* Forsskål, 1775

Physophora hydrostatica Forsskål, 1775

Physophora hydrostatica – DEIDUN et al., 2015: 33.

Physophora hydrostatica – DEIDUN & SCIBERRAS, 2017: 87.

Physophora hydrostatica – GATT et al., 2018.

Physophora hydrostatica Forskaal, 1775 – DEIDUN & PIRAINO in DRAGIČEVIĆ et al., 2019: 642.

Physophora hydrostatica Forsskål, 1775 – İŞINIBİLİR et al., 2019: 161.

Subclass Trachylinae Haeckel, 1879

Order Limnomedusae Kramp, 1938

Family Geryoniidae Eschscholtz, 1829

Genus *Geryonia* Péron & Lesueur, 1810

Geryonia proboscidalis (Forsskål, 1775)

Geryonia proboscidalis – DEIDUN et al., 2015: 33.

Genus *Liriope* Lesson, 1843

Liriope tetraphylla (Chamisso & Eysenhardt, 1821)

Liriope tetraphylla Chamisso & Eysenhardt – EVANS, 1968: 9.

Family Olindiidae Haeckel, 1879

Genus *Olindias* Müller, 1861

Olindias muelleri (Haeckel, 1879)

Olindias phosphorica (Delle Chiaje) – MICALLEF & EVANS, 1968: 2. [junior synonym]

Olindias phosphorica – ANONYMOUS, 2010e. [junior synonym]

Olindias phosphorica – ANONYMOUS, 2010f. [junior synonym]

Olindias phosphorica (Delle Chiaje, 1841) – DEIDUN, 2010: 377. [junior synonym]

Olindias phosphorica – DRAGO et al., 2010: 39. [junior synonym]

Olindias phosphorica – FARRUGIA-RANDON, 2010: 58. [junior synonym]

Olindias phosphorica [sic] – SCHEMBRI, 2010b. [junior synonym]

Olindias phosphorica – AGIUS, 2011. [junior synonym]

Olindias phosphorica – DEIDUN, 2011b: 12. [junior synonym]

Olindias phosphorica – FSADNI, 2014. [junior synonym]

Olindias phosphorica – GATT et al., 2018: 317. [junior synonym]

Olindias muelleri Haeckel, 1879 – AYTAN et al., 2019: 23.

Order Narcomedusae Haeckel, 1879

Family Solmundaeginidae Lindsay, Bentlage & Collins, 2017

Genus *Solmundella* Haeckel, 1879

Solmundella bitentaculata (Quoy & Gaimard, 1833)

Eutima bitentaculata Quoy & Gaimard – EVANS, 1968: 9.

Eutima bitentaculata Quoy & Gaimard – MICALLEF & EVANS, 1968: 2.

Order Trachymedusae Haeckel, 1866

Family Rhopalonematidae Russell, 1953

Genus *Aglaura* Péron & Lesueur, 1810

Aglaura hemistoma Péron & Lesueur, 1810

Aglaura hemistoma Péron & Lesueur – EVANS, 1968: 9.

Genus *Rhopalonema* Gegenbaur, 1857

Rhopalonema velatum Gegenbaur, 1857

Rhopalonema velatum Gegenbaur – EVANS, 1968: 10.

Rhopalonema velatum Gegenbaur – MICALLEF & EVANS, 1968: 2.

Class Scyphozoa Goette, 1887

Subclass Discomedusae Haeckel, 1880

Order Rhizostomeae Cuvier, 1800

Suborder Dactyliophorae Stiasny, 1920

Superfamily Rhizostomatoidea Cuvier, 1800

Family Rhizostomatidae Cuvier, 1799

Genus *Rhizostoma* Cuvier, 1799

Rhizostoma pulmo (Macri, 1778)

Rhizostoma pulmo Agassiz – MICALLEF & EVANS, 1968: 3.

Rhizostoma pulmo – WOOD, 2002: 40.

Rhizostoma pulmo – DEIDUN, 2010: 376.

Rhizostoma pulmo – AGIUS, 2011.

Rhizostoma pulmo – ANONYMOUS, 2011j.

Rhizostoma pulmo – ANONYMOUS, 2013g.

Rhizostoma pulmo – MARAMBIO et al., 2021: 8.

Rhizostoma pulmo (Macri, 1778) – MIZRAHI et al., 2021: 10307.

Genus *Rhopilema* Haeckel, 1880

Rhopilema nomadica Galil, Spanier & Ferguson, 1990

Rhopilema nomadica – AGIUS, 2011.

Rhopilema nomadica – ANONYMOUS, 2011j.

Rhopilema nomadica Galil, 1990 – DEIDUN, 2011a: 2.

Rhopilema nomadica (Galil, 1990) – DEIDUN et al., 2011: S99.

Rhopilema nomadica – BROTZ & PAULY, 2012: 218.

Rhopilema nomadica Galil, 1990 – DALY-YAHIA et al., 2013: 319.

Rhopilema nomadic [sic] – ANONYMOUS, 2014b.

Rhopilema nomadica – FSADNI, 2014.

Rhopilema nomadica – IAKOVLEVA et al., 2014: 6.

Rhopilema nomadica [sic] – ZAMMIT, 2014.

Rhopilema nomadica – DEIDUN et al., 2015: 33.

Rhopilema nomadica (Galil, 1990) – EVANS et al., 2015: 229.

Rhopilema nomadica – DEIDUN, 2016b.

Rhopilema nomadica – ANONYMOUS, 2017a.

Rhopilema nomadica – DEIDUN & SCIBERRAS, 2017: 86.

Rhopilema nomadica Galil, Spanier & Ferguson, 1990 – BALISTRERI et al., 2017: 19.

Rhopilema nomadica Galil, Spanier & Ferguson, 1990 – MANNINO et al. in FUERST-BJELIS, 2017: 112.

Rhopilema nomadica – GATT et al., 2018: 316.

Rhopilema nomadica Galil, 1990 – MADKOUR et al., 2019: 1.

Rhopilema nomadica – EDELIST et al., 2020: 212.

Rhopilema nomadica Galil, Spanier & Ferguson, 1990 – BARTOLO et al., 2021: 3.

Rhopilema nomadica – GUEROUN et al., 2022: 12.

Suborder Kolpophorae Haeckel, 1880

Infraorder Actinomyaria Stiasny, 1920

Family Cepheidae Agassiz, 1862

Genus *Cotylorhiza* Agassiz, 1862

Cotylorhiza tuberculata (Macri, 1778)

- Cotylorhiza tuberculata* (Macri) – LANFRANCO, 1979: 23.
Cotylorhiza tuberculata – LANFRANCO, 1981: 83.
Cotylorhiza tuberculata – AXIAK et al., 1991: 32.
Cothyloriza tuberculata [sic] – WOOD, 2002: 40.
Cotylorhiza tuberculata – ANONYMOUS, 2010g.
Cotylorhiza tuberculata – ANONYMOUS, 2010h.
Cotylorhiza tuberculata – DEIDUN, 2010: 376.
Cotylorhiza tuberculata – DRAGO et al., 2010: 39.
Cotylorhiza tuberculata – FARRUGIA-RANDON, 2010: 63.
Cotylorhiza tuberculata – MARIOTTINI & PANE, 2010: 1134.
Cotylorhiza tuberculata – AGIUS, 2011.
Cotylorhiza tuberculata – ANONYMOUS, 2011l.
Cotylorhiza tuberculata – ANONYMOUS, 2011m.
Cotylorhiza tuberculata – DEIDUN, 2011b: 12.
Cotylorhiza tuberculata – ANONYMOUS, 2012d.
Cotylorhiza tuberculata – ANONYMOUS, 2012f.
Cotylorhiza tuberculata – ANONYMOUS, 2013e.
Cotylorhiza tuberculata – ANONYMOUS, 2013f.
Cotylorhiza tuberculata – FSADNI, 2014.
Cotylorhiza tuberculata – GATT et al., 2018: 317.
Cotylorhiza tuberculata – GAUCI et al., 2020: 2.
Cotylorhiza tuberculata – MARAMBIO et al., 2021: 8.

Infraorder Kampylomyaria Stiasny, 1920
 Family Cassiopeidae Tilesius, 1831
 Genus *Cassiopea* Péron & Lesueur, 1810

Cassiopea andromeda (Forsskål, 1775)

- Cassiopea andromeda* – ANONYMOUS, 2010a.
Cassiopea andromeda – DEIDUN, 2010: 376.
Cassiopea andromeda (Forsskål, 1775) – GALIL et al., 2010: 331.
Cassiopea andromeda – SCHEMBRI, 2010a.
Cassiopea andromeda (Forsskål, 1775) – SCHEMBRI et al., 2010: 1.
Cassiopea andromeda Forskall, 1775 [sic] – DEIDUN et al., 2011: S102.
Cassiopea andromeda – BROTZ & PAULY, 2012: 219.
Cassiopea andromeda – ZAMMIT, 2014.
Cassiopea andromeda (Forsskål, 1775) – EVANS et al., 2015: 229.
Cassiopea andromeda – ANONYMOUS, 2018d.
Cassiopea andromeda (Forsskål, 1775) – DEIDUN et al., 2018: 399.
Cassiopea andromeda (Forsskål, 1775) – DE RINALDIS et al., 2021: 1.
Cassiopea andromeda (Forsskål, 1775) – RAMOS-PÉREZ et al., 2025: 6.

Infraorder Krykomyaria Stiasny, 1920
 Family Mastigiidae Stiasny, 1921
 Genus *Phyllorhiza* Agassiz, 1862

Phyllorhiza punctata von Lendenfeld, 1884

- Phyllorhiza punctata* – ANONYMOUS, 2013d.
Phyllorhiza punctata – DEIDUN, 2016a.
Phyllorhiza punctata – DEIDUN & SCIBERRAS, 2017: 86.
Phyllorhiza punctata von Lendenfeld, 1884 – DEIDUN et al., 2017: 119.
Phyllorhiza punctata von Lendenfeld, 1884 – STAMOULI et al., 2017: 536.
Phyllorhiza punctata – ANONYMOUS, 2018a: 50.
Phyllorhiza punctata – ANONYMOUS, 2018d.

- Phyllorhiza punctata* – GATT et al., 2018: 316.
Phyllorhiza punctata von Lendenfeld, 1884 – RIZGALLA & CROCETTA, 2020: 491.
Phyllorhiza punctata von Lendenfeld, 1884 – MADKOUR et al., 2021: 88.
Phyllorhiza punctata – GUEROUN et al., 2022: 12.
Phyllorhiza punctata von Lendenfeld, 1884 – KAMINAS et al., 2022: 671.
Phyllorhiza punctata von Lendenfeld, 1884 – FERNANDEZ-ALÍAS et al., 2024: 4.

Order Semaestomeae Haeckel, 1880

Family Pelagiidae Gegenbaur, 1856

Genus *Chrysaora* Péron & Lesueur, 1810

***Chrysaora hysoscella* (Linné, 1767)**

- Chrysaora hyocella* [sic] – ANONYMOUS, 2013e.
Chrysaora hyocella [sic] – ANONYMOUS, 2013f.
Chrysaora hysoscella – ANONYMOUS, 2014g.
Chrysaora hysoscella – FSADNI, 2014.
Chrysaora hysoscella – DEIDUN et al., 2015: 33.
Chrysaora hysoscella – MARAMBIO et al., 2021: 8.
Chrysaora hysoscella – MGHILI et al., 2022: 222.

Genus *Pelagia* Péron & Lesueur, 1810

***Pelagia noctiluca* (Forsskål, 1775)**

- Pelagia noctiluca* Péron & Lesueur – MICALLEF & EVANS, 1968: 3.
Pelagia noctiluca – LANFRANCO, 1981: 83.
Pelagia noctiluca – AXIAK, 1983: 1.
Pelagia noctiluca (Forsskål) – AXIAK, 1984: 17.
Pelagia noctiluca – AXIAK et al., 1991: 32.
Pelagia noctiluca – SCHEMBRI in SULTANA & FALZON, 1995: 155.
Pelagia noctiluca – SCHEMBRI in SULTANA & FALZON, 1996: 93.
Pelagia noctiluca – WOOD, 2002: 40.
Pelagia noctiluca – ANONYMOUS, 2010b.
Pelagia noctiluca – ANONYMOUS, 2010e.
Pelagia noctiluca – ANONYMOUS, 2010f.
Pelagia noctiluca – ANONYMOUS, 2010j.
Pelagia noctiluca – DEIDUN, 2010a: 376.
Pelagia noctiluca – DEIDUN, 2010b.
Pelagia noctiluca – DRAGO et al., 2010: 39.
Pelagia noctiluca – FARRUGIA-RANDON, 2010: 64.
Pelagia noctiluca – SCHEMBRI, 2010: 4.
Pelagia noctiluca – SCHEMBRI, 2010a.
Pelagia noctiluca – SCHEMBRI, 2010b.
Pelagia noctiluca (Forsskål) – STOPAR et al., 2010: 427.
Pelagia noctiluca – AGIUS, 2011.
Pelagia noctiluca – ANONYMOUS, 2011a.
Pelagia noctiluca – ANONYMOUS, 2011c.
Pelagia noctiluca – ANONYMOUS, 2011i.
Pelagia noctiluca – ANONYMOUS, 2011k.
Pelagia noctiluca – DEIDUN, 2011b: 11.
Pelagia noctiluca – DEIDUN, 2011c.
Pelagia noticula [sic] – VELLA, 2011.
Pelagia noctiluca – ANONYMOUS, 2012a.
Pelagia noctiluca – ANONYMOUS, 2012b.
Pelagia noctiluca – ANONYMOUS, 2012d.
Pelagia noctiluca – ANONYMOUS, 2012e.
Pelagia noctiluca – ANONYMOUS, 2012h.

- Pelagia noctiluca* – CARABOTT, 2012.
Pelagia noctiluca – SAMMUT, 2012: 30.
Pelagia noctiluca – ANONYMOUS, 2013c.
Pelagia noctiluca – ANONYMOUS, 2013d.
Pelagia noctiluca – ANONYMOUS, 2013e.
Pelagia noctiluca – ANONYMOUS, 2013f.
Pelagia noctiluca – ANONYMOUS, 2013a.
Pelagia noctiluca – DEIDUN et al., 2013: 216.
Pelagia noctiluca – ANONYMOUS, 2014a.
Pelagia noctiluca (Forsskål, 1775) – CANEPA et al. in PITT & LUCAS, 2014: 243.
Pelagia noctiluca – FSADNI, 2014.
Pelagia noctiluca – SCHEMBRI, 2016: 3.
Pelagia noctiluca (Forskål, 1775) – ATES, 2017: 73.
Pelagia noctiluca – ANONYMOUS, 2018b.
Pelagia noctiluca – GATT et al., 2018: 317.
Pelagia noctiluca – ANONYMOUS, 2020.
Pelagia noctiluca – DEIDUN, 2020a.
Pelagia noctiluca – GAUCI et al., 2020: 2.
Pelagia noctiluca – MARAMBIO et al., 2021: 8.
Pelagia noctiluca – MGHILI et al., 2022: 221.
Pelagia noctiluca – CUMMINGS, 2023.
Pelagia noctiluca (Forsskål, 1775) – VELLA et al., 2023: 8.
Pelagia noctiluca – BONANNO, 2025.

Family Phacellophoridae Straehler-Pohl, Widmer & Morandini, 2011
 Genus *Phacellophora* Brandt, 1835

***Phacellophora camtschatica* Brandt, 1835**

- Phacellophora camtschatica* – ANONYMOUS, 2013d.
Phacellophora camtschatica – ANONYMOUS, 2017b.
Phacellophora camtschatica – DEIDUN & SCIBERRAS, 2017: 87.
Phacellophora camtschatica – GATT et al., 2018.
Phacellophora camtschatica Brandt, 1835 – DEIDUN & PIRAINO in DRAGIČEVIĆ et al., 2019: 642.

Family Ulmaridae Haeckel, 1880
 Subfamily Aureliinae Agassiz, 1862
 Genus *Aurelia* Lamarck, 1816

***Aurelia solida* Browne, 1905**

- Aurelia aurita* – WOOD, 2002: 40. [non *aurita* Linné, 1758]
Aurelia aurita – AGIUS, 2011. [non *aurita* Linné, 1758]
Aurelia aurita – ANONYMOUS, 2011f. [non *aurita* Linné, 1758]
Aurelia aurita – ANONYMOUS, 2011g. [non *aurita* Linné, 1758]
Aurelia aurita – ANONYMOUS, 2011h. [non *aurita* Linné, 1758]
Aurelia aurita – ANONYMOUS, 2011i. [non *aurita* Linné, 1758]
Aurelia aurita – ANONYMOUS, 2013d. [non *aurita* Linné, 1758]
Aurelia [sp.] – MARAMBIO et al., 2021: 8.
Aurelia solida Browne, 1905 – FERNÁNDEZ-ALÍAS et al., 2020: 3.

Subfamily Ulmarinae Kramp, 1961
 Genus *Discomedusa* Claus, 1877

***Discomedusa lobata* Claus, 1877**

- Discomedusa lobata* – ANONYMOUS, 2013g.

Discomedua lobata [sic] – DEIDUN et al., 2015: 33.

Subphylum Anthozoa Ehrenberg, 1834
Class Hexacorallia Haeckel, 1896
Order Actinaria Haeckel, 1896
Suborder Anenthemonae Rodríguez & Daly in Rodríguez et al., 2014
Superfamily Edwardsioidea Andres, 1881
Family Edwardsiidae Andres, 1881
Genus *Edwardsiella* Andres, 1883

Edwardsiella carnea (Gosse, 1856)

Edwardsiella carnea (Gosse, 1856) – MIFSUD, 2015: 15.

Suborder Enthemonae Rodríguez & Daly in Rodríguez et al., 2014
Superfamily Actinioidea Rafinesque, 1815
Family Actiniidae Rafinesque, 1815
Genus *Actinia* Linné, 1767

Actinia equina (Linné, 1758)

Actinia equina – SCHEMBRI in SULTANA & FALZON, 1995: 156.
Actinia equina – SCHEMBRI in SULTANA & FALZON, 1996: 94.
Actinia equina – FARRUGIA-RANDON, 2010: 46.

Genus *Anemonia* Risso, 1826

Anemonia sulcata (Pennant, 1777)

Anemonia sulcata Pennant – MICALLEF & EVANS, 1968: 3.
Anemonia sulcata (Pennant) – SCHEMBRI & JACCARINI, 1979: 258.
Anemonia sulcata – WOOD, 2002: 46.
Anemonia sulcata – FARRUGIA-RANDON, 2010: 47.

Anemonia viridis (Forsskål, 1775)

Anemonia viridis – SCHEMBRI in SULTANA & FALZON, 1995: 156.
Anemonia viridis – SCHEMBRI in SULTANA & FALZON, 1996: 94.
Anemonia viridis (Forskål) – CACHIA, 1999: 74.
Anemonia viridis Forskål – SCHEMBRI et al., 2005: 159.
Anemonia viridis (Forsskål, 1775) – MIFSUD & CILIA, 2009: 22.
Anemonia viridis Forsskål, 1775 – CILIA & DEIDUN, 2012: 7.
Anemonia viridis – SAMMUT, 2012: 30.

Genus *Condylactis* Duchassaing de Fombressin & Michelotti, 1864

Condylactis aurantiaca (Delle Chiaje, 1825)

Condylactis aurantiaca Delle Chiaje – MICALLEF & EVANS, 1968: 3.
Condylactis aurantiaca – WOOD, 2002: 48.
Condylactis aurantiaca – FARRUGIA-RANDON, 2010: 54.

Superfamily Metridioidea Carlgren, 1893
Family Aiptasiidae Carlgren, 1924
Genus *Aiptasia* Gosse, 1858

***Aiptasia* sp.**

Aiptasia sp. – SAMMUT & PERRONE, 1998: 232.

***Aiptasia diaphana* (Rapp, 1829)**

Aiptasia diaphana (Rapp) – MICALLEF & EVANS, 1968: 3.

Family Andvakiidae Danielssen, 1890

Genus *Telmatactis* Gravier, 1916

***Telmatactis cricoides* (Duchassaing, 1850)**

Telmatactis cricoides (Duchassaing, 1850) – DEN HARTOG, 1995: 166.

Family Hormathiidae Carlgren, 1932

Genus *Actinauge* Verrill, 1883

***Actinauge richardi* (Marion, 1882)**

Actinauge richardi (Marion, 1882) – MIFSUD, 2009: 1.

Actinauge richardi – GOFAS et al., 2011: 219.

Actinauge richardi – TERRIBILE et al., 2016: 167.

Actinauge richardi (Marion, 1882) – GIACOBBE & RENDA, 2020: 5.

Genus *Calliactis* Verrill, 1869

***Calliactis parasitica* (Couch, 1842)**

Calliactis parasitica (Couch) – MICALLEF & EVANS, 1968: 3.

Calliactis parasitica – WOOD, 2002: 46.

Calliactis parasitica – FARRUGIA-RANDON, 2010: 50.

Family Sagartiidae Gosse, 1858

Genus *Cereus* Ilmoni, 1830

***Cereus pedunculatus* (Pennant, 1777)**

Cereus pedunculatus (Pennant) – MICALLEF & EVANS, 1968: 3.

Cereus pedunculatus – WOOD, 2002: 48.

Order Antipatharia Ehrenberg, 1834

Family Antipathidae Ehrenberg, 1834

Genus *Antipathes* Pallas, 1766

***Antipathes* sp.**

Antipares spp. [sic] – SCHEMBRI in SCHEMBRI & SULTANA, 1989: 71.

Antipathes [sp.] – RIZZO & SCHEMBRI, 1997: 112.

Antipathes sp. – SCHEMBRI in SULTANA & FALZON, 1995: 157.

Antipathes sp. – SCHEMBRI in SULTANA & FALZON, 1996: 95.

***Antipathes dichotoma* Pallas, 1766**

Antipathes dichotoma (Pallas, 1776) – ANGELETTI et al., 2015: 2.

Antipathes dichotoma – MASSI et al., 2018: 174.

Antipathes dichotoma – BIALIK et al., 2022: 10.

Family Leiopathidae Haeckel, 1896

Genus *Leiopathes* Haime, 1849

***Leiopathes* sp.**

Leiopathes [sp.] – ANGELETTI & TAVIANI, 2011: 544.

***Leiopathes glaberrima* (Esper, 1788)**

Leiopathes glaberrima – BALZAN & DEIDUN, 2010: 453.

Leiopathes glaberrima (Esper, 1788) – DEIDUN et al., 2010: 3.

Leiopathes glaberrima (Esper, 1788) – DEIDUN et al., 2014: 1.

Leiopathes glaberrima (Esper, 1788) – ANGELETTI et al., 2015: 2.

Leiopathes glaberrima – EVANS et al., 2016: 463.

Leiopathes glaberrima – MASSI et al., 2018: 174.

Leiopathes glaberrima – CANTAFARO et al., 2019: 16.

Leiopathes glaberrima – KNITTWEIS et al. in OREJAS & JIMÉNEZ, 2019: 253.

Leiopathes glaberrima – CONSOLI et al., 2020: 6.

Leiopathes glaberrima (Esper, 1788) – LAURIA et al., 2021: 1.

Family Myriopathidae Opresko, 2001

Genus *Antipathella* Brook, 1889

***Antipathella subpinnata* (Ellis & Solander, 1786)**

Antipathella subpinnata (Ellis & Solander, 1786) – DEIDUN et al., 2014: 4.

Antipathella subpinnata – MASSI et al., 2018: 174.

Antipathella subpinnata – CONSOLI et al., 2020: 6.

Antipathella subpinnata – BIALIK et al., 2022: 10.

