

I CONGRESSO CONGIUNTO DELLE SOCIETÀ  
MALACOLOGICHE DEL MEDITERRANEO

*“Contributi alla storia della malacofauna mediterranea”*

**Genova, 12-16 Novembre 2000**  
**Sala dei Chierici, Biblioteca Berio**

ABSTRACTS

**SEGRETERIA SCIENTIFICA:** Bruno Sabelli

**SEGRETERIA ORGANIZZATIVA:** Mauro Brunetti  
Gabriella Cirone

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**SI RINGRAZIA PER LA COLLABORAZIONE:**

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## PROGRAMMA

**DOMENICA 12 NOVEMBRE 2000**

**10.00 Consiglio Direttivo S.I.M. presso DIP.TE.RIS Università di Genova**

**Arrivo partecipanti**

**Sistemazione negli alberghi**

**Cena e serata libera**

**LUNEDÌ 13 NOVEMBRE 2000**

**08.00 Registrazione partecipanti**

**09.00 Saluto delle Autorità**

**10.00 Inizio Comunicazioni: Chairman Prof. Bruno Sabelli**

GIANNUZZI-SAVELLI R.

**Monterosato e i suoi tempi**

BELLO G., PAPARELLA P. & VACCARELLA R.

**Man-induced variations in the Adriatic malacofauna**

SOLUSTRI C. & MORELLO E.

**First record of *Anadara demiri* (Piani, 1981) (Bivalvia: Arcidae) in Italian waters**

**11.00 Coffee break**

**11.30 Ripresa lavori congressuali**

BRUNETTI M., CIRONE G. & DABOVE G.

**La Collezione paleontologica del Museo Perrando di Sassello (SV)**

MURILLO L.

**Spawn and development of *Ascobulla fragilis* (Gastropoda, Opisthobranchia, Sacoglossa)**

BACCHETTA R., MANTECCA P. & VAILATI G.

***Dreissena polymorpha* in Italy: first data on its reproductive behaviour**

**12.30 Buffet**

**13.30 Visita guidata alla Biblioteca Berio**

**14.30 Presentazione poster**

DAGNINO M., PECORARO P. & SOSSO M.

**I Molluschi nella scuola materna: un'esperienza grafica**

GÓMEZ B.J., JAVIER C. & MADEIRA M<sup>a</sup> J.

**Phylogenetic analysis of the genus *Pyrenaea* according to mitochondrial DNA sequence data. Preliminary studies**

LARRAZ AZCÁRATE M.L.

**Lecároz School Collection donated to the Zoology Department of the University of Navarra (Spain)**

LÓPEZ M. A. & ALTABA C.R.

**Fish host determination for *Margaritifera auricularia***

MOREIRA J., TRONCOSO N. & TRONCOSO J. S.

**Vertical distribution of Mollusca in a *Zostera marina* L. bottom in Ensenada de Baiona (Galicia, NW Spain)**

MORENO D. & RAMOS M.A.

**Recent data on the distribution of *Theba subdentata helicella* (Wood, 1828)**

**(Gastropoda, Helicidae) in Almeria (Spain)**

PESQUEIRA R., HERMIDA J. & ONDINA P.

**The Superfamily Helicoidea, Rafinesque 1815 (Gastropoda, Pulmonata, Stylommatophora) in the Province of Lugo (NW) of the Iberian Peninsula**

Pesqueira R., Rodríguez T. & Outeiro A.

**The Family Agriolimacidae Wagner, 1935 (Gastropoda, Pulmonata) in the Province of Lugo (NW of Iberian Peninsula)**

PUENTE A. I., GÓMEZ B., ALTONAGA K. & PRIETO C.

**On the problem of the genus *Iberus* Montfort, 1810 (Gastropoda, Helicidae)**

SAN MIGUEL E., FERNÁNDEZ C., AMARO R., HERMIDA M., LONGA M.A., FERNÁNDEZ A. & ZIUGANOV V.

**Growth rates from several populations of the freshwater pearl mussel (*Margaritifera margaritifera*) in Galicia (northwestern Spain)**

SOLUSTRI C.

**First record of *Astarte fusca* (Poli, 1795) in the Central Adriatic Sea**

SOSSO M., SCHIAPARELLI S., BRUNETTI M. & CIRONE G.

**Nuovi records di *Sansonia italica* (Mollusca: Pickworthiidae) per il Pliocene italiano (Liguria occidentale)**

TRONCOSO N, VAN GOETHEM J.L. & TRONCOSO J.S.

**Subantarctic molluscs from Kerguelen Island belonging to the collection of the Royal Belgian Institute of Natural Sciences**

**16.30 Coffee break**

**17.00 Comunicazioni: Chairman Riccardo Giannuzzi-Savelli**

BARBAGLI F., SANTAMARIA S. & VIOLANI C.

**La collezione di Molluschi non marini di Arturo Issel**

RAIMONDI S.

**Presentazione di un software dedicato all'ordinamento delle collezioni di malacologia**

SCHIAPARELLI S., CATTANEO-VIETTI R., ARILLO A., ORSI L. & ALBERTELLI G.

**La Collezione Malacologica del Regio Museo di Storia Naturale dell'Università di Genova: uno studio preliminare**

**18.00 visita Museo Antartide**

**21.00 Cena e serata libera**

**MARTEDÌ 14 NOVEMBRE 2000**

**09.00 Tavola Rotonda "conservazione dei beni naturalistici e paleontologici in campo malacologico" Moderatore: Dr. Valter Raineri**

**Interventi di:**

**Cristian Ruiz Altaba**

**Maria Cristina Bonci**

**Daniele Bedulli**

**Angiolo Del Lucchese**

**Contrammiraglio Raimondo Pollastrini**

**Bruno Sabelli**

**11.00 Coffee break**

**Ripresa lavori**

**12.30 Buffet**

**14.00 Visita alla Capitaneria di Porto di Genova e tour del Porto sulle motovedette della Guardia Costiera**

**16.30 Proiezione di diapositive a cura di Sergio Angeletti**

**17.30 Comunicazioni: Chairman Dr. Emilio Rolán**

DELL'ANGELO B. & MARQUES DA SILVA C.

**Polyplacophora from the Upper Pliocene (Piacenzian) of the Vale de Freixo: Central-West Portugal**



TERZER G.

**La Famiglia Olividae: uno sguardo d'insieme**

**18.30 Chiusura lavori**

**21.00 Cena e serata libera**

**MERCOLEDÌ 15 NOVEMBRE 2000**

**09.00 Inizio Comunicazioni Chairman: Dr. Marco Oliverio**

TEMPLADO J.

**A critical review of exotic Mediterranean Opisthobranch Gastropods**

ALTABA RUIZ C.

**Conservation of molluscs in the Western Mediterranean**

LA PERNA R.

**Bathyal nukuloid communities from the Mediterranean Quaternary**

CATTANEO-VIETTI R., SCHIAPARELLI S. & CHIANTORE M.

**Possible Anomalies in the distribution of the Mediterranean Nudibranchs**

BASSIGNANI F., BEDULLI D. & MESORACA M.

**The Census of Italian Marine Molluscs (Censimento della Malacofauna Marina Italiana): a biogeographical analysis**

BONFITTO A. & SABELLI B.

***Epitonium (Asperiscala ?) oliverioi*, a new species of Epitoniidae from Madagascar living under mushroom corals**

**11.00 Coffee break**

**11.30 Ripresa lavori congressuali**

CATTANEO-VIETTI R., PASSANO G., SCHIAPARELLI S. & CHIANTORE M.

**Larval development of *Peltodoris atromaculata* (Nudibranchia: Doridacea)**

BEDULLI D., BERTELLI A. & BASSIGNANI F.

**Rare species in the Census of Italian Marine Molluscs ("Censimento della Malacofauna Marina Italiana")**

BRUNETTI M., CIRONE G. & SOSSO M.,

***Cyclostremiscus dariae* (Liuzzi & Zucchi Stolfa, 1979) nel Pliocene di Zinola (Savona, Italia Nord Occidentale)**

**12.30 Buffet**

**14.00 Proiezione di Diapositive "I molluschi di Cabo de Gata" a cura di Diego Moreno**

**15.00 Comunicazioni: Chairman Prof. Daniele Bedulli**

OLIVERIO M. & MARIOTTINI P.

**Sistematica dei muricoidi correlati a *Coralliophila*: dati molecolari nucleari e mitocondriali**

BODON M. & CIANFANELLI S.

