

BRACKISH-WATER MOLLUSKS OF SURAT THANI PROVINCE, SOUTHERN THAILAND

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Abstract. Brackish-water mollusks inhabiting the mangrove areas along the Gulf of Thailand of Surat Thani Province were investigated for distribution, abundance and natural infections. Nine families and 32 species of brackish-water snails were recovered from 14 sampling stations. Species belonging to the genus *Cerithidea* of the family Potamididae were mainly examined and *Cerithidea (Cerithideopsis) cingulata*, *C. (C.) djadjariensis*, and *C. (Cerithidea) charbonnieri* were naturally infected with 2 types of trematode cercariae, and one which was undetermined. *C. (C.) cingulata* had the highest infection rate (38.5%). Viewing two snail communities, the first community on the mainland and the second on Samui Island in Surat Thani Province, 28 brackish-water mollusk species were present on the mainland, 15 species were evident on Samui Island, and 11 snail species were common to both the mainland and Samui Island. Measurement of community similarity based on species presence revealed an index of similarity of 0.51. Concerning land use by the local people in the station areas investigated, brackish-water snails in Surat Thani Province are facing habitat degradation by human use.

INTRODUCTION

Surat Thani is the largest of the southern provinces of Thailand, and is popular for both Thai and foreign tourists for its beautiful islands, beaches, and submarine fauna and flora. This includes Samui Island, a large island in the Gulf of Thailand, which is 84 km east of Surat Thani Province. Land development can be found at many areas around the island.

Brandt (1974) reported that 43 common species of brackish-water mollusks inhabit Thailand. Another 11 snail species can be found in Surat Thani Province, of which 2 species of *Cerithidea (Cerithidea) charbonnieri* and *Morrisonietta bandonensis*, are present only in Surat Thani Province.

The major intent of this study was to investigate the distribution of species of brackish-water mollusks (hereafter referred to as snails) in Surat Thani Province, southern Thailand. The secondary purpose was to determine the common trematode infections in snails and the abundance of snail species in the localities. Surat Thani Province was chosen because land development is continuously expanding for residences, agriculture, fisheries, water resource development, recreation, and tourism. Hence, some of the brackish-water snails

inhabiting mangrove areas along the Gulf of Thailand may be dispersed or extinct because of land development.

MATERIALS AND METHODS

The 14 sampling stations in Surat Thani Province were located along the Gulf of Thailand (Fig 1). Eight stations (Nos. 1, 2, 3, 10, 11, 12, 13, and 14) were on the mainland, while the remaining 6 stations (Nos. 4, 5, 6, 7, 8, and 9) were on Samui Island. The variety of environments of stations is presented in Table 1. Sampling was conducted from 2 to 4 February 2004. This study was in accord with the study of brackish-water mollusks in the south of Thailand.

The brackish-water snails were collected by a one hour search of a station area of 100 m² for snails that characteristically occur in low densities in the environment (Lohachit, 2001). Each of 6 experienced persons searched for snails in each station. All likely habitats, including between Nipa palm leaves, were examined for snails. Environmental observation of the station area, such as snail habitats and human use, were also recorded. All of the snails collected were packed in an ice box for transportation to Bangkok, as described by Sri-aroon *et al* (2003), in order to examine them for trematode infection and to identify species.

Snails were identified with the aid of the Identification Key for Fresh-and Brackish-Water Snails of Thailand (Upatham *et al*, 1983), The Non-Marine Aquatic Mollusca of Thailand (Brandt, 1974), Systematic Studies on the Non-Marine Mollusca of the Indo-Australian Archipelago (Van Benthum Jutting,

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Fig 1- Location of 14 investigated stations along the Gulf of Thailand, Surat Thani Province, southern Thailand.

1965), and with a collection of species of snails at the Museum of Mollusks, Faculty of Tropical Medicine, Mahidol University.

The trematode infection was examined by crushing the snails. Trematode cercariae obtained were measured and their morphology was recorded for identification. Analysis of the relative abundance of each identified species was performed based on the total number of snails collected (Coney *et al.*, 1982). In order to demonstrate the geographical distribution relationship to various species, analysis of the nature of the community were performed on the mainland and on Samui Island, using the index of similarity described by Sorensen (1948). In two communities, one with [*a*] number of species on the mainland of Surat Thani Province and another with [*b*] number of species on Samui Island, and [*c*] species occurring in both communities, we defined: Index of similarity = $2c / a + b$. This index ranges from 0 to 1.0, to quantify the range from no similarity to complete similarity.

RESULTS

Nine families and 32 species of brackish-water snails were recovered from Surat Thani Province. The

number of snails collected by each station is given for each species in Table 2. Also shown in this table is the number of species (*S*), number of individuals (*N*), and most abundant species (N_{max}) of each identified brackish-water snail in the station. Moreover, some descriptions of snail habitats are described in detail (Table 1). Table 3 demonstrates the relative abundance of each brackish-water snail species as percent composition, based upon the total number of snails collected (9,718). In addition, the total number of stations is given for each species and is referred to as total frequency.