Order Ceriantharia Perrier, 1893

Suborder Spirularia Den Hartog, 1977

Family Cerianthidae Milne-Edwards & Haime, 1852

Genus *Cerianthus* Delle Chiaje, 1830

***Cerianthus* sp.**

Cerianthus sp. – MICALLEF & EVANS, 1968: 3.

Cerianthus [sp.] – ABELLA et al., 1998: 174.

***Cerianthus membranaceus* (Gmelin, 1796)**

Cerianthus membranaceus – WOOD, 2002: 48.

Cerianthus membranacea – BORG et al., 2004: 18.

Cerianthus membranaceus – FARRUGIA-RANDON, 2010: 52.

Cerianthus membranacea – KNITTWEIS et al., 2015: 519.

Order Scleractinia Bourne, 1900

Family Stenocyathidae Stolarski, 2000

Genus *Stenocyathus* Pourtalès, 1871

***Stenocyathus vermiformis* (Portalès, 1868)**

Stenocyathus vermiformis (Portalès, 1868) [sic] – TAVIANI & COLANTONI, 1984: 550.

Stenocyathus vermiformis (Portalès, 1868) – ANGELETTI & TAVIANI, 2011: 545.

Stenocyathus vermiformis – EVANS et al., 2016: 463.

Suborder Refertina Okubo, 2016

Family Dendrophylliidae Gray, 1847
Genus *Astroides* Quoy & Gaimard, 1827

Astroides calycularis (Pallas, 1766)

- Astroides calycularis* Pallas – MICALLEF & EVANS, 1968: 4.
- Astroides calycularis* – SCHEMBRI in SULTANA & FALZON, 1995: 157.
- Astroides calycularis* – SCHEMBRI in SULTANA & FALZON, 1996: 95.
- Astroides calycularis* (Pallas, 1766) – KRUŽIĆ et al., 2002: 353.
- Astroides calycularis* – WOOD, 2002: 50.
- Astroides calycularis* – BORG et al., 2004: 14.
- Astroides calycularis* – FARRUGIA-RANDON, 2010: 48.
- Astroides calycularis* – KNITTWEIS et al., 2015: 519.
- Astroides calycularis* – TERRÓN-SIGLER et al., 2016: 1182.

Genus *Balanophyllia* Wood, 1844

Balanophyllia europaea (Risso, 1826)

- Balanophyllia europaea* – BORG et al., 2004: 14.
- Balanophyllia europaea* – FARRUGIA-RANDON, 2010: 49.

Genus *Dendrophyllia* de Blainville, 1830

***Dendrophyllia* sp.**

- Dendrophyllia* [sp.] – ANGELETTI & TAVIANI, 2011: 544.

Dendrophyllia cornigera (Lamarck, 1816)

- Dendrophyllia cornigera* – DANOVARO et al., 2010: 10.
- Dendrophyllia cornigera* – DEIDUN et al., 2010: 1.
- Dendrophyllia cornigera* – DEIDUN et al., 2014: 1.
- Dendrophyllia cornigera* (Lamarck, 1816) – ANGELETTI et al., 2015: 5.
- Dendrophyllia cornigera* (Lamarck, 1816) – MIFSUD, 2015: 21.
- Dendrophyllia cornigera* – MASSI et al., 2018: 174.
- Dendrophyllia cornigera* – CONSOLI et al., 2020: 6.

Dendrophyllia ramea (Linné, 1758)

- Dendrophyllia ramea* (L.) – MICALLEF & EVANS, 1968: 4.
- Dendrophyllia ramea* L. – QUERCIA, 2002: 205.
- Dendrophyllia ramea* (Linnaeus, 1758) – SALOMIDI et al., 2010: 190.
- Dendrophyllia ramea* (Linnaeus, 1758) – MIFSUD, 2015: 21.

Genus *Leptopsammia* Milne-Edwards & Haime, 1848

Leptopsammia pruvoti Lacaze-Duthiers, 1897

- Leptopsammia pruvoti* – WOOD, 2002: 50.
- Leptopsammia pruvoti* – FARRUGIA-RANDON, 2010: 49.
- Leptopsammia pruvoti* – KNITTWEIS et al., 2015: 519.

Family Flabellidae Bourne, 1905
Genus *Javania* Duncan, 1876

Javania sp.

Javania [sp.] – ANGELETTI & TAVIANI, 2011: 544.

Javania caillieti (Duchassaing & Michelotti, 1864)

Javania caillieti (Duchassaing & Michelotti, 1864) – TAVIANI et al., 2009: 106.

Suborder Vacatina Okubo, 2016

Family Caryophylliidae Dana, 1846

Genus *Caryophyllia* Lamarck, 1801

Caryophyllia sp.

Caryophyllia [sp.] – ANGELETTI & TAVIANI, 2011: 544.

Caryophyllia calveri Duncan, 1873

Caryophyllia ? *calveri* – TERRIBILE et al., 2016: 167.

Caryophyllia sarsiae Zibrowius, 1974

Caryophyllia sarsiae (Zibrowius, 1974) [sic] – TAVIANI & COLANTONI, 1984: 550.

Caryophyllia smithii Stokes & Broderip, 1828

Caryophyllia clavus Scacchi variety *smithii* – DUNCAN, 1874: 312.

Caryophyllia smithii – REES, 1962: 411.

Caryophyllia smithi Stokes & Broderip, 1828 [sic] – BEST, 1968: 19.

Caryophyllia clavus Sacchi – MICALLEF & EVANS, 1968: 4.

Caryophyllia smithi Stokes & Broderip [sic] – MICALLEF & EVANS, 1968: 4.

Caryophyllia smithii – SCHEMBRI in SULTANA & FALZON, 1995: 157.

Caryophyllia smithii – SCHEMBRI in SULTANA & FALZON, 1996: 94.

Caryophyllia smithii Stokes & Broderip, 1828 – MIFSUD, 1997: 26.

Caryophyllia smithii Stokes & Broderip, 1828 – CACHIA, 1999: 94.

Caryophyllia smithii – WOOD, 2002: 50.

Caryophyllia smithii Stokes & Broderip, 1828 – MIFSUD, 2010: 56.

Caryophyllia (*Caryophyllia*) *smithii* Stokes A. C. & Broderip W. J., 1828 – MIFSUD, 2015: 21.

Caryophyllia (*Caryophyllia*) *smithii* Stokes & Broderip, 1828 – MASSI et al., 2020: 5.

Genus *Desmophyllum* Ehrenberg, 1834

Desmophyllum dianthus (Esper, 1794)

Desmophyllum cristagalli Milne Edwards et Haime, 1948 – TAVIANI & COLANTONI, 1984: 550. [junior synonym]

D[esmophyllum] cristagalli – DELIBRIAS & TAVIANI, 1985: 176. [junior synonym]

Desmophyllum dianthus – SCHEMBRI et al., 2007: 77.

Desmophyllum dianthus (Esper, 1794) – TAVIANI et al., 2009: 106.

Desmophyllum cristagalli – DEIDUN et al., 2010: 1. [junior synonym]

Desmophyllum dianthus – DEIDUN et al., 2010: 4.

Desmophyllum dianthus – TAVIANI et al., 2010: 88.

Desmophyllum dianthus (Esper, 1794) – ANGELETTI & TAVIANI, 2011: 544.

Desmophyllum dianthus – OREJAS et al., 2011: 58.

Desmophyllum dianthus (Esper, 1794) – ADDAMO et al., 2012: [13].

Desmophyllum cristagalli – DEIDUN et al., 2014: 1. [junior synonym]

Desmophyllum dianthus (Esper, 1794) – ANGELETTI et al., 2015: 5.

Desmophyllum dianthus – TERRIBILE et al., 2016: 167.

Desmophyllum dianthus – CANTAFARO et al., 2019: 16.
Desmophyllum cristagalli – CONSOLI et al., 2020: 6. [junior synonym]
Desmophyllum dianthus – ADDAMO et al., 2021: 1.

Desmophyllum pertusum (Linné, 1758)

Lophelia pertusa (Linné, 1758) – TAVIANI & COLANTONI, 1984: 550.
Lophelia pertusa – SCHEMBRI et al., 2007: 77.
Lophelia pertusa (Linnaeus, 1758) – FREIWALD et al., 2009: 38.
Lophelia pertusa (Linnaeus, 1758) – TAVIANI et al., 2009: 106.
Lophelia pertusa – DANOVARO et al., 2010: 10.
Lophelia pertusa – DEIDUN et al., 2010: 1.
Lophelia pertusa – TAVIANI et al., 2010: 88.
Lophelia pertusa (Linnaeus, 1758) – ANGELETTI & TAVIANI, 2011: 544.
Lophelia pertusa – OREJAS et al., 2011: 58.
Lophelia pertusa – DEIDUN et al., 2014: 2.
Lophelia pertusa (Linnaeus, 1758) – ANGELETTI et al., 2015: 5.
Lophelia pertusa – EVANS et al., 2016: 463.
Lophelia pertusa – TERRIBILE et al., 2016: 167.
Lophelia pertusa – MASSI et al., 2018: 174.
Lophelia pertusa – CANTAFARO et al., 2019: 16.
Lophelia pertusa – KNITTWEIS et al. in OREJAS & JIMÉNEZ, 2019: 253.
Lophelia pertusa – CONSOLI et al., 2020: 6.
Lophelia pertusa – LEONARD et al., 2020: 9.
Lophelia pertusa – LAURIA et al., 2021: 1.
Desmophyllum pertusum – BIALIK et al., 2022: 2.

Genus *Polycyathus* Duncan, 1876

Polycyathus muelleriae (Abel, 1959)

(?) *Polycyathus muelleriae* – BORG et al., 2004: 14.

Family Cladocoridae Milne-Edwards & Haime, 1857

Genus *Cladocora* Ehrenberg, 1834

Cladocora caespitosa (Linné, 1767)

Cladocora caespitosa (L.) [sic] – MICALLEF & EVANS, 1968: 4.
Cladocora caespitosa (Linnaeus) – SCHEMBRI in SCHEMBRI & SULTANA, 1989: 71.
Cladocora caespitosa – SCHEMBRI in SULTANA & FALZON, 1995: 157.
Cladocora caespitosa – SCHEMBRI in SULTANA & FALZON, 1996: 95.
Cladocora caespitosa [sic] – QUERCIA, 2002: 205.
Cladocora caespitosa – WOOD, 2002: 50.
Cladocora caespitosa – BORG et al., 2004: 14.
Cladocora caespitosa – FARRUGIA-RANDON, 2010: 53.
Cladocora caespitosa (Linnaeus, 1767) – MIFSUD, 2015: 21.
Cladocora caespitosa (Linnaeus, 1767) – CUTAJAR et al., 2020: 737.

Family Madreporidae Ehrenberg, 1834

Genus *Madrepora* Linné, 1758

Madrepora oculata Linné, 1758

M[adrepora] oculata – DELIBRIAS & TAVIANI, 1985: 176.
Madrepora oculata – SCHEMBRI et al., 2007: 77.
Madrepora oculata Linnaeus, 1758 – FREIWALD et al., 2009: 38.
Madrepora oculata Linnaeus, 1758 – TAVIANI et al., 2009: 106.

- Madrepora oculata* – DANOVARO et al., 2010: 10.
Madrepora oculata – DEIDUN et al., 2010: 1.
Madrepora oculata – TAVIANI et al., 2010: 88.
Madrepora oculata Linnaeus, 1758 – ANGELETTI & TAVIANI, 2011: 544.
Madrepora oculata – DEIDUN et al., 2014: 2.
Madrepora oculata Linnaeus, 1758 – MIFSUD, 2015: 21.
Madrepora oculata – MASSI et al., 2018: 174.
Madrepora oculata – CANTAFARO et al., 2019: 16.
Madrepora oculata – KNITTWEIS et al. in OREJAS & JIMÉNEZ, 2019: 253.
Madrepora oculata – CONSOLI et al., 2020: 6.
Madrepora oculata – LEONARD et al., 2020: 9.
Madrepora oculata – LAURIA et al., 2021: 1.
Madrepora oculata – BIALIK et al., 2022: 2.

Family Oculinidae Gray, 1847

Genus *Oculina* Lamarck, 1816

***Oculina* sp.**

- Oculina* [sp.] – LOGAN & NOBLE, 1983: 35.

***Oculina patagonica* de Angelis, 1908**

- Oculina patagonica* – SCHEMBRI, 2017: 56.
Oculina patagonica de Angelis, 1908 – DEIDUN & PIRAINO in CHARTOSIA et al., 2018: 406.
Oculina patagonica de Angelis, 1908 – CUTAJAR et al., 2020: 737.
Oculina patagonica de Angelis, 1908 – BARTOLO et al., 2021: 3.

Family Oulastreidae Vaughan, 1919

Genus *Oulastrea* Milne-Edwards & Haime, 1848

***Oulastrea crispata* (Lamarck, 1816)**

- Oulastrea crispata* (Lamarck, 1816) – CUTAJAR et al., 2020: 739.

Family Pocilloporidae Gray, 1840

Genus *Madracis* Milne-Edwards & Haime, 1849

***Madracis pharensis* (Heller, 1868)**

- Madracis pharensis* – KNITTWEIS et al., 2015: 519.

Order Zoantharia Gray, 1832

Suborder Macrocnemina Haddon & Shackleton, 1891

Family Epizoanthidae Delage & Hérourard, 1901

Genus *Epizoanthus* Gray, 1867

***Epizoanthus* sp.**

- Epizoanthus* sp. – TERRIBILE et al., 2016: 167.

***Epizoanthus arenaceus* (Delle Chiaje, 1823)**

- Epizoanthus arenaceus* (Delle Chiaje, 1823) – MICALLEF & EVANS, 1968: 3.

Family Parazoanthidae Delage & Hérourard, 1901

Genus *Parazoanthus* Haddon & Shackleton, 1891

Parazoanthus axinellae (Schmidt, 1862)

Parazoanthus axinellae – WOOD, 2002: 48.

Parazoanthus axinellae – FARRUGIA-RANDON, 2010: 57.

Genus *Savalia* Nardo, 1844

Savalia savaglia (Bertoloni, 1819)

Savalia savaglia (Bertoloni, 1819) – PULIDO-MANTAS et al., 2022: 4.

Subclass Octocorallia Haeckel, 1866

Order Malacalcyonacea McFadden, van Ofwegen & Quattrini, 2022

Family Acanthogorgiidae Gray, 1859

Genus *Acanthogorgia* Gray, 1857

Acanthogorgia hirsuta Gray, 1857

Acanthogorgia hirsuta – EVANS et al., 2016: 463.

Acanthogorgia hirsuta – KNITTWEIS et al. in OREJAS & JIMÉNEZ, 2019: 253.

Acanthogorgia hirsuta – LEONARD et al., 2020: 2.

Genus *Bebryce* Philippi, 1841

Bebryce mollis Philippi, 1842

Bebryce mollis Philippi, 1842 – DEIDUN et al., 2014: 5.

Bebryce mollis – EVANS et al., 2016: 463.

Bebryce mollis – MASSI et al. 2018: 174.

Bebryce mollis – CANTAFARO et al., 2019: 16.

Bebryce mollis – CONSOLI et al., 2020: 6.

Bebryce mollis – LEONARD et al., 2020: 10.

Genus *Muriceides* Wright & Studer, 1889

Muriceides lepida Carpine & Grasshoff, 1975

Muriceides lepida – EVANS et al., 2016: 463.

Muriceides lepida – KNITTWEIS et al. in OREJAS & JIMÉNEZ, 2019: 253.

Genus *Paramuricea* Koelliker, 1865

Paramuricea sp.

Paramuricea spp. – NAPPO, 2024: 58.

Paramuricea clavata (Risso, 1826)

Paramuricea clavata – WOOD, 2002: 42.

Paramuricea clavata – FARRUGIA-RANDON, 2010: 56.

Paramuricea macrospina (Koch, 1882)

Paramuricea macrospina (Koch, 1882) – MIFSUD et al., 2008: 109.

Paramuricea macrospina – GOFAS et al., 2011: 56

[cf.] *Paramuricea macrospina* – ANGELETTI et al., 2015: 2.

Paramuricea macrospina – EVANS et al., 2016: 463.

Paramuricea macrospina – MASSI et al., 2018: 174.

Genus *Placogorgia* Wright & Studer, 1889

***Placogorgia* sp.**

Placogorgia sp. – ENRICHETTI et al., 2018: 11.

Placogorgia massiliensis Carpine & Grasshoff, 1975

Placogorgia massiliensis – KNITTWEIS et al. in OREJAS & JIMÉNEZ, 2019: 253.

Genus *Villogorgia* Duchassaing & Michelloti, 1862

Villogorgia bebrycoides (Koch, 1887)

Villogorgia bebrycoides – EVANS et al., 2016: 463.

Villogorgia bebrycoides – KNITTWEIS et al. in OREJAS & JIMÉNEZ, 2019: 253.

Villogorgia bebrycoides (von Koch, 1887) – NAPPO, 2024: 58.

Family Alcyoniidae Lamouroux, 1812

Genus *Alcyonium* Linné, 1758

Alcyonium palmatum Pallas, 1766

Alcyonium palmatum – WOOD, 2002: 44.

Alcyonium palmatum – TERRIBILE et al., 2016: 167.

Family Eunicellidae McFadden, van Ofwegen & Quattrini, 2024

Genus *Eunicella* Verrill, 1869

***Eunicella* sp.**

Eunicella spp. – NAPPO, 2024: 58.

Eunicella cavolini (Koch, 1887)

Eunicella cavolinii (Koch) [sic] – MICALLEF & EVANS, 1968: 4.

Eunicella cavolinii [sic] – WOOD, 2002: 42.

Eunicella cavolini – BIALIK et al., 2022: 10.

Family Paralcyoniidae Gray, 1869

Genus *Maasella* Poche, 1914

Maasella edwardsii (de Lacaze-Duthiers, 1888)

Maasella edwardsi – TERRIBILE et al., 2016: 167.

Family Plexauridae Gray, 1859

Genus *Swiftia* Duchassaing & Michelotti, 1864

***Swiftia* sp.**

Swiftia sp. – CANTAFARO et al., 2019: 16.

Swiftia dubia (Thomson, 1929)

Swiftia pallida – KNITTWEIS et al. in OREJAS & JIMÉNEZ, 2019: 253.

Family Siphonogorgiidae Kölliker, 1874
Genus *Chironephthya* Studer, 1887

Chironephthya mediterranea López-González, Grinyó & Gili, 2014

Chironephthya mediterranea – CANTAFARO et al., 2019: 16.

Order Scleractyonacea McFadden, van Ofwegen & Quattrini, 2022
Family Coralliidae Lamouroux, 1812
Genus *Corallium* Cuvier, 1798

Corallium rubrum (Linné, 1758)

Corallium rubrum (Linnaeus) – SCHEMBRI in SCHEMBRI & SULTANA, 1989: 71.
Corallium rubrum – SCHEMBRI in SULTANA & FALZON, 1995: 158.
Corallium rubrum – SCHEMBRI in SULTANA & FALZON, 1996: 95.
Corallium rubrum (L.) – CACHIA, 1999: 66.
Corallium rubrum – WOOD, 2002: 42.
Corallium rubrum – BORG et al., 2004: 26.
Corallium rubrum – FREIWALD et al., 2009: 42.
Corallium rubrum (Linnaeus, 1758) – TAVIANI et al., 2009: 106.
Corallium rubrum – BALZAN & DEIDUN, 2010: 452.
Corallium rubrum (L., 1758) – COSTANTINI et al., 2010: 261.
Corallium rubrum – DANOVARO et al., 2010: 10.
Corallium rubrum – DEIDUN et al., 2010: 1.
Corallium rubrum – TAVIANI et al., 2010: 87.
Corallium rubrum – ANGELETTI & TAVIANI, 2011: 545.
Corallium rubrum – DEIDUN et al., 2014: 1.
Corallium rubrum (Linnaeus, 1758) – MIFSUD, 2015: 21.
Corallium rubrum – KNITTWEIS et al., 2016: 467.
Corallium rubrum – KNITTWEIS et al. in OREJAS & JIMÉNEZ, 2019: 253.

Family Dendrobrachiidae Brook, 1889
Genus *Dendrobrachia* Brook, 1889

Dendrobrachia bonsai López-González & Cunha, 2010

Dendrobrachia bonsai LÓPEZ-GONZÁLEZ & CUNHA, 2010: 427.
Dendrobrachia bonsai López-González & Cunha, 2010 – SARTORETTO, 2012: 1.
Dendrobrachia bonsai – EVANS et al., 2016: 463.
Dendrobrachia bonsai López-González & Cunha, 2010 – OCAÑA-VICENTE et al., 2017: 237.
Dendrobrachia bonsai – KNITTWEIS et al. in OREJAS & JIMÉNEZ, 2019: 253.

Family Ellisellidae Gray, 1859
Genus *Viminella* Gray, 1870

Viminella flagellum (Johnson, 1863)

Viminella flagellum (Johnson, 1863) – DEIDUN et al., 2014: 4.
Viminella flagellum – MASSI et al., 2018: 174.
Viminella flagellum – CONSOLI et al., 2020: 6.

Family Keratoisididae Gray, 1870
Genus *Isidella* Gray, 1857

Isidella elongata (Esper, 1788)

Isidella elongata – EVANS et al., 2016: 463.

- Isidella elongata* – TERRIBILE et al., 2016: 167.
Isidella elongata – CANTAFARO et al., 2019: 16.
Isidella elongata – LAURIA et al., 2021: 9.
Isidella elongata (Esper, 1788) – MIFSUD, 2021: 22.

Family Primnoidae Milne-Edwards, 1857
Genus *Callogorgia* Gray, 1858

***Callogorgia verticillata* (Pallas, 1766)**

- Callogorgia verticillata* (Pallas, 1766) – DEIDUN et al., 2014: 6.
Callogorgia verticillata – EVANS et al., 2016: 463.
Callogorgia verticillata – TERRIBILE et al., 2016: 167.
Callogorgia verticillata – MASSI et al., 2018: 174.
Callogorgia verticillata – CANTAFARO et al., 2019: 16.
Callogorgia verticillata – KNITTWEIS et al. in OREJAS & JIMÉNEZ, 2019: 253.
Callogorgia verticillata – CONSOLI et al., 2020: 6.
Callogorgia verticillata – LEONARD et al., 2020: 2.

Superfamily Pennatuloidea Ehrenberg, 1834
Family Funiculinidae Gray, 1870
Genus *Funiculina* Lamarck, 1816

***Funiculina quadrangularis* (Pallas, 1766)**

- Funiculina quadrangularis* (Pallas) – MICALLEF & EVANS, 1968: 4.
Funiculina quadrangularis (Pallas, 1766) – ANGELETTI et al., 2015: 2.
Funiculina quadrangularis – EVANS et al., 2016: 463.
Funiculina quadrangularis – TERRIBILE et al., 2016: 167.
Funiculina quadrangularis – MASSI et al., 2018: 174.
Funiculina quadrangularis – LAURIA et al., 2021: 9.
Funiculina quadrangularis (Pallas, 1766) – NAPPO, 2024: 53.

Family Kophobelemnidae Gray, 1860
Genus *Kophobelemnon* Asbjørnsen, 1856

***Kophobelemnon stelliferum* (Müller, 1776)**

- Kophobelemnon stelliferum* – EVANS et al., 2016: 46

Family Pennatulidae Ehrenberg, 1834
Genus *Pennatula* Linné, 1758

***Pennatula* sp.**

- Pennatula* spp. – EVANS et al., 2016: 463.

***Pennatula rubra* Ellis, 1764**

- Pennatula rubra* – TERRIBILE et al., 2016: 167.

Genus *Pteroeides* Herklots, 1858

***Pteroeides griseum* (Bohadsch, 1761)**

- Pteroeides griseum* – TERRIBILE et al., 2016: 167.