**Idrobiidi freatobi del bacino del fiume Magra (Liguria-Toscana) (Gastropoda: Prosobranchia: Hydrobiidae)**

**16.00 Chiusura lavori congressuali e consegna attestati**

**16.30 Visita alla città di Genova offerta dall'Ufficio Turismo e Spettacolo-Promozione della città' del Comune di Genova con visita ai Musei di Palazzo Rosso e Palazzo Bianco offerta dall'Assessorato alla Cultura – Settore Musei del Comune di Genova.**

**20.30 Cena sociale presso il Ristorante "I Tre Merli" Porto Antico**

**GIOVEDÌ 16 NOVEMBRE 2000**

- 10.00 Partenza con battello dal Porto di Genova Banchina Acquario**
  - 11.00 Arrivo a San Fruttuoso di Camogli con sosta per visita Abbazia**
  - 13.00 Partenza per Portofino**
  - 13.15 Visita a Portofino (colazione al sacco)**
  - 16.00 Partenza per Genova**
  - 17.15 Arrivo al Porto di Genova Banchina Acquario**
  - 17.30 Visita all'Acquario**
  - 21.00 Cena e serata libera**
- In caso di maltempo sarà predisposto un programma alternativo**



# COMUNICAZIONI



## CONSERVATION OF MOLLUSCS IN THE WESTERN MEDITERRANEAN

**Cristian R. Altaba**

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### ABSTRACT

The molluscan fauna of the Western Mediterranean region is one of the most diverse, yet some of its components also rank among the most endangered worldwide. A complex geological history has led to high endemism among freshwater, terrestrial and marine taxa. True and ecological islands contribute disproportionately to this richness. A review is made of molluscan biodiversity and its current conservation status, first in the sea, and then in non-marine environments across the area's different countries. The marine habitats of the Mediterranean have suffered from overexploitation, pollution, destruction by public works, and exotic species. Some species have experienced local declines, and a few are protected or its catch regulated, but none appears to be endangered. Outside of narrow endemics (such as *Gibbula nivosa*) and popular targets (such as *Patella ferruginea* and *Pinna nobilis*), there appears to be little justification for species protection, but ample for habitat conservation, even through mollusc indicators (such as *Lithophaga lithophaga*). Italy has a large number of local endemics and is exceptionally well-known, although undoubtedly there are still gaps in this knowledge. The case of *Melanopsis etrusca* is illustrative: this extremely relevant species was well known to early malacologists, then fell into apparent oblivion, and only because of recent interest can now be saved from extinction. Virtually all of the French fauna was described by enthusiastic practitioners of the "nouvelle école", who left a taxonomic conundrum that hampered further study. Yet, it is clear that the Alpine, Mediterranean and Pyrenean regions contain large numbers of restricted-range endemics, and riverine communities have been deeply altered. Although there are still large tracts of relatively natural landscapes in Spain, economic development has caused much environmental damage. This is shown by *Bofilliella subarcuata* and *Unio aleroni*, two extremely rare endemics of the eastern Pyrenean region. In spite of problems to promote a sound legislation, conservation projects are becoming an example of how to reverse such trends. Such is the case of *Margaritifera auricularia*, whose ecology is now sufficiently known to start an active restocking programme. The insular faunas, in contrast with the situation in other regions, have suffered no extinctions due to colonization by humans. The only exception is Eivissa, which must be considered a para-oceanic island. North Africa hosts large but poorly known faunas. Yet, it is clear that widespread habitat destruction is leading to mass extinctions among freshwater and forest dwellers. Current threats include touristic development in Tunisia, uncontrolled wild fires in Algeria, and damming and pollution in Morocco. There is an urgent need for conservation action in these countries, in order to save species on the edge of extinction, such as *Margaritifera maroccana*.

***DREISSENA POLYMORPHA* IN ITALY: FIRST DATA ON ITS REPRODUCTIVE BEHAVIOUR**

**Renato Bacchetta, Paride Mantecca & Giovanni Vailati**

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**ABSTRACT**

First observations of the zebra mussel *Dreissena polymorpha* in Italy were recorded at the end of the '60s in Lake Garda. In a few years this bivalve colonized the Italian sub-alpine lakes and Northern rivers.

Except for some studies, still ongoing at the Department of Biology, University of Milan, no data are available about the reproductive cycle of *Dreissena* in the South Alps.

The aim of this work is to evaluate the timing of gonadal changes and spawning events in two *Dreissena* populations in Lake Como and Lake Iseo during 1999 by histological examination of the gonads.

The reproductive cycle is articulated in a winter phase, in which gametes are developing; a maturation phase, from late spring to full summer, which is a peak with gametes deposition, followed by a spent stage in fall, shorter in females than males.

The onset of the reproductive season is a highly synchronous phenomenon in the two sexes in both populations studied and it coincides with the early days of May when the histological analysis of the ovary and testes showed that the release of the gametes had occurred.

In both localities gametes deposition started when water temperature exceeded 12-13°C, attesting to the importance of this parameter as a trigger for the onset of reproduction.

While in the Lake Como zebra mussel population two main reproductive events are clearly evident, in the Lake Iseo population, reproduction seems to be a rather continuous phenomenon.

The reproductive season stopped at the end of July in both populations even though at this time in Lake Iseo the restarting of oogenesis is already detectable.

Spent stage is shorter in the Lake Iseo mussels with respect to those in Lake Como, probably due to different food availability.

Results obtained in this study show a similar reproductive behaviour between the zebra mussel sub-alpine lake populations and Central Europe *Dreissena polymorpha* populations.

**LA COLLEZIONE DI MOLLUSCHI NON MARINI DI ARTURO ISSEL**

**Fausto Barbagli \*, Stefania Santamaria \* & Carlo Violani \*\***

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\*\* Dipartimento di Biologia Animale, Università degli Studi di Pavia, Piazza Botta 9, 27100, Pavia, Italia

**RIASSUNTO**

Gli autori illustrano sinteticamente il valore storico-scientifico e la consistenza della Collezione di conchiglie terrestri e d’acqua dolce radunata dal naturalista e geologo Arturo Issel (1842-1922) a partire dal 1857 e da lui ceduta nel 1893 al Museo di Storia Naturale dell’Università di Pavia. La Collezione, recentemente restaurata e riordinata, è rimasta per lungo tempo sconosciuta agli specialisti; essa comprende attualmente 12.759 esemplari, distribuiti in 2979 campioni, provenienti da 56 nazioni; i molluschi italiani sono rappresentati da 1591 campioni; altro materiale proviene dalla Francia, Tunisia, Turchia, Malta, Persia, Portogallo, Svizzera, etc. Il materiale tipico presente in collezione consiste di 31 campioni appartenenti a 28 taxa descritti da Issel (23 campioni contengono sintipi, mentre 4 sono olotipi; un campione di sintipi è andato perduto).



**BIOGEOGRAPHICAL ANALYSIS**

**Filippo Bassignani, Daniele Bedulli and Maria Mesoraca**

**Dipartimento di Biologia Evolutiva e Funzionale - Università di Parma.**

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**ABSTRACT**

Species richness is the only component of biodiversity that can be considered on large spatial and temporal scale. Species richness of Italian Marine Malacofauna is analysed by means of data collected by members of the Italian Malacological Society (SIM - Società Italiana di Malacologia). These data are ordered in the database “Censimento della Malacofauna Marina delle Coste Italiane” (Census of Italian Marine Malacofauna) created by the authors in collaboration with ENEA (Organisation for New Technology, the Energy and the Environment) and managed by the ENEA. This database is accessible free of charge in the web site:

“<http://estaxp.santateresa.enea.it/www/censim/censimento.html>”.

The Census contains about 20.000 records concerning 901 species sampled in 663 locality around the whole Italian coastal perimeter. The description and distribution of the most common species and the distribution of data according to substrata, habitats and collecting methods are showed. Elaboration of our data enabled us to formulate an index to measure species richness and to define regions, ecosystems and sea with higher species richness. Other results consider distribution of species found in only one region and distribution of species defined “critical” according to recent studies.

## **Rare species in the Census of Italian Marine Molluscs (“Censimento della Malacofauna Marina Italiana”)**

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### **ABSTRACT**

We analyse data collected by members of the Italian Malacological Society (SIM Società Italiana di Malacologia) for the Census of Italian Marine Malacofauna (“Censimento della Malacofauna Marina Italiana”). These data are ordered in a database created and managed by the authors. Our study is focused exclusively on the following taxa: Polyplacophora, Gastropoda Prosobranchia and Bivalvia. We show the results obtained from a comparison between the species in the Censimento della Malacofauna Marina Italiana and the Checklist of Italian Fauna Species (Minelli et al. 1995). Species present in Checklist and absent from the Census are listed and taxonomic distribution and their taxonomic features are analysed. In order to explain the absence of species in the census, several hypothesis related to their ecology (i. e. habitat selection and bathimetric distribution) and morphology are discussed in relation to the published data available.

Another result we obtained is the list of the most rare species sampled in the census with some analysis on their distribution, ecology and taxonomical and morphological features.

