ISSN 2755-3531

Vol. 45, no. 6 **Journal of Conchology** 27 August 2026

Published by the Conchological Society of Great Britain and Ireland, established 1874

The historical collection of molluscs of the Estação de Biologia Marítima da Inhaca, southern Mozambique

Paolo G. Albano[1], Yara Tibiriçá[1,2], Daniela C. de Abreu[3,5], Sarah K.C. Kallmeyer[1], Irene Olivé[1], Alvaro A. Vetina[1,3], Queri Hojuane[4], José C. Dumbo[4,5], Emile Ammann[6] & Maria Vittoria Modica[1]

1 *Stazione Zoologica Anton Dohrn, Naples, Italy*
2 *Guam Center for Biodiversity Research Marine Laboratory, University of Guam, Guam, USA*
3 *Museu de História Natural de Maputo, Maputo, Mozambique*
4 *Estação de Biologia Marítima da Inhaca, Universidade Eduardo Mondlane, Inhaca Island, Mozambique*
5 *Departamento de Ciências Biológicas-Faculdade de Ciências, Universidade Eduardo Mondlane, Maputo, Mozambique*
6 *Department of Biology and Biotechnologies "Charles Darwin", Sapienza University of Rome, Italy*
Corresponding author: *Paolo G. Albano, paolo.albano@szn.it*

PGA https://orcid.org/0000-0001-9876-1024
YT https://orcid.org/0000-0003-3955-8186
DCA https://orcid.org/0000-0001-7279-8283
SKCK https://orcid.org/0009-0007-9321-7063
IO https://orcid.org/0000-0002-4865-923X
AAV https://orcid.org/0000-0001-5389-1618
QH https://orcid.org/0009-0004-5698-0244
JCD https://orcid.org/0000-0001-5787-3433
EA https://orcid.org/0009-0006-4744-1139
MVM https://orcid.org/0000-0003-2532-6763

Abstract. Natural history collections house records of the natural world that serve multiple purposes, from enabling taxonomic and biodiversity research to providing opportunities to reconstruct baselines and quantify change. Most collections occur in the Global North, but the highest biodiversity occurs in countries of the Global South. The few collections in the latter countries thus deserve special recognition and curation effort. Here, we describe the molluscan collection housed in the museum of the Estação de Biologia Marítima da Inhaca (EBMI) in southern Mozambique. EBMI was founded on Inhaca Island in 1951 and hosts a museum containing plants and animals mostly collected on the island since the station's foundation. The molluscan collection—completely revised during our work—comprises 986 lots with 4574 specimens representing 395 species, plus a single lot of brachiopods (2 specimens) stored with the molluscs. Gastropods and bivalves are the most represented classes, with 661 (66.9%) and 317 (32.1%) lots, respectively, but few lots of Polyplacophora, Scaphopoda, and Cephalopoda are also present. Importantly, most lots (613, 62.1%) have the date of collecting reported, with the median year of collecting being 1964, and 83% of samples were collected before 1974, making the collection a unique baseline to assess changes to molluscan assemblages on the island. All lots with locality data (446, 45.2%) come from Mozambique, and most (350, 35.5%) from Inhaca Island, but due to the history of the collection and the individuals who contributed samples, the lots without collecting data are deemed to come from Inhaca too. The syntypes of *Lutraria inhacaensis* Boshoff, 1965 (Bivalvia: Mactridae) were found in the EBMI collection. The type material of *Chama ratoi* Boshoff, 1965 (Bivalvia: Chamidae) and *Tagelus cunhai* Boshoff, 1965 (Bivalvia: Solecurtidae), originally reported from EBMI, were found in the Museu de História Natural de Maputo instead. The potential importance of the EBMI historical collection for studies on taxonomy, biodiversity, and sustainability is highlighted. It is a collection of regional importance and further curation and preservation is needed.

Key words. Natural history collections, taxonomy, type specimens, Mollusca, Bivalvia, Global South, south-eastern Africa

ZooBank identifier. urn:lsid:zoobank.org:pub:0E9B163B-5E50-4686-A9BC-49E6F9193040

DOI. https://doi.org/10.61733/jconch/4584

Introduction

Oceans are undergoing rapid changes due to human action at local to global scales (Jackson *et al.* 2001). The quantification of such changes requires the availability of baseline data. In their absence, we may assume as a baseline what we have experienced directly early in our personal and professional lives, ignoring longer histories of environmental degradation and biodiversity loss (the so-called "shifting baseline syndrome"; Pauly 1995). Time series of quantitative data are among the most suitable sources of information to determine the trajectories of ecosystems. Still, they are rarely available or do not predate major ecosystem shifts (Willis and Birks 2006; Steger *et al.* 2024; Thurstan *et al.* 2024). Alternative sources of information include archives, fishery logbooks, the literature, the young fossil record and—importantly—natural history collections (Navarro *et al.* 2025).

Natural history collections house, preserve, catalogue, and archive biological, geological, and anthropological specimens and objects that provide a physical record of biodiversity in the natural world (Monfils *et al.* 2017). Present-day collections stem from the 14th century Age of Exploration (Dalapicolla *et al.* 2025) and boomed under the Enlightenment drive to describe and understand the natural world in the early 18th century (Löbl 2018). Natural history collections facilitate the investigation of large-scale evolutionary, ecological, and biogeographic inquiries, support the development of robust taxonomies, enable comprehensive biodiversity cataloguing, and allow for the study of abiotic history and dynamics (Meineke *et al.* 2019; Miller *et al.* 2020). The preservation of samples collected over decades or centuries offers valuable insights into the historical diversity and composition of ecosystems. Most collections are hosted in the Global North, but museums and historical collections were built during colonial times also in the Global South and constitute a precious heritage for contemporary societies. This is particularly compelling, as many Global South countries are experiencing rapid socio-economic development, which is often accompanied by environmental degradation and biodiversity loss (IPBES 2019). Therefore, Global South natural history collections are particularly worthy of recognition and restoration because they are among the few sources of information on pre-impact conditions. Sub-Saharan Africa in particular hosts only 357 (3.3%) of the 10,929 collections registered in the Global Registry of Scientific Collections (https://scientific-collections.gbif.org/, last access 5 July 2026). In southeastern Africa, only 183 (1.7%) occur, most (112) in South Africa, making any collection in other countries particularly noteworthy.