Family Virgulariidae Verrill, 1868
Genus *Virgularia* Lamarck, 1816

Virgularia mirabilis (Müller, 1776)

Virgularia mirabilis – WOOD, 2002: 44.
Virgularia mirabilis (Müller, 1776) – DEIDUN et al., 2014: 4.
Virgularia mirabilis – CONSOLI et al., 2020: 6.

Phylum Ctenophora Eschscholtz, 1829
Class Nuda Chun, 1879
Order Beroida Eschscholtz, 1829
Family Beroidae Eschscholtz, 1825
Genus *Beroe* Browne, 1756

Beroe cucumis (Fabricius, 1780)

Beroe cucumis – AGIUS, 2011.
Beroe cucumis (Fabricius, 1780) – DEIDUN, 2011b: 6.

Beroe forskalii (Milne-Edwards, 1841)

Beroe forskalii – AGIUS, 2011.
Beroe forskalii – ANONYMOUS, 2011c.
Beroe forskalii (Milne-Edwards, 1841) – DEIDUN, 2011b: 6.

Beroe ovata Bruguière, 1789

Beroe ovata Bruguière – MICALLEF & EVANS, 1968: 4.
Beroe ovata – DEIDUN, 2011b: 5.

Class Tentaculata Eschscholtz, 1825
Order Cestida Gegenbaur, 1856
Family Cestidae Gegenbaur, 1856
Genus *Cestum* Lesueur, 1813

Cestum veneris Chun, 1879

Cestus veneris Lesueur [sic] – MICALLEF & EVANS, 1968: 4.
Cestum veneris – DEIDUN, 2011b: 5.

Order Lobata Eschscholtz 1825
Family Leucotheidae Krumbach, 1925
Genus *Leucothea* Mertens, 1833

Leucothea multicornis (Quoy & Gaimard, 1824)

Leucothea sp. – DRAGO et al., 2010: 39.
Leucothea multicornis – AGIUS, 2011.
Leucothea multicornis – ANONYMOUS, 2011n.
Leucothea multicornis (Quoy and Gaimard, 1824) – DEIDUN, 2011b: 6.
Leucothea multicornis (Quoy & Gaimard, 1825) – GALIL et al., 2014: 1.
Leucothea multicornis (Quoy & Gaimard, 1824) – DIGENIS & GEROVASILEIOU, 2020: 500.
Leucothea multicornis (Quoy & Gaimard, 1824) – BITAR & BADREDDINE, 2021: 117.

DISCUSSION

The current checklist for Maltese Cnidaria and Ctenophora includes c. 160 species, including several entities left in open nomenclature. More than 150 of these are cnidarians, and five are ctenophores. This species richness may seem low compared to the biodiversity recorded across the wider Mediterranean (e.g. see BOUILLON et al., 2004; COLL et al., 2010; PESTORIĆ et al., 2021) but it still constitutes significant percentages of around 15% and 20% of the respective totals. However, there is still limited data on non-native species which are not pelagic. The relatively low overall species count for Malta likely reflects a lack of dedicated research in this taxonomic group and may be attributed to a combination of limited research efforts and challenging species-level identification.

Cnidarian and ctenophoran fauna warrant increased research attention. Cnidarians serve as a food source for higher-trophic organisms, including crustaceans, fish, turtles, and molluscs (e.g. DEN HARTOG, 1980; ATES, 2017). Many hydroids host to parasitic molluscs, especially species from the class Solenogastres and from the gastropod orders Neogastropoda and Heterobranchia.

CONCLUSION

This checklist is presented as a provisional document and reflects ongoing research. It is anticipated that future investigations will expand this list to include many additional species undoubtedly present in Maltese waters.

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AFTER TWO CENTURIES, A NEW NATIVE SPECIES OF THE FAMILY CYPRAEIDAE (MOLLUSCA: GASTROPODA) FROM THE MEDITERRANEAN SEA: *SCHILDERINA ICHNUSA* N. SP.

Andrea NAPPO ^{2*}, Frank SWINNEN ³

ABSTRACT

A new species of *Schilderina* Dolin & Aguerre, 2020 from Sardinia, Italy, is described as *Schilderina ichtusa* n. sp. It is compared with recent and fossil species belonging to the same genus, from Europe, the Mediterranean Sea, and the Atlantic Ocean.

Keywords: Mollusca, Caenogastropoda, Cypraeoidea, Europe, Atlantic Ocean, new species

SINTEZI

[Wara żewg sekli, speči ġdida mill-familja Cypraeidae (Mollusca Gastropoda) mill-Baħar Mediterran: *Schilderina ichtusa* n. sp.] Speči ġdida ta' *Schilderina* Dolin & Aguerre, 2020 minn Sardinja, l-Italja, qiegħda tiġi deskritta bħala *Schilderina ichtusa* n. sp. u mqabbla ma' speči reċenti u fossili li jappartjenu għall-istess ġeneru, mill-Ewropa, il-Baħar Mediterran, u l-Oċean Atlantiku.

Kliem muftieħ: Mollusca, Caenogastropoda, Cypraeoidea, Ewropa, Oċean Atlantiku, speči ġdida

INTRODUCTION

Leading up to this study, seven species from the gastropod family Cypraeidae Rafinesque, 1815 have been recognised in the Mediterranean Sea, spanning six genera: *Naria* Broderip, 1837; *Palmadusta* Iredale, 1930; *Purpuradusta* Schilder, 1939; *Luria* Jousseaume, 1884; *Schilderina* Dolin & Aguerre, 2020; and *Zonaria* Aghard, 1817. *Schilderina* was introduced as a replacement name for *Schilderia* Tomlin, 1930, which is unavailable under Art. 67.8 of the ICZN (DOLIN & AGUERRE, 2020).

During the Miocene and Pliocene, *Zonaria* and *Schilderina* species spread throughout the Mediterranean and the Paratethys. Molecular data indicates a close relationship between the two, which most probably constitute a single genus (MEYER, 2003).

As currently circumscribed, *Schilderina* includes one extant species, namely *Schilderina achatidea* (Gray, 1837), with three subspecies: the nominal one, ranging from the Central and Western Mediterranean to Portugal and Northern Spain in the Atlantic (at depths between 30 and 100 m), *S. achatidea inopinata* (Schilder, 1930), ranging from Morocco to Gabon (at depths between 20 and 100 m) and *S. achatidea verdensis* (Lorenz, 2017), endemic to Cape Verde (at depths between 150 and 200 m) (NOLF, 2022).

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The shell of *Schilderina* is mainly characterized by a pyriform and inflated shape, reduced columellar dentation and weak labral dentition, and the white base in contrast to an overall dotted orange colour, highly saturated at the extremities and sides. Some fossil species and a new species described herein, *Schilderina ichnusa* n. sp., possess a cylindrical shell with a black blotch on the spire. The animal of *S. achatidea* has a thick orange mantle with beaded dendritic papillae.

Finding a new native species of cypraeid in the Mediterranean is an extraordinary event. The new species appears to be very rare, as only fragments and five complete specimens have been collected so far, with none found alive.

MATERIALS AND METHODS

Specimens studied herein are adult individuals collected freshly dead by dredge throughout the span of sixteen years. Standard photographs were obtained with a Sony Alpha 7 II. They were processed using Adobe Photoshop 2024® (by way of brightness, contrast, sharpness and colour balance adjustments exclusively, applied to the entirety of the image). Sizes are given in millimetres (mm) and listed as [shell height × shell width].

Abbreviations and acronyms:

L: length of shell

W: width of shell

sh./ shs.: empty shell/s

sp./ spms.: live-taken specimen/s

ICZN: International Commission on Zoological Nomenclature

ANC: Andrea NAPPO collection (Decimomannu, Italy)

APC: Attilio PAGLI collection (Empoli, Italy)

FLC: Felix LORENZ collection (Buseck, Germany)

MSF: The Mollusca Science Foundation, Inc. (Baltimore, Maryland, USA)

SYSTEMATICS

Class Gastropoda Cuvier, 1795

Subclass Caenogastropoda L. R. Cox, 1960

Order Littorinimorpha Golikov & Starobogatov, 1975

Superfamily Cypraeoidea Rafinesque, 1815

Family Cypraeidae Rafinesque, 1815

Subfamily Zonariinae Schilder, 1932

Tribe Zonariini Schilder, 1932

Genus *Schilderina* Dolin & Aguerre, 2020

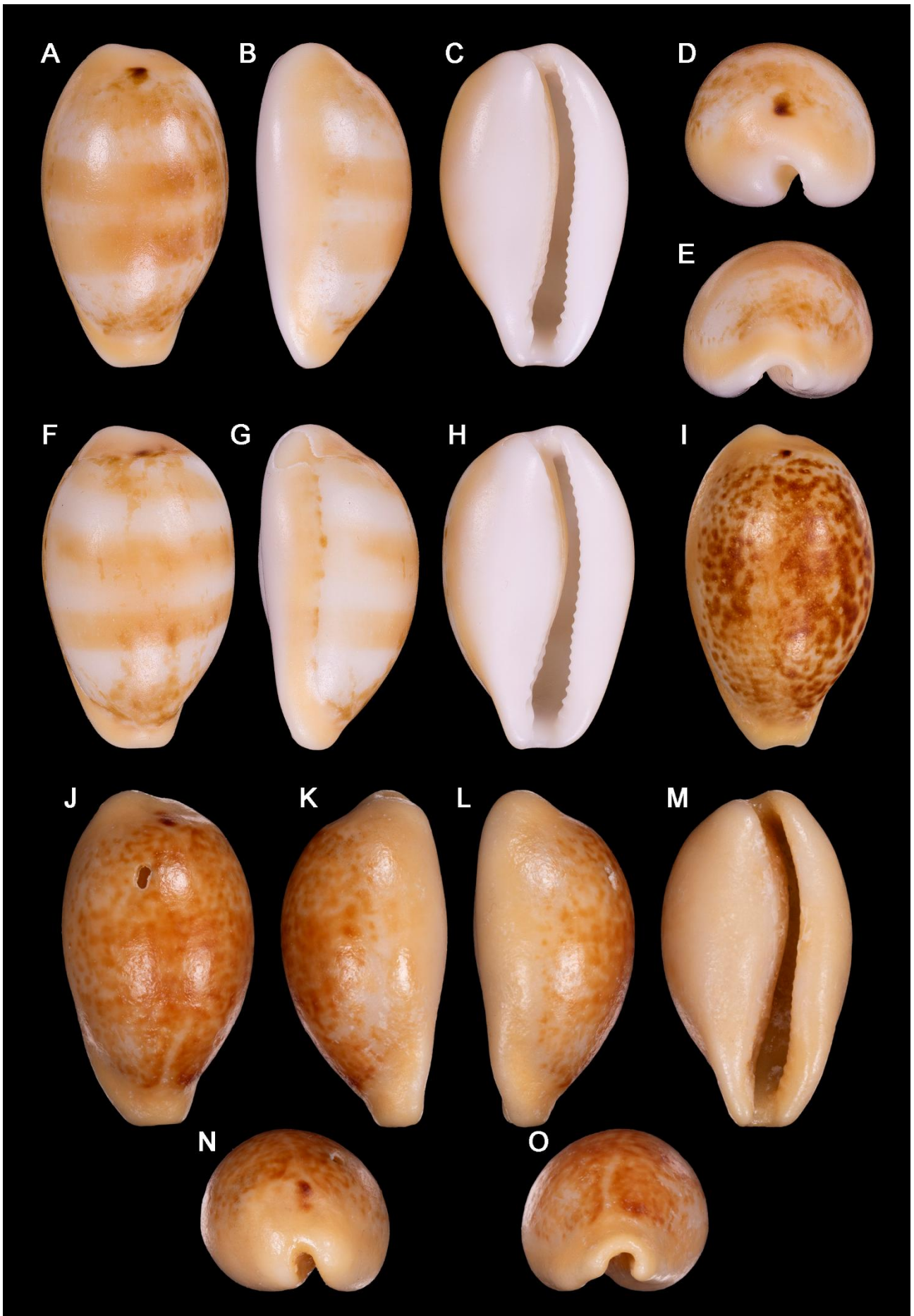
(type species by original designation: *Cypraea achatidea* Gray, 1837)

Schilderina ichnusa n. sp. (Pl. 1 Figs. A–N)

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Type material (material studied):

ITALY • **holotype** (Pl. 1 Figs. A–E): 1 sh.; Sardinia, Cagliari Gulf; trawled from 35–50 m depth; 7 May 2021; MSF-11860; 24.3 × 14.2 mm; shell formula 24 (58 – 51 – 87) 29 : 19 [18.5] • **paratype 1** (Pl. 1 Figs. J–O); 1 sh.; Sardinia, Cagliari Gulf; trawled from 35–50 m depth; 2009; ANC; 26.5 × 15.2 mm; shell formula 26.4 (57 – 48 – 84) 27 : 8 [17.8] • **paratype 2** (Pl. 1 Figs. F–H); 1 sh.; Sardinia, Cagliari Gulf; trawled from 35–50 m depth; 2019; APC; 24.3 × 16.7 mm; shell formula 24.3 (69 – 50 – 73) 25 : 12 [13.8] • **paratype 3** (Pl. 1 Fig. I); 1 sh.; Sardinia, Cagliari Gulf; trawled from 35–50 m depth; 08 Mar. 2025; ANC; 28.1 × 16.8 mm; shell formula 28.1 (60 – 48 – 81) 28 : 12 [15.9] • **paratype 4**; 1 sh.; Sardinia, Cagliari Gulf; trawled from 35–50 m depth; 16 May 2025; ANC; 24.6 × 15.0 mm; shell formula 24.6 (61 – 50 – 81) 25 : 14 [15.2].



Pl. 1 Figs. A–O: *Schilderina ichnusa* n.sp. A–E: holotype; Italy, Sardinia, Cagliari Gulf; trawled from 35–50 m depth; 24.3 mm (MSF-11860). F–H: paratype 2; Italy, Sardinia, Cagliari Gulf; trawled from 35–50 m depth; 26.5 mm (APC).

I: paratype 3; Italy, Sardinia, Cagliari Gulf; trawled from 35–50 m depth; 28.1 mm (ANC). **J–O**: paratype 1; Italy, Sardinia, Cagliari Gulf; trawled from 35–50 m depth; 26.5 mm (ANC).

Additional material studied:

Schilderina achatidea achatidea (Gray, 1837)

ITALY • 1 spm.; Sicily, Milazzo; unknown depth; ANC • 3 spms.; Sardinia, Cagliari Gulf; 50–80 m depth; ANC.

SPAIN • 3 spms.; Andalucía, Malaga.; 30–50 m depth; APC • 1 spm.; Almuñécar, Punta de la Mona; 70–100 m depth; ANC.

MOROCCO • 2 spms.; Al Hoceima, Cabo Quilates; 30–50 m depth; APC.

Schilderina achatidea inopinata (Schilder, 1930)

MAURITANIA • 18 spms.; off Nouakchott; 17.36666, -16.25000; 84 m depth; ANC.

Schilderina cf. achatidea (Gray, 1837)

MOROCCO • 1 spm., 1 sh.; Sahara Bank; 40–60 m depth; ANC.

Schilderina garonettii (Fehse, 2004)

ITALY • 2 shs.; Tuscany; ANC; Pliocene.

Type locality: Italy, Sardinia, Cagliari Gulf (dredged from a depth of 35–50 m).

Etymology: *Ichnusa* (Ἰχνοῦσσα) is the Ancient Greek name of Sardinia. The gender is feminine.

Distribution: Only known from the type locality.

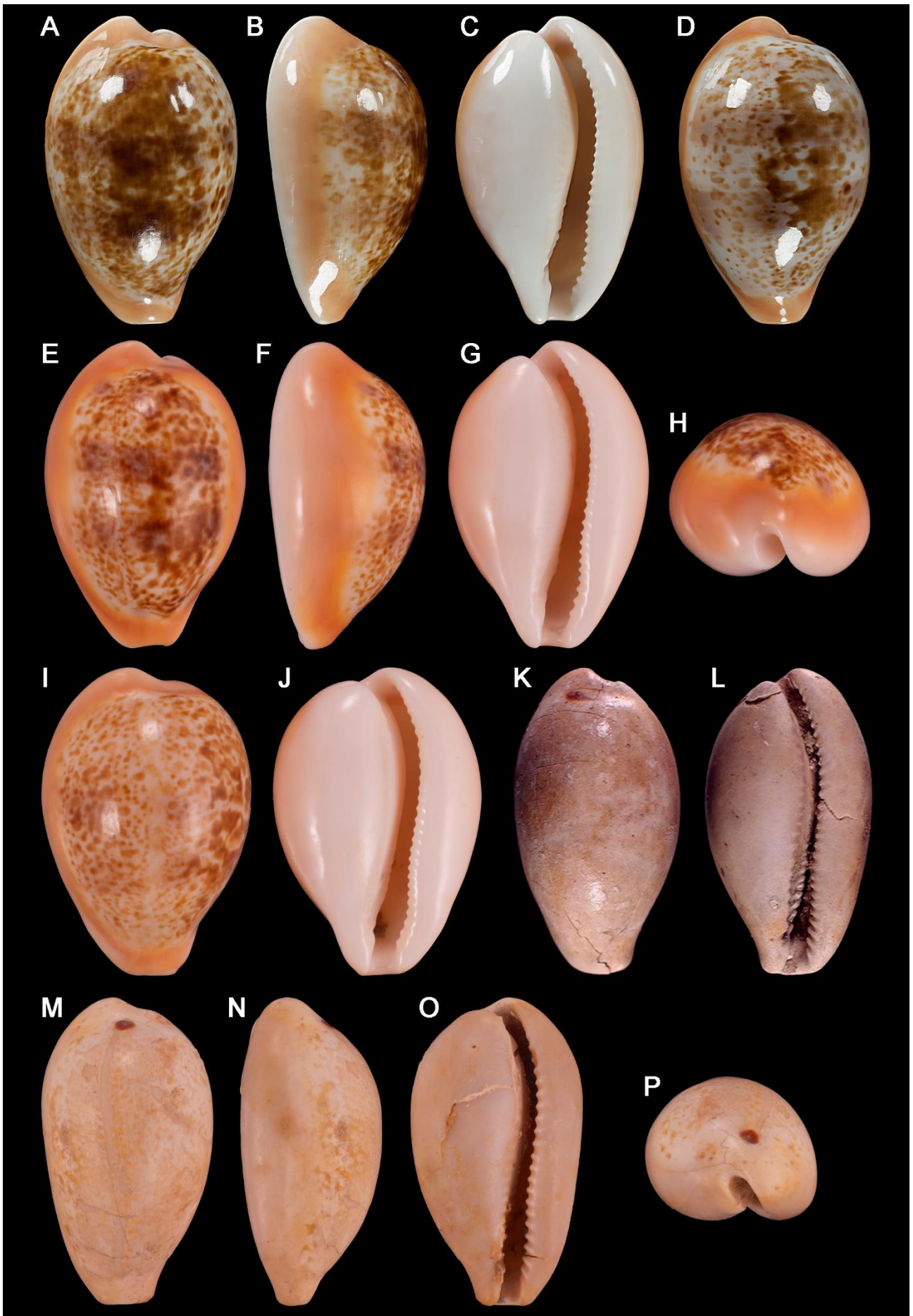
Description: [Data of the holotype (**Pl. 1 Figs. A–E**) in brackets.] Shell small for the genus, of a height of 24.3–24.5 mm (24.3 mm) and a width of 14.2–16.7 mm (14.2 mm), heavy, elongate in shape. Dorsum moderately high. Dorsal base colouration orange yellow with three white bands, overlain with a pattern composed of a random arrangement of orange dots. Mantle line yellowish. Spire fully covered by a callus with a black blotch. Margins smooth. Base convex, white yellowish in colour. Aperture narrow and sinuous, widening somewhat towards anterior. Columellar teeth barely noticeable near siphonal canals, absent at central area of aperture. Labral teeth fine, short. Fossula small and denticulate. Shell formula: 25.5 (61 - 49 - 81) 27 : 13 [16.2].

Remarks: Following BRIDGES & LORENZ (2013) and LORENZ (2017), the shell formula for the three subspecies of *S. achatidea* and the new species are as follows:

- *S. a. achatidea* (Spain) 37 (64 - 53 - 82) 22 : 17 [11.0]
- *S. a. inopinata* (Senegal) 39 (60 - 50 - 83) 24 : 18 [10.0]
- *S. a. verdensis* (Cape Verde) 30 (69 - 54 - 79) 25 : 19 [16.3]
- *S. ichnusa* n. sp. 25.7 (61 - 49.2 - 81.2) 27 : 13 [16.5]

From this data, it is evident that the new species possesses an overall smaller shell compared to *S. achatidea* (**Pl. 2 Figs. A–J**, **Pl. 3 Figs. A–B**), with a lower width to length ratio, a lower height to length ratio, a higher height to width ratio, and, overall, a proportionally heavier (i.e. denser) shell. Together with the fact that the specimens were found throughout the span of sixteen years, these morphological features exclude the possibility that the new taxon represents an abnormal population of *S. achatidea achatidea*. The labral teeth are more numerous than the columellar ones, and this is consistent with the other species in the genus.

The cylindrical shell with the black blotch on the apex suggests that this species is more closely related to *Schilderina garonettii* (Fehse, 2004) (**Pl. 2 Figs. M–P**) and *Schilderina longiscata* (Mayer, 1875) (PACAUD AS & PARVENOVA, 2021) (**Pl. 2 Figs. K–L**) from the Italian Pliocene, than it is to *S. achatidea*. The black blotch in the apex can, very rarely, appear also in *S. achatidea achatidea*, suggesting a lost ancestral trait. As in *S. ichnusa* n. sp., *S. garonettii* possesses a pyriform to cylindrical shell with a black blotch on the apex, although it has more rostrate terminals, a very denticulate fossula, and more prominent labral and columellar teeth. Compared to that of *S. ichnusa* n. sp., the shell of *S. longiscata* is pyriform but slightly more globose, with similar very short terminals, although it has a highly denticulate fossula and more prominent labral and columellar teeth (see FEHSE, 2004).



Pl. 2 Figs. A–P: Species of *Schilderina* Dolin & Aguerre, 2020. **A–J:** *Schilderina achatidea achatidea* (Gray, 1837).

A–C: Morocco, Al Hoceima, Cabo Quilates; 30–50 m depth; 36.6 mm (APC). **D:** Spain, Andalucía, Malaga; 30–50 m depth; 38.0 mm (APC). **E–H:** Italy, Sardinia, Cagliari Gulf; 50–80 m depth; 35.5 mm (ANC). **I–J:** Italy, Sardinia, Cagliari Gulf; 50–80 m depth; 38.2 mm (ANC). **K–L:** *Schilderina longiscata* (Mayer, 1875); Italy; Pliocene; 32 mm (FLC). **M–P:** *Schilderina garonettii* (Fehse, 2004); Italy; Pliocene; 31 mm (ANC).

DISCUSSION

The extant cypraeid fauna of the Mediterranean contains three species of allochthonous origins: *Naria turdus* (Lamarck, 1810), *Palmadusta lentiginosa lentiginosa* (Gray, 1825), and *Purpuradusta gracilis notata* (Gill, 1858). The four autochthonous species are: *Naria spurca spurca* (Linné, 1758), *Luria lurida lurida* (Linné, 1758), *Schilderina achatidea achatidea* (Gray, 1837), and *Zonaria pyrum pyrum* (Gmelin, 1791).

The newly described species, *S. ichnusa* n. sp., is also autochthonous, although the poor condition of the specimens makes it difficult to determine whether it is still extant in a highly localized habitat or if the shells originated from a Pleistocene assemblage. Specimens from other families found alongside the new species are all extant, and several have also been found alive in the same location.

Native species of cypraeids are legally protected along both the Italian and Maltese coasts.