## MAN-INDUCED VARIATIONS IN THE ADRIATIC MALACOFAUNA

**Giambattista Bello, Pasqua Paparella & Raffaele Vaccarella**

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### ABSTRACT

In the last few decades, many variations, either directly or indirectly induced by man, were recorded in the Adriatic malacofauna. The malacodiversity, in terms of number of species, has increased thanks to the introduction of allochthonous species. Several bivalves were introduced for aquaculture purposes. Most of them belong to genera or families already commercially exploited in the Adriatic Sea, such as the oysters *Crassostrea gigas*, *Crassostrea virginica*, and *Saccostrea cucullata*, which were thought to produce higher biomass than the autochthonous European flat oyster *Ostrea edulis*. The oriental carpet shell *Tapes philippinarum* was introduced because of its suitability for cultivation instead of the European carpet shell *Tapes decussatus*. Other bivalves transplanted for similar purposes, especially in the North Adriatic lagoons, are *Mya arenaria*, *Mercenaria mercenaria*, and *Mytilus edulis*. A few species were accidentally introduced. A well known case is represented by the arciid *Scapharca inaequivalvis*. The gastropod *Rapana venosa* entered the Adriatic Sea thanks to the spontaneous expansion of its population from the Black Sea, where it was intentionally introduced by man. The aplysiid *Bursatella leachi*, an Indo-Pacific species, expanded progressively in the Mediterranean Sea and reached the Adriatic following its passage through the Suez Canal. A peculiar case of introduction of exotic molluscs into the Adriatic Sea is represented by the gastropod *Mesalia opalina* and the cephalopod *Sepia bertheloti*. Indeed, only skeletal parts of them were found in Apulian coastal waters, most probably as discards from boxes of commercial fish coming from abroad. On the other hand, the activities of man have induced the rarefaction or the complete destruction of subpopulations of molluscs. Only few actual examples will be dealt with herein. Habitat modification may be the cause of the complete eradication of several species of animals from certain areas. Such is the case of the destruction of a "matte" of the seagrass *Posidonia oceanica* due to the alteration of the sedimentation regimen along the Apulian coast, which in turn caused the disappearance of a subpopulation of the venerid clam *Venus verrucosa* living on the matte. The effects of fisheries on molluscs are only partially documented and mostly concern commercially important species, viz. *Chamelea gallina*, *Pecten jacobaeus* and *Chlamys glabra*. Many other molluscs are affected by overfishing, despite their status of by-catch or discard. The Southern Adriatic trawl fishery is responsible for the rarefaction of several molluscs, including *Tonna galea*, *Charonia tritonis*, *Ranella olearia*, *Atrina pectinata*, *Sepia elegans* and *Sepia orbignyana*. Fishing by SCUBA diving and hand collection has caused the eradication of *Pinna nobilis* from certain sites along the Apulian coast and size overfishing of *Arca noae*. Populations of molluscs are also indirectly affected by fisheries. An example is given by the subpopulation of *Arca noae* living in the Gulf of Manfredonia on gravel grounds: the dredge fishery for scallop strongly disturbs the arrangement of gravel and empty shells, which represent the settlement place for juvenile arks.

**IDROBIIDI FREATOBI DEL BACINO DEL FIUME MAGRA (LIGURIA-TOSCANA) (GASTROPODA: PROSOBRANCHIA: HYDROBIIDAE)**

**Marco Bodon\* & Simone Cianfanelli \*\***

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**Key Words: Gastropoda, Prosobranchia, Hydrobiidae, phreatic snails, taxonomy, new taxa, Liguria, Tuscany, Italy.**

**ABSTRACT**

Four new species of hydrobiids from subterranean waters of the Magra basin (at the border between Liguria and Tuscany) are described: "*Alzoniella*" *macrostoma* n. sp., "*Alzoniella*" *microstoma* n. sp., "*Alzoniella*" *lunensis* n. sp. and *Islamia piristoma* n. sp.

The first three species show characters which do not entirely correspond to those in the type species (and in other species) of the genus *Alzoniella* and therefore their generic status remains problematical. Consequently they have been doubtfully referred to as "*Alzoniella*". "*A.*" *macrostoma* n. sp. and "*A.*" *microstoma* n. sp. are very similar and appear related to other taxa, all doubtfully assigned to the genus *Alzoniella*, which live in other areas of Tuscany.

As for "*Alzoniella*" *lunensis* problems are even more: its anatomical characters correspond rather well to those in a group of Italian species presently referred to *Avenionia*, but are not sufficient to exclude relationships with the two "*Alzoniella*" described herein. Since its shell is peculiar, markedly different from that in the type species of *Avenionia* and more similar to that in "*A.*" *macrostoma* n. sp. and "*A.*" *microstoma* n. sp. (shell elongated, peristome reflexed and distinct from the last whorl), it is provisionally referred to as "*Alzoniella*". *Islamia piristoma* n. sp. is clearly distinguished from the other species of the same genus by some anatomical characters.

The first three species are endemic of the phreatic waters of the Magra basin. *Islamia piristoma* n. sp. is distributed along the coastal area from eastern Liguria to central Tuscany and along the slopes of the Apennines bordering the Po valley; it lives also in other habitats, such as springs or subterranean karstic waters.

**RIASSUNTO**

Quattro nuove specie di idrobiidi freatobi, tre delle quali strettamente endemiche, sono descritte per le acque sotterranee del bacino del Fiume Magra, al confine tra la Liguria e la Toscana: "*Alzoniella*" *macrostoma* n. sp., "*Alzoniella*" *microstoma* n. sp., "*Alzoniella*" *lunensis* n. sp. e *Islamia piristoma* n. sp.

Le prime tre presentano caratteri che le discostano dalla specie tipica del genere *Alzoniella* e dalle altre specie attribuite a questo stesso genere. Il loro inquadramento generico resta, quindi, solo provvisoriamente definito. "*Alzoniella*" *macrostoma* n. sp. e "*Alzoniella*" *microstoma* n. sp. sono strettamente affini tra loro e sono accostabili ad alcune entità, tutte assegnate dubitativamente al genere *Alzoniella*, diffuse in altre aree della Toscana. Anche l'inquadramento generico di "*Alzoniella*" *lunensis* n. sp. è problematico: c'è corrispondenza anatomica, ma notevole differenza nella forma della conchiglia con le specie italiane sin qui attribuite al genere *Avenionia*. Tuttavia, dato che essa è molto diversa dalla specie tipica di *Avenionia* e presenta alcuni caratteri anatomici e conchiliari che ricordano le prime due nuove specie qui descritte, viene anch'essa collocata provvisoriamente nel genere *Alzoniella*. *Islamia piristoma* n. sp. è chiaramente distinguibile dalle altre specie dello stesso genere, in base ad alcuni caratteri anatomici. Quest'ultima entità presenta un areale più vasto e una maggiore valenza ecologica rispetto alle altre specie qui descritte, essendo presente sia lungo la fascia costiera, dalla Liguria orientale alla Toscana centrale, sia sul versante padano dell'Appennino, in falde freatiche, sorgenti e in ambienti carsici sotterranei.

***EPITONIUM (ASPERISCALA ?) OLIVERIOI*, A NEW SPECIES OF EPITONIIDAE FROM MADAGASCAR LIVING UNDER**

**MUSHROOM CORALS**

**Antonio Bonfitto & Bruno Sabelli**

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**ABSTRACT**

*Epitonium (Asperiscala ?) oliverioi* a new species of Epitoniidae living under mushroom corals (Family Fungiidae) is described from the Tuléar region (SW Madagascar). The very distinctive teleoconch showing at low magnification a spirally lirated microsculpture only on the early whorls allows to easily recognize the new species. A brief comparison of the spawn and radular morphology of *E. oliverioi* with those of other epitoniids is also given in order to provide further characters for specific and supraspecific classification.

**RIASSUNTO**

Viene descritto *Epitonium (Asperiscala ?) oliverioi*, nuova specie di Epitoniide rinvenuto vivente al di sotto di madrepora solitarie della famiglia Fungiidae. Questa nuova specie è facilmente distinguibile per la caratteristica striatura spirale che è visibile a basso ingrandimento sui soli primi giri di teleoconca. Oltre alle caratteristiche della conchiglia sono pure prese in esame quelle dell'ovatura e della radula che vengono comparate a quelle note in letteratura nel tentativo di fornire altri caratteri utili per la classificazione sia a livello specifico che sovraspecifico.



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### **Riassunto**

Gli autori illustrano il lavoro di catalogazione e riordino di tutti gli esemplari fossili della Collezione paleontologica del Museo Perrando, promosso dall'Associazione "Amici del Sassello" e finanziato con fondi della Regione Liguria.

La raccolta è suddivisa in due parti ben distinte: il materiale esposto, già determinato e cartellinato ed il "magazzino" collocato nella parte inferiore delle vetrine e solo in parte inventariato nel 1992. Su alcuni campioni è presente una vecchia numerazione preceduta dalla sigla MPS (Museo Perrando Sassello). Purtroppo, a tutt'oggi non è stato trovato nessun catalogo riportante indicazioni ad essa relative.

La maggior parte dei campioni è stata raccolta da appassionati e paleontofili locali; la precisa provenienza di tali esemplari non è sempre nota, anche se spesso essi sono accompagnati da cartellini indicanti il raccoglitore e alcune indicazioni di località. Da tali dati si evince l'appartenenza al Bacino Terziario Ligure-Piemontese ed all'area di Sassello in particolare.

Per alcuni esemplari è ipotizzabile una provenienza dalla collezione Perrando, le cui vicissitudini hanno causato un irrecuperabile dispersione di parte del nucleo originario.

La raccolta consta di 1314 campioni di cui la maggior parte Molluschi (1023 campioni). Il resto è rappresentato da Cnidari (103 campioni), Vegetali (72 campioni); i restanti esemplari sono riferibili a Crostacei, Briozoi, Anellidi, Foraminiferi, Icnofossili.

I Molluschi sono stati rivisti e determinati, ove possibile, a livello specifico mentre per i restanti "gruppi" la determinazione è stata effettuata a livello di phylum o classe.