The Estação de Biologia Marítima da Inhaca (EBMI) is located on the west coast of Inhaca Island in southern Mozambique. It is a marine field station managed by the Faculty of Science at the Universidade Eduardo Mondlane in Maputo. It is one of the very few marine field stations located in Global South countries (Tydecks *et al.* 2016). Established in 1951, the station hosts a museum that contains plants and animals mostly collected on the island since its foundation. The station has played a pivotal role in the development of marine sciences in Mozambique for many reasons. First, despite its small size (*c.* 40 km^2), Inhaca Island hosts multiple marine habitats, including diverse seagrass meadows, mangrove forests, coral reefs, and sand and mud flats in intertidal and shallow subtidal depths; there are both sheltered coast and shores exposed to the open ocean (Kalk 1995). This diversity of habitats makes Inhaca an ideal setting for research across multiple components of marine ecosystems. Second, the island was not affected by the civil war that raged through most of the country between 1977 and 1992, which allowed for the preservation of equipment and samples. Third, the proximity of Inhaca to the capital city, Maputo, and Mozambique's main international airport makes it easy to reach for both national and international scientists. Because of these favourable conditions, 70% of the scientific papers on marine biology produced in Mozambique until 2002 originated from research conducted on this island (Bandeira 2002). The scientific interest of Inhaca's biodiversity and the existence of the marine station and its museum were part of a positive feedback loop, whereby the depth of knowledge available from the island attracted additional research because of the availability of information to ground new studies. This was highlighted by UNESCO that reported that Inhaca's "scientific importance is greatly enhanced by the existence of detailed studies of the island's marine fauna and flora and of a vast reference collection in the museum and herbarium" (Halim 1984).

Here, we focus on the collection of molluscs (mostly marine but some terrestrial) in the museum of EBMI and describe this collection's history and extent. We figure the type specimens of three of the four bivalves described from the island.

Materials and Methods

Collection recovery and inventorying

The main mollusc collection had been arranged in display cases in the main room of the EBMI museum and in drawers under each case (Fig. 1A, B). However, numerous other samples, mostly collected by Armando R. Moura,

Figure 1. Historical collection of marine molluscs of the Estação de Biologia Marítima da Inhaca (EBMI), Inhaca Island, Mozambique. **A**, display cases containing the collection in the main museum room (as of March 2023). **B**, drawers under the display cases containing specimens. **C**, cardboard boxes containing part of the collection (as of March 2023). **D**, a sample of *Conus tessulatus* Born, 1778, showing collecting data written with China Ink on the inner lip of the aperture.

had been stored in cardboard boxes in other rooms of the museum building (Fig. 1C). We retrieved further samples from the cabinets in the laboratories. We revised each lot and retrieved data from labels accompanying the specimens (Fig. 1B) or on their boxes (Fig. 1C), or from annotations on the shells themselves (Fig. 1D) and entered them into a spreadsheet in September 2025. New labels containing inventory numbers, updated identifications, locality, date of collection, and collector were added to the specimens, and the old labels were preserved.

The identification of each lot was confirmed, often with the help of family-level specialists (see Acknowledgements), and the nomenclature updated according to the most current taxonomic literature (latest update in November 2024). Overall, most specimens are in very good condition (i.e. undamaged shells; gastropods with shiny apertures and vivid colours, and bivalves often with ligament and periostracum), indicating that most were live-collected. Localities were confirmed and georeferenced with Google Earth (WGS84 datum). The final dataset is available in the Darwin Core-compliant format (Wieczorek *et al.* 2012) (ESM 1; https://doi.org/10.5281/zenodo.20125870) and has been uploaded to the database of the Biodiversity Network of Mozambique (BioNoMo) that feeds the Global Biodiversity Information Facility (GBIF) (Malatesta *et al.* 2023) (https://tinyurl.com/ty6jk9ty).

Type specimens

Boshoff (1965) described four species of bivalves from Inhaca Island. We looked for the type specimens among the material at EBMI and found syntypes of *Lutraria inhacaensis* Boshoff, 1965. We expanded our search to include the Museu de História Natural in Maputo, where type material of *Chama ratoi* Boshoff, 1965 and *Tagelus cunhai* Boshoff, 1965 were found. Specimens were photographed with an SLR camera with macro lens.

Specimen data follow the standards set by Chester *et al.* (2019). We used the term "shell" to indicate a specimen without soft parts, irrespective of the fact that it may have been collected alive. For bivalves, "shell" means that the valves are paired. "Valve" is used to denote a single, unpaired bivalve shell. We used "individual" to indicate a specimen with soft parts. We remarked on the condition of the specimens and, thus, whether specimens had possibly been collected alive. The systematic order of the section on the type specimens follows Bouchet *et al.* (2010).

Abbreviations.

AP: anterior–posterior measurement (length) for bivalves.
EBMI: Estação de Biologia Marítima da Inhaca, Mozambique.
MHNMZ: Museu de História Natural de Maputo, Mozambique.
NMSA: Natal Museum, Pietermaritzburg, South Africa.
UV: umbo–ventrum measurement (height) for bivalves.

Results

Diversity and composition of the collection

The collection contains 986 lots and 4,574 specimens representing 395 species, plus a single lot of brachiopods (2 specimens) stored as part of the mollusc collection. Molluscs are represented by the five main shelled classes (Table 1).

All lots with locality data (446, 45.2%) come from Mozambique and most (350, 35.5%) from Inhaca Island. A few (15, 1.5%) come from locations near Maputo (Costa do Sol, Ponta do Ouro). A collection of 61 lots (6.2%) comes from Bartolomeu Dias (Inhambane province) and is mostly composed of beach-worn shells. There are 13 lots (1.3%) from other localities in Inhambane, Nampula, and Cabo Delgado provinces. Due to the history of the collection, samples without collecting data are deemed to have been collected at Inhaca Island.

Data for most lots (613, 62.1%) include a collection date, and most of these samples date back to the early decades of the existence of EBMI. Indeed, the median year of collection for these samples is 1964, and 83% of these were collected before 1974 (Fig. 2).