CONCLUSION

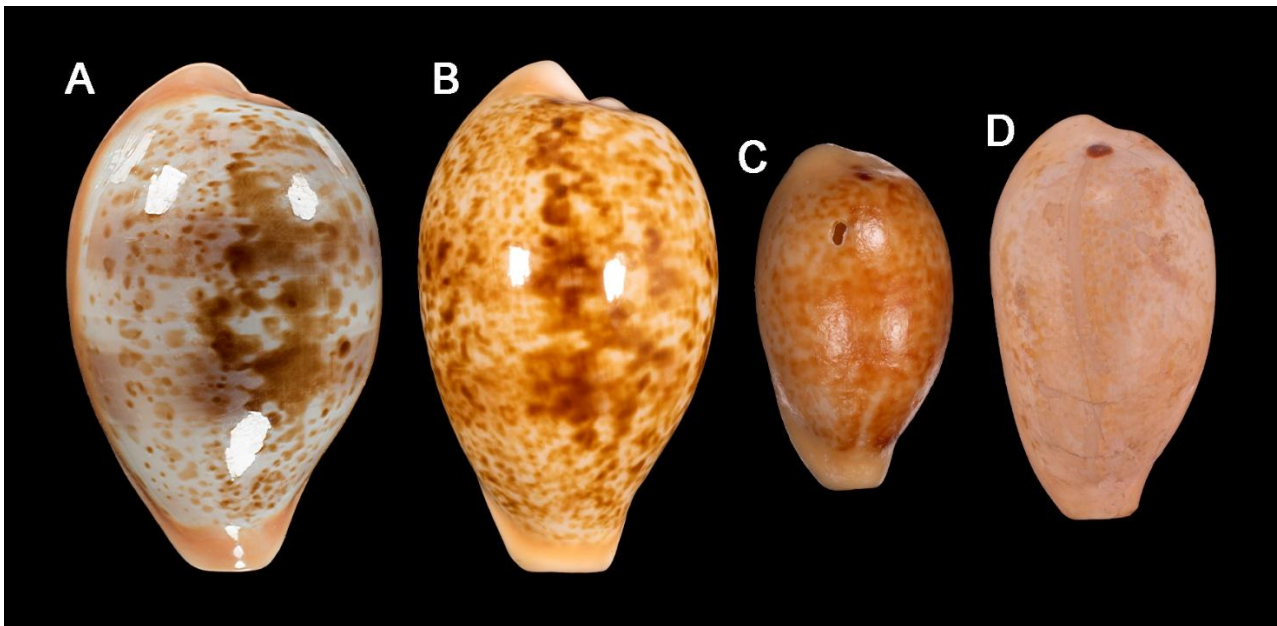
With around 2,550 known species, the Mediterranean Sea likely possesses the most thoroughly studied malacofauna globally, yet new species continue to be described annually. In recent decades, most discoveries have involved small-shelled species, often belonging to taxonomically complex families, such as Rissoidae Gray, 1847, Eulimidae R. A. Philippi, 1853, or Skeneidae W. Clark, 1851. This makes the finding of a new medium- to large-sized shelled species from a popular family truly extraordinary.

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Pl. 3 Figs. A–D: Comparison plate of *Schilderina* Dolin & Aguerre, 2020 members with sizes in proportion. **A:** *Schilderina achatidea achatidea* (Gray, 1837); 38 mm. **B:** *Schilderina achatidea inopinata* (Schilder, 1930); off Mauritanian coast; 17°22'N 16°15'W; at 84 m depth in detritus with *Pinna*; ex coll. DORO, OTERO, SWINNEN; 1 Jan. 1992; 39.1 mm (ANC). **C:** *Schilderina ichnusa* n. sp.; 26.5 mm. **D:** *Schilderina garonettii* (Fehse, 2004); 31 mm.

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**DESCRIPTION OF A NEW SPECIES OF
TEINOSTOMA ADAMS & ADAMS, 1853 (GASTROPODA:
LITTORINIMORPHA) FROM THE EASTERN MEDITERRANEAN SEA,
WITH A NOTE ON TWO PRIMARY HOMONYMS IN THE GENUS**

Constantine MIFSUD ^{4*}, Panayotis OVALIS ⁵

ABSTRACT

A new species from the genus *Teinostoma* Adams & Adams, 1853 from the eastern Mediterranean is being described as *Teinostoma ovalisi* Mifsud **n. sp.** The genus is new for the Mediterranean Sea. In addition, *Teinostoma mexicanum* **nom. nov.** is proposed for *Teinostoma solidum* Dall, 1889, primary homonym of *Teinostoma solidum* Smith, 1872.

Keywords: Mollusca, Littorinimorpha, Teinostomatidae, *Teinostoma*, eastern Mediterranean

SINTEŻI

[Deskrizzjoni ta' speċi ġdida ta' *Teinostoma* Adams & Adams, 1853 (Gastropoda: Littorinimorpha) mill-Baħar Mediterran tal-lvant, b'nota dwar żewġ omonimi primarji fil-ġeneru.] Speċi ġdida mill-ġeneru *Teinostoma* Adams & Adams, 1853 mill-Mediterran tal-lvant qiegħda tiġi deskritta bħala *Teinostoma ovalisi* Mifsud n. sp. Il-ġeneru huwa ġdid għall-Baħar Mediterran. Barra minn hekk, *Teinostoma mexicanum* **nom. nov.** huwa propost għal *Teinostoma solidum* Dall, 1889, omonimu primarju ta' *Teinostoma solidum* Smith, 1872.

Kliem muftieħ: Mollusca, Littorinimorpha, Teinostomatidae, *Teinostoma*, Mediterran tal-lvant

INTRODUCTION

The genus *Teinostoma* Adams & Adams, 1853, comprises a group of minute marine gastropods, typically characterized by their small, often discoidal or low-spired shells. They are commonly found in sandy or detrital substrates in various marine environments. Around 95% of the currently recognized *Teinostoma* species have been described from the Atlantic Ocean.

The discovery of seven empty shells belonging to a species of *Teinostoma* in a sample of bioclastic detritus is noteworthy, particularly given its geographical context. This sample was collected by the second author from a depth of 12 meters off Burnaz beach in Erzin, Türkiye, within the northeastern Mediterranean.

MATERIALS & METHODS

The collected shells were examined under a stereomicroscope to allow for comparison with known species. The primary reference was MOLLUSCABASE (<https://www.molluscabase.org/>; last accessed Jan. 2025), where a robust and updated catalogue of all currently accepted species of *Teinostoma* could be consulted. A review of original species descriptions and accompanying figures, whenever such primary literature was available, was undertaken.

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RESULTS

The collected shells range in size from 1 mm to 2.25 mm. Examination revealed the presence of small predatory drill holes on a few specimens, perhaps indicative of interactions with predatory gastropods. Furthermore, nearly all the recovered shells displayed slight damage along the edge of their outer lip, which could be attributed to post-mortem transport, environmental abrasion, or biological interactions prior to their deposition.

The presence of various forms of sculpture on the shells of most of the Atlantic species was notably absent from the collected specimens, suggesting that the collected shells did not belong to any known Atlantic *Teinostoma*. However, the morphology shows an affinity with Indo-Pacific or Red Sea forms within the *Teinostoma* complex.

The unique morphological features of the collected shells and the biogeographical context of the discovery may point towards an alien (non-indigenous) introduction, perhaps originating from the Red Sea. This hypothesis is supported by the increasing number of Lessepsian and other non-indigenous recorded in the region.

SYSTEMATICS

Class Gastropoda Cuvier, 1795

Subclass Caenogastropoda L. R. Cox, 1960

Order Littorinimorpha Golikov & Starobogatov, 1975

Family Teinostomatidae Cossmann, 1917

Genus *Teinostoma* Adams & Adams, 1853

(type species by monotypy: *Teinostoma politum* Adams, 1851)

Remarks: ADAMS & ADAMS (1853: 123) provided a note on the genus and figures of this species figured first in ADAMS (1851: 123 pl. 10 figs. 1–3) without a description (**Pl. 1 Figs. D–F**). The species description reads as follows: ‘*This curious little genus very much resembles, at first sight, Camitia of Gray, a genus of Trochidae, from which, however, it is readily distinguished. It’s true affinity is with Neritula, from which it is known by the absence of the notch at the fore part of the aperture, and by the very peculiar elongation of the mouth*’ (ADAMS & ADAMS, 1853: 123), while the genus description refers to species with ‘*shell orbicular, depressed, subspiral, polished, last whorl rounded at the periphery; umbilical region covered with a large flat callosity; aperture transverse, rounded, greatly produced and elongated, ending anteriorly in a slightly caniculated point. Inner lip smooth, callous, not emarginate or truncate anteriorly. Outer lip thin, not marginated or reflected*’ (ADAMS & ADAMS, 1853: 122). A more extensive description of the genus, including also the anatomy of the animal, was published by RUBIO et al. (2011).

Teinostoma ovalisi MIFSUD n. sp. (**Pl. 1 Figs. A–C**)

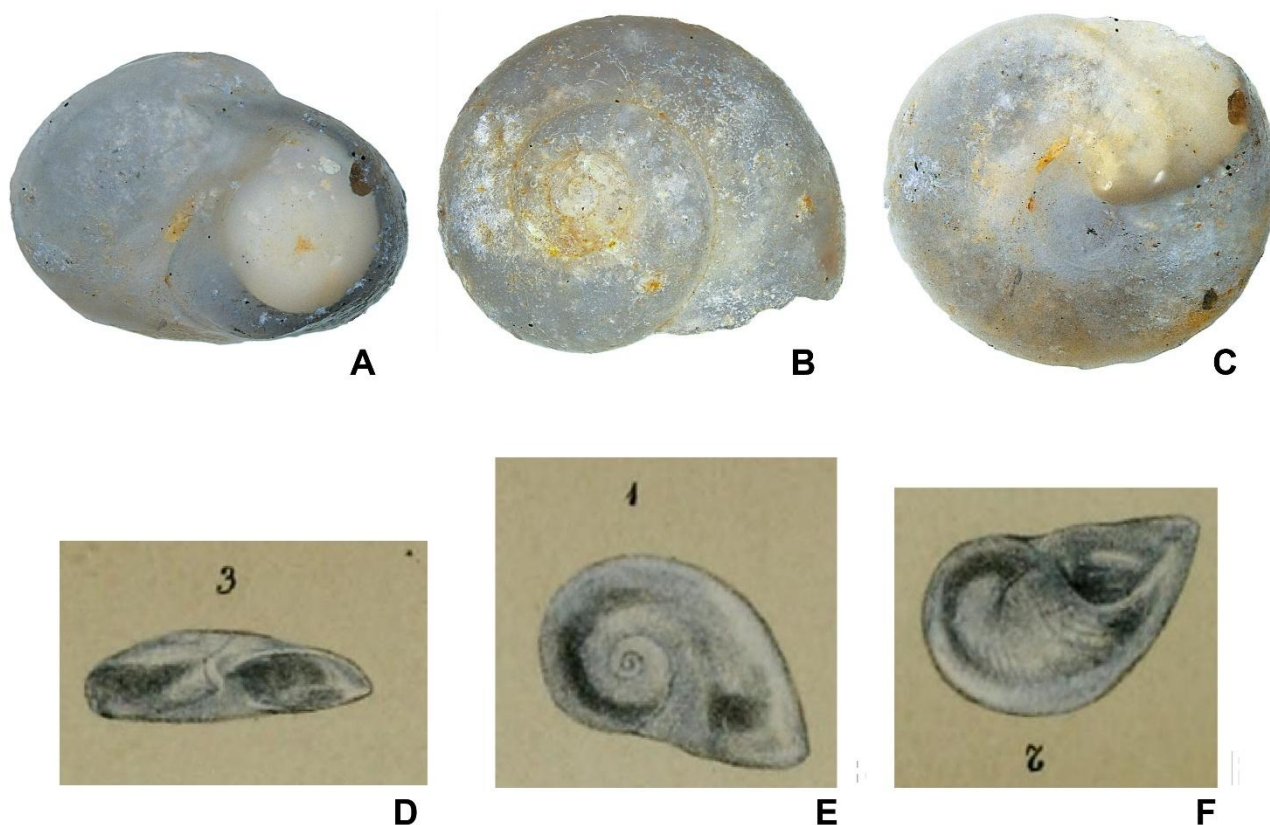
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Teinostoma species A – OVALIS & MIFSUD, 2023: 7, 8 figs. 1A–C.

Type material (material studied):

TÜRKIYE • **holotype** (**Pl. 1 Figs. A–C**): 1 shell; Erzin, Burnaz beach; in bioclastic grit from 12 m depth; Aug. 2023; P. OVALIS leg.; coll. National Museum of Natural History, Malta: NMNHM 16194/1; 1.5 × 2 mm • **paratypes**: 3 shells; same data as holotype; coll. P. OVALIS • **paratypes**: 3 shells; same data as holotype; coll. C. MIFSUD: M1737a; with predatory holes.

Type locality: Türkiye, Erzin, Burnaz beach; 12 m depth.



Pl. 1 Figs. A–F: Species of *Teinostoma* Adams & Adams, 1853. **A–C:** *Teinostoma ovalisi* n. sp.; Burnaz beach, Erzin, TÜRKİYE; NMNHM 16194/1; 1.5 × 2 mm. **A:** apertural view. **B:** apical view. **C:** umbilical view. **D–F:** *Teinostoma politum* Adams, 1851; type species of the genus; corresponding views reproduced and adapted from ADAMS (1851: 123 pl. 10 figs. 1–3). **D:** apertural view (ADAMS, 1851: 123 pl. 10 fig. 3). **E:** apical view (ADAMS, 1851: 123 pl. 10 fig. 1). **F:** umbilical view (ADAMS, 1851: 123 pl. 10 fig. 2; rotated 180° with respect to the original image).

Etymology: Named by the first author in honour of the second author of this paper, who, over the past forty years, has dedicated his efforts to discovering numerous new records of allochthonous Indo-Pacific and Red Sea species in the eastern Mediterranean.

Distribution: So far, only known from the type locality.

Description: Shell solid, white, and nearly transparent, reaching a maximum size of 1.5 × 2.25 mm. It has a slightly elevated apex and a rather elongated, dome-shaped profile. The whorls are slightly rounded and lack sculpture, with evident sutures. The protoconch consists of 1.5 whorls. In larger specimens, the umbilicus is almost entirely covered by a callus, leaving only a small slit. The columella is smooth, and the aperture is nearly circular with a sharp outer lip.

Remarks: The species was placed in *Teinostoma* by virtue of the large callus surrounding the umbilicus and the general morphology of the shell. The species discovery was announced by OVALIS & MIFSUD (2023) from specimens collected from the same material by the second author; however, it was not named at that time.

The type locality is near İskenderun, a large harbour that receives vessels from around the world, suggesting the species could have originated in any ocean. During the course of this research, the authors have considered the possibility that *T. ovalisi* n. sp. may be an allochthonous species native to the Red Sea or the Indo-Pacific, and in the process, it was checked whether a description that might refer to a species from that region had already been published. None of the Atlantic species exhibited morphological characteristics that matched the present material. There are seven species known from the Indo-Pacific, three of which were described by JOUSSEAUME (1881) from Aden and

the Red Sea. From the descriptions and images of the type material in the literature and those illustrated on MOLLUSCABASE, *Teinostoma carbonnieri* Jousseaume, 1881 has a highly depressed shell with an enclosed umbilicus. *Teinostoma deschampsii* Jousseaume, 1881 possesses whorls sculptured with thick spiral ribs, while *Teinostoma rhinoceros* Jousseaume, 1881 possesses narrow spiral ribs on the whorls, and has an elongated outer lip. None of these matches the material studied at present.

Teinostoma mexicanum nom. nov. pro ***Teinostoma solidum*** Dall, 1889 non Smith, 1872
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Teinostoma (Ethalia) solida DALL, 1889: 362, pl. 28 figs. 3, 5. [*non solida* Smith, 1872]

Remarks: The study of the original descriptions and figures of *Teinostoma* revealed two species with the same name: *Teinostoma solidum* Smith, 1872 from West Africa and *Teinostoma solidum* Dall, 1889 from the Gulf of Mexico. The latter appears to be an unreplaced junior homonym of the name proposed by SMITH (1872). Since no junior synonyms exist for this taxon that could be the source of a new name, the present authors and first revisers propose the name *Teinostoma mexicanum* for the younger taxon, originally described by DALL (1889).

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CONTRIBUTIONS TO THE MALACOLOGY OF MALTA, VII: ON NON-INDIGENOUS SPECIES (PLANORBIDAE, PRISTILOMATIDAE, CLAUSILIIDAE) NEWLY RECORDED FROM ALLUVIAL DEPOSITS

David P. CILIA ^{6*}, Charles CACHIA ⁷

ABSTRACT

The uncommon occurrence of three non-native non-marine snail species in Malta, namely *Anisus vortex* (Linné, 1758), *Hawaiiia minuscula* (Binney, 1841), and *Clausilia bidentata* (Strøm, 1765), is documented for the first time. All finds originate from biogenic detritus deposited near coastlines by alluvial processes.

Keywords: allochthonous species, new records, distribution, introduced species, alluvium, Holocene

SINTEŻI

[Kontribuzzjonijiet għall-malakoloġija ta' Malta, VII: dwar speċi mhux indigeni (Planorbidae, Pristilomatidae, Clausiliidae) irregistrati għall-ewwel darba minn depożiti alluvjali]. Il-preżenza mhux komuni ta' tliet speċi ta' bebbux mhux tal-baħar li mhux indigeni f'Malta, jiġifieri *Anisus vortex* (Linné, 1758), *Hawaiiia minuscula* (Binney, 1841), u *Clausilia bidentata* (Strøm, 1765), hija dokumentata għall-ewwel darba. Is-sejbiet kollha joriginaw minn detritus bijoġeniku depożitat viċin ix-xtut permezz ta' proċessi alluvjali.

Kliem muftieħ: speċi allokontoni, rekords ġodda, distribuzzjoni, speċi introdotti, alluvju, Oloċenu

INTRODUCTION

Documentation on allochthonous species of non-marine gastropods in Malta has appeared in various publications (GIUSTI et al., 1995; BECKMANN, 2003; MIFSUD et al., 2003; BARBARA & SCHEMBRI, 2009; CILIA, 2009, 2017; CILIA et al., 2012, 2022).

This study adds three new species to the record. The shells examined form part of the collection of the second author and were isolated from biogenic detritus presumably transported from anthropogenically modified habitats and deposited near coastlines by alluvial processes.

MATERIALS AND METHODS

Samples of biogenic detritus were fractionated, screened, and closely examined under a binocular microscope for molluscan remains. Any shells or fragments were recovered, cleaned, and identified. Measurements were taken using digital callipers and are reported in millimetres (mm). Identification was accomplished through comparison with museum specimens and illustrations from works cited in the respective sections.

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SYSTEMATICS

Mollusca Cuvier, 1795
 Gastropoda Cuvier, 1795
 Heterobranchia Gray, 1840
 Hygrophila Férussac, 1822
 Lymnaeoidea Rafinesque, 1815
 Planorbidae Rafinesque, 1815
 Planorbinae Rafinesque, 1815
 Planorbini Rafinesque, 1815
Anisus Studer, 1820

***Anisus vortex* (Linné, 1758) (Pl. 1 Figs. A–C)**

Helix vortex LINNÉ, 1758: 770.

Material studied:

MALTA • 1 shell; Birżebbuġa; in detritus accumulation near coastline; Feb. 2010; C. CACHIA leg; coll. C. CACHIA [5 whorls, 4.9 mm diameter].

Diagnosis: Discoid shell with 5 to 6 tightly winding whorls, rather flattened above and markedly concave below. The shell periphery extends into a prominent sharp carination, resulting in a rhomboid aperture. Fine microsculpture consists of oblique axial rays, originating from hair pits arranged in parallel rows.

Distribution: *A. vortex* is widespread in Europe (WELTER-SCHULTES, 2012).

Similar species: The shell of *A. vortex* is highly distinctive.

Remarks: This specimen was almost certainly introduced via the aquarium trade, likely as a passenger on aquatic plants, a pathway is consistent with the introduction of other non-native planorbids to Malta (GIUSTI et al., 1995; MIFSUD et al., 2003; CILIA, 2009, 2017), although zoochory is plausible (VAN LEEUWEN et al., 2012, 2013). The species' dependence on perennial freshwater supplies precludes its establishment in the wild.

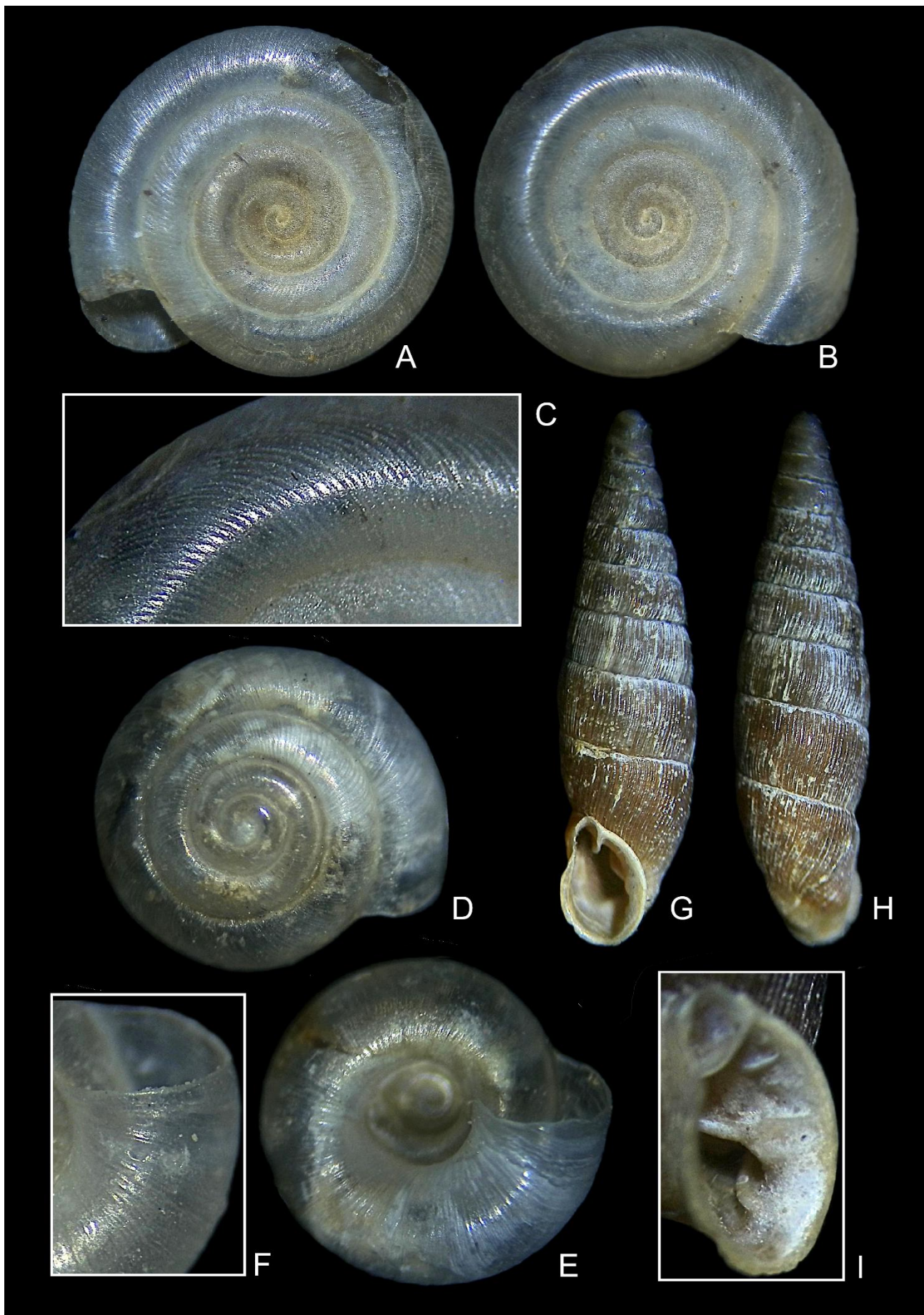
Eupulmonata Haszprunar & Huber, 1990
 Stylommatophora Schmidt, 1855
 Helicina Schileyko, 1979
 Limacoidei Batsch, 1789
 Gastrodontoidea Tryon, 1866
 Pristilomatidae Cockerell, 1891
Hawaïia Gude, 1911

***Hawaïia minuscula minuscula* (Binney, 1841) (Pl. 1 Figs. D–F)**

Helix minuscula BINNEY, 1841: 435, pl. 22 fig. 4.