E' stato infine redatto un elenco cartaceo ed un database (formato Works 4.0) per agevolare la ricerca e lo studio del materiale.

NORD-OCCIDENTALE).

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#### ABSTRACT

The study of micromollusc fauna found in the washing of rarely emerging sediments from Argille di Ortovero formation in Western Liguria is giving several important information about the knowledge of circalitoral and bathyal faunas of Pliocene.

We're showing the first Italian records of *Cyclostremiscus dariae* (Liuzzi & Zucchi Stolfa, 1979) for this Epoch. The species is recorded for Zinola (Savona) where it was found by one of us and for Campore (Reggio Emilia) (S. Palazzi and C. Pizzaferrì personal communication).

The recent report for Quaternary deposits of Central Tyrrhenian Sea for the dredging of station DP91-4 (Bonfitto et al., 1994) must be referred to another taxon.

#### RIASSUNTO

Lo studio delle microfaune a Molluschi dei pochi lembi fossiliferi ancora accessibili della Liguria occidentale, nonché dei recuperi di materiale da scavi per fondamenta edilizie che sporadicamente raggiungono gli strati del Pliocene, aiuta a rendere più completa la conoscenza delle malacofaune circalitorali e batiali dell'Epoca.

Con la presente segnalazione riportiamo i primi record di *Cyclostremiscus dariae* (Liuzzi & Zucchi Stolfa, 1979) per il Pliocene italiano. La specie viene segnalata per i depositi di Zinola (Savona) con ritrovamenti da parte di uno di noi negli esiti di lavaggio di argille e per il giacimento di Campore (Reggio Emilia) mediante comunicazione personale (S. Palazzi e C. Pizzaferrì).

Le faune associate permettono di attribuire i ritrovamenti al piano circalitorale inferiore (Pérès & Picard, 1964).

La specie risulta segnalata per i depositi quaternari del Mar Tirreno centrale, dragaggio della stazione DP91-4 (Bonfitto et al., 1994), ma questa attribuzione è da riferirsi ad altra specie.

**LARVAL DEVELOPMENT OF *Peltodoris atromaculata* (NUDIBRANCHIA: DORIDACEA)**

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**ABSTRACT**

Nudibranchs are known to show very highly diversified larval strategies, but the knowledge of their larval ecology is poor, due to the objective difficulties linked to the management of larval phases under laboratory conditions.

In fact, even if it is quite easy to obtain the hatching of larvae from eggs capsules, their metamorphosis is a very rare event, at least for larvae with a planktotrophic development.

In this work we have studied the role of basic chemical and physical parameters (temperature, salinity and  $[Ca^{2+}]$ ) in determining and/or conditioning time of hatching, planktonic phase length and metamorphosis, for the Mediterranean dorid *Peltodoris atromaculata* Bergh, 1880.

In particular, we have obtained the metamorphosis of *P. atromaculata* larvae twice in laboratory with the following parameters: salinity 39-41‰;  $Ca^{2+}$  570 mg/l; temperature of 20.5 °C.

Under these conditions, 48 hrs after the hatching, about the 10% of the veligers reach the pedoveliger stage and immediately after (36 hrs) larvae lose protoconchs, starting to crawl.

At this stage their body is oval, 840 µm long and 480 µm wide. The notum, is semi-transparent in colour, tuberculated and with rhinophores and gills well formed.

## **Possible anomalies in the distribution of the Mediterranean Nudibranchs**

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### **ABSTRACT**

Using a simple index, a preliminary comparison of the nudibranch (Mollusca: Gastropoda) fauna living on small Mediterranean islands and on continental rocky shores has revealed a significant difference in the abundance of eolids, which seem to be less frequent in the small islands far the continent with respect to the dorids.

This difference could be explained by supply side ecology, as different larval strategies are adopted by these two different taxa, although their feeding strategies must be considered too. Dorids feed on sponges, a perpetual prey available throughout the year, while the most common Mediterranean eolids feed on athecate hydroids which are seasonal and show a strong costaphily. This behaviour, as the tendency of the hydroid planula to settle on adjacent sites on which the parents live, seems to have influenced not only the hydroid distribution, but also that of their predators.

All these considerations suggest caution in analysing faunistic lists for biogeographical and biodiversity studies, since several factors, both directly linked to the species biological cycle (e.g. larval development, delay of metamorphosis, chemoreception, diet cues) and geographical constrains, could affect the presence/absence of a species in a determinate site.

**POLYPLACOPHORA FROM THE UPPER PLIOCENE (PIACENZIAN) OF VALE DE FREIXO: CENTRAL-WEST PORTUGAL**

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**KEY WORDS:** Mollusca, Polyplacophora, Neogene, Upper Pliocene, Portugal, new species.

**ABSTRACT**

This paper reports the presence of five species of Molluscs belonging to the Class Polyplacophora have been identified in the Piacenzian (Upper Pliocene) of the Carnide Sandstone Formation outcropping in Vale de Freixo, Pombal region, central-west Portugal. This is the first documentation (description and illustration) of fossil chitons from the Neogene of Portugal. The only earlier reference is the record of *Chaetopleura fulva* (Wood, 1815), now known as *C. angulata* (Spengler, 1797), in a list of malacofauna from the Pliocene of Marinha Grande, central-west Portugal. Five species of chitons have been identified. Four of the species are known: *Lepidopleurus (Leptochiton) cancellatus* (Sowerby, 1840), *Callochiton septemvalvis* (Montagu, 1803), *Lepidochitona (L.) cinerea* (Linnaeus, 1767) and *Chiton (Rhyssoplax) corallinus* (Risso, 1826). One species (*Ischnochiton zbyi* sp. nov.) is described as new. All these species (excluding *Ischnochiton zbyi* sp.nov.) range continuously from the Miocene to the present in the Mediterranean. All the extant species occur in the Mediterranean Sea, being *Chiton corallinus* endemic to the Mediterranean. Only three of the species still live off the Atlantic coast of Europe (*Lepidopleurus cancellatus*, *Callochiton septemvalvis* and *Lepidochitona cinerea*).

**RIASSUNTO**

Cinque specie di molluschi poliplacefori sono stati raccolti nel Piacenziano (Pliocene superiore) della "Vale de Freixo", regione di Pombal, Portogallo centro-occidentale. Il giacimento fossilifero fa parte della Formazione Carnide Sandstone, del bacino terziario di Mondego. Il presente ritrovamento rappresenta la prima documentazione di poliplacefori fossili nel Neogene del Portogallo. In precedenza era stata segnalata *Chaetopleura fulva* (Wood, 1815), ora conosciuta come *C. angulata* (Spengler, 1797), in un elenco di molluschi del Pliocene di Marinha Grande, ma non è stato possibile reperire tale materiale presso il Museo di Mineralogia e Geologia dell'Università di Coimbra, presso il quale dovrebbe essere depositato. Sono state rinvenute 5 specie, tra cui una nuova: *Lepidopleurus (Leptochiton) cancellatus* (Sowerby, 1840), *Callochiton septemvalvis* (Montagu, 1803), *Lepidochitona (L.) cinerea* (Linnaeus, 1767), *Chiton (Rhyssoplax) corallinus* (Risso, 1826) e *Ischnochiton zbyi* sp.nov. La nuova specie viene confrontata con altre due specie che presentano alcune caratteristiche simili, *Ilexaratus* (G.O.Sars, 1878) e *I. dolii* van Belle & Dell'Angelo, 1998. Delle 4 specie già conosciute, tutte attualmente viventi in Mediterraneo, 3 sono viventi anche lungo le coste atlantiche europee (*Lepidopleurus cancellatus*, *Callochiton septemvalvis* e *Lepidochitona cinerea*), mentre *Chiton corallinus* è una specie endemica del bacino mediterraneo. Tutte le specie ritrovate, ad eccezione di *Ischnochiton zbyi*, presentano una distribuzione temporale continua, nell'area Mediterranea, dal Miocene all'attuale, con la sola necessità di confermare le segnalazioni pleistoceniche di *Lepidopleurus cancellatus*.

## **MONTEROSATO E I SUOI TEMPI**

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### **Riassunto**

Viene analizzata la personalità del Monterosato e i rapporti con i Grandi dell'epoca d'oro della malacologia che vede tra l'altro l'inizio delle grandi spedizioni oceanografiche, lo studio dei fenomeni evolutivi ed il lento passaggio da un approccio allo studio eminentemente conchigliologico ad uno che tiene conto dei caratteri anatomici.

## BATHYAL NUCULOID COMMUNITIES FROM THE MEDITERRANEAN QUATERNARY

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### ABSTRACT

Nuculoids are a dominant group among the deep-sea molluscan faunas. Although the nuculoid fauna is rather poor in the present-day deep Mediterranean, a much richer fauna existed during the Pleistocene. The present work focuses on two main topics: 1) bathymetric patterns of the Pleistocene and Recent bathyal nuculoid communities, 2) changes in composition during Quaternary and their bearing on the Mediterranean biogeography and oceanography.