Origin of the collection

The collection originated from the efforts of numerous scientists, technicians and collectors:

- Pieter H. Boshoff (1913–?), probably South African; his papers were signed with a personal address, so it is unclear if he had an institutional affiliation. He published a revision of bivalves at Inhaca Island, stating that the material was at EBMI and described four new species from the Island (Boshoff 1965).
- Pauline Depelchin (—?), lecturer in the Faculty of Biology of the Universidade Eduardo Mondlane in Maputo in the 1980s where she developed studies on coral reef ecosystems and fishers' catch at Inhaca (Halim 1984).
- Manuel Gomes Guerreiro (1919–2000), forester and researcher who later served as director of the Scientific Research Institute of Mozambique from 1958 to the early 1960s.
- José Guerreiro (1958–), biologist at the University of Lisbon who contributed to studies of Inhaca Island's macrobenthos in mangroves and plankton communities (Guerreiro *et al.* 1996; Paula *et al.* 1998).

Table 1. Representation of molluscan classes in the historical collection of marine molluscs of the Estação de Biologia Marítima da Inhaca (EBMI), Inhaca Island, southern Mozambique.

Class	Lots	Species	Specimens
Polyplacophora	2 (0.2%)	1 (0.3%)	4 (0.1%)
Bivalvia	317 (32.1%)	118 (29.8%)	1022 (22.3%)
Scaphopoda	2 (0.2%)	1 (0.3%)	5 (0.1%)
Gastropoda	661 (66.9%)	276 (69.7%)	3537 (77.3%)
Cephalopoda	4 (0.4%)	3 (0.8%)	4 (0.1%)

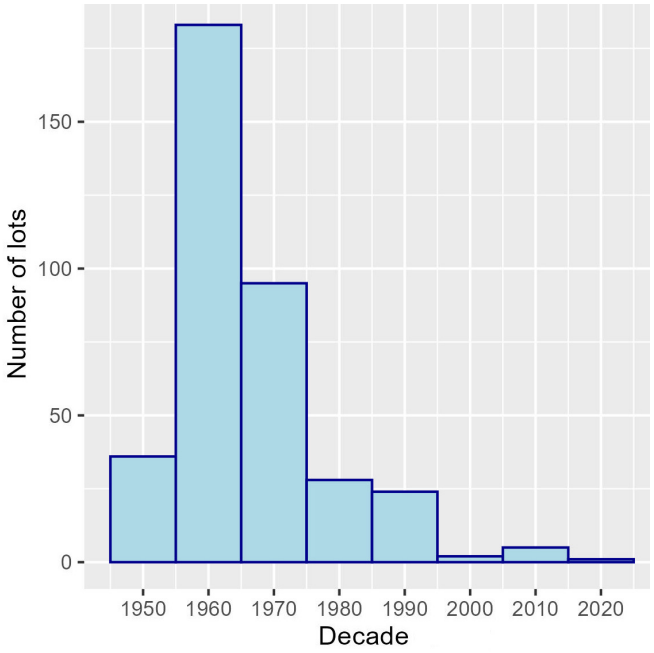

Figure 2. Distribution of the year of collection per decade of lots with collection date available (n = 613) in the mollusc collection of the Estação de Biologia Marítima da Inhaca (EBMI), Inhaca Island, southern Mozambique.

- Margaret Kalk (—?), University of Witwatersrand, South Africa, well known for editing three editions of *Natural History of Inhaca Island, Mozambique* (Macnae and Kalk 1958, 1969; Kalk 1995), the most complete book on the island, and for authoring multiple scientific papers on the marine ecology of Inhaca intertidal habitats (Kalk 1958, 1959; Macnae & Kalk 1962a, b).
- H.J. Koch (—?), Department of Zoology, University of Cape Town (in three lots misspelled as "J. Coch").
- Armando Reis Moura (—?), geologist at the Serviços de Geologia e Minas de Moçambique, who published a booklet on Inhaca Island, which included numerous details on and rich illustrations of seashells (Moura 1969). The collection had several cardboard boxes marked with his name.
- Paula Santana Afonso (1970–), biologist at the Instituto de Investigação Pesqueira in Maputo, Mozambique, and now biologist at the Food and Agriculture Organization (FAO).
- Haring J. Swart (1922–1993), mycologist at the University of Witwatersrand, South Africa, in 1952–1966, and then at the University of Melbourne, Australia, in 1966–1988.

A few samples were collected by "Benggen", which could be a misspelling of the malacologist A.C. van Bruggen (1929–2016), who was a specialist of land snails and who worked at the Natal Museum in 1962–1966; however, the lots with "Benggen" as their collector were collected in 1987. A few other samples were collected by the EBMI technicians Sérgio Mapanga, who was seconded from the Universidade Eduardo Mondlane, and Rungo Alberto, an inhabitant of the island and knowledgeable senior technician at EBMI for numerous years (the Mozambican writer Mia Couto wrote about his death in the short story *Rungo Alberto ao dispor da fantasia*). Additional collectors include José Cravo (Portuguese naturalist, who was the head of EBMI for some years), M.B. Cravo (Portuguese naturalist, possibly a relative of J. Cravo), A.J. Freitas (Portuguese naturalist), W. Marchan (biologist who worked with Margaret Kalk), D. Smith (also part of M. Kalk's team), and Sérgio Veiga (1953– , of Mozambican nationality). Additional names appearing on labels are C. Biane, P. Pinto, P. Winter, and Francisco, for whom we did not find biographic information.

Type specimens

Boshoff (1965) introduced four new names in his work on the bivalves of Inhaca Island. He specified that the material was stored at EBMI. We have found type material of three of these species, although type material for only one of these is extant in the EBMI collection. For two species, type specimens were found in the MHNMZ.

Class Bivalvia Linnaeus, 1758

Order Mytilida A. Férussac, 1822

Family Mytilidae Rafinesque, 1815

Lithophaga (*Diberus*) *barnardi* Boshoff, 1965

Original description. Boshoff (1965): 119–120, pl. 8.

Type material. MOZAMBIQUE • 1 shell, 1 single valve; Maputo Province, Inhaca Island; 26.0° S, 032.9° E; figured by Boshoff (1965); syntypes.

Remarks. Boshoff (1965) mentioned and illustrated the syntypes, but none have been found in either EBMI or MHNMZ. Boshoff declared this material had been deposited at EBMI, but it is currently missing. No material belonging to this taxon is stored in the NMSA (N. Manukuza pers. comm. April 2026). *Lithophaga barnardi* is considered a junior synonym of *Leiosolenus lima* (Jousseaume, 1919) (Huber 2010).

Order Venerida Gray, 1854

Family Chamidae Lamarck, 1809

Chama ratoi Boshoff, 1965

Figure 3

Original description. Boshoff (1965): 151–152, pl. 4.