Material studied:

MALTA • 1 shell; Birżebbuġa; in detritus accumulation close to coastline; Feb. 2010; C. CACHIA leg.; coll. C. CACHIA [4.25 whorls, 2.7 mm diameter] • 1 shell; Birżebbuġa; in detritus accumulation close to coastline; Dec. 2011; C. CACHIA leg.; coll. C. CACHIA [4.25 whorls, 2.5 mm diameter] • 1 shell; Birżebbuġa; in detritus accumulation close to coastline; Feb. 2025; C. CACHIA leg.; coll. C. CACHIA [4.25 whorls, 2.4 mm diameter].



Pl. 1 Figs. A–I: Allochthonous non-marine snail species newly recorded for Malta. **A–C:** *Anisus vortex* (Linné, 1758); Birżebbuġa; diameter 4.9 mm. **C:** Detail of microsculpture. **D–F:** *Hawaiiia minuscula minuscula* (Binney, 1841);

Birżebbuġa; diameter 2.5 mm. **F**: Detail of microsculpture of second specimen. **G–I**: *Clausilia bidentata bidentata* (Strøm, 1765); Salina Bay; 9.48 mm. **I**: Detail of bifurcating columellar lamella.

Diagnosis: Shell small, dextral, translucent, and hyaline, with 3.5 to 4.5 inflated whorls that regularly increase in diameter. Dense but irregularly spaced annulations circle the entire whorl, becoming less substantial on the ventral curvature. Sutures deep; umbilicus wide, approximately one-third of the shell diameter, revealing all whorls within.

Distribution: *H. minuscula* is native to North and Central America but has been widely introduced across the globe through passive anthropochory. Within Europe, its presence was first recorded in England in 1883 (ELLIS, 1969*), followed by Ireland in 1911 (STELFOX, 1911*), MADEIRA in 1938 (HAUSDORF, 2023), the Azores and Canary Islands in 1973 (BACKHUYS, 1975; HAUSDORF, 2023), Sweden in 1983 (VON PROSCHWITZ, 1983*), the Czech Republic in 1988 (MÁCHA, 1988*), Spain in 1993 (QUIÑONERO-SALGADO et al., 2013), the Netherlands and Italy in 1996 (BENECKE & KAPPERS, 1996*; BODON et al., 2004), Germany in 1996 and 1999 (BENECKE & KAPPERS, 1996*; SCHMID, 2002), Norway in 2002 (OLSEN, 2002*), Austria in 2002 and 2018 (REISCHÜTZ, 2002*; REISCHÜTZ et al., 2019), Poland in 2008 (KASZUBA & STWORZEWICZ, 2008*), Portugal in 2010 (QUIÑONERO-SALGADO et al., 2013), France in 2011 (WELTER-SCHULTES et al., 2011), Slovakia in 2016 (ČILIAK et al., 2016*), and Greece in 2019 (REISCHÜTZ & REISCHÜTZ, 2020). (Asterisks denote records of populations confined to climate-controlled environments.)

Similar species: Three representatives of Pristilomatidae are native to Malta. All of them are species of *Vitrea* Fitzinger, 1833, which, unlike *Hawaiiia*, is characterized by flattened and glossy shells, with much smaller umbilici. Other species with conchological similarities to *Hawaiiia* include a few anthropophilic or even notoriously invasive snails. These include two species of *Lucilla* Lowe, 1852, which exhibit umbilical proportions similar to those of *Hawaiiia*, but otherwise possess relatively flattened and glossy shells; *Paralaoma servilis* (Shuttleworth, 1852), which has a more narrowly umbilicated smaller brownish shell, usually crossed with regularly arranged and well-defined axial ribs separated by relatively wide interspaces; and *Punctum pygmaeum* (Draparnaud, 1801), which has a brown shell that is significantly smaller than that of *Hawaiiia* (GIUSTI et al., 1995; BODON et al., 2004; HORSÁK et al., 2009; CHRISTENSEN et al., 2012; WELTER-SCHULTES, 2012; HAUSDORF, 2023; CILIA, 2024; NEKOLA et al., 2025). The reintroduced *Vallonia pulchella* (Müller, 1774), which may share habitat with *H. minuscula*, has fewer whorls (<3.5) and a rapidly expanded body whorl with a thickened peristome (GIUSTI et al., 1995; CILIA et al., 2022).

Clausilioidei Gray, 1855
 Clusilioidea Gray, 1855
 Clausiliidae Gray, 1855
 Clausiliinae Gray, 1855
 Clausiliini Gray, 1855
Clausilia Draparnaud, 1805

***Clausilia bidentata bidentata* (Strøm, 1765) (Pl. 1 Figs. G–I)**

Turbo bidentata STRØM, 1765: 436, pl. 6 fig. 17.

Material studied:

MALTA • 2 shells; Salina Bay (limits of Naxxar); in detritus accumulation close to coastline; Feb. 2010; C. CACHIA leg.; coll. C. CACHIA [9.5 whorls, 9.32 × 2.51 mm; 9.5 whorls, 9.48 × 2.52 mm].

Diagnosis: Shell sinistral, elongated, approximately 9 to 12 mm in length, with around 9 whorls that gradually increase in convexity. Colour purplish brown, darkening towards the protoconch. Uniform, narrow, opisthocline costae, separated by equally narrow interspaces, appear from the third whorl onwards. Cervix keeled, peristome slightly detached and reinforced. The columellar lamella terminates by bifurcating near the aperture, forming a vaguely triangular imprint easily discerned in oblique view. A denticle is present between the columellar and parietal lamellae.

Distribution: *C. bidentata* is a European species, widespread from Scandinavia to southern central Europe.

Similar species: *Clausilia cruciata* (Studer, 1820) and *Clausilia pumila* (Pfeiffer, 1828) have costae that are wider and much more prominent than those of *C. bidentata*. The costae of *Clausilia dubia* Draparnaud, 1805, and *Clausilia rugosa* (Draparnaud, 1801) are comparable to those of *C. bidentata*, but *C. bidentata* is smaller than the former and larger than the latter and is the only species with a bifurcated columellar lamella (NORDSIECK, 1989; GARGOMINY & NEUBERT, 2011; GARGOMINY & RIPKEN, 2011; WELTER-SCHULTES, 2012; HAUSDORF & NEIBER, 2022).

Remarks: This is the only record of a *Clausilia* species in Malta, likely imported with trees.

CONCLUSION

Anthropogenic activities, such as the importation of agricultural or horticultural produce, are the most likely vectors facilitating the introduction of the discussed species into the Maltese environment. Other dispersal mechanisms such as epizoochory or endozoochory are considered less probable, although they have been documented for freshwater snails attached to or ingested by birds (VAN LEEUWEN et al., 2012, 2013).

The depositional context of the retrieved shells suggests transportation by natural hydrodynamic processes from their original points of introduction to their end locations, where they became incorporated into local biogenic detritus. This combination of introduction and dispersal may highlight complex pathways through which allochthonous species can be disseminated within new environments.

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**FIRST PLEISTOCENE RECORDS OF A COLUBRID SNAKE AND
WALL LIZARD *PODARCIS* CF. *FILFOLENSIS* (BEDRIAGA, 1876)
(REPTILIA: COLUBRIDAE, LACERTIDAE)
FROM ĠĦAR IL-FKIEREN (FIMBANK SITE), MALTA**

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ABSTRACT

ĠĦar il-Fkieren is a solution pipe fissure discovered in 2010 during construction in Paceville, Malta, which has yielded a significant Late Pleistocene fossil assemblage, dated to ca. 63 to 53,000 years ago. Excavated by the Superintendence of Cultural Heritage, the 10-metre-deep fissure contained Quaternary deposits rich in skeletal remains, including those of large vertebrates (cervids, tortoises, avifauna) and microfauna, such as *Microtus melitensis*, *Crocidura sicula*, *Bufotes viridis*, and Chiroptera. This study reports the first fossil evidence of a small colubrid snake and a wall lizard (*Podarcis* cf. *filfolensis*) in Malta's Pleistocene record, both identified through skeletal morphology. These newly documented herpetofaunal taxa bridge gaps in the faunal record and offer new insights into island endemism and faunal turnover from the Late Pleistocene to the Holocene.

Keywords: fossil, herpetofauna, microfauna, Squamata, Quaternary, Last Glacial Maximum

SINTEŻI

[L-ewwel reġistrazzjonijiet mill-Pleistoċenu ta' serp kolubridu u ta' gremxula *Podarcis* cf. *filfolensis* (Bedriaga, 1876) (Reptilia: Colubridae, Lacertidae) minn ĠĦar il-Fkieren (sit ta' FIMBank), Malta.] ĠĦar il-Fkieren huwa xaqq tas-soluzzjoni skopert fl-2010 waqt kostruzzjoni f'Paceville, Malta, li żvela assemblaġġ sinifikanti ta' fossili mill-Pleistoċenu tat-Tard, li jmur lura għal ca. 63 sa 53,000 sena ilu. Skavat mis-Sovrintendenza tal-Patrimonju Kulturali, fix-xaqq ta' fond ta' 10 metri instabu depożiti Kwaternarji rikki bil-fdalijiet tal-ġhadam, inklużi dawk ta' vertebrati kbar (ċervidi, fkieren, avifawna) u ta' mikrofawna, bħal *Microtus melitensis*, *Crocidura sicula*, *Bufotes viridis*, u Chiroptera. F'dan l-istudju qieghda tiġi rrapportata l-ewwel evidenza fossili ta' serp żgħir kolubridu u gremxula (*Podarcis* cf. *filfolensis*) mir-rekord tal-Pleistoċenu ta' Malta, it-tnejn identifikati permezz tal-morfoloġija skeletal. Dawn it-tassoni erpetofawnali dokumentati għall-ewwel darba jimlew il-lakuni fir-rekord fawnali u joffru għarfien ġdid dwar l-endemiżmu tal-ġejjer u t-tibdil tal-fawna mill-Pleistoċenu tat-Tard sal-Oloċenu.

Kliem muftieħ: fossili, erpetofawna, mikrofawna, Squamata, Kwaternarju, l-Aħħar Massimu Glacjali

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INTRODUCTION

Ghar il-Fkieren, previously known as Pender Place, is a solution pipe fissure discovered during construction of FIMBank offices at Triq Elija Zammit, Paceville, Malta, in 2010. Identified by monitors from the Superintendence of Cultural Heritage, the sediments revealed Quaternary *terra rossa* deposits rich in faunal skeletal remains, prompting a rescue excavation. Approximately ten metres deep, the fissure was initially documented by stratigraphic units (SU) (01–27) for the first four meters. Due to time constraints and the apparent homogeneity of stratigraphy, excavation strategy was then shifted to depth-based spits for the remaining 4.5 metres, leaving 1.5 metres unexcavated. This remaining section was later sealed with a polystyrene slab. Subsequent drilling confirmed the absence of additional faunal material in the unexcavated portion.

The fossil assemblage includes large vertebrates such as cervids, tortoises, and avifauna which are to be studied later. While the overall assemblage is of undeniable palaeontological value, two significant microfaunal finds are those of a colubrid snake and *Podarcis* cf. *filfolensis* (Bedriaga, 1876), two species which were previously unrecorded in Malta's Pleistocene fossil record.

i. Recent colubrids of the Maltese Islands

Currently, four colubrid snake species inhabit the Maltese Islands: the Cat Snake (*Telescopus fallax fallax* (Fleischmann, 1831)), the Leopard Snake (*Zamenis situla* (Linné, 1758)), the Green Whip Snake (*Hierophis viridiflavus* (Lacépède, 1789)), and the Algerian Whip Snake (*Hemorrhois algirus* (Jan, 1863)).

DOBBS *et al.* (2025) describe *Hierophis viridiflavus*, also known as the Western Whip Snake (*Serp Iswed* in Maltese), as the largest of the four and the only species confirmed to reside on all three inhabited Maltese islands. Its current distribution ranges from northeastern Spain to Croatia and from the north of France to Malta, preferring forest, shrub, and artificial/ terrestrial habitats (IUCN, 2025). This snake has been described as an opportunistic and heterogenous feeder, consuming small birds and their eggs, amphibians, small mammals, and other reptiles, including other snakes (SCHEMBRI *et al.*, 2023).

Zamenis situla (*Lifgħa* in Maltese) was reported as scarce as early as 1996, with its precise distribution in the archipelago remaining uncertain (MALTA ENVIRONMENT AND PLANNING AUTHORITY [Ecosystems Management Unit], 2011). Regionally, *Z. situla* ranges from coastal Croatia to eastern Turkey, favouring Mediterranean scrub, karstic terrain, stream margins, agricultural zones, and maquis (IUCN, 2025). Primarily diurnal, it is often observed in trees and is known to prey mainly on small mammals and rodents, although it will occasionally consume birds and reptiles (SCHEMBRI *et al.* 2023).

The European Cat Snake (*Telescopus fallax*) is a moderately sized species (SCHEMBRI *et al.*, 2023) and the only nocturnal snake among the four currently recorded in the Maltese Islands (DOBBS *et al.*, 2025). Its wider distribution includes Eastern Europe and the Middle East, where it inhabits shrublands, open woodlands, and occasionally vegetated sandy beaches (IUCN, 2025). *T. fallax* primarily preys on lizards but will also consume birds and small mammals (SCHEMBRI *et al.*, 2023). According to BORG (1939), *T. fallax* is a recent introduction to Malta, likely arriving during the First World War via shipments of firewood.

The Algerian Whip Snake *Hemorrhois algirus* (*Serp Aħdar* in Maltese) is only found on the island of Malta within the archipelago. According to DOBBS *et al.* (2025), it has remained largely confined to areas around Floriana, likely due to its theorised accidental introduction alongside *T. fallax* (BORG, 1939). *H. algirus* is native to North Africa and the Sahara, and is most adapted to arid, hot environments such as open scrub, semi-desert, steppe, and rural areas (IUCN, 2025). It usually reaches a maximum size of 1.4–1.7 m and primarily diets on small lizards but will occasionally consume small mammals and birds (SCHEMBRI *et al.*, 2023).

ii. Fossil evidence and historical context of colubrids in the Maltese Islands

Serpents are absent from other documented Quaternary sites in Malta. However, fossils from Ghar il-Fkieren confirm the presence of at least one colubrid species since the Late Pleistocene, suggesting:

- (i) a long-term local presence of one of Malta's four extant colubrid species
- (ii) an unrecorded ancestor of modern colubrid snakes; or
- (iii) a previously unknown, now-extinct species.

In Sicily, *Coluber* cf. *viridiflavus* and an indeterminate *Natrix* species are linked to the early Middle Pleistocene Spinagallo faunal complex (ESU et al., 1986; GUGLIELMO & MARRA, 2011). Assuming the taxonomic assignments are accurate, the Ghar il-Fkieren specimens do not appear to have originated from these Sicilian lineages, raising questions as to their origins. Fossil material from Monte Pellegrino (DE GREGORIO, 1887) and Castellana (DE GREGORIO, 1925) was also recorded, originally misclassified as belonging to rodents, but later identified as of colubrid origin (DELFINO, 2002; GEORGALIS et al., 2019).

iii. Recent lacertids of the Maltese Islands

Podarcis filfolensis (Bedriaga, 1876) is an endemic lacertid which thrives in scrubland, rocky terrains, gardens, and occasionally seabird colonies across the Maltese archipelago (Malta, Gozo, Filfla, Selmunett Islands, and Fungus Rock) and the Italian islands of Linosa and Lampedusa. It has recently been introduced to Lampedusa, Italy (IUCN, 2025). Although multiple subspecies were historically defined based on size and colour variation, recent genetic studies (SALVI et al., 2014) confirm only two major lineages; one from Malta/ Filfla and the other from Gozo/ Comino and surrounding islets.

iv. Fossil evidence and historical context of lacertids in the Maltese Islands

The earliest mentioned lizard remains from Maltese Pleistocene sites date to ADAMS (1865, 1866), who identified *Lacerta* remains from the Ta' Gandja fissure, associating them with elephant and hippopotamid fossils. ADAMS (1865, 1866) described these fossils as 'small lizards' and others as chameleon-sized. If these were *Podarcis* fossils, this would place their discovery earlier than their presence at Ghar il-Fkieren. However, these specimens have never been figured and could not be located at present, thus were not possible to confirm or review (BÖHME & ZAMMIT-MAEMPEL, 1982).

A giant lacertid was also recorded from Quaternary deposits, originally named *Lacerta melitensis* (a *nomen nudum*) by GULIA (1912). MERTENS (1942) recorded this species as *Lacerta* sp., which was later formally described as *Lacerta siculimelitensis* Böhme & Zammit-Maempel, 1982 after its discovery at Wied Inċita fissure in 1973. *L. siculimelitensis* fossils at Wied Inċita were associated with *Leithia*, *Ursus*, *Palaeoloxodon*, *Hippopotamus*, and *Cervus*, indicating a late Middle Pleistocene to early Late Pleistocene presence (BÖHME & ZAMMIT-MAEMPEL, 1982), which U-series disequilibria of Ghar Dalam layers with similar faunal assemblages have dated to ca. 165–150 ka (STANDISH et al. in prep; D'SOUZA, 2019). Recent taxonomic revisions have also raised the possibility that *L. siculimelitensis* is actually *Timon* Tschudi, 1836, a large sister genus of *Lacerta* biogeographically distributed around the Mediterranean (MATEO in SALVADOR & MARCO, 2009; TSCHOPP et al., 2018). Large lizards appear to be absent at Ghar il-Fkieren, which is dated to a later Late Pleistocene phase (ca. 63–53 ka). While MERTENS (1942) noted the common co-occurrence of both giant and dwarf lizards coexisting on islands, this absence suggests giant lizards did not coexist with smaller lacertids by the time of Ghar il-Fkieren's deposition, which raises questions about the extinction or ecological displacement of this local giant species. *Timon*'s extinction in Sardinia during the Late Pleistocene has been linked to the introduction of new predators such as small canids and lutrines (TSCHOPP et al., 2018).

Lacerta sp., *Lacerta viridis* (Laurenti, 1768), and *Lacerta siculimelitensis* were also identified at Monte Pellegrino, Sicily, in deposits dated to approximately 900 ka and associated with Middle Pleistocene fauna also found in the Maltese Islands, including *Leithia melitensis* (Adams, 1863), *Maltamys gollcheri* De Bruijn, 1966, and *Palaeoloxodon falconeri* (Busk, 1867) (KOTSAKIS, 1977; BONFIGLIO et al., 2001). Genetic and microsatellite analyses by RODRÍGUEZ et al. (2014) indicate that

ancestral *Podarcis* colonized the Maltese Islands during the Messinian Salinity Crisis, becoming isolated after the Mediterranean reflooded around 5.33 Ma. The two primary *Podarcis* lineages, diverging from a common ancestor between 869 and 105 ka, reflect a mid-to-late Pleistocene split (RODRÍGUEZ *et al.*, 2014). Diversification and dispersal of *Podarcis* lineages across the Maltese archipelago were likely facilitated by reduced sea levels during glacial periods.

MATERIALS AND METHODS

In 2024, a detailed microfaunal study was undertaken by the first author (XERRI, 2024). In this study, 35 of a total of 118 sediment bags recovered from the site were sampled evenly throughout the stratigraphy, and screened using bucket flotation with a 250 µm mesh. The study revealed species such as the extinct Maltese vole (*Microtus melitensis* (Bate, 1920)), the Siculo-Maltese endemic Sicilian shrew (*Crocidura sicula* Miller, 1900), the extirpated European green toad (*Bufo viridis* (Laurenti, 1768)), and indeterminate bats (Chiroptera). Taphonomic analysis suggests that the assemblage was transported and deposited by floodwater before being sealed within the fissure until its recent exposure (XERRI, 2024).

U-series dating of six cervid bone and tooth samples from SU 11 (depth 2.5–3 m) yielded a minimum age estimate of ca. 63–53 ka, confirming a Late Pleistocene age for the Għar il-Fkieren assemblage. Although dates were obtained from only one stratigraphic unit, the uniformity of the fossil assemblage and homogeneity of the deposits suggest rapid infilling of the fissure, followed by natural sealing and preservation (XERRI, 2024). Further dating across the stratigraphy is planned to refine the temporal framework of the deposits. The faunal composition aligns closely with the Għar Dalam Red Upper Earth layers, dated between ca. 80 ka and 23–20 ka, based on U-series disequilibrium deposition dates (STANDISH *et al.* in prep.; D'SOUZA 2019).

SYSTEMATICS

Class Reptilia Laurenti, 1768
Order Squamata Oppel, 1811
Suborder Lacertoidea Oppel, 1811
Family Lacertidae Oppel, 1811
Genus *Podarcis* Wagler, 1830

Podarcis filfolensis (Bedriaga, 1876)

***Podarcis* cf. *filfolensis* (Pl. 1 Figs. A–C)**

Material studied:

MALTA • 1 left dentary with teeth in situ; St. Julian's, Għar il-Fkieren; Terra rossa deposit in solution pipe fissure (2–2.5 m depth); 2021 to 2024; R.L. XERRI leg.; Department of Classics & Archaeology, University of Malta [UoM] • 1 left dentary with teeth in situ; St. Julian's, Għar il-Fkieren; Terra rossa deposit in solution pipe fissure (2.5–3 m depth); 2021 to 2024; R.L. XERRI leg.; UoM • 1 left dentary with teeth in situ; St. Julian's, Għar il-Fkieren; Terra rossa deposit in solution pipe fissure (7.5–8.5 m depth); 2021 to 2024; R.L. XERRI leg.; UoM.

Lithostratigraphic range in Malta: Quaternary terra rossa deposit.

Chronostratigraphic range in Malta: Late Pleistocene (ca. 63–53 ka).

Description: The recovered dentaries (Pl. 1 Figs. A–C) are very small, measuring an average of 5–7 mm. These specimens were identified as lacertid based on the V-shape of the splenial notch and the tricuspid characteristics of the dentition, which feature a prominent central cusp flanked by smaller mesial and distal cusps. The small size, lacertid dental morphology, and biogeographic location of the assemblage align with *Podarcis* cf. *filfolensis*, which is the only small lacertid recorded in the Maltese Islands.