From *ca* 200 m to 500-600 m, the present-day communities are typically dominated by *Ennucula aegeensis*, to which few species with shelf affinity are associated, *i.e.* *Nucula sulcata*, *Saccella commutata* and *Yoldiella philippiana*. A very small species, *Microgloma tumidula*, is also present and becomes more and more common with depth. Below 500-600 m, communities are characterised by *Ennucula corbuloides*, *Ledella messanensis*, *Yoldiella seguenzae* and *Y. micrometrica*, while the uppermost bathyal species become less common. The deepest species is *Katadesmia cuneata*, which occurs from 800-1000 m. These species may define the typical bathyal nuculoid community all through the Mediterranean. Excluding the species with stronger shelf affinity and other species most probably coming from Late Glacial assemblages, such as *Yoldiella lucida* and *Pseudomalletia obtusa*, not more than 10 species live in the deep Mediterranean.

The bathyal nuculoid communities known from Early-Middle Pleistocene beds are much more diversified and a preliminary list includes *ca* 25 species. The uppermost bathyal communities are often characterised by high dominance of *L. messanensis* s.l. (probably two species should be distinguished). Several species may be associated, such as *Bathyspinula excisa*, *Austrotindaria pusio*, *Katadesmia confusa*, *Brevinucula glabra*, *Deminucula* spp., *Pseudomalletia isseli*, *Phaseolus ovatus*, *Y. philippiana* and *N. sulcata*. Some of these species, particularly *L. messanensis* s.s., *B. excisa*, *A. pusio* and *K. confusa*, become dominant within the deepest communities so far known, whose depths are referred to 500-1000 m, and define the typical composition of the Pleistocene bathyal nuculoid communities. Other species are frequently present, such as *E. corbuloides*, “*Yoldia*” *minima*, *Thestyleda cuspidata*, *Y. seguenzae* and *M. tumidula*.

**SPAWN AND DEVELOPMENT OF *ASCOBULLA FRAGILIS* (GASTROPODA, OPISTHOBRANQUIA, SACOGLOSSA)**

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**ABSTRACT**

The egg masses of *Ascobulla fragilis* consist of a gelatinous mass, usually c-shaped, whose inside part contains a cord of egg capsules inter-connected by a chalaza.

The egg capsules measure about 150  $\mu$  m wide and 180  $\mu$  m long.

The uncleaved eggs measure about 55  $\mu$  m in diameter.

The chronology and photographs of major developmental events are provided. Larval development is planktotrophic and veligers hatch on the sixth day after egg deposition. At this time of the hatching the veliger measure 125  $\mu$  m and the larval shell measure 100  $\mu$  m.

Metamorphosis has not been observed.



## Sistematica dei muricoidi correlati a *Coralliophila*: dati molecolari nucleari e mitocondriali

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*Coralliophila*, *Babelomurex*, *Latiaxis* ed alcuni altri taxa di livello generico, includono numerose specie di muricoidei specializzati nell'alimentazione su Cnidari, e comunemente ascritti alla famiglia Coralliophilidae. Sono considerati strettamente correlati ai Muricidae ma la loro corretta posizione ed il livello tassonomico non sono ancora stati definiti con certezza. Questo è anche dovuto alla mancanza di radula, ad una relativa omogeneità anatomica nell'apparato alimentare, all'incertezza sul reale valore dei caratteri anatomici correlati con l'alimentazione vista l'elevata specializzazione del gruppo e ad una rilevante variabilità conchiliare a tutti i livelli. Abbiamo studiato sequenze nucleotidiche dal gene mitocondriale codificante per l'RNA ribosomale 12S e dallo spaziatore ITS-2 della regione nucleare codificante per l'RNA ribosomale. Le sequenze del 12S sono state ottenute da *Babelomurex amaliae*, *Latiaxis mawae*, *Hirtomurex filiaregis*, *Coralliophila abbreviata*, *C. meyendorffii*, *C. panormitana*, *C. violacea*, *C. brevis*, *C. caribaea*, *Quoyula madreporarum*. Per confronto sono state incluse sequenze rappresentanti tre sottofamiglie dei Muricidae (*Stramonita haemastoma* Rapaninae; *Phyllonotus trunculus* Muricinae; *Nucella lapillus* Ocenebrinae). La sequenza di *Fasciolaria lignaria* è stata usata come outgroup. Le sequenze dell'ITS-2 sono state ottenute da *Coralliophila meyendorffii*, *Babelomurex amaliae*, *Bolinus brandaris*, *Stramonita haemastoma*, *Nucella lapillus*, *Fasciolaria lignaria*. Entrambi i set analizzati separatamente hanno fornito risultati congruenti. In particolare i vari "coralliofilidi" sono risultati sempre costituire un gruppo monofiletico, sister-group delle Rapaninae. La loro posizione filogenetica all'interno dei Muricidi analizzati è congruente con una posizione sottofamiliare: Coralliophilinae. È rilevante la posizione assunta da *Nucella*, ben lontano dalle Rapaninae, che fa pensare che le relazioni delle Ocenebrinae all'interno dei Muricidae debbano essere ancora definite con precisione. All'interno delle Coralliophilinae è importante notare come il "genere" *Coralliophila* come comunemente inteso è probabilmente polifiletico, mentre le specie "spinose" analizzate sembrano formare un gruppo monofiletico. Mancano ancora dall'analisi gruppi devianti come *Magilus*, *Rapa*, *Mipus* o *Emozamia*, e molti degli altri "generi spinosi", come *Echinolatiaxis*, *Lamellatiaxis*, etc. la cui inclusione potrà confermare o meno l'esistenza di una radiazione monofiletica delle coralliofiline. Inoltre l'esatta definizione del sister-group delle Coralliophilinae deve prendere in esame un ampio spettro di Rapaninae s.l., che includa anche le correlate Ergalataxinae. È da rilevare comunque che i dati di divergenza molecolare qui rilevati, sono sufficientemente in accordo con un'ipotesi di separazione della maggior parte delle sottofamiglie di Muricidae tra 40 e 60 milioni di anni fa, come suggerito dai dati paleontologici.



## **PRESENTAZIONE DI UN SOFTWARE DEDICATO ALL'ORDINAMENTO DELLE COLLEZIONI DI MALACOLOGIA**

### **Sergio Raimondi**

FINSA Consulting s.r.l. Piazza Dante, 7 16121 GENOVA

#### **RIASSUNTO**

##### **Descrizione Generale**

Il programma Shells Collection è stato realizzato per permettere la gestione di una collezione di conchiglie.

Le caratteristiche principali del programma sono la modularità, la semplicità con cui le informazioni sono trattate e la potenzialità di manipolazione delle stesse.

Attraverso una serie di tabelle l'utente potrà per esempio personalizzare le località di ritrovamento degli esemplari, la bibliografia, il valore degli esemplari e così via.

Integrate nell'applicazione vi sono alcune funzionalità di esportazione dati in un qualsiasi formato standard (Excel, DBF, WMF, ecc.)

L'applicazione è stata scritta utilizzando un linguaggio di sviluppo Object Oriented (Power Builder) ed un motore di DataBase Relazionale (ACCESS).

Esiste la possibilità di utilizzare come base dati un qualsiasi Database Relazionale (Access, MS SQL Server, ORACLE, ecc) accessibile o in maniera nativa o tramite driver ODBC.

Il programma è già predisposto per ospitare una foto di ogni Anagrafica.

##### **Requisiti Hardware**

Minimi:

Processore 486 o superiore.

16 Mbytes di RAM (consigliati 32 Mbytes).

Hard disk con 40 Mbytes liberi.

Sistema Operativo Windows 9X

Ottimali:

Processore pentium 90.

24 Mbytes di RAM (consigliati 32 Mbytes).

Hard disk con 40 Mbytes liberi.

Sistema Operativo Windows 9X

Gestione Mono - MultiUtenza

L'applicazione è creata per piattaforma Windows '95 ed esiste sia come versione monoutenza, sia per la gestione in multiutenza.

In quest'ultimo caso più utenti potranno accedere al software con password differenti per una migliore gestione dei dati ed una più accurata gestione e sicurezza degli stessi.

##### **Funzioni Principali**

- Inserimento/modifica/Cancellazione Anagrafica ed esemplari
- Gestione Sinonimi e Bibliografia
- Stampa Cartellino, Scheda Esemplare, ecc.
- Gestione Tabelle
- Statistiche
- Ricerche isolate e/o incrociate

Insieme all'applicazione verrà anche rilasciato:

Manuale d'uso cartaceo.

Supporto Magnetico o su CD-Rom (per l'installazione del suddetto Software).

**LA COLLEZIONE MALACOLOGICA DEL REGIO MUSEO DI STORIA NATURALE DELL'UNIVERSITÀ DI GENOVA:  
UNO STUDIO PRELIMINARE**

**Stefano Schiaparelli, Riccardo Cattaneo-Vietti, Attilio Arillo, Lidia Orsi & Giancarlo Albertelli**

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**RIASSUNTO**

La collezione malacologica del *Regio Museo di Storia Naturale dell'Università di Genova* è un'importante raccolta di oltre cinquemila esemplari di conchiglie soprattutto tropicali e mediterranee, che oggi ha trovato un'adeguata sistemazione presso il Dipartimento per lo Studio del Territorio e delle sue Risorse dell'Università di Genova.

