Training workshop on the taxonomy of marine molluscs
Mauritius, October 2017

Introduction

IOC Biodiversity and MOI organized a regional workshop in Mauritius in October 2017 for 4 days. The main objective of the workshop were (i) to train regional marine biologists to the taxonomy of molluscs, (ii) to build capacities in the description and identification of molluscs, (iii) to assess the mollusc biodiversity and its evolution in tropical marine ecosystems.

Figure 1: Le Bouchon sampling site

Material and Methods

About 20 participants attended the workshop with about half of them from Mauritius and the others from Madagascar, Comoros, Kenya and Tanzania. The workshop was led by an Australian expert. The workshop followed these 3 steps:

  - Day 1: Formal classroom training about taxonomy, molluscs and shells features. Generals information slide about molluscs were projected.

  - Day 2: Field sampling in Mauritius at Le Bouchon (South-east coast). The sampling was performed in various biotopes provided at the location: beach, rocky shore, mangrove and lagoon. Lagoon itself provided various environments (live coral, rubbles, sand, grass, silt). Some samplers were on foot and other snorkelling. The only method used was hand picking of shells during one hour. Shells were either dead (empty or crabbed) or alive with limitation of 1 specimen per species. The objective of the sampling was not quantitative but qualitative. The shells have been washed and put to dry in the lab after the field collection.

- Day 3-4: Analysis of the samples sorted and numbered by kind and appearance. Participants had to write a description of as many species as they could in group of 2-3. Specific attention was drawn to bivalves as identification keys were available and to easily accessible families of gastropods: littorinids and neritoids.

Figure 2 : sorting and identification of the specimen

Results

The total collection effort provided 99 different taxa.

Participants struggled in identifying most of the taxa as lot of them did not have specialized knowledge or background in malacology. Moreover, lot of species were not clean or in good enough condition for their characteristics to be visible.

Figure 3: Puperita bensoni (Neritoids)

With the support of shells books, the work of the attendees and 2 local experts, 91 of the taxa have been identified to the species level, and 8 to the genus level. As a result 21 bivalves, 78 gastropods and 1 cephalopod taxon have been detected. A few gastropods were from fresh water and land environment.
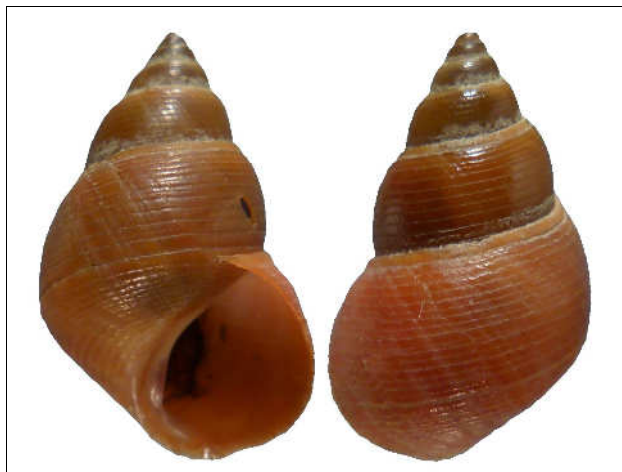

Figure 4: Littoraria sp (Littorinids)

Attempt for an abundance index (Ab.: 1 very few to 5 abundant) has been made according to the number of specimen collected / observed for each taxon. This index just gives a rough empirical estimate. To assess a good abundance index others methodologies should be used.

The check list of the survey is detailed below:

Bivalves				
Taxon	Ab.		Taxon	Ab.
Anadara antiquata	4		Laevichlamys lemniscata	1
Anodontia edentula	4		Modiolus auriculatus	3
Arcopagia scobinata	4		Pinna muricata	4
Asaphis violascens	5		Quidnipagus palatam	4
Atactodea striata	3		Semele lamellosa	1
Barbatia amygdalumtostum	3		Septifer bilocularis	3
Codakia punctata	2		Spondylus sp	1
Ctenoides lischkei	1		Tellina robusta	1
Gafrarium pectinatum	3		Timoclea marica	2
Isognomon sp	5		Tridacna maxima	2
			Divaricella ornatissima	1

Gastropods				
Taxon	Ab		Taxon	Ab
Antisabia foliacea	2		Latirus polygonus	1
Bulla ampulla	5		Littoraria coccinea glabrata	4
Cellana livescens	3		Littoraria mauritiana	4
Cerithium columna	2.5		Littoraria scabra	4
Cerithium echinatum	2.5		Littoraria sp	1
Cerithium nesioticum	2		Malea pomum	1
Cerithium nodulosum	2		Mammilla melanostoma	3
Clypeomorus bifasciata	3		Melampus fasciatus	3
Clypeomorus petrosa gennesi	3		Melampus luteus	3
Conus arenatus	1		Modulus obtusatus	1
Conus coronatus	2		Morula granulata	2.5
Conus ebraeus	1		Morula mutica	2
Conus lividus	3		Nassarius gemmuliferus	3.5
Conus fuscatus	2		Nassarius quadrasi	3
Conus miliaris	1.5		Natica gualteriana	3.5
Conus virgo	1		Nerita albicilla	3.5
Coralliophila erosa	1		Nerita sp	3
Cymatium muricinum	1		Nerita aterrima	4
Cymatium nicobaricum	2.5		Nerita plicata	4.5
Cypraea annulus	5		Neritina sp	3
Cypraea caputserpentis	3		Neritina mauriciae	1
Cypraea clandestina	1		Patella exusta	1.5
Cypraea isabella	2		Planaxis sulcatus	5
Cypraea erosa	1		Psilaxis oxytropis	1
Cypraea kieneri	1		Puperita bensoni	3
Cypraea mauritiana	1		Scabricola eximia	1
Cypraea moneta	1		Siphonaria sp	2.5
Cypraea scurra	1.5		Strombus decorus	1
Cypraea tigris	2.5		Strombus gibberulus	4
Drupa rubusidaeus	2		Strombus mutabilis	4
Drupa lobata	2		Strombus ochroglotis	3
Drupella cornus	3.5		Tectus mauritianus	3
Drupella margariticola	4		Thiara tuberculata	1
Drupella rugosa	2.5		Tonna perdix	2.5
Littoraria sp	1.5		Tropidophora fimbriata	1
Engina mendicaria unilineata	2		Turbo petholatus	1
Haliotis rugosa	2.5		Turbo setosus	2
Haliotis unilateralis	1		Turbo sp	1
Heliacus areola	1		Euglandina rosea	1

Cephalopods				
Taxon	Ab.			
Spirula spirula	2			

Figure 5: Spirula spirula

Conclusion

Identification of species is not as straightforward as it seems to be. Moreover good quality specimens are required to read the shells characteristics, first step for an accurate identification.

Some species were also sampled for DNA analysis and to be part of the MOI marine species DNA database. Those results will provide a nice additional tool for further species identification.