Suborder Serpentes Linnaeus, 1758
Superfamily Colubroidea Oppel, 1811
Family Colubridae Oppel, 1811

Colubridae, indet. gen. & sp. (**Pl. 1 Figs. D–N**)

Material studied:

MALTA • 1 right articular element; St. Julian's, Għar il-Fkieren; Terra rossa deposit in solution pipe fissure (2–2.5 m depth); 2021 to 2024; R.L. XERRI leg.; Department of Classics & Archaeology, University of Malta [UoM] • 2 vertebrae; St. Julian's, Għar il-Fkieren; Terra rossa deposit in solution pipe fissure (2.5–3 m depth); 2021 to 2024; R.L. XERRI leg.; UoM • 9 vertebrae; St. Julian's, Għar il-Fkieren; Terra rossa deposit in solution pipe fissure (3–3.5 m depth); 2021 to 2024; R.L. XERRI leg.; UoM • 17 vertebrae; St. Julian's, Għar il-Fkieren; Terra rossa deposit in solution pipe fissure (3.5–4 m depth); 2021 to 2024; R.L. XERRI leg.; UoM • 3 vertebrae; St. Julian's, Għar il-Fkieren; Terra rossa deposit in solution pipe fissure (4–5 m depth); 2021 to 2024; R.L. XERRI leg.; UoM • 8 vertebrae; St. Julian's, Għar il-Fkieren; Terra rossa deposit in solution pipe fissure (5–5.5 m depth); 2021 to 2024; R.L. XERRI leg.; UoM • 25 vertebrae; St. Julian's, Għar il-Fkieren; Terra rossa deposit in solution pipe fissure (5.5–6 m depth); 2021 to 2024; R.L. XERRI leg.; UoM • 1 left dentary with teeth in situ; St. Julian's, Għar il-Fkieren; Terra rossa deposit in solution pipe fissure (5.5–6 m depth); 2021 to 2024; R.L. XERRI leg.; UoM • 23 vertebrae; St. Julian's, Għar il-Fkieren; Terra rossa deposit in solution pipe fissure (6–6.5 m depth); 2021 to 2024; R.L. XERRI leg.; UoM • 14 vertebrae; St. Julian's, Għar il-Fkieren; Terra rossa deposit in solution pipe fissure (6.5–7 m depth); 2021 to 2024; R.L. XERRI leg.; UoM • 8 vertebrae; St. Julian's, Għar il-Fkieren; Terra rossa deposit in solution pipe fissure (7–7.5 m depth); 2021 to 2024; R.L. XERRI leg.; UoM.

Lithostratigraphic range in Malta: Quaternary terra rossa deposit.

Chronostratigraphic range in Malta: Late Pleistocene (ca. 63–53 ka).

Description: The vertebrae (**Pl. 1 Figs. I–N**) average 2 mm at their greatest height. They lack hypapophyses, a morphological feature historically considered typical of colubrids (CARMONA et al., 2010). This feature was traditionally used to exclude subfamilies such as Elapidae and Natricinae, which retain hypapophyses throughout the trunk column. However, recent phylogenetic understanding has shown that the absence of vertebral hypapophyses is a trait shared by multiple distantly related lineages within Colubrimorpha, including Psammophiidae (GEORGALIS et al., 2024). In light of these developments, the absence of hypapophyses alone no longer justifies a definitive placement within Colubridae. However, considering the lack of evidence for psammophiids in the Maltese region, the specimens have been tentatively assigned to Colubridae.

The dentaries (**Pl. 1 Figs. D–F**) display in-situ teeth, indicating an opisthoglyphous (rear-fanged) colubrid, adapted to envenomation by chewing on its prey rather than by quick injection like proteroglyphous (front-fanged) snakes. A finer identification to species level is currently subject to future availability of local osteological reference material.

DISCUSSION

The discovery of colubrid and *Podarcis* cf. *filfolensis* fossils at Għar il-Fkieren denotes the first Pleistocene evidence of these taxa in Malta, where smaller reptiles were previously underrepresented. The presence of these taxa suggests a long-term indigenosity of these lineages and supports the hypothesis of a sustained colubrid presence since the Late Pleistocene, potentially representing (i) one of Malta's four extant species, (ii) an unrecorded ancestor, or (iii) a now-extinct species. The absence of these two taxa at earlier sites like Għar Dalam may reflect sampling limitations, as excavations conducted nearly a century ago often lacked the systematic methodologies used in more recent palaeontological and archaeological investigations. These earlier limitations highlight the value in systematic sampling of deposits from new local Quaternary sites, which can enhance our understanding of faunal turnover and adaptation and fill critical chronological and taxonomic voids that have limited prior reconstructions of the archipelago's palaeoecology.



Pl. 1 Figs. A–E: Fossil reptile specimens from Ghar il-Fkieren, Late Pleistocene (ca. 63–53 ka), Malta. **A–C:** *Podarcis* cf. *filfolensis* (Bedriaga, 1876). **A:** left dentary, lingual view. **B:** left dentary, labial view. **C:** left dentary, dorsal view. **D–N:** Colubridae, indet. gen. & sp. **D:** left dentary, dorsal view. **E:** left dentary, labial view. **F:** left dentary, lingual view.

G: right articular, lingual view. **H:** right articular, labial view. **I:** vertebra, lateral view. **J:** vertebra, dorsal view. **K:** vertebra, ventral view. **L:** vertebra, lateral view. **M:** vertebra, dorsal view. **N:** vertebra, ventral view.

For *Podarcis* cf. *filfolensis*, the fossil record aligns with genetic evidence of two Maltese lineages diverging between 869–105 ka (RODRÍGUEZ et al., 2014), reinforcing its endemic status and potential descent from Messinian Salinity Crisis colonizers (ca. 5.33 Ma). The lack of *Lacerta siculimelitensis* at Għar il-Fkieren, despite its earlier presence at Wied Inċita (BÖHME & ZAMMIT-MAEMPEL, 1982), suggests extinction or niche displacement by competing species by the time of deposition.

These findings also provide insights into aspects of Pleistocene food webs and ecosystems, with colubrids potentially preying on small vertebrates such as *Microtus melitensis* and *Crocidura sicula* and even *Podarcis*; as well as being a source of prey for raptor birds, based on the dietary preferences of extant species. The likely persistence of these species from the Pleistocene to the Holocene highlights their adaptability to Mediterranean climates, even during periods of aridity. However, species-level identification remains tentative, and the impact of the Last Glacial Maximum (LGM) on local faunal composition remains poorly understood. Further research is needed to determine whether these fossils represent earlier adaptations, or the same taxa that later endured greater climatic variability.

Future work should prioritise additional dating across the stratigraphy, genetic and comparative morphometric analysis of colubrid and lacertid fossils with Sicilian and North African specimens, and further osteological comparison to resolve species-level taxonomy. Such efforts will further enhance our understanding of island endemism, Pleistocene faunal turnover, and the ecological resilience of Mediterranean herpetofauna.

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SCALING NEW HEIGHTS: THE UNPUBLISHED HERPETOLOGICAL DRAWINGS AND NOTES OF GUIDO G. LANFRANCO (1930–2021)

David P. CILIA ¹³

ABSTRACT

This paper presents a unique collection of previously unpublished herpetological drawings and associated notes by the distinguished Maltese naturalist and educator Guido G. LANFRANCO (1930–2021). Derived from manuscripts now housed at the National Museum of Natural History, Malta, these materials comprise meticulous illustrations of various species, including endemic lizards and snakes, complemented by original ecological annotations and behavioural observations. This body of work constitutes a significant historical dataset, providing invaluable insights into the Maltese herpetofauna through the perceptive lens of an avid naturalist.

Keywords: Reptilia, Maltese Islands, herpetofauna, manuscripts, illustration, natural history

SINTEŽI

[Tpingijiet u noti mhux ippubblikati s'issa minn Guido G. Lanfranco (1930–2021).]
F'din id-dokumentazzjoni qiegħda tiġi pprezentata gabra ta' tpingijiet erpetologiċi u noti jakkumpanjawhom li s'issa ma kienux ġew ippubblikati, min-naturalista u edukatur Malti magħruf Guido G. LANFRANCO (1930–2021). Meħuda minn manuskritti donati lill-Mużew Nazzjonali tal-Istorja Naturali, Malta, dawn il-materjali juru xbiha dettaljati ta' diversi speċi, inkluż gremxul endemiċi u sriep, flimkien ma' annotazzjonijiet ekologiċi oriġinali u osservazzjonijiet dwar l-imġieba tagħhom. Dan il-materjal jipprovdi informazzjoni storika siewja u għarfien imprezzabbli dwar l-erpetofawna Maltija minn lenti ta' naturalist akkanit.

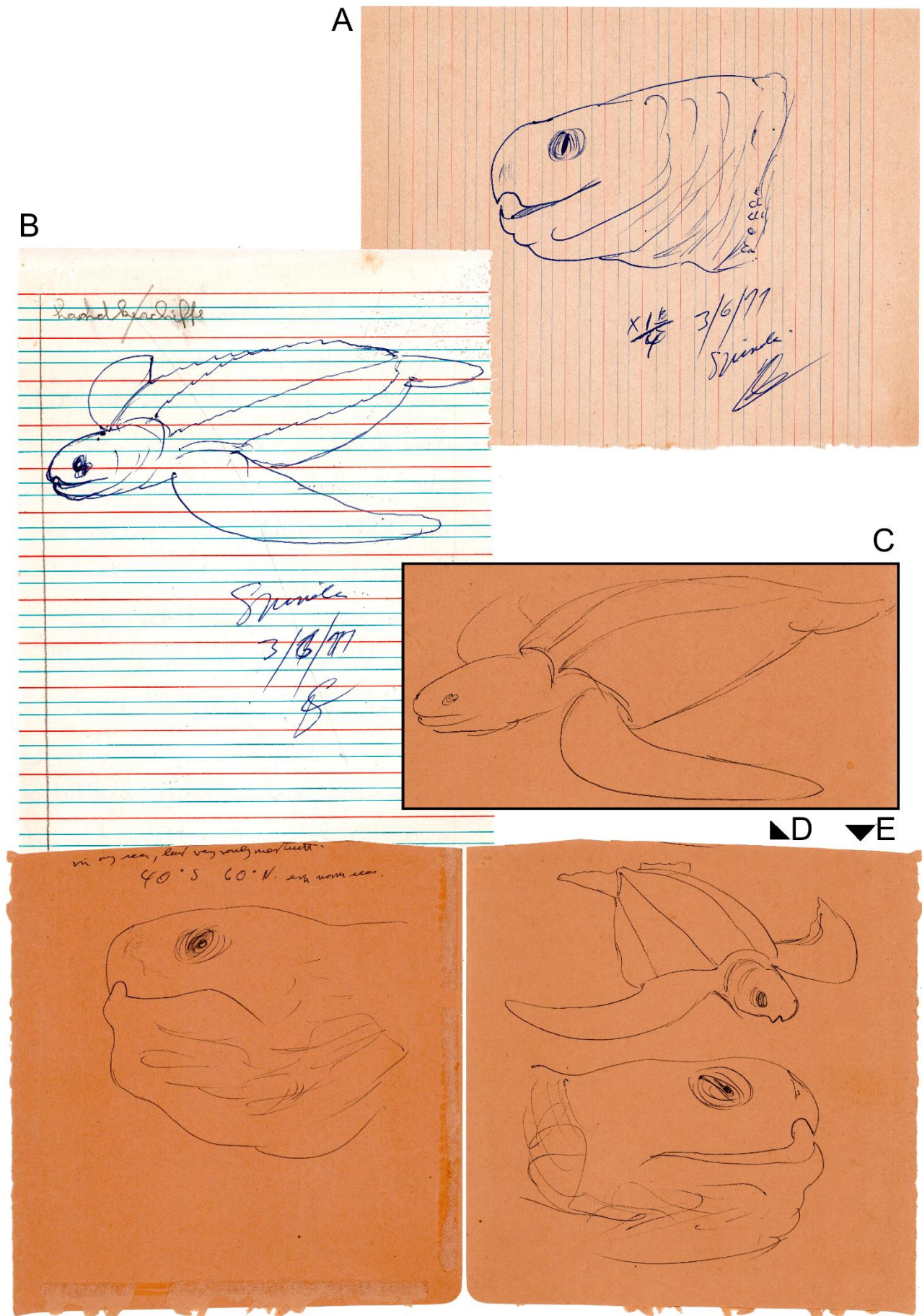
Kliem muftieħ: Reptilia, Gżejjer Maltin, erpetofawna, manuskritti, illustrazzjoni, storja naturali

INTRODUCTION

The Maltese batrachofauna and herpetofauna comprises 15 species, including two frogs (one autochthonous), three sea turtles (excluding two rare vagrants), an endemic lacertid, two autochthonous geckos, a naturalized chameleon, an autochthonous skink, and five species of snake (two autochthonous) (LANFRANCO & SCHEMBRI *in* SCHEMBRI & SULTANA, 1989; BALDACCHINO *in* SULTANA & FALZON, 1995; BALDACCHINO & SCHEMBRI, 2002; VELLA *et al.*, 2020; SCHEMBRI *et al.*, 2023).

Previously unpublished drawings of some of these species featured in this overview originate from manuscripts donated to the National Museum of Natural History, Malta (henceforth NMNH), in 2006 by esteemed educator, author, and naturalist Guido G. LANFRANCO (1930–2021). These seven manuscripts are numbered GGLO1 to GGLO4 (see **Appendix 1**) and form part of a larger collection comprising artwork, literature, and specimens of geological, entomological, and naturalistic interest (e.g. SAMMUT & BORG, 2008; DEGABRIELE, 2008; BORG, 2019, 2023), as well as an ethnographic component now housed at the Inquisitor's Palace in Vittoriosa, Malta (BORG, 2019).

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Submitted **22 Feb. 2025**; accepted **01 Jul. 2025**; published **13 Aug. 2025**.



Pl. 1 Figs. A–E: Previously unpublished drawings of *Dermochelys coriacea* (Vandelli, 1761) from manuscript GGL04, donated by Guido G. LANFRANCO to the National Museum of Natural History, Malta, in 2006. A: GGL04/051. B: GGL04/043. C: GGL04/042. D: GGL04/040. E: GGL04/041.

The sources for the present work consist of three separate tomes (GGL01A, GGL01B, GGL04). The first two volumes (GGL01A and GGL01B) are a pair, entitled '*Early Nature Drawings*' (subtitled '*Flora & Fauna of Malta / some sketches drawn from nature by Guido Lanfranco*'). Illustrations in these bound (but unpaginated) collections are primarily executed in ink and watercolour. They were created between 1951 and 1953 on loose sheets that were later cut to size and affixed to the manuscript pages. An appendix to GGL01B documents excursions made from 1950 to 1953, and 1957. The (botanical) illustrations by LANFRANCO (1955a) were adapted from images within GGL01A and GGL01B. The third volume (GGL04) is a volume of miscellaneous animal drawings.

All drawings across all seven manuscripts were (re-) numbered on the 25th of September of 2024 by the present author for entry into the museum catalogue.

MATERIALS & METHODS

All drawings and notes presented in this study were sourced from the manuscripts donated by Guido G. LANFRANCO to the NMNH in 2006. Herpetological content is found in manuscripts GGL01A, GGL01B, GGL02A, GGL02B, GGL02C and GGL04, although only the illustrations from GGL01A, GGL01B, and GGL04 were hitherto unpublished, and therefore reproduced herein. All drawings and accompanying handwritten notes related to reptiles were identified and catalogued, ordered systematically, scanned at high resolution, and collated into plates. In cases where species identification was not provided, it was determined through visual characteristics and accompanying text, with one exception where a snake's taxonomic allocation remained uncertain. Locality data, dates, and any behavioural or ecological observations recorded by LANFRANCO were transcribed and contextualized within the known historical distribution and ecology of the depicted species in Malta.

SYSTEMATICS

Reptilia Laurenti, 1768
Testudines Batsch, 1788
Dermochelyidae Fitzinger, 1843
Dermochelys Blainville, 1816

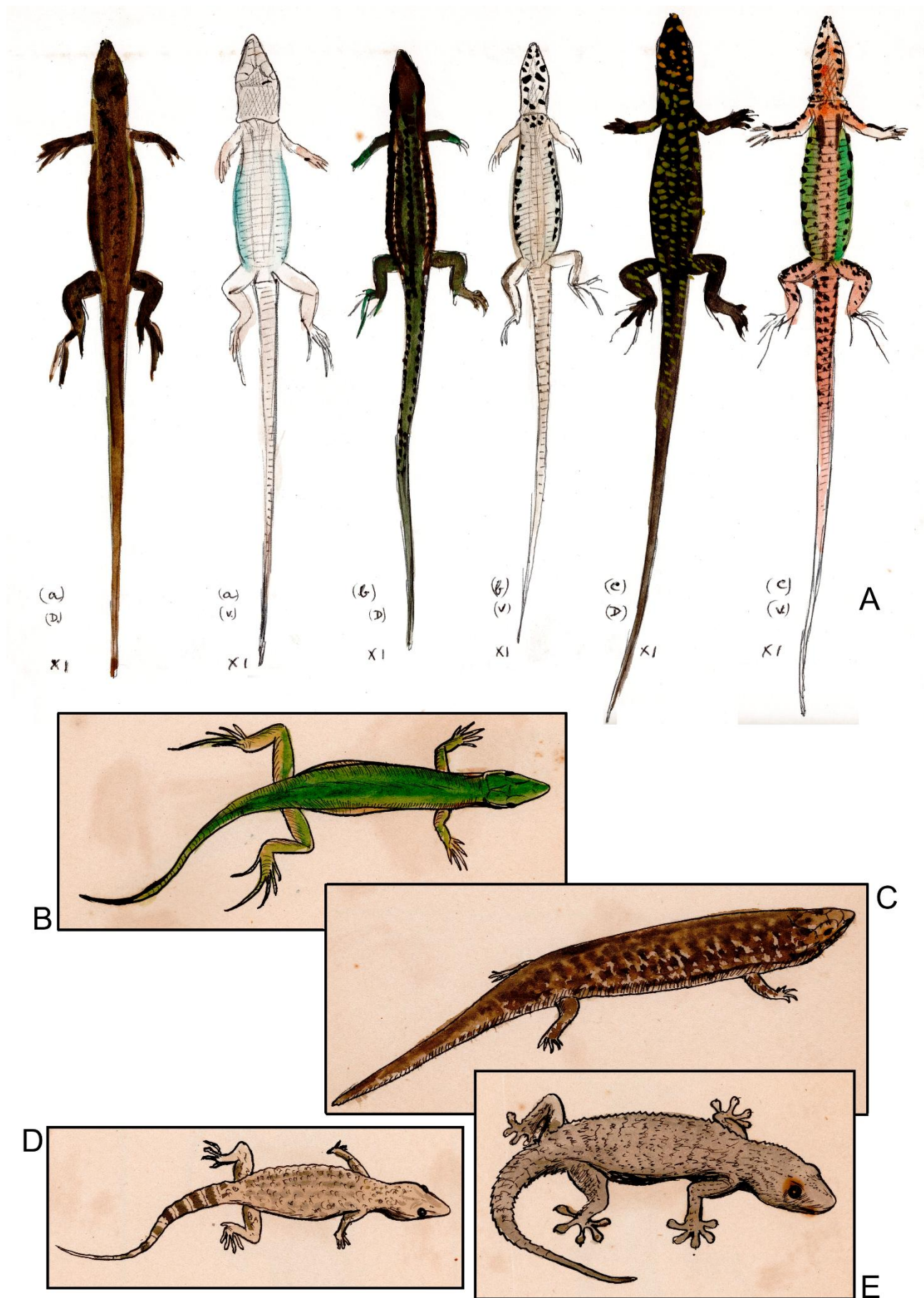
Dermochelys coriacea (Vandelli, 1761) (**Pl. 1 Figs. A–E**)

Catalogue numbers: GGL04/040–043, GGL04/51 (**Pl. 1 Figs. A–E**)

Description: A stapled set of four sheets includes six sketches in ink depicting a *Dermochelys coriacea* specimen found dead at '*Spinola*' (San Ġiljan) on the 3rd of June of 1977. One of the sheets includes three sketches, one on the obverse and two on the reverse. Three of the sketches show the full body of the turtle and the other three depict the head. Two sheets are signed, and one head depiction includes a scale ($\times 1/4$).

Dimensions: Sheet containing sketch A (GGL04/51, **Pl. 1 Fig. A**): 160 × 240 mm; sheet containing sketch B (GGL04/43, **Pl. 1 Fig. B**): 155 × 198 mm; sheet containing sketch C, consisting of recycled envelope paper (GGL04/42, **Pl. 1 Fig. C** [cropped]): 183 × ~283 mm; sheet containing sketches D and E, consisting of recycled envelope paper (GGL04/40, 41, **Pls. 1 Figs. D, E**): 180 × ~185 mm. The reproductions for the present work have been resized.

Remarks: Additional notes regarding this specimen, found in both a newspaper article and a review of *Dermochelys* landings around Malta (published later by LANFRANCO in 1977 and 1983, and supplemented by GRAMENTZ in 1989), mention its length of 1.85 m and the presence of approximately 40 specimens of the commensal cirripede *Stomatolepas elegans* (Costa, 1838) attached to the turtle's extremities (LANFRANCO, 1979; see also FRICK et al., 2010). The specimen now forms part of the collections of the NMNH.



Pl. 2 Figs. A–E: Previously unpublished drawings of Lacertidae, Gekkonidae, Phyllodactylidae, and Scincidae, from manuscripts GGL01B and GGL04 donated by Guido G. LANFRANCO to the National Museum of Natural History, Malta, in 2006. **A:** *Podarcis filfolensis* (Bedriaga, 1876); GGL01B/313. **B:** *Podarcis filfolensis* (Bedriaga, 1876); GL01B/418.

C: *Chalcides ocellatus* (Forsskål, 1775); GGL01B/419. **D:** *Hemidactylus turcicus* (Linné, 1758); GGL01B/416. **E:** *Tarentola mauritanica* (Linné, 1758); GGL01B/417.

Squamata Oppel, 1811
 Lacertidae Oppel, 1811
Podarcis Wagler, 1830

Podarcis filfolensis (Bedriaga, 1876) (**Pl. 2 Figs. A, B**)

Catalogue number: GGL01B/313 (**Pl. 2 Fig. A**)

Description: One sheet illustrated in black ink and watercolour, depicting two views each (dorsal and ventral) of three *Podarcis filfolensis* specimens, originating from 'St. Paul's Island' (Selmunett) and dating from the 15th of May of 1973. This page is bound into the second 'Early Nature Drawings' manuscript. Corresponding dorsal and ventral views of each individual lizard are designated by the letters *a*, *b*, and *c*. A scale (×1) is included. The reproduction for the present work has been resized.

Dimensions: 243 × 245 mm.

Remarks: This drawing is of significant interest as it illustrates three specimens of the Selmunett population of the polytypic *P. filfolensis*, formerly often classified as the subspecies *Podarcis filfolensis kieselbachi* (Fejervary, 1924).

Catalogue number: GGL01B/418 (**Pl. 2 Fig. B**)

Description: One small sheet illustrated in black ink and watercolour, likely from the period 1951–1953, depicting a *Podarcis filfolensis* specimen in dorsal view. This small sheet is affixed to a larger page which is bound into the second 'Early Nature Drawings' manuscript. A blue-green border, pencilled onto the larger sheet, surrounds the smaller illustration. Additionally, three captions handwritten by LANFRANCO in pencil on the larger sheet identify the illustration as 'Wall Lizard', 'Gremxula', and 'Lacerta muralis'. The reproduction for the present work has been cropped and resized.

Dimensions: The affixed sheet measures 82 × 145 mm on a larger page of 205 × 256 mm.

Remarks: The name *Lacerta muralis* Laurenti, 1768 appears instead of the correct name for the Maltese lizard in several older publications, including LANFRANCO's own work (1955b).

Gekkonidae Gray, 1825
Hemidactylus Oken, 1817

Hemidactylus turcicus (Linné, 1758) (**Pl. 2 Fig. D**)

Catalogue number: GGL01B/416 (**Pl. 2 Fig. D**)

Description: One small sheet illustrated in black ink and watercolour, likely from the period 1951–1953, depicting a *Hemidactylus turcicus* specimen in dorsolateral view. The individual was collected from '3, New Street, Sliema'. This small sheet is affixed to a larger page which is bound into the second 'Early Nature Drawings' manuscript. A blue-green border, pencilled onto the larger sheet, surrounds the smaller illustration. In addition, three captions handwritten by LANFRANCO in pencil on the larger sheet identify the specimen as 'Wizgħa tad-Dar', 'Turkish Gecko', and 'Hemidactylus turcicus'. The reproduction for the present work has been cropped and resized.