La collezione fu iniziata da Domenico Viviani (1772-1840), docente di Storia Naturale all'Università di Genova dal 1803 al 1837, ed entrò a far parte delle collezioni universitarie sicuramente prima del 1818, anno in cui lo stesso Viviani ricevette l'incarico di stilare un catalogo generale dell'intera collezione naturalistica da lui donata all'Università.

Da questo momento in poi la sorte della collezione segue quella dell'Università, con vicende alterne a seconda dei curatori che si sono succeduti.

Dal 1892, anno in cui le cattedre di Zoologia ed Anatomia Comparata vengono distinte, la collezione rimane legata all'Istituto di Zoologia, mentre molti altri preparati vengono depositati al Museo di Storia Naturale "Giacomo Doria" di Genova.

Molti esemplari sono andati perduti e tutta la collezione necessita di un'approfondita operazione di restauro.

Alcuni campioni sono di importanza storica notevole, primi fra tutti alcune specie di scafopodi del Nord Atlantico (ad es.: *Siphonodentalium vitreum* Sars e *Cadulus subfusiformis* Sars) che furono donati all'Istituto di Zoologia dall'autore nel 1896.

**FIRST RECORD OF *ANADARA DEMIRI* (PIANI, 1981) (BIVALVIA: ARCIDAE) IN ITALIAN WATERS**

**Cristiano Solustri & Elisabetta Morello**

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Large samples of the lessepsian migrant, *Anadara demiri* (Piani, 1981), native of the China Sea, were collected during a sampling campaign for the baby clam, *Chamelea gallina*, with hydraulic dredges in the central Italian Adriatic Sea. This is the first time the species has been reported for Italian waters, having been previously observed in Turkey (1977) and Greece (1994). The great similarity of *A. demiri* to the other allochthonous clam, *Anadara inaequalvis* (Bruguière, 1789), established in the central Adriatic since the early seventies, lead to a morphometric comparison between the two species in order to aid with classification purposes. The two species resulted statistically different in main shell characteristics and the latter being generally more globose.

## A CRITICAL REVIEW OF EXOTIC MEDITERRANEAN OPISTHOBRANCH GASTROPODS

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### ABSTRACT

More than 125 species of exotic molluscs have been recorded in the Mediterranean, regarding “exotic species” those which have been introduced by mean of human activities. The main pathways for arrival of exotic marine species into the Mediterranean has been the Suez Canal, which opened in 1869, a well-known phenomenon called “Lessepsian migration”. Other species may have been intruded by mean of marine farming, as fouling/clinging organisms on ship hulls or been transported with ballast water.

The exotic species of opisthobranchs introduced into the Mediterranean are here reviewed. About 30 species of exotic opisthobranchs have been reported in the Mediterranean, but some of them are considered here as doubtful records or missidentifications. Only the 19 species that follow have been considered as true exotic: *Acteocina mucronata*, *Cylichna girardi*, *Pyrrunculus fourierii*, *Bulla ampulla*, *Haminoea callidegenita*, *Chelidonura fulvipunctata*, *Bursatella leachi*, *Pleurobranchus forskalii*, *Polycerella emertoni*, *Polycera hedgpethi*, *Plocamopherus ocellatus*, *Hypselodoris infucata*, *Chromodoris quadricolor*, *Dendrodoris fumata* (recorded as *Dendrodoris nigra*), *Melibe fimbriata*, *Cuthona perca*, *Caloria indica* (ex *Phidiana*), *Aeolidiella indica* (first recorded as *Aeolidiella takanosimensis*), and *Flabellina rubrolineata*.

For each of these species the following data are given: area of origin, first and further records in the Mediterranean, establishment success, and mode of introduction. Besides, the species considered as doubtful records or missidentifications are also commented. Many other species of opisthobranch known in the Mediterranean are cosmopolitan, circumtropical or amphiatlantic, but it is not possible to assure that they have been introduced in the Mediterranean by human activities.

## LA FAMIGLIA OLIVIDAE: UNO SGUARDO D'INSIEME

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### RIASSUNTO

La Famiglia Olividae apparve sul pianeta nel Cretaceo superiore (Senoniano) con una specie attribuita al Genere *Ancilla*, evolutasi probabilmente da una specie più arcaica assegnata al Genere *Olivula*.

Successivamente, nel Paleocene, apparve la prima forma di *Olivancillaria* che, durante l'Eocene, dette origine ai Generi *Oliva* ed *Agaronia*.

Nello stesso intervallo di tempo *Ancilla* si evolse nei Generi *Olivella* ed *Amalda*.

Il Miocene vide la massima espansione della Famiglia, con la fine di questa Epoca si estinsero un Genere e svariate decine di specie.

Attualmente, nell'ambito di tutti i Generi, osserviamo, rispetto al passato, un netto declino del numero delle specie. Gli Olividae sono generalmente relegati in ben determinate zone del globo, ad eccezione del Genere *Oliva*, molto ben rappresentato, il quale occupa un areale pantropicale ed appare in espansione, sia per il numero delle specie sia per sottospecie e "forme". Tale processo è iniziato durante il Pleistocene e pare sia tutt'ora in atto.

Le specie della Famiglia Olividae sono raggruppate in cinque Sottofamiglie: Olivinae, Ancillinae, Olivellinae, Agaroninae e Pseudolivinae. Queste sono caratterizzate da un unico elemento discriminante: la radula. Quest'ultima è del tipo Rachiglossa (formula I 0 I) composta da un dente rachidiano e due denti laterali disposti su un nastro che, a seconda dei casi, annovera da 80 a 180 file. Il dente rachidiano, normalmente, è provvisto di tre cuspidi e di un numero variabile di dentelli secondari, è proprio la forma e la disposizione di tali cuspidi e dentelli a determinare l'appartenenza di una data specie ad una particolare Sottofamiglia.

Per le differenze fra i vari Generi ci si affida unicamente alla morfologia ed alla scultura della conchiglia. Elementi primari a questo scopo sono: la protoconca, la sutura, il solco e la banda ancillare e le pliche columellari oltre, naturalmente, all'aspetto generale.

Dalla combinazione e dalla disposizione di questi elementi si perviene alla determinazione della specie.

# **POSTER**

## **I MOLLUSCHI NELLA SCUOLA MATERNA: UN'ESPERIENZA GRAFICA**

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### **ABSTRACT**

We are showing the drawings of Molluscs painted by children of three, four and five years old. These works made in "Villa Sciallero Infancy School" took part of a project aimed to reinforce a relationship between Sestri Ponente and its sea..

We estimated very good their results and we decided to present this very interesting work.

We tried to develop the environment respect by the knowledge of the fauna living in the sea and to begin to mould conscience's future.

The obtained results are very satisfactory and encouraged us to work for this project very new in this kind.

The small painters made path through the marine pictures towards the knowledge and respect for this environment more and more in danger.

### **RIASSUNTO**

Viene presentato un poster relativo all'esperienza grafica vissuta nella "Scuola dell'infanzia di Villa Sciallero" di Genova volta alla rappresentazione di alcuni molluschi di comune reperimento. Tale impegno è derivato da un più ampio progetto teso a ristabilire i rapporti fra la delegazione di Genova Sestri Ponente ed il suo mare.

I risultati ottenuti dai bambini di tre, quattro e cinque anni sono stati da noi considerati più che soddisfacenti e ci hanno incoraggiato a presentarli come una esperienza innovativa nel suo genere.

I piccoli autori hanno compiuto un percorso che, attraverso le immagini degli animali marini da loro riprodotti, li ha indirizzati sulla via di una prima conoscenza che è propedeutica al rispetto ed alla successiva salvaguardia di questo ambiente oggi quanto mai fragile.



**PHYLOGENETIC ANALYSIS OF THE GENUS *PYRENAEARIA* ACCORDING TO MITOCHONDRIAL DNA SEQUENCE DATA.  
PRELIMINARY STUDIES.**

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**ABSTRACT**

The genus *Pyreneaearia* Hesse, 1921 is an endemism of the north of the Iberian Peninsula, mostly restricted to the Cantabrian mountains and the Pyrenees. There are 12-16 species considered in the genus at the moment, some of them occupying a very restricted geographical area. These species are characterized mainly on the basis of shell morphology while the reproductive system shows no diagnostic features at the specific level. The shell morphology is greatly influenced by environmental parameters, such as the altitude, so that new taxonomical criteria are required in order to verify the validity of the taxa as well as to know their phylogenetic relationships. With this aim we have started a molecular study including all the nominal taxa of this genus. This study is based on the comparison of the sequence data of a 700 bp fragment of the cytochrome oxidase subunit I (COI) of the mitochondrial DNA. DNA extraction has been performed following the phenol-chloroform/isoamiloalcohol procedure. Amplifications have been made using the primers LCO1490 (Folmer et al., 1994) and COR722 (Davis et al., 1999) with M13 ends. Sequences of the COI fragments have been determined by ABI Prism 310 and the program SEQUENCE ANALYSER 3.0. In this contribution we show the first results we have obtained after having applied this novel technology. The main objectives of this work are: 1. To characterize every morphospecies of the genus at the molecular level. 2. To get to know the different genealogical lineages that exist in the genus *Pyreneaearia* and to ascribe the status of species or subspecies to each one of them when justified. 3. To establish plesiomorphies and apomorphies at the molecular level, as well as to know the morphology of the ancestral form. 4. To propose a phylogenetic tree for the whole genus on the basis of molecular data. 5. To progress in the phylogeographical knowledge of the genus.