Type material. MOZAMBIQUE • 3 shells, 2 separate valves; Maputo Province, Inhaca Island; 26.0° S, 032.9° E; inventory number MHNMZ.MOL.2025.VOU.0002; size of specimens in Figure 3: AP = 49.5 mm, UV = 65.9 mm; syntypes • 3 shells, 12 separate valves (possibly paired?); Maputo Province, Inhaca Island; "25.994722° S, 32.986018° E"; inventory number: NMSA-Mol 004243; syntypes • *c.* 30 shells; Maputo Province, Inhaca Island; 26.0° S, 032.9° E; mentioned and partly figured by Boshoff (1965); syntypes; location unknown.

Remarks. A specimen consisting of paired valves in MHNMZ has the markings "Ch. ratoi", "11", "4", and "Type" on the inside of the left valve (Fig. 3B). It had been evidently detached from sandstone, since remains of the substrate are still visible on the outside of the left valve. The insides of the valves appear very fresh, suggesting that the specimen may had been collected alive. The specimen is in the MHNMZ, notwithstanding that Boshoff stated that the holotype and syntypes had been deposited at EBMI and at the Natal Museum, respectively. Boshoff illustrated another complete but less elongated specimen with a different profile and con-

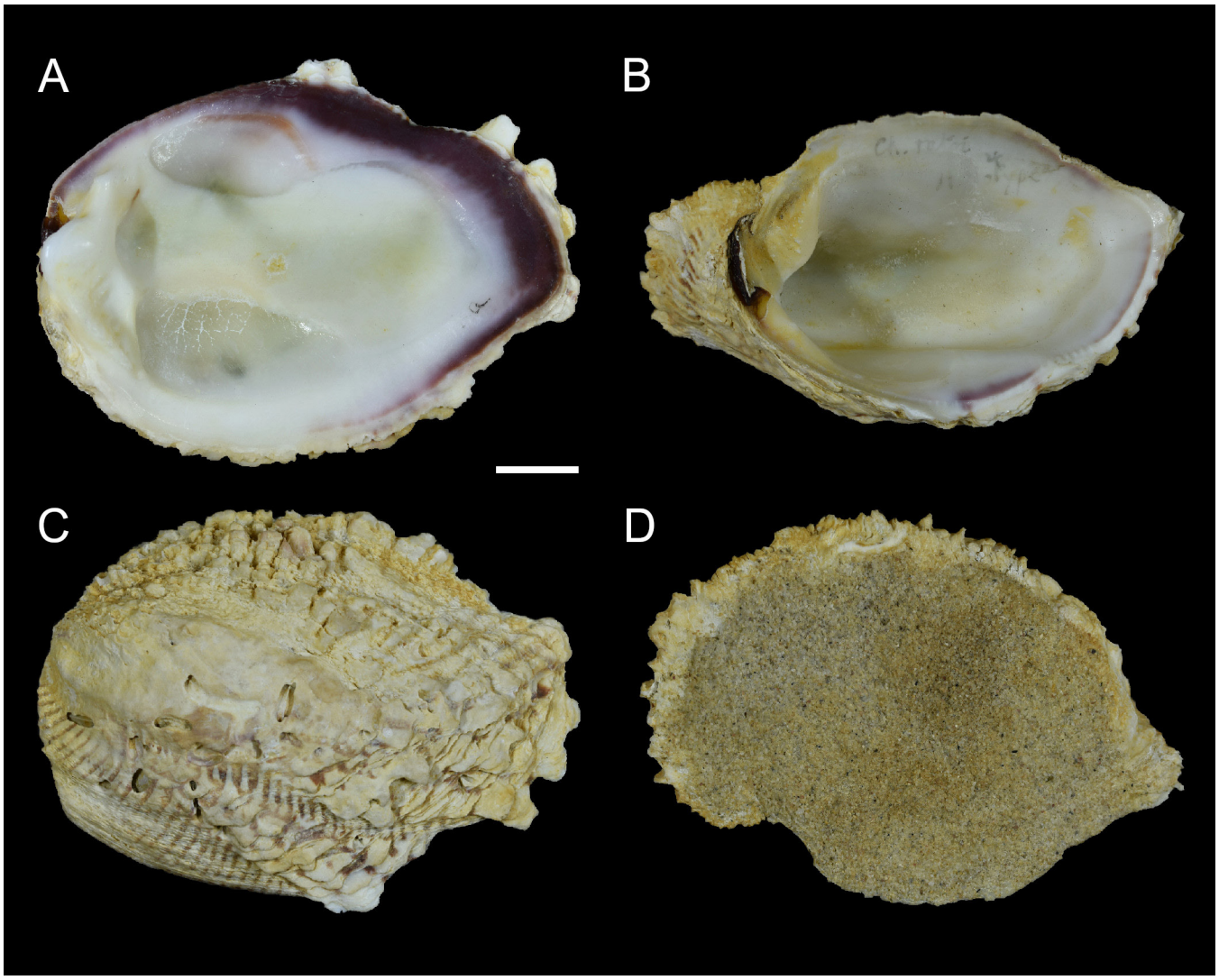

Figure 3. *Chama ratoi* Boshoff, 1965, syntype (MHNMZ.MOL.2025.VOU.0002), from Inhaca Island, Mozambique. **A**, interior of right valve. **B**, interior of left valve. **C,** exterior of right valve. **D**, exterior of left valve. Scale bar: 10 mm.

centric lamellae exceeding the valve margin. It also bears the mark "Typ" and the number "41" in China ink. Due to uncertainty of which specimen Boshoff actually regarded as the holotype, we consider all available specimens to be syntypes. Of the 57 syntypes mentioned in the original description, we have been able to trace only 20. *Chama ratoi* is currently considered a junior synonym of *Chama croceata* Lamarck, 1819 (Kilburn 1973).

Family Mactridae Lamarck, 1809

***Lutraria inhacaensis* Boshoff, 1965**
Figure 4

Original description. Boshoff (1965): 175–176, pl. 8.

