

GASTROPODS ENCOUNTERED ON A REEF FLAT AT SAMALONA ISLAND, SOUTH-WEST SULAWESI, INDONESIA

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ABSTRACT

The diversity of prosobranch gastropods was studied at four sites on a reef flat on Samalona Island. The study showed that at least 45 species from 12 families existed in the four areas. Some species were distributed in all four areas while others were restricted to certain sites.

INTRODUCTION

Geomorphological and marine biological research has been performed in the Spermonde Archipelago during the years 1979-1992, as part of the Buginesia Project, but only a few studies have dealt with the molluscan fauna.

The Spermonde Archipelago consists of a number of small islands at variable distance from the coast of South-West Sulawesi. De Klerk (1983) showed that the shelf area stems from Holocene. Knowledge about the diversity of gastropods is considered basic information needed in further ecological investigations.

MATERIALS AND METHODS

Description of the study area

Samalona Island is located at 5°S and 119°10'E. At the western side, the reef flat covers a depth range of 0-4 m and stretches ca. 200 m out perpendicular to the island. The dominant type of substrate is sand with scattered pieces of coral rubble and dead and living coral boulders. A massive layer of coral rubble covers the bottom at 4-5 m depth, marking the reef edge area. On the eastern side, the reef flat covers depths between 0-3 m. The substrate is mainly sand. The reef edge is located 60 m offshore with a steep seawards slope. This area is used as a natural port on the island. The reef flat on the northern side is dominated by sand with coral rubble, 60-80 m offshore. Living coral boulders can be found patchy about 100 m offshore at depths ranging from 1-3 m before the bottom drops off. At the southern side the reef flat covers depths between 0-2 m for a dis-

tance of 100 m offshore where the bottom gently drops off. The substrate in this area consists mainly of rubble and sand with scattered living coral.

Prosobranch gastropods were collected following a transect line offshore in each area. Field sampling was conducted from July to September 1993. All living gastropods inside each transect were collected, counted and preserved in 10% neutral formalin for identification. Environmental parameters were recorded during each sampling. Identification is based on Abbott (1979), Coleman (1988) and Hinton (1979).

RESULTS

Totally, 45 species from 21 families were found living on the reef flat, during this survey. The occurrence in each sampling area as percentage of the total number of species was: North, 33.3% of the species; East, 26.6% of the species; West, 62.2% of the species and South, 42.2% of the species collected totally. The temperature ranged from 28.8 - 30°C, the salinity was constant 35 ppt, and pH between 7.8 and 8.

DISCUSSION

Some strombids such as *Strombus luhuanus*, *Strombus lentiginosus*, *Lambis lambis*, and *Vasum turbinellus* are widely distributed (100%, 75%, 75%, and 100% respectively). The dominating substrate is sand, which may explain the distribution of some species of gastropods. The high number of cyprid species on the west coast might be due to the abundance of living coral.

The measured physical factors did not vary markedly in the surveyed period. Thus, the occurrence of a species in one area is not determined by physical

factors solely, but probably also by biotic factors such as competition and predation.

Table 1. List of gastropods found at Samalona Island, N = North; E = East; W = West; S = South; + = Present.

No	FAMILY	No	SPECIES	N	E	W	S
1	Haliotidae	1	<i>Haliotis asinina</i> Linne, 1758			+	
2	Trochidae	2	<i>Tectus pyramis</i> Born, 1778			+	
		3	<i>Trochus maculatus</i> Linne, 1758				+
3	Littorinidae	4	<i>Tectarius pagodus</i> Linne, 1758			+	
4	Cerithidae	5	<i>Cerithium nodulosum</i> Bruguiere, 1792	+		+	
		6	<i>Rhinoclavis aspera</i> Linne, 1758			+	+
5	Strombidae	7	<i>Strombus luhuanus</i> Linne, 1758	+	+	+	+
		8	<i>Strombus lentiginosus</i> Linne, 1758	+	+	+	
		9	<i>Strombus plicatus</i> Roding, 1798				+
		10	<i>Strombus minimus</i> Linne, 1771				+
		11	<i>Strombus labiatus</i> Roding, 1798				+
		12	<i>Lambis lambis</i> Linne, 1758	+			+
		13	<i>Lambis millepeda</i> Linne, 1758	+		+	
6	Cypraeidae	14	<i>Cypraea moneta</i> Linne, 1758	+		+	+
		15	<i>Cypraea annulus</i> Linne, 1758			+	+
		16	<i>Cypraea isabella</i> Linne, 1758	+		+	
		17	<i>Cypraea arabica</i> Linne, 1758			+	
		18	<i>Cypraea tigris</i> Linne, 1758			+	+
		19	<i>Cypraea vitellus</i> Linne, 1758			+	
		20	<i>Cypraea pallida</i> Gray, 1824			+	
		21	<i>Cypraea erosa</i> Linne, 1758			+	
7	Ovulidae	22	<i>Ovula ovum</i> Linne, 1758	+		+	
8	Naticidae	23	<i>Polinices tumidus</i> Swainson, 1840				+
9	Cassidae	24	<i>Cassis cornuta</i> Linne, 1758		+		
10	Bursidae	25	<i>Bursa rubeta</i> Linne, 1758			+	
11	Muricidae	26	<i>Chicoreus ramosus</i> Linne, 1758				+
		27	<i>Chicoreus brunneus</i> Link, 1807	+			
		28	<i>Morula margariticola</i> Broderip, 1833				+
		29	<i>Morula musica</i> Kiener, 1836	+			
12	Columbellidae	30	<i>Pyrene testudinaria</i> Link, 1807	+			+
13	Buccinidae	31	<i>Cantharus undosus</i> Linne, 1758	+		+	
14	Fascioliariidae	32	<i>Pleuroploca trapezium</i> Linne, 1758		+	+	
15	Volutidae	33	<i>Cymbiola vespertilio</i> Linne, 1858		+		
16	Olividae	34	<i>Oliva tesellata</i> Lamarck, 1811			+	
17	Mitridae	35	<i>Mitra puncticulata</i> Lamarck, 1811	+			
18	Costellariidae	36	<i>Vexillum plicarium</i> Linne, 1758		+		
19	Turbinellidae	37	<i>Vasum turbinellus</i> Linne, 1758	+	+	+	+
		38	<i>Vasum ceramicum</i> Linne, 1758	+		+	
20	Conidae	39	<i>Conus virgo</i> Linne, 1758		+	+	+
		40	<i>Conus musicus</i> Hwass, 1792	+			
		41	<i>Conus marmoreus</i> Linne, 1758		+		
		42	<i>Conus arenatus</i> Hwass, 1792		+		
21	Terebridae	43	<i>Terebra undulata</i> Gray, 1834		+		
		44	<i>Terebra subulata</i> Linne, 1767		+		
		45	<i>Terebra nebulosa</i> Sowerby		+		

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