**LECÁROZ SCHOOL COLLECTION DONATED TO THE ZOOLOGY DEPARTMENT OF THE UNIVERSITY OF NAVARRA (SPAIN)**

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**ABSTRACT**

The existence of collections of mollusks should be known by scientists and malacological enthusiasts in order to allow the study of diversity, variants, geographical distribution, etc., lending a valuable assistance to the scientific world.

This collection compiled during a 100-year period by reverend Capuchin Fathers and for a long period of time was placed in Lecároz School (Navarra, Spain). In 1990, the school donated the collection to the Zoological Museum of University of Navarra.

The collection comprises 1067 shells, including marine (649) and continental (195) gastropods, marine (197) and freshwater (13) bivalves, chitons (3) and cephalopods (10), from everywhere around the world, although they principally are from the Indopacific and Philippines islands, Spanish possession until 1898.

Are worthy of note the CASSIDAE, STROMBIDAE, MURICIDAE and CONIDAE families, as marine gastropods, the philippines BRADYBAENIDAE, the mediterranean HELICIDAE as land gastropods; and SPONDILIDAE and UNIONIDAE as bivalves.

These shells may be seen in the Faculty of Sciences and they are separately organized by families and individually labelled with the species name, origin and geographic distribution plus a Museum number and the original label of the Lecároz School collection. Interesting details about their biology and photographs of the living animal in the original habitat are included close to the shell. A catalogue is being prepared with the original current classification, most important synonymies and common name for each shell.

**FISH HOST DETERMINATION FOR *MARGARITIFERA AURICULARIA*: RESULTS AND IMPLICATIONS**

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**ABSTRACT**

The fish hosts of *Margaritifera auricularia*, the critically endangered Giant Pearlmussel, have remained unknown until now. Based on indirect evidence, in 1990 we postulated that *Acipenser sturio* (Common Sturgeon) could be a host. In order to test this hypothesis, in 2000 we followed natural infestations in the lower Ebro river, where the last viable population of *M. auricularia* survives. In addition, we performed artificial infections on a wide array of native and exotic fishes. From March to June we tested under controlled conditions the suitability of 16 species of fishes to carry glochidial development in their branchial structures. We infected 8 native species (*Anguilla anguilla*, *Barbus graellsii*, *Barbus haasi*, *Chondrostoma toxostoma*, *Cobitis paludicola*, *Liza aurata*, *Mugil cephalus* and *Salaria fluviatilis*), 6 non-native species (*Alburnus alburnus*, *Carassius auratus*, *Cyprinus carpio*, *Gambusia hoolbroki*, *Gobio gobio* and *Scardinius erythrophthalmus*); and 2 aquarium species (*Acipenser baieri* and *Carassius sp.*). Four species were not available, either because they are very rare or locally extinct anadromous fishes (*Alosa alosa*, *Alosa fallax* and *Petromyzon marinus*), or because their presence in the river itself is questionable (*Noemacheilus barbatulus*).

Glochidia adhered readily to gills, and occasionally to gill arches. However, after a few days they were rejected by the vast majority of individual fishes. Likewise, no larvae of this species were recorded in the captured wild fishes. Encystment and growth was observed on the gill filaments of three species: *Acipenser baieri*, which shows that the early hypothesis involving sturgeons cannot be rejected (although most of the extant pearlmussels are younger than the sequential extinction of *A. sturio* in the Ebro); *Gambusia affinis*, an exotic that may be useful in captive breeding; and *Salaria fluviatilis*, which did not require pipetting of glochidia into the gills, lives in the same habitat as *M. auricularia*, and is also endangered.

The dramatic reduction of the Giant Pearlmussel's range can now be explained as due to a combination of habitat destruction and disruption of its life cycle. The original distribution of both species probably were concordant, and certainly unpredictable from their current status. Yet, the habitat requirements of these two species explain their disappearance from central Europe and Italy. In addition, the now established distinctiveness of North African *Margaritifera* supports the specificity of this parasitic relationship. This knowledge can now be used in a recovery program centered on the rearing of juvenile pearlmussels in captivity.

**VERTICAL DISTRIBUTION OF MOLLUSCA IN A *ZOSTERA MARINA* L. BOTTOM IN ENSENADA DE BAIONA (GALICIA, NW SPAIN).**

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**ABSTRACT**

The vertical distribution of mollusks in the sediment is related to different factors, which affect the life of the animals including the way of feeding and reproduction. The aim of this work is to study the vertical distribution of the molluscan fauna at a *Zostera marina* bottom located in Ensenada de Baiona, a small inlet in Galicia (NW Spain).

The sediment is mainly fine sand-muddy sand with the eelgrass scattered over the bottom. Samples were taken between May'96 and Feb'97 with a quarterly periodicity using a corer of PVC operated by two divers. The corer penetrates 30-40 cm into the sediment, and the samples obtained this way were divided in fractions of 5 cm to study the distribution of the mollusks in the different levels. A corer destined for granulometric analyses was also taken.

A total of 259 specimens belonging to 24 species were collected (6 Gastropoda, 1 Scaphopoda, 17 Bivalvia) during the period of study, being the bivalves *Mysella bidentata* and *Thracia phaseolina* the best represented species. The results show that most of the animals live in the first 10 cm of sediment, appearing some specimens belonging to the Family Solenidae at depths of 25-30 cm. Highest abundances of individuals were observed in May and November, with the lowest values in August.

**RECENT DATA ON THE DISTRIBUTION OF *THEBA SUBDENTATA* *HELICELLA* (WOOD, 1828) (GASTROPODA, HELICIDAE) IN ALMERIA (SPAIN)**

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**INTRODUCTION**

*Theba subdentata* (Férussac, 1821) is a polytypic species with a clinal variation, from western Morocco. The subspecies *T. s. helicella* (Wood, 1828), with a depressed shell and a sharp keel at the periphery, lives in sand-dunes in the coastal area, from 30 km S of Safi to 35 km NW of Agadir (GITTENBERGER & RIPKEN, 1987). These authors stated that although there is a sample in the RMNH Leiden (Altimira collection) from El Alquíán, Almería (Spain) they tried in vain to confirm this record and quoted that this population became extinct. After that, PUENTE *et al.*, (1994) found 3 specimens of this subspecies at Cerrillos, 35 km from El Alquíán (Almería).

**RESULTS AND DISCUSSION**

The population of El Alquíán, Almería (Spain) was rediscovered by the authors of this abstract, and confirm the presence of the subspecies in Europe. *T. s. helicella* is very common in the coastal area from the Perdigal Tower to Amoladeras watercourse, with the highest density around the ancient quarter of the Civil Guard, between El Alquíán beach and Retamar residential development. This area, actually very well preserved, will be destructed with the construction of the “Olympic village” for the Mediterranean Games “Almería 2005”, called “El Toyo”, exactly over the centre of distribution. By chance, the eastern limit of distribution (Amoladeras watercourse) is located inside the protected area of Cabo de Gata-Níjar Natural Park.

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**THE SUPERFAMILY HELICOIDEA, RAFINESQUE 1815 (GASTROPODA, PULMONATA, STYLOMMATOPHORA) IN THE PROVINCE OF LUGO (NW) OF THE IBERIAN PENINSULA)**

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**INTRODUCTION**

The study of terrestrial gastropods in Galicia presents a discontinue distribution and in our sampled province, this distribution is rarer. With the present work we want to contribute to extend the faunistic knowledge of terrestrial gastropods of Superfamily Helicoidea Rafinesque, 1815 in Lugo (East of Galicia).

**MATERIAL AND METHODS**

During the period 1997- 1999 we have recolected malacological material from 130 squares (coordinates U.T.M. 10x10 Km.) in this area.

In order to obtain specimens suitable for dissection, all the live individuals that were captured in each square, were immediately drowned and preserved in 70% alcohol and conveniently labelled.

Distribution maps using 10x10 km U.T.M. system had been elaborated for each specie from records obtained.

**RESULTS**

We have identificated a total of 18 species of the Superfamily Helicoidea from 130 sites in the area sampled. These species are included into two families:

- Family Xanthonychidae Strebel y Pfeffer, 1880: *Elona quimperiana* (Férussac, 1821); *Candidula intersecta* (Poiret, 1801); *Helicella itala* (Linneo, 1758); *Helicella zaratei* Gittenberger y Manga, 1977; *Xerotricha apicina* (Lamarck, 1822); *Cochlicella acuta* (Müller, 1774); *Cochlicella barbara* (Linneo, 1758); *Ashfordia granulata* (Alder, 1830); *Zenobiella subrufescens* (Miller, 1822); *Portugala inchoata* (Morelet, 1845); *Ponentina subvirescens* (Bellamy, 1839); *Mengoana brigantina* (da Silva Mengo, 1867); *Oestophora barbula* (Rossmässler, 1838); *Oestophora silvae* Ortiz de Zárate López, 1962; *Oestophorella buvinieri* (Michaud, 1841).
- Family Helicidae: *Theba pisana* (Müller, 1774); *Cepaea nemoralis* (Linneo, 1758); *Helix aspersa* (Müller, 1774).