Type material. MOZAMBIQUE • 4 separate valves; Maputo Province, Inhaca Island; 26.0° S, 032.9° E; AP = 95.8 mm, UV = 46.1 mm (Fig. 4A, B), AP = 94.5 mm, UV = 46.5 mm (Fig. 4C, D); AP = 78.4 mm, UV = 37.0 mm (Fig. 4E, F), AP = 83.8 mm, UV = 39.1 mm (Fig. 4G, H); EBMI. MOL.001003; syntypes • 1 shell (live-collected?); Maputo Province, Inhaca Island; "25.994722° S, 32.986018° E"; inventory number: NMSA-Mol004242; syntype • 1 separate valve; Maputo Province, Inhaca Island; "25.994722° S, 32.986018° E"; inventory number: NMSA-Mol008278; syntype.

Remarks. In the original description, Boshoff (1965) clearly stated that the holotype was deposited in the EBMI, and two valves (Fig. 4A–D) in the collection are so marked. Despite being a left and a right valve, they are long-dead shells, worn and with chipped margins, loss of internal shine,

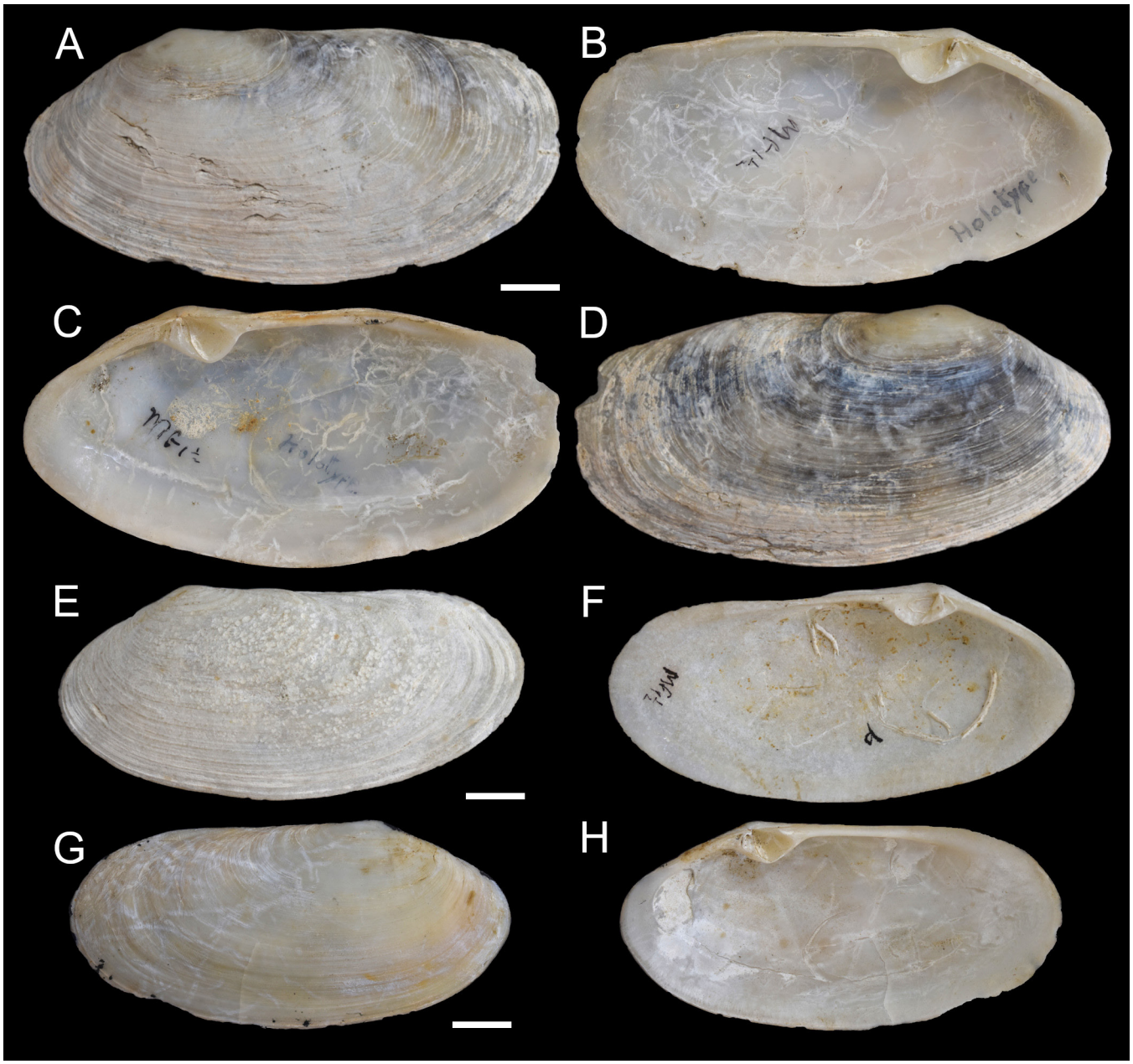

Figure 4. *Lutraria inhacaensis* Boshoff, 1965, syntypes (EBMI.MOL.001003), Inhaca Island, Mozambique. **A**, exterior of left valve. **B**, interior of eft valve. **C**, interior of right valve. **D**, exterior of right valve. **E**, exterior of left valve. **F**, interior of left valve. **G**, exterior of right valve. **H**, interior of right valve. Scale bars: 10 mm.

and marks of perforating sponges or serpulid worm cases or other biological activity on the inner surfaces of the valves. These valves lack a ligament and periostracum, and they are of slightly different size, making it unlikely that they belong to the same specimen. Therefore, we do not identify these valves as the holotype. We consider all material listed above as syntypes, based on the fact that the original description mentioned multiple specimens. Boshoff (1965) stated that type material was preserved in the NMSA, and the presence in that collection of two syntypes was confirmed by Kilburn (1973). *Lutraria inhacaensis* is currently considered a valid species (Signorelli 2021).

Family Solecurtidae

***Tagelus* (*Clunaculum*) *cunhai* Boshoff, 1965**
Figure 5

Original description. Boshoff (1965): 181–182, pl. 6.