Dimensions: The affixed sheet measures 64 × 125 mm on a larger page of 205 × 256 mm.



Pl. 3 Figs. A, B: Previously unpublished drawings of *Hemorrhois algirus* (Jan, 1863) from manuscript GGL04, donated by Guido G. LANFRANCO to the National Museum of Natural History, Malta, in 2006. A: GGL04/044. B: GGL04/045.

Phyllodactylidae Gamble, Bauer, Greenbaum & Jackman, 2008
Tarentola Gray, 1825

Tarentola mauritanica (Linné, 1758) (Pl. 2 Fig. E)

Catalogue number: GGL01B/417 (Pl. 2 Fig. E)

Description: One small sheet illustrated in black ink and watercolour, likely from the period 1951–1953, depicting a *Tarentola mauritanica* specimen, collected from ‘3, New Street, Sliema’, in dorsolateral view. This small sheet is affixed to a larger page which is bound into the second ‘*Early Nature Drawings*’ manuscript. A blue-green border, pencilled onto the larger sheet, surrounds the smaller illustration. Additionally, three captions handwritten by LANFRANCO in pencil on the larger sheet identify the illustration as ‘*Wall Gecko*’, ‘*Wizgha*’, and ‘*Tarentola mauritanica*’. The reproduction for the present work has been cropped and resized.

Dimensions: The affixed sheet measures 69 × 118 mm on a larger page of 205 × 256 mm.

Scincidae Gray, 1825
Chalcides Laurenti, 1768

Chalcides ocellatus (Forsskål, 1775) (Pl. 2 Fig. C)

Catalogue number: GGL01B/419 (Pl. 2 Fig. C)

Description: One small sheet illustrated in black ink and watercolour, likely from the period 1951–1953, depicts a *Chalcides ocellatus* specimen in dorsolateral view. This small sheet is affixed to a larger page which is bound into the second ‘*Early Nature Drawings*’ manuscript. A blue-green border, pencilled onto the larger sheet, surrounds the smaller illustration. Additionally, three captions handwritten by LANFRANCO in pencil on the larger sheet identify the illustration as ‘*Ocellated Skink*’, ‘*Calchides ocellatus*’, and ‘*Xahmet*’. The reproduction for the present work has been cropped and resized.

Dimensions: The affixed sheet measures 73 × 148 mm on a larger page of 205 × 256 mm.

Colubridae Oppel, 1811
Hemorrhois Boie, 1826

Hemorrhois algirus (Jan, 1863) (Pl. 3 Figs. A, B)

Catalogue number: GGL04/045 (Pl. 3 Fig. B)

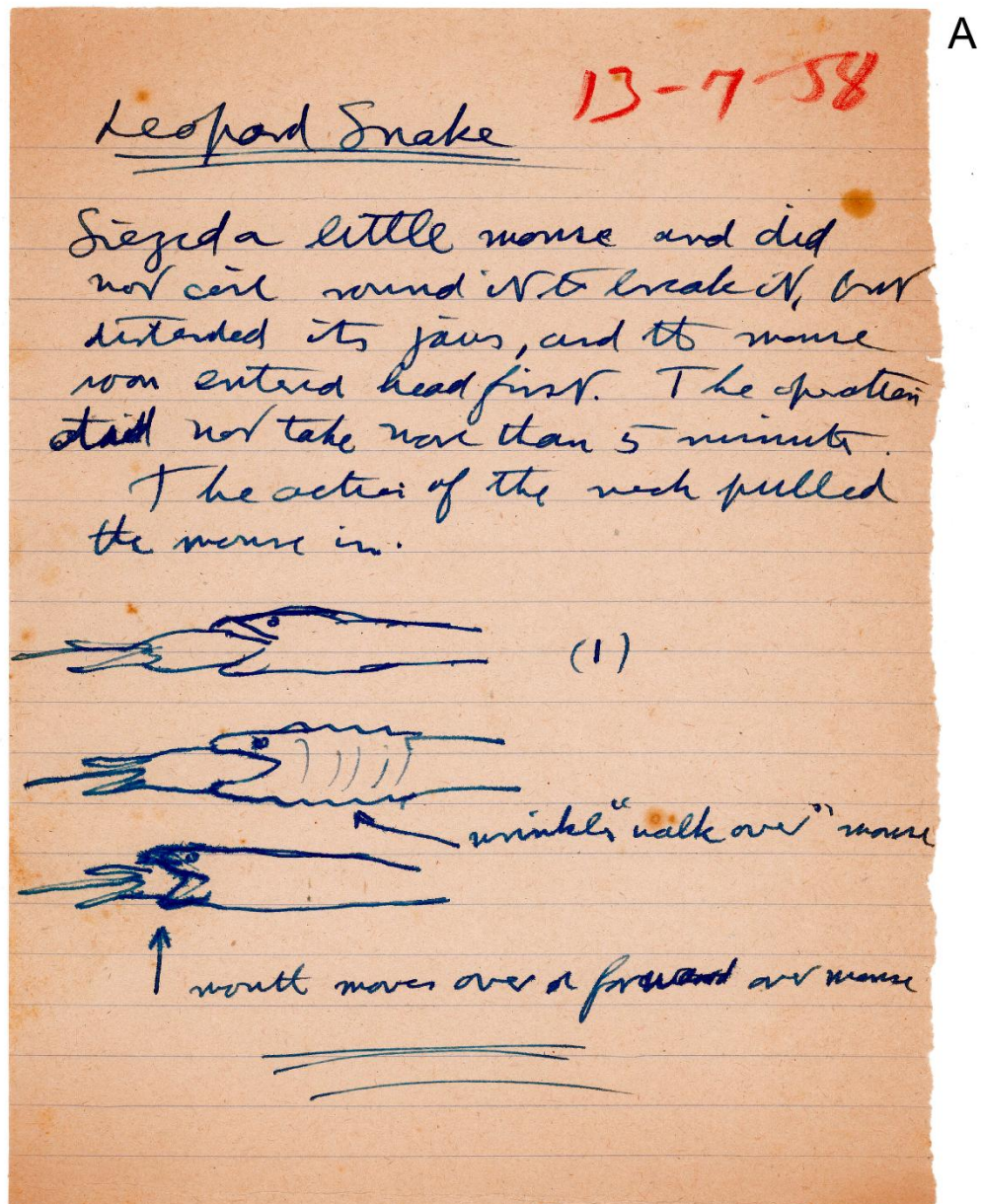
Description: One loose sheet, dated from the 24th of September of 1955, depicts a 46 cm long *Hemorrhois algirus* specimen, sketched in pencil. Pencil captions beneath the illustration describe observations about its life history, presented in the following sequence:

‘June, 1955 – the snake is taken from Floriana;
 July, 1955 – ate a skink;
 August, 1955 – moulted for the first time;
 13th September, 1955 – moulted for the second time;
 17th September, 1955 – ate a leopard snake’.

The reproduction for the present work has been resized.

Dimensions: 165 × 290 mm.

Remarks: Although no identification caption is present, the snake can be identified by its typical pattern and the collection locality, consistent with previous records of the species at the time. LANFRANCO mentions encountering six specimens up to 1954, all captured in Floriana (LANFRANCO, 1955b sub *Tarbophis algirus*; see also BORG, 1939 sub *Zamenis algirus*). The documented case of



Pl. 4 Figs. A, B: Previously unpublished drawings of *Zamenis situla* (Linné, 1758) from manuscripts GGL01B and GGL04, donated by Guido G. LANFRANCO to the National Museum of Natural History, Malta, in 2006. A: GGL04/046. B: GGL01B/415.

ophiophagy by this snake is notable; LANFRANCO (1955b) records the same behaviour for *Hierophis viridiflavus* (Lacépède, 1789) (sub *Zamenis gemonensis*), a fact iterated by BALDACCHINO (in SULTANA & FALZON, 1995 sub *Coluber viridiflavus*) and BALDACCHINO & SCHEMBRI (2002 sub *Coluber viridiflavus*).

Catalogue number: GGL04/044 (**Pl. 3 Fig. A**)

Description: One loose sheet, dated 1954, depicting three pencil sketches (lateral, dorsal, and ventral views) of the anterior part of a *Hemorrhois algirus* specimen. A caption in red identifies the species as '*Coluber algirus*'. The reproduction for the present work has been resized.

Dimensions: 202 × 270 mm.

Zamenis Wagler, 1830

Zamenis situla (Linné, 1758) (**Pl. 4 Figs. A, B**)

Catalogue number: GGL01B/415 (**Pl. 4 Fig. B**)

Description: One small sheet illustrated in black ink and watercolour, depicting a *Zamenis situla* specimen. This small sheet is affixed to a larger page bound into the second '*Early Nature Drawings*' manuscript. A blue-green border, pencilled onto the larger sheet, surrounds the smaller illustration. The reproduction for the present work has been cropped and resized.

Dimensions: Sheet of 60 × 128 mm affixed to a page of 205 × 256 mm.

Remarks: No identification or captions by LANFRANCO are present, although the snake can be identified by the striking orange dorsal pattern.

Catalogue number: GGL04/046 (**Pl. 4 Fig. A**)

Description: One loose sheet, dated from the 13th of July of 1958, contains ink observations and sketches describing the process of ingestion of prey by a '*Leopard Snake*'. A transcription of the writing reads as follows:

'Leopard Snake. Seized a little mouse and did not coil round it to break it, but extended its jaws, and the mouse soon entered head first. The operation did not take more than 5 minutes. The action of the neck pulled the mouse in.'

Three sketches showing progressive stages of ingestion follow; the first is labelled '(1)', the second '*wrinkles "walk over" mouse*', and the third '*mouth moves over or forward over mouse*'. The reproduction for the present work has been resized.

Dimensions: ~158 × 202 mm.

indet. gen. et indet. sp. (**Pl. 5 Figs. A–D**)

Catalogue number: GGL04/047–050 (**Pl. 5 Figs. A–D**)

Description: Four uneven sheets stapled together, dated 1954, contain black pencil observations and sketches describing the process of prey ingestion (seemingly a lacertid) by an unidentified snake species, just over a foot (0.3 m) long, with a time indication for each depicted stage. In sequence, these events are as follows (with time converted to 24-hour notation):

'17:15 – stage 1;

17:30 – stage 2;

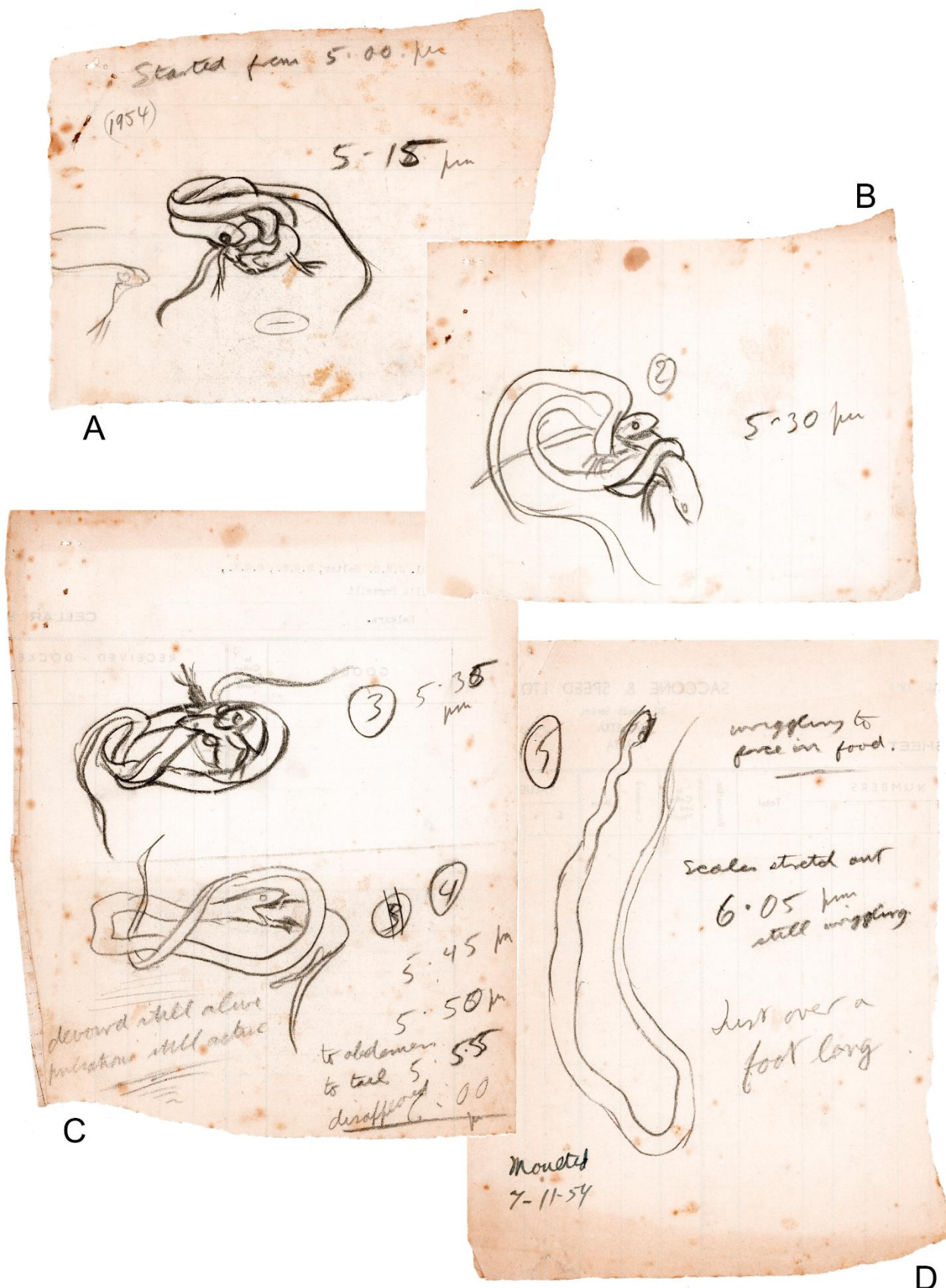
17:35 – stage 3;

17:45 – stage 4, prey devoured still alive, pulsation still active

17:50 to abdomen,

17:55 to tail,

18:00 disappeared; stage 5, snake wriggling to force in food, scales stretched out,



Pl. 5 Figs. A–D: Previously unpublished drawings of an unnamed species of snake from manuscript GGL04, donated by Guido G. LANFRANCO to the National Museum of Natural History, Malta, in 2006. **A:** GGL04/047. **B:** GGL04/048. **C:** GGL04/049. **D:** GGL04/050.

18:05 still wriggling’.

A further note indicates that the snake moulted on the 7th of November of 1954. The reproductions for the present work have been resized.

Dimensions: Two sheets containing sketches 1 and 2 (GGL04/047, 48, **Pl. 5 Figs. A, B**): ~130 × ~170 mm; two sheets containing sketches 3 to 5 (GGL04/049, 50, **Pl. 5 Figs. C, D**): ~170 × ~220 mm.

DISCUSSION

Guido G. LANFRANCO's significant contributions to the documentation of Maltese natural history are evident in seven manuscripts donated to the NMNH. In total, these manuscripts (detailed in **Appendix 1**) feature illustrations of 12 reptile and amphibian species. Of these, 11 species are either native or naturalized in Malta.

Seven of these 11 species are depicted, sometimes multiple times, in manuscripts GGL01A, GGL01B, and GGL04; these specific manuscripts also contain no amphibian illustrations. Additional amphibian and reptile artwork can be found in manuscripts GGL02A, GGL02B, and GGL02C. Nearly all material from GGL02 was published (albeit in monochrome) in *Sagħtar*, a Maltese-language periodical known for its educational content aimed at younger audiences. LANFRANCO's art and writing were featured in *Sagħtar* between October 1987 and May 1995, with amphibians and reptiles appearing in nine editions (LANFRANCO, 1989, 1990, 1991a, 1991b, 1992, 1993, 1994a, 1994b, 1995).

The illustrations and accompanying observations discussed herein provide a unique historical snapshot of the Maltese herpetofauna (and batrachofauna) predating recent introductions such as *Pelophylax bedriagae* (Camerano, 1882), and *Indotyphlops braminus* (Daudin, 1803) (SCIBERRAS & SCHEMBRI, 2006; VELLA et al., 2020). While LANFRANCO's later contributions to *Sagħtar* further demonstrate his dedication to documenting Maltese natural history in a more encyclopaedic context, the illustrations and annotations reproduced here contribute an original visual and textual record, which enriches the understanding of the islands' ecology through the discerning eye of a dedicated naturalist.

ACKNOWLEDGEMENTS

The author extends his sincere gratitude to Carmen TANTI and Rochelle L. XERRI (NMNH) for their invaluable advice and assistance. John J. BORG (NMNH) and Victor FALZON (BirdLife Malta) kindly provided feedback on an earlier draft of the manuscript.

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Appendix 1: Manuscripts by Guido G. LANFRANCO and their contents, forming part of the collection of the National Museum of Natural History, Malta.

GGL01A: Early Nature Drawings (Volume 1)
001 – 037: Fungi
038 – 200: Plants

GGL01B: Early Nature Drawings (Volume 2)
201 – 312: Plants
313 – 419: Animals
A001 – A028: Appendix 1951–3
B001 – B006: Appendix 1957

GGL02A: Dizzjunarju ta' Hxejjex u Annimali Madwarna [*Dictionary of plants and animals around us*] (Volume 1)
001 – 299: Aċċola – Fekruna tal-Art

GGL02B: Dizzjunarju ta' Hxejjex u Annimali Madwarna [*Dictionary of plants and animals around us*] (Volume 2)
300 – 598: Fekruna tal-Baħar – Nanna Għula

GGL02C: Dizzjunarju ta' Hxejjex u Annimali Madwarna [*Dictionary of plants and animals around us*] (Volume 3)
600 – 885: Narcis Komuni – Żurżar
886 – 893: Miscellanea

[*Description:* GGL02A–C are photographic albums containing illustrations in pen and watercolour on card that were prepared for a series on Maltese flora and fauna in the Maltese language periodical *Sagħtar* from October 1987 to May 1995. These illustrations are arranged in alphabetical order according to the illustrated organism's Maltese vernacular name. Each card is 145 mm wide and 102 mm high and features the organism's Maltese and English vernacular names, as well as the binomen, written in pencil.]

GGL03: Lepidoptera Notes (early 1950s)
001 – 193: Notes
194 – 232: Linoleum Prints
233 – 247: Notes

GGL04: Sketches
001 – 051: Animals

[*Description:* GGL04 is a miscellaneous collection of loose sheets of different dimensions including annotated sketches of, and notes on, molluscs, insects, echinoderms, reptiles, and fossil fish.]

THE CONTI BIRD COLLECTION: NEW ADDITIONS TO THE NATIONAL ORNITHOLOGICAL COLLECTIONS AT THE NATIONAL MUSEUM OF NATURAL HISTORY, MDINA, MALTA

John J. BORG¹⁴

ABSTRACT

This study highlights recent additions to the national ornithological collections at the National Museum of Natural History, Mdina, Malta, originating from the historically and scientifically significant collection of the ornithologist Themistocles ‘Temi’ CONTI. An overview of the collection’s history is provided together with an annotated checklist of the 34 taxidermized birds, highlighting notable specimens such as the Slender-billed Curlew *Numenius tenuirostris* Vieillot, 1817, and the Pacific Golden Plover *Pluvialis fulva* (Gmelin, 1789). The importance of consolidating and curating the collection for scientific research and national heritage is emphasized.

Keywords: ornithology, Themistocles Conti, taxidermy, checklist, historical collections

SINTEZI

[Il-kollezzjoni tal-għasfar Conti: żidiet godda mal-Kollezzjonijiet ornitoloġiċi nazzjonali fil-Mużew Nazzjonali tal-Istorja Naturali, Mdina, Malta.] F’dan l-istudju jingħata rendikont ta’ żidiet reċenti mal-kollezzjonijiet ornitoloġiċi nazzjonali li jinsabu fil-Mużew Nazzjonali tal-Istorja Naturali, l-Imdina, Malta, li ġew mill-kollezzjoni storikament u xjentifikament sinifikanti tal-ornitologu Themistocles ‘Temi’ CONTI. Tingħata ħarsa ġenerali lejn l-istorja tal-kollezzjoni flimkien ma’ lista ta’ kontroll annotata tat-34 għasfur ibbalzmat, li tinkludi kampjuni notevoli bħall-Gurlin Żgħir *Numenius tenuirostris* Vieillot, 1817, u l-Pluviera Żgħira *Pluvialis fulva* (Gmelin, 1789). L-importanza li l-kollezzjoni tiġi kkonsolidata u kkurata għar-riċerka xjentifika u l-wirt nazzjonali qiegħda tiġi enfasizzata.

Kliem muftieħ: ornitoloġija, Themistocles Conti, tassidermija, lista ta’ kontroll, kollezzjonijiet storiċi

INTRODUCTION

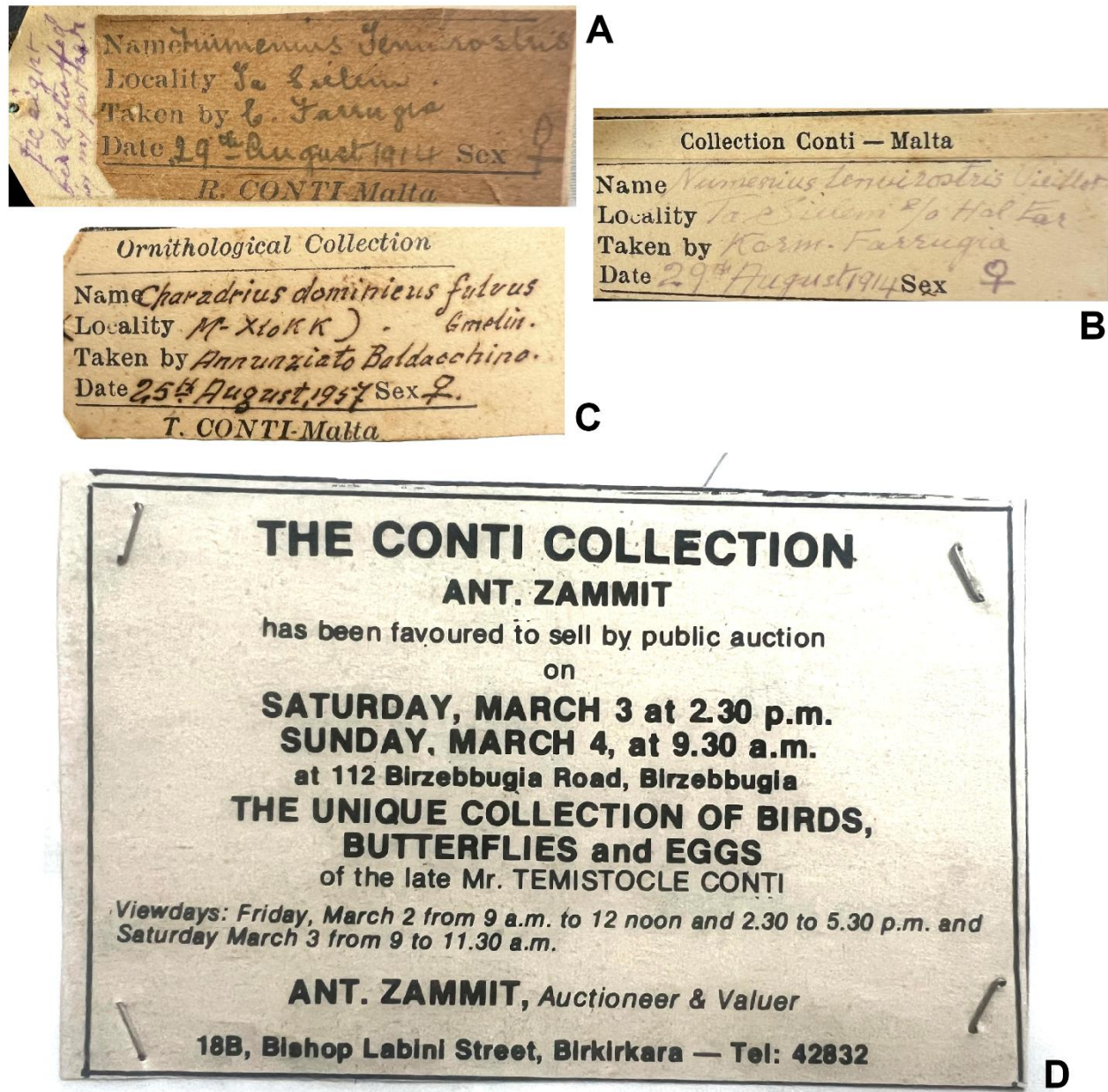
The ornithological collection at the National Museum of Natural History, Malta (NMNH) includes nearly 8,000 stuffed and mounted bird specimens, along with study skins, egg sets, and carcasses, amounting to an overall total of over 10,000 specimens. The collection is ever-growing as a result of donations and confiscations. Most incoming specimens bear no data label and are therefore of limited scientific value. Nonetheless, a small number of older (1900–1980) collections may have data labels (BORG, in prep.).