*This project has been financed by XUGA 26104A96*

**THE FAMILY AGRIOLIMACIDAE WAGNER, 1935 (GASTROPODA, PULMONATA) IN THE PROVINCE OF LUGO (NW OF IBERIAN PENINSULA)**

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**INTRODUCTION**

The Family Agriolimacidae is represented by two genus in Galicia, *Deroceras* and *Furcopenis*. *Deroceras* is represented by 8 species and the genus *Furcopenis* is restricted to the NW of Iberian Peninsula and it's represented by 3 species.

With the present work we want contribute to extend the area of distribution of the Family Agriolimacidae in Galicia .

**MATERIALS AND METHODS**

During the period 1997-1999 we have sampled the province of Lugo that was divided in 130 squares, coordinates U.T.M. 10x10 Km. We have carried through one diurnal and another nocturnal sample in each square. We have examined the typical habitats for slugs like gardens, rivers, trunks of trees, dustpan...

In order to obtain specimens suitable for dissection, all the live individuals that were captured, were immediately drowned and preserved in 70% alcohol and conveniently labelled. We have based our research, on external and internal characteristics typical of the animal for its determination. Distribution maps using 10x10 km U.T.M. system had been made for each specie from records obtained.

**RESULTS**

We have captured 9 species of Family Agriolimacidae from samples performed. These species are distributed into two genus, *Deroceras* and *Furcopenis*. Three of these species, *Deroceras ercinae*, *Deroceras hispaniensis* and *Furcopenis gallaeciensis*, are the first appointment to Lugo. *Deroceras lombricoides* is the second appointment to Lugo . These records contribute to extend the area of distribution of this species.

*Deroceras laeve* (Müller, 1774); *Deroceras panormitanum* (Lessona y Pollonera, 1882)

*Deroceras agreste* (Linneo, 1758); *Deroceras reticulatum* (Müller, 1774); *Deroceras ercinae* de Winter, 1985; *Deroceras lombricoides* (Morelet, 1845); *Deroceras hispaniensis* Castillejo y Wiktor, 1983; *Deroceras geresiensis* Rodríguez, Castillejo y Outeiro, 1989; *Furcopenis gallaeciensis* Castillejo y Wiktor, 1983; *Furcopenis darioi* Castillejo y Wiktor, 1983; *Furcopenis circularis* Castillejo y Mascato, 1987.

*This project has been financed by XUGA 26104A96*

**ON THE PROBLEM OF THE GENUS *IBERUS* MONTFORT, 1810 (GASTROPODA, HELICIDAE)**

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**ABSTRACT**

*Iberus* Montfort, 1810 is a mediterranean endemic genus of the half eastern of the Iberian Peninsula, being its northern distribution limit the Ebro valley. Nowadays, several protection plans for preserving this genus are being designed because of the specimens are very appreciated in gastronomy and also in shell-collections, and, moreover, because some of the 20 described morphospecies have very small distribution ranges. The inner systematic of *Iberus* is controversial: some authors consider it a monotypic genus, and their single species as polytypic (BOETTGER, 1913) or as polymorphic (PUENTE, 1994; ARREBOLA, 1995); other authors, by the contrary, consider few valid species (COBOS, 1979; LOPEZ-ALCANTARA *et al.*, 1982, 1983, 1985; ALONSO *et al.*, 1985; APARICIO, 1983; PRIETO, 1986; APARICIO & RAMOS, 1988); finally, there are ones who consider valid practically every described species (GARCIA SAN NICOLAS, 1957; ORTIZ DE ZARATE, 1991). The genus is mainly characterized on the basis of the shell morphology, because the reproductive system shows no diagnostic features at specific level. The biogeographical data do not help so much to solve the problem. So, a new investigation has been proposed in order to know the phylogeography of *Iberus* studying the sequence data of two loci (COI and 16S rRNA) of the mtDNA. A phylogenetic tree will be proposed for the whole genus on the basis of molecular and morphological traditional data. Moreover, some laboratory trials are being made in order to test the hybridization capacity of *I.gualtierianus* and *I.alonensis*, as well as, to know their life cycle, in collaboration with the “Universidad Complutense” of Madrid. Finally, the impact of the collecting activity is being evaluated in collaboration with the “Universidad de Sevilla”, in order to propose conservation and also exploitation measures of this natural resource.



**GROWTH RATES FROM SEVERAL POPULATIONS OF THE FRESHWATER PEARL MUSSEL (*MARGARITIFERA MARGARITIFERA*) IN GALICIA (NORTHWESTERN SPAIN)**

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**ABSTRACT**

At the moment we are evaluating the characteristics of the growth of pearl mussel in populations of different rivers of Galicia. The present results refer to only 6 populations corresponding to other so many rivers or basins. Parameters of growth were calculated starting from the classic function of von Bertalanffy,  $L_t = L_{\infty} (1 - e^{-k(t-t_0)})$ .  $L_{\infty}$  (asymptotic length, mm) and  $k$  (growth constant, year<sup>-1</sup>) are characteristic of each population and  $L_t$  is the length to the age  $t$  (years). Both  $k$  and  $L_{\infty}$  were obtained applying a iterative procedure by means of the program JMP (version 3.2 for PC computers). It has been suggested for *M. margaritifera* (1) that the von Bertalanffy's pattern is more appropriate than other non lineal models of growth. For the present populations  $r^2$  (coefficient of determination) always went higher to 99%.

As much  $k$  as  $L_{\infty}$  showed significant differences among rivers.  $L_{\infty}$  varied between 76.78 and 101.59, and  $k$  between 0.140 and 0.202. The values of the rate of growth are the biggest found in this species. Maximum age ( $A_m$ ) and maximum length ( $L_m$ ) were calculated previously (2) and they turned out to be the lowest computed for this species. It has been argued (3,4) that mussels with a high  $k$  (>0.1 year<sup>-1</sup>), low  $A_m$  and low  $L_m$  produces less offspring than those with low  $k$ , high  $A_m$  and high  $L_m$ . Thus, Galician populations (the known southernmost populations) are particularly vulnerable to extinction and, idoneous conservation strategies must be recommended.

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**FIRST RECORD OF *ASTARTE FUSCA* (POLI, 1795) IN THE CENTRAL ADRIATIC SEA**

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**ABSTRACT**

As far as the Italian basins, there are two species of *Astarte* up to now marked: *A. fusca* and *Astarte sulcata* (Da Costa, 1778). Both the species have not been found in the high and central Adriatic sea. On November 9<sup>th</sup> 1999, a specimen of *Astarte fusca* (Poli, 1795) was caught in the Cesano-Senigallia artificial reef at a depth of 11 meters. In particular, it was found in a hole bored by the bivalve *Pholas dactylus* Linnaeus, 1758. The collection has been carried out after the recovery of a cubical block (1m<sup>3</sup>) in composed ash, realised during a program of research carried out by the CNR of Ancona between 1996 and the 1999 and regarding the experimental breeding of the bivalve *P. dactylus*. The distribution of *A. fusca* comprises, beyond to the Mediterranean, also the coasts of Mauritania, western Africa and the Canarian islands.

So, the present record, first for the middle Adriatic sea, extends moreover the areal of *A. fusca* inside the Mediterranean.

**NUOVI RECORDS DI *SANSONIA ITALICA* (MOLLUSCA: PICKWORTHIIDAE) PER IL PLIOCENE ITALIANO (LIGURIA OCCIDENTALE).**

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**RIASSUNTO**

Nel 1983 Raffi e Taviani descrivono una nuova specie del Pliocene del bacino Mediterraneo ascrivendola al Genere *Sansonia*, secondo gli AA. sinonimo seniore di *Pickworthia*, ed inserendola nella Sottoclasse Prosobranchia. Il Genere, già conosciuto per studi precedenti, non risultava segnalato per i bacini neogenici italiani, ma solo per il Miocene medio del centro Europa e per quello del Pacifico orientale.

Nel corso delle ricerche intraprese da anni sui sedimenti di alcuni lembi pliocenici della Liguria occidentale (Formazione delle Argille di Ortovero) sono stati rinvenuti numerosi esemplari di *Sansonia italica* Raffi & Taviani, 1983.

Questi rappresentano la prima nuova segnalazione di *S. italica* dopo l'istituzione della specie, al di fuori della località tipica (Campore, Parma).

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**ABSTRACT**

The object of this study are the molluscs of the Kerguelen Island included in the mission Ker-82 with I.G. 26482 of the Royal Belgian Institute of Natural Sciences. This Belgian expedition to subantarctic waters took place in January and February of 1982 in the oriental section of the archipelago, exactly in different points of Morbihan Bay. Samples, corresponding with dredging realised in soft bottoms, which came to us sorted and preserved in ethanol. In this collection are present 12 species of bivalves and 31 species of gastropods from shallow waters. This work provides taxonomic remarks about species with especial interest, as well as the particular aspects of the radula and shell when is required. The known geographical range distribution of the species and its synonymies are recorded and completed with the known bibliography.