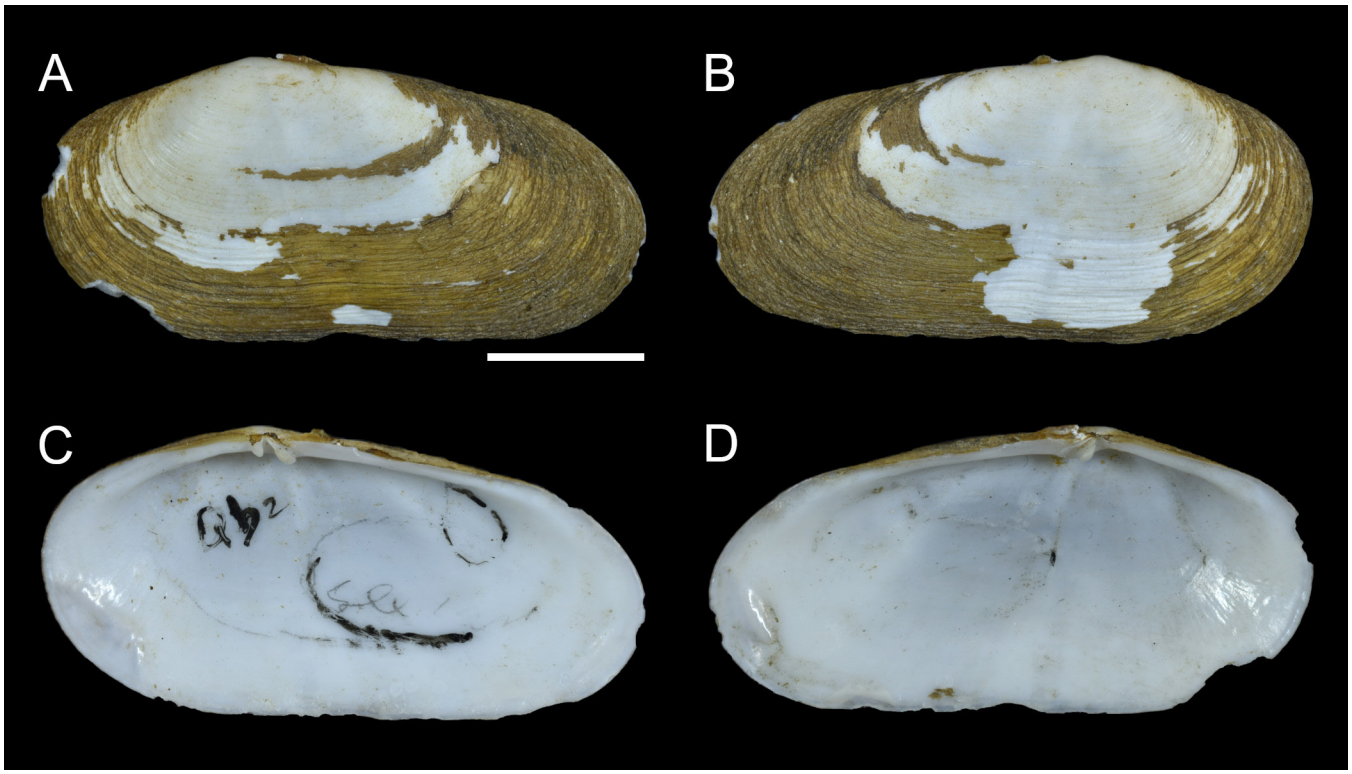

Figure 5. *Tagelus* (*Clunaculum*) *cunhai* Boshoff, 1965, holotype (MHNMZ.MOL.2025.VOU.0001), Inhaca Island, Mozambique. **A**, exterior of right valve. **B**, exterior of left valve. **C**, interior of right valve. **D**, interior of left valve. Scale bar: 10 mm.

Type material. MOZAMBIQUE • 1 shell; Maputo Province, Inhaca Island; 26.0° S, 032.9° E; inventory number MHNMZ.MOL.2025.VOU.0001; AP = 37.9 mm, UV = 18.0 mm (Fig. 5A, B); holotype, fixed by monotypy.

Remarks. The original description clearly referred to a single live-collected specimen. Indeed, we found a complete shell in the MHNMZ. The specimen matches the reported size and figure by Boshoff.

Discussion

The molluscan collection at EBMI represents a rare occurrence of a historical collection in a Global South institution. The collection, which dates back to the 1950s, with many samples collected in the 1960s and most collected before 1974, provides a unique baseline that preceded the civil war in Mozambique and the subsequent acceleration of threats to biodiversity—and climate warming in particular—in the last couple of decades. Together with the collection in the MHNMZ, yet to be inventoried but of comparable size, and a smaller, more recent (2006 to date) collection housed at the Universidade Lúrio in Pemba (Cabo Delgado province, northern Mozambique), the EBMI collection constitutes part of the Mozambique's publicly available malacological heritage. The presence of type specimens highlights its importance also for taxonomy.

Natural history collections are a source of primary biodiversity knowledge increasingly being used to quantify biodiversity loss (Johnson *et al.* 2023). The collection at EBMI is no exception: the comparison of the body size of specimens of edible molluscs collected at Inhaca between 2022 and 2024 with historical specimens in the collection enabled the quantification of overharvesting that could not have been recognised in the absence of this baseline (Albano *et al.* 2025). The relevance of these results—and of natural history collections in general—extends beyond the conservation of biodiversity. At Inhaca, for example, shellfish harvesting is carried out by women, and any impoverishment of the resource weakens their contribution to household income and nutrition (Ramoni-Perazzi *et al.* 2026).

The EBMI collection contains many more marine taxa, and the potential for the assessment of change is still far from tapped. For example, the extensive coral collection could complement other sources of information to describe the ephemeral coral assemblages reported at many locations around the island. Corals have been identified and described in the past, and some coral reefs have disappeared in the last

few decades (Tibiriçá *et al.* 2026). Additional marine taxa present in EBMI include echinoderms, crustaceans, fishes, and a few vertebrates, and these offer further potential for historical ecology and biodiversity research. EBMI also hosts a rich and valuable herbarium, including samples of seagrasses and mangroves.

Mozambique has a high biodiversity, both on land and at sea, which remains largely undocumented and with ample areas still insufficiently explored (Malatesta *et al.* 2023). Recent capacity-building efforts have been strengthening the infrastructure needed to study and protect biodiversity in the country. This strengthening includes, like in this case, making local biodiversity data accessible in public repositories, which not only benefits the global community of biodiversity scientists but also increases the worldwide visibility of Mozambican institutions. The international recognition of resources like the historical collection of the EBMI reinforces its role as a valuable source of data for taxonomy (holding valuable type specimens), for conservation (enabling the assessment of species occurrences of species), and for studies on sustainability (fundamental in a context where local and global pressures are increasing in magnitude and extent). While these collections are mostly inherited from colonial times, they constitute a valuable heritage to contemporary societies that should be preserved to contribute to the country's development.