One of the most important local collections was that of Roger CONTI and Temi CONTI of Hamrun. The collection was initiated in 1910 by Roger, when he started showing a keen interest in taxidermy. At an early age, his elder son Themistocles, known as ‘Temi’, spent hours observing his father preparing specimens. Later, he would perfect and elevate the art of taxidermy to levels hardly seen even in present times.

The eldest son of Roger CONTI and Elvira née MELI-CRITIEN, Temi CONTI was born in Hamrun on

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Pl. 1 Figs. A–D: Textual artefacts related to the CONTI collection. **A, B:** Two specimen labels for a female *Numenius tenuirostris* Vieillot, 1817 captured at Ta' Silem by Carmelo FARRUGIA on the 29th August 1914, with the calligraphy of Roger CONTI (**A**, black ink) and Themistocles 'Temi' CONTI (**A, B**, purple ink). The note in purple ink on the first label reads 'the eight bird stuffed by my father'. **C:** Specimen label for a female *Pluvialis fulva* (Gmelin, 1789) (sub *Charadrius dominicus fulvus*) captured at Marsaxlokk by Annunziato BALDACCHINO on the 25th August 1957, with the calligraphy of Themistocles 'Temi' CONTI. **D:** Newspaper advertisement from 1979 announcing the public auction of the CONTI Collection, comprising an assemblage of birds, butterflies, and eggs once owned by the late Themistocles 'Temi' CONTI.

July 27, 1906. He was educated at private primary schools and St. Aloysius' College. He improved and expanded on his father's bird collection using unique preparation methods he kept secret. CONTI sourced specimens through hunting, markets, and contacts among farmers, hunters, and trappers (SULTANA & BORG, 2015).

By 1967, Temi CONTI had moved his collections to 112 Birzebbugia Road, Birzebbugia. These included 16 showcases, three glass cabinets with 625 birds, a cabinet of bird eggs, five butterfly cabinets, and a box of butterflies and moths. He kept a detailed register of his bird specimens, noting the scientific name, date, locality, collector, and other observations. Unfortunately, this register was likely discarded after being used as an auction catalogue (R. CONTI, pers. comm., in SULTANA & BORG 2015). CONTI never intended to part with his collection during his life but wanted it to eventually become

public. A letter from 2 March 1960 reveals that the British ornithologist, David A. BANNERMAN (1886–1979) suggested transferring the collection to a museum. The Governor of Malta responded positively, considering the proposal.

Following Temi's demise on 17 May 1978 and the absence of a will, the collections and library were auctioned on 3 and 4 March 1979 at his house in Birżebbuġa, resulting in the dispersion of valuable items and the loss of some ornithological works. Despite restrictions, the Museums Department managed to acquire 146 bird specimens from 68 species, which was less than a quarter of the original collection (BORG, in prep.). The collection was split between 19 different buyers, including the NMNH. For a more detailed account of CONTI's life, the reader is invited to read SULTANA & BORG (2015: 252). A note on some of the more noteworthy specimens acquired by the museum was published in the Maltese ornithological bulletin *Il-Merill* (VELLA-GAFFIERO, 1979), while SULTANA & GAUCI (1979) reported on six unpublished records from the CONTI collection. A small part of a larger collection was acquired by the NMNH through public auction in 1979 and holds significant scientific and artistic value (BORG, in prep.).

On 28 April 2025, a small collection of 43 stuffed and mounted birds was donated to the museum through the intervention of members from the Wild Birds Regulation Unit. This collection belonged to the late Emmanuel AXIAQ from Żabbar. Upon examining the specimens, it became apparent that 34 of the specimens belong to the late Temi Conti collection. Emmanuel AXIAQ was one of the persons present for the CONTI Collection auction in 1979 (NMNH Archives).

MATERIALS AND METHODS

All the specimens are accompanied by the relevant data on custom printed labels, with the heading '*Collection Conti – Malta*'. Most labels are also printed with '*R. Conti*', '*T. Conti*', and '*T. Conti-Meli*'. '*R. Conti*' refers to Roger CONTI and both '*Temi Conti*' and '*Temi Conti-Meli*' refer to the same person, i.e. Temi CONTI (see **Pl. 1 Figs. A–C**).

RESULTS

Below is an annotated checklist of the specimens belonging to the CONTI collection which formed part of the Emmanuel AXIAQ donation.

Note: Vernacular English and Maltese names are listed in parentheses beneath the scientific name. Annotations are in square brackets.

Streptopelia turtur (Linné, 1758)
(Turtle Dove; Gamiema)

Material studied:

MALTA • 1 specimen; Birżebbuġa, Wied Chesches (?); leg. 27 May 1916; NMNH_ORN_7941.

Caprimulgus europaeus Linné, 1758
(European Nightjar; Buqrajq)

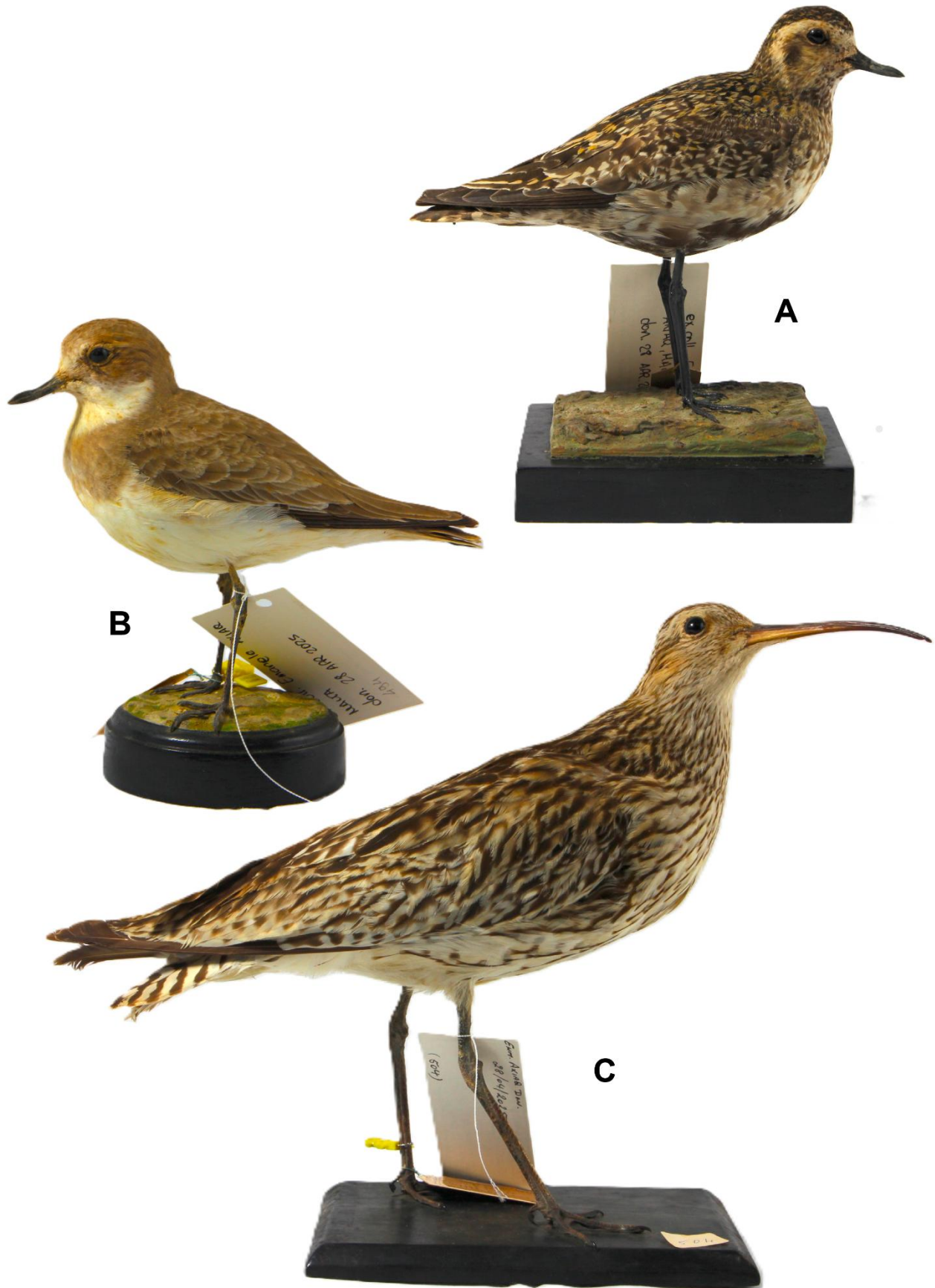
Material studied:

MALTA • 1 specimen; Gharghur; leg. 12 May 1928; NMNH_ORN_7938.

Porzana porzana (Linné, 1766)
(Spotted Crane; Gallozz tat-Tikek)

Material studied:

MALTA • 1 specimen; ♀; Birżebbuġa, Wied Kexkex (?); leg. 5 May 1917; NMNH_ORN_7937.



Pl. 2 Figs. A–C: Specimens from the CONTI collection. **A:** *Pluvialis fulva* (Gmelin, 1789); Marsaxlokk; leg. 25 Aug. 1957; NMNH_ORN_7923. **B:** *Anarhynchus asiaticus* (Pallas, 1773); Xrobb l-Għagin; leg. 29 Nov. 1962; NMNH_ORN_7916. **C:** *Numenius tenuirostris* Vieillot, 1817; Ta' Silem, limits of Ħal-Far; leg. 29 Aug. 1914; NMNH_ORN_7933.

Burhinus oedicnemus (Linné, 1758)
(Eurasian Thick-knee; Tellerita)

Material studied:

MALTA • 1 specimen; ♀; Comino; leg. 9 Nov. 1915; NMNH_ORN_7927 [juvenile (3J); this individual hatched from a nest on the island of Comino] • 1 specimen; ♂; limits of Ħal-Far, Ta' Sielem; leg. 14 Oct. 1915; NMNH_ORN_7928 • 1 specimen; ♂; limits of Ħal-Far, Ta' Sielem; leg. 5 Nov. 1913; NMNH_ORN_7929.

Remarks: The specimen taken from Comino is a breeding record for this species in that locality.

Pluvialis squatarola (Linné, 1758)
(Grey Plover; Pluviera Griża)

Material studied:

MALTA • 1 specimen; ♂; Salina Bay; leg. 11 Nov. 1928; NMNH_ORN_7921 • 1 specimen; ♂; Marsaxlokk; 15 May 1949; NMNH_ORN_7922 • 1 specimen; ♂; Qawra; leg. 12 Nov. 1961; NMNH_ORN_7924.

Pluvialis apricaria (Linné, 1758)
(Eurasian Golden Plover; Pluviera)

Material studied:

MALTA • 1 specimen; ♀; Birżebbuġa, Tal-Papa; leg. 30 Oct. 1912; NMNH_ORN_7918 • 1 specimen; ♀; limits of Rabat; leg. 20 Nov. 1961; NMNH_ORN_7919 • 1 specimen; ♀; Ħal-Far; leg. 15 Nov. 1935; NMNH_ORN_7920 [sub *Pluvialis apricaria albifrons*].

Pluvialis fulva (Gmelin, 1789) (**Pl. 2 Fig. A**)
(Pacific Golden Plover; Pluviera Żgħira)

Material studied:

MALTA • 1 specimen; ♀; Marsaxlokk; leg. 25 Aug. 1957; NMNH_ORN_7923 [sub *Charadrius dominicus fulvus*; this individual has never been recorded in previous literature].

Eudromias morinellus (Linné, 1758)
(Eurasian Dotterel; Birwina)

Material studied:

MALTA • 1 specimen; Bengħisa; leg. 4 Sep. 1916; NMNH_ORN_7910 • 1 specimen; ♂; Ħal-Far; leg. 19 Sep. 1915; NMNH_ORN_7911 • 1 specimen; ♀; Valletta Market; leg. 16 Sep. 1914; NMNH_ORN_7912 • 1 specimen; Birżebbuġa, Qajjenza; leg. 8 Nov. 1974; NMNH_ORN_7913 • 1 specimen; ♀; Ħal-Far; leg. 4 Sep. 1916; NMNH_ORN_7914.

Charadrius hiaticula Linné, 1758
(Common Ringed Plover; Monakella Prima)

Material studied:

MALTA • 1 specimen; Salina; leg. 8 May 1929; NMNH_ORN_7915 [adult].

Anarhynchus asiaticus (Pallas, 1773) (**Pl. 2 Fig. B**)
(Caspian Plover; Birwina tal-Asja)

Material studied:

MALTA • 1 specimen; ♂; Xrobb l-Għaġin; leg. 29 Nov. 1962; NMNH_ORN_7916 [immature; date of collection as reported in Sultana & Gauci (1982) via personal communication with Joseph A. VELLA-GAFFIERO (1941–2019)]

Vanellus vanellus (Linné, 1758)
(Northern Lapwing; Venewwa)

Material studied:

MALTA • 1 specimen; ♀; Birżebbuġa, Tal-Papa; leg. 10 Dec. 1912; NMNH_ORN_7925 • 1 specimen; ♂; Birżebbuġa, Tal-Papa; leg. 21 Nov. 1939; NMNH_ORN_7926 • 1 specimen; Marsa; leg. 13 Dec. 1913; NMNH_ORN_7936.

Numenius phaeopus (Linné, 1758)
(Eurasian Whimbrel; Gurlin Sekond)

Material studied:

MALTA • 1 specimen; ♀; Marsaxlokk; leg. 20 Jul. 1966; NMNH_ORN_7930 • 1 specimen; ♀; Hal-Far, Wied ix-Xaqqa; leg. 25 Sep. 1916 NMNH_ORN_7931 • 1 specimen; ♀; Delimara Point; leg. 8 Apr. 1959; NMNH_ORN_7932.

Numenius tenuirostris Viellot, 1817 (**Pl. 2 Fig. C**)
(Slender-billed Curlew; Gurlin Żgħir)

Material studied:

MALTA • 1 specimen; ♀; limits of Hal-Far, Ta' Sielem; leg. 29 Aug. 1914; NMNH_ORN_7933.

Remarks: This species has been listed as extinct since 2024 (BUCHANAN et al., 2024).

Numenius arquata (Linné, 1758)
(Eurasian Curlew; Gurlin)

Material studied:

MALTA • 1 specimen; ♀; Xrobb l-Għagin; 25 Nov. 1918; NMNH_ORN_7934 • 1 specimen; limits of Hal-Far, Ta' Sielem; leg. 5 Dec. 1914; NMNH_ORN_7935.

Arenaria interpres (Linné, 1758)
(Ruddy Turnstone; Monakella Imperjali)

Material studied:

MALTA • 1 specimen; ♀; Bengħisa Point; leg. 14 May 1943; NMNH_ORN_7917 [this individual was shot together with a male bird].

Cursorius cursor (Latham, 1787)
(Cream Coloured Courser; Nankina)

Material studied:

MALTA • 1 specimen; ♀; Żabbar; leg. 18 Mar. 1931; NMNH_ORN_7909.

Glareola pratincola (Linné, 1766)
(Collared Pratincole; Perniċjotta)

Material studied:

MALTA • 1 specimen; ♀; Salina; leg. 21 Apr. 1916; NMNH_ORN_7906 • 1 specimen; ♂; Marsa; leg. 12 Apr. 1929; NMNH_ORN_7907 • 1 specimen; ♀; Marsa; 6 Jun. 1945; NMNH_ORN_7908.

CONCLUSION

While most species in this collection were regular visitors to the Maltese islands, there was a small number that are considered as uncommon or rare. Among the more interesting records, one finds a specimen of a young juvenile Eurasian Thick-knee *Burhinus oedicnemus* (Linné, 1758), taken from Comino, a breeding record of this species on Comino; an undocumented record of a Slender-billed Curlew *Numenius tenuirostris* Viellot, 1817; a Caspian Plover *Anarhynchus asiaticus* (Pallas, 1773), previously recorded but with the wrong date of occurrence; and an unrecorded Pacific Golden Plover *Pluvialis fulva* (Gmelin, 1789).

The NMNH currently holds 135 of the original 625 birds from the CONTI Collection. Reuniting the entire collection under one roof would be of significant benefit to both the scientific community and the nation, especially if it were consolidated and properly curated.

It is believed that most of the specimens still exist in local collections. However, a small portion, particularly the raptors, was exported from the island, despite a directive from Francis S. MALLIA (1921–1988), former Director of Museums, advising against such actions (NMNH Archives).

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BULLETIN OF THE NATIONAL MUSEUM OF NATURAL HISTORY, MALTA

AUTHORS' GUIDELINES

The *BNMNHM* publishes two main types of **original** work: *research papers* and *short notes*.

- **Research papers** normally exceed 5 printed pages (including references and illustrations) and should be organized according to the following order (parentheses indicate that the section is not obligatory): TITLE, AUTHOR/S, ABSTRACT, KEYWORDS, INTRODUCTION, MATERIALS & METHODS, (*ABBREVIATIONS*), RESULTS, (*SYSTEMATICS*), DISCUSSION, (*CONCLUSION*), ACKNOWLEDGEMENTS, REFERENCES, (*FIGURE CAPTIONS*), (*TABLE CAPTIONS*).
- **Short notes**, normally occupying between 3 and 5 printed pages (including references and illustrations), should ideally adhere to the same format. Exceptions are only admissible for very short manuscripts (1 or 2 pages). These should be discussed with the editorial board before submission.
- Manuscripts should be prepared in British English.
- The TITLE should be concise and indicate the higher taxa (in parentheses and separated by a colon) of organisms discussed within. Example: *A note on some spiders (Arachnida: Araneae) in Malta*.
- AUTHOR/S should be listed in full, together with affiliation, physical address, and email address. In the case of more than one AUTHOR, one correspondent should be indicated with an asterisk, and their physical address and email address should be provided.
- The ABSTRACT should be a concise summarized version of the manuscript, including the results and conclusions achieved. It will appear in English and Maltese (*SINTEŻI*). If the author/s is/are unable to provide the latter, the editorial team will offer a translation service. Citations within the ABSTRACT should ideally be avoided.
- Up to six KEYWORDS may be chosen. These will appear in English AND Maltese (*KLIEM MUFTIEH*). If the author/s is/are unable to provide the latter, the editorial team will offer a translation service.
- The INTRODUCTION presents scientific background, giving context to the paper. Subtitles can be employed as necessary.
- The MATERIALS AND METHODS section outlines any experimental procedures employed for the research and lists all the resources required for its completion. Please use SI units throughout, with the appropriate symbols or abbreviations. If unconventional abbreviations are used throughout the text, list these in an *ABBREVIATIONS* section following the MATERIALS AND METHODS section. Acronyms for institutions should also be listed as *ABBREVIATIONS*.
- The RESULTS section should list the outcomes of the research. If the scope of the paper is taxonomic or nomenclatural, the heading *SYSTEMATICS* may be used instead. A list of important synonyms under the currently accepted name is recommended.
- Lists of biological material studied should be included in a paragraph on their own, in the format: [**COUNTRY**] • [**number of specimens**]; [**locality**]; [**depth or altitude**]; [**date of collection**]; [**collector**]; [**repository and registration number**].
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Göttingen, Germany: Planet Poster Editions.

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VOLUME 2 • ISSUE 1

CONTENTS

MIFSUD, Constantine: Checklist and synonymy of Cnidaria and Ctenophora recorded from Maltese waters. Lista ta' kontroll u sinonimija ta' Cnidaria u Ctenophora ta' Malta irregistrati mill-ibhra Maltin.	01–46
NAPPO, Andrea & SWINNEN, Frank: After two centuries, a new native species of the family Cypraeidae (Mollusca: Gastropoda) from the Mediterranean Sea: <i>Schilderina ichnusa</i> n. sp. Wara żewġ sekli, speċi ġdida mill-familja Cypraeidae (Mollusca: Gastropoda) mill-Baħar Mediterran: <i>Schilderina ichnusa</i> n. sp.	47–53
MIFSUD, Constantine & OVALIS, Panayotis: Description of a new species of <i>Teinostoma</i> Adams & Adams, 1853 (Gastropoda: Littorinimorpha) from the eastern Mediterranean Sea, with a note on two primary homonyms in the genus. Deskrizzjoni ta' speċi ġdida ta' <i>Teinostoma</i> Adams & Adams, 1853 (Gastropoda: Littorinimorpha) mill-Baħar Mediterran tal-lvant, b'nota dwar żewġ omonimi primarji fil-generu.	54–57
CILIA, David P. & CACHIA, Charles: Contributions to the malacology of Malta, VII: on non-indigenous species (Planorbidae, Pristilomatidae, Clausiliidae) newly recorded from alluvial deposits. Kontribuzzjonijiet għall-malakoloġija ta' Malta, VII: dwar speċi mhux indigeni (Planorbidae, Pristilomatidae, Clausiliidae) irregistrati għall-ewwel darba minn depożiti alluvjali.	58–65
XERRI, Rochelle L., STEWART, Mathew, JOANNES-BOYAU, Renaud, VELLA, Nicholas & SCERRI, Eleanor M.L.: First Pleistocene records of a colubrid snake and wall lizard <i>Podarcis</i> cf. <i>filfolensis</i> (Bedriaga, 1876) (Reptilia: Colubridae, Lacertidae) from Għar il-Fkieren (FIMBank Site), Malta. L-ewwel reġistrazzjonijiet mill-Pleistoċenu ta' serp kolubridu u ta' gremxula <i>Podarcis</i> cf. <i>filfolensis</i> (Bedriaga, 1876) (Reptilia: Colubridae, Lacertidae) minn Għar il-Fkieren (sit ta' FIMBank), Malta.	66–74
CILIA, David P.: Scaling new heights: the unpublished herpetological drawings and notes of Guido G. Lanfranco (1930–2021). It-tpingijiet u n-noti erpetoloġiċi mhux ippubblikati ta' Guido G. Lanfranco (1930–2021).	75–87
BORG, John J.: The Conti bird collection: new additions to the national ornithological collections at the National Museum of Natural History, Mdina, Malta. Il-kollezzjoni tal-ġhasafar Conti: żidiet godda mal-Kollezzjonijiet ornitoloġiċi nazzjonali fil-Mużew Nazzjonali tal-Istorja Naturali, Mdina, Malta.	88–94