Acknowledgements

We are grateful to Fabio Attorre, Gianluca Zaffarano and Silvio Cianciullo (University La Sapienza, Rome) for their role in setting up and managing the Conservation and Renovation for Biodiversity of Mozambique (COREBIOM) project, and to Lucilia Chuquela, Gabi Monteiro and Almeida Guissamulo (Museu de História Natural, Maputo) for their role in leading the local administrative aspects of the project. Carlos Bento and Erica Tovela (Museu de História Natural, Maputo) assisted with the provision of inventory numbers. Myriam Mbali Beck and Elisa Nocella (Stazione Zoologica Anton Dohrn) and Julia da Conceição Vasco Sitoe (Museu de História Natural, Maputo) helped with collection recovery. Salomão Bandeira (Universidade Eduardo Mondlane, Maputo) and Santos Mucave (formerly affiliated at EBMI) assisted in compiling information on contributors to the EBMI collection. Bernard Garrigues (Muricidae), David G. Herbert (Achatinidae, Ampullariidae, Ellobiidae, Phasianellidae, Turbinidae), Ronald Houart (Muricidae), Marco Passamonti (Cypraeidae), Jan Johan ter Poorten (Cardiidae), José Rosado (*Ancilla*, Terebridae), Richard Salisbury (Costellariidae), John Taylor (Lucinidae), and Manuel Tenorio (Conidae) helped with the identification of some specimens. Nelisiwe M. Manukuza and John Midgley, Natal Museum, kindly assisted in tracing type specimens in the collection under their responsibility. Ilaria Albano prepared the figures. Luca Malatesta uploaded the data in BioNoMo. We also thank Martin Zuschin and Anna Holmes for comments on the first version of the manuscript, and Robert Forsyth for his accurate editing.

The present study is a part of the research activity of the COREBIOM project financed by the Ministry of Foreign Affairs and International Cooperation (MAECI) through the Italian Agency for Development Cooperation (AICS).

References

Albano PG, Kallmeyer SKC, Vetina AA, Tibiriçá Y, de Abreu DC, Modica MV. 2025. A unique historical baseline uncovers harvesting impacts on intertidal molluscs at Inhaca Island, southern Mozambique. *ICES Journal of Marine Science* **82** (11): fsaf206. doi: 10.1093/icesjms/fsaf206

Bandeira SO. 2002. Diversity and distribution of seagrasses around Inhaca Island, southern Mozambique. *South African Journal of Botany* **68** (2): 191–198. doi: 10.1016/S0254-6299(15)30419-1

Boshoff PH. 1965. Pelecypoda of Inhaca Island, Moçambique. *Memórias do Instituto de Investigação Cientifica de Moçambique* **7** (Série A): 1–206.

Bouchet P, Rocroi JP, Bieler R, Carter JG, Coan EV. 2010. Nomenclator of bivalve families with a classification of bivalve families. *Malacologia* **52** (2): 1–184. doi: 10.4002/040.052.0201

Chester C, Agosti D, Sautter G, Catapano T, Martens K, Gérard I, Bénichou L. 2019. EJT editorial standard for the semantic enhancement of specimen data in taxonomy literature. *European Journal of Taxonomy* **586**: 1–22. doi: 10.5852/ejt.2019.586

Dalapicolla J, Felipe-Silva JL, Costa VA, Percequillo AR. 2025. Growing prominence of natural history collections in the Global South: impacts on the taxonomy of Neotropical non-volant small mammals. *Biological Journal of the Linnean Society* **146** (1): blaf076. doi: 10.1093/biolinnean/blaf076

Guerreiro J, Freitas S, Pereira P, Paula J, Jr AM. 1996. Sediment macrobenthos of mangrove flats at Inhaca Island, Mozambique. *Cahiers de Biologie Marine* **37**: 309–327.

Halim Y. 1984. *Marine Sciences.* People's Republic of Mozambique. Development of National and Regional Infrastructures in the Marine Sciences RP/1981–1983/2/7.4/04, Paris, iii–91. pp.

Huber M. 2010. *Compendium of Bivalves. A full-color Guide to 3,300 of the World's Marine Bivalves: a Status on Bivalvia After 250 Years of Research.* Conchbooks, Hackenheim, 901 pp.

IPBES. 2019. Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem ServicesIPBES Secretariat, Bonn, Germany, 1144 pp. doi: 10.5281/zenodo.6417333

Jackson JBC, Kirby MX, Berger WH, Bjorndal KA, Botsford LW, Bourque BJ, Bradbury RH, Cooke R, Erlandson J, Estes JA, Hughes TP, Kidwell S, Lange CB, Lenihan HS, Pandolfi JM, Peterson CH, Steneck RS, Tegner MJ, Warner RR. 2001. Historical overfishing and the recent collapse of coastal ecosystems. *Science* **293** (5530): 629–638. doi: 10.1126/science.1059199

Johnson KR, Owens IFP, The Global Collection Group. 2023. A global approach for natural history museum collections. *Science* **379** (6638): 1192–1194. doi: 10.1126/science.adf6434

Kalk M. 1958. Ecological studies on the shores of Moçambique. I. The fauna of intertidal rocks at Inhaca Island, Delagoa Bay. *Annals of the Natal Museum* **14** (2): 189–242.

Kalk M. 1959. The zoogeographical composition of the intertidal fauna at Inhaca Island, Moçambique. *South African Journal of Science* **55** (7): 178–180.

Kalk M (ed). 1995. *A Natural History of Inhaca Island, Mozambique, Third Edition.* Witwatersrand University Press, Johannesburg, South Africa, xiv + 395 pp.

Kilburn RN. 1973. The type material of South African marine Mollusca in the Natal Museum collection. Part 1. Bivalvia. *Annals of the Natal Museum* **21** (3): 697–711. doi: 10.10520/aja03040798_645

Löbl I. 2018. Assessing biotic diversity: the glorious past, present, and the uncertain future. *Bulletin of the Entomological Society of Malta* **10**: 5–15. doi: 10.17387/bullentsocmalta.2018.01

Macnae W, Kalk M (Eds). 1958. A natural history of Inhaca Island, Moçambique. Witwatersrand University Press, Johannesburg, South Africa, iii–164 pp.

Macnae W, Kalk M. 1962a. The fauna and flora of sand flats at Inhaca Island, Moçambique. *The Journal of Animal Ecology* **31** (1): 93. doi: 10.2307/2334

Macnae W, Kalk M. 1962b. The ecology of the mangrove swamps at Inhaca Island, Moçambique. *Journal of Ecology* **50** (1): 19–34. doi: 10.2307/2257188

Macnae W, Kalk M (Eds). 1969. A natural history of Inhaca Island, Moçambique, Revised edition ed. Witwatersrand University Press, Johannesburg, South Africa, iii–163 pp.

Malatesta L, Alves T, Attorre F, Brito D, Cianciullo S, Datizua C, De Abreu D, De Felici S, De Sousa C, Langa C, Mate B, Matimele H, Nicosia E, Odorico D, Raiva R, Sandramo D, Santana Afonso P, Sardinha C, Souane J, Timane R, Tomo G, Ntumi C. 2023. BioNoMo: the Biodiversity Network of Mozambique. *Rendiconti Lincei Scienze Fisiche e Naturali* **34** (1): 69–80. doi: 10.1007/s12210-023-01144-6

Meineke EK, Davies TJ, Daru BH, Davis CC. 2019. Biological collections for understanding biodiversity in the Anthropocene. *Philosophical Transactions of the Royal Society B: Biological Sciences* **374** (1763): 20170386. doi: 10.1098/rstb.2017.0386

Miller SE, Barrow LN, Ehlman SM, Goodheart JA, Greiman SE, Lutz HL, Misiewicz TM, Smith SM, Tan M, Thawley CJ, Cook JA, Light JE. 2020. Building natural history collections for the twenty-first century and beyond. *BioScience* **70** (8): 674–687. doi: 10.1093/biosci/biaa069

Monfils AK, Powers KE, Marshall CJ, Martine CT, Smith JF, Prather LA. 2017. Natural history collections: teaching about biodiversity across time, space, and digital platforms. *Southeastern Naturalist* **16** (sp10): 47–57. doi: 10.1656/058.016.0sp1008

Moura A. 1969. *A Ilha da Inhaca, Moçambique*. Instituto de Investigação Científica de Moçambique, Laurenço Marques, Moçambique, 20 pp.

Navarro LM, Armstrong CG, Changeux T, Frisch D, Gil-Romera G, Kaim D, McClenachan L, Munteanu C, Szabó P, Baranov V, Blanco-Garrido F, Camarero JJ, García MB, Grace M, Izdebski A, Morueta-Holme N, Pando F, Schouten R, Spitzig A, Svenning JC, Tribot AS, Viana DS, Clavero M. 2025. Integrating historical sources for long-term ecological knowledge and biodiversity conservation. *Nature Reviews Biodiversity* **1**: 657–670. doi: 10.1038/s44358-025-00084-3

Paula J, Pinto I, Guambe I, Monteiro S, Gove D, Guerreiro J. 1998. Seasonal cycle of planktonic communities at Inhaca Island, southern Mozambique. *Journal of Plankton Research* **20** (11): 2165–2178. doi: 10.1093/plankt/20.11.2165

Pauly D. 1995. Anecdotes and the shifting baseline syndrome of fisheries. *Trends in Ecology & Evolution* **10** (10): 430. doi: 10.1016/S0169-5347(00)89171-5

Ramoni-Perazzi J, Orlandoni-Merli G, Soto-Werschitz A, Crescenzi D, Munissa D, Gonca G, Mazuze G, Alberto M, Bernardini N, Camale N, Nanvonamuquitxo S, Attorre F, Nicosia E, Mapanga SF, Ramoni-Perazzi P. 2026. Socioeconomics of artisanal fishery and shellfish collection in Mozambique: a gender perspective from Inhaca Island. *Sustainability* **18** (2): 578. doi: 10.3390/su18020578

Signorelli JH. 2021. The family Mactridae Lamarck, 1809 (Bivalvia: Cardiida) in South African waters. *Malacologia* **63** (2): 195–223. doi: 10.4002/040.063.0204

Steger J, Bogi C, Lubinevsky H, Galil BS, Zuschin M, Albano PG. 2024. Ecological baselines in the Eastern Mediterranean Sea shifted long before the availability of observational time series. *Global Change Biology* **30** (4): e17272. doi: 10.1111/gcb.17272

Thurstan RH, McCormick H, Preston J, Ashton EC, Bennema FP, Cetinić AB, Brown JH, Cameron TC, Costa F da, Donnan DW, Ewers C, Fortibuoni T, Galimany E, Giovanardi O, Grancher R, Grech D, Hayden-Hughes M, Helmer L, Jensen KT, Juanes JA, Latchford J, Moore ABM, Moutopoulos DK, Nielsen P, Nordheim H von, Ondiviela B, Peter C, Pogoda B, Poulsen B, Pouvreau S, Roberts CM, Scherer C, Smaal AC, Smyth D, Strand Å, Theodorou JA, Ermgassen PSE zu. 2024. Records reveal the vast historical extent of European oyster reef ecosys-

tems. *Nature Sustainability* **7**: 1–11. doi: 10.1038/s41893-024-01441-4

Tibiriçá Y, Sola E, Abreu D de, Modica MV, Albano PG. 2026. Long-term shifts in turbid-water reefs along an ocean-bay gradient in the western Indian Ocean (Inhaca Island, southern Mozambique). *Bulletin of Marine Science* **102** (3): 337–356. doi: 10.5343/bms.2025.0074

Tydecks L, Bremerich V, Jentschke I, Likens GE, Tockner K. 2016. Biological field stations: a global infrastructure for research, education, and public engagement. *BioScience* **66** (2): 164–171. doi: 10.1093/biosci/biv174

Wieczorek J, Bloom D, Guralnick R, Blum S, Döring M, Giovanni R, Robertson T, Vieglais D. 2012. Darwin Core: an evolving community-developed biodiversity data standard. *PLoS ONE* **7** (1): e29715. doi: 10.1371/journal.pone.0029715

Willis KJ, Birks HJB. 2006. What is natural? The need for a long-term perspective in biodiversity conservation. *Science* **314** (5803): 1261–1265. doi: 10.1126/science.1122667

Manuscript received: 11 May 2026
Revised manuscript accepted: 17 August 2026
Editor: Robert Forsyth

Supplemental File

ESM1 – EBMI molluscan collection DarwinCore.ods
The dataset contains the collecting data of the collection of molluscs and brachiopods stored at the Estação de Biologia Marítima da Inhaca, southern Mozambique. https://doi.org/10.5281/zenodo.20125870