Of *Cerithidea* species examined, three species, *Cerithidea (Cerithideopsis) cingulata*, *C. (C.) djadjariensis*, and *C. (Cerithidea) charbonnieri*, were naturally infected with trematode cercariae (Table 4) were found from them although another one type was undetermined. The first type of cercariae had the cystogenous gland cells but neither eyespot nor collar spines. The second type had two eyespots, 4 and 3 penetration gland cells forming two rows, and a tail with a fin. The number of snails infected with each type of trematode varied markedly among species and localities (Table 4).

Viewing two snail communities, the first

Table 1
Data on localities at stations in Surat Thani Province, Thailand.

Station	Code ^a	Locality
1	Surat 2204-1	Ban Pak Nam Tha Krachai, Pak Krachai River, Tha Chana district; a fishing village; coarse sand and mud, brown water; <i>Sermyla riqueti</i> and <i>Melanooides tuberculata</i> crawling on sand, <i>Clithon (Clithon) faba</i> living on mud.
2	Surat 2204-2	Klong Ling Tao, Ban Pak Nam Tha Krachai No. 7, Tha Chana district; a fishing home; fine sand and mud; mangrove area; <i>Assiminica (Sphaerassiminea) brevicula</i> and <i>Melampus (Micromelampus) siamensis</i> living on mud under the trees, <i>Cerithidea (Cerithideopsilla) alata</i> , <i>C. (C.) cingulata</i> and <i>C. (C.) djadjariensis</i> living on sand, <i>Littorinopsis melanostoma</i> , <i>L. scabra</i> and <i>L. undulata</i> living on the trees, <i>Cassidula mustelina</i> living on the lower trunks of trees.
3	Surat 2204-3	Pak Nam Phum Rieng, Ban Phum Rieng, Chaiya district; restaurants along the seashore; fine sand and mud; mangrove area with disposal of domestic wastes and broken glass bottles; snails found living on the poles of wooden bridge towards the restaurants and mangrove area.
4	Sumui 2204-4	Klong Jau-ra-kay, Ban Na Thon, Na Thon subdistrict, Ko Samui district; a bridge next to the ferry parking lot; no trees nor vegetation; coarse sand.
5	Samui 3204-5	Ban Bang Po, Bang Po subdistrict, Ko Samui district; a new residential area; coarse sand dune at the mouth of a small creek.
6	Samui 3204-6	Santaburi Hotel, Ban Mae Nam, Mae Nam subdistrict Ko Samui district; coarse sand dune at the mouth of a small creek, therefore, water was impounded as a small and long pond; <i>Melanooides tuberculata</i> and <i>Thiara scabra</i> found living in the impounded pond.
7	Samui 3204-7	Klong Wat Ta-le, Ban Mae Nam, Mae Nam subdistrict, Ko Samui district; large canal, deep and milky water; mud with fine sand; large trees along the banks of the canal.
8	Samui 3204-8	Ban Cha-waeng, Klong Cha-waeng, Ko Samui district; a small canal, coarse sand; domestic water discharged directly into the canal; dead and live <i>Pomacea canaliculata</i> (the golden apple snail) were present in the area of domestic water discharge.
9	Samui 3204-9	Ban La Mai, Marat subdistrict, Ko Samui district.
10	Surat 4204-10	Ban Thong Mai No. 5, Don Sak subdistrict, Don Sak district; mangrove area along the highway, pebbles and cobbles; disposal area of solid wastes.
11	Surat 4204-11	Ban Bang Nang No. 9, Klong Bang Nang, Don Sak subdistrict, Kanchanadit district; a large fishing village, muddy area, large canal near the village; sanitation very poor, disposal of domestic wastes around the village area, human feces found on land.
12	Surat 4204-12	Ban Pak Nam Ka Dae, Kanchanadit district; dense mangrove area, shaded; mud, large solid-waste disposal area.
13	Surat 4204-13	Klong Bang Thep connected to the Tapee River, Ban Bang Thep, Mueang district; sandy mud; large trees, rotten leaves on land; many species of brackish-water snails found; small snails living among the rotten leaves, the specific native species of <i>Cerithidea (Cerithedia) charbonnieri</i> living among the bases of Nipa palm leaves.
14	Surat 4204-14	Klong Tha Thong, Ban Tha Thong Mai, Tha Thong Mai subdistrict, Kanchanadit district; Nipa palm mangrove, muddy clay; native species of <i>Cerithidea (Cerithedia) charbonnieri</i> living among the bases of Nipa palm leaves.

^aOriginal code for the Mollusk Museum collection at the Faculty of Tropical Medicine, Mahidol University.

Table 2
Brackish-water mollusks of Surat Thani Province, southern Thailand.

Species	Number of individuals													
	1 ^a	2	3	4	5	6	7	8	9	10	11	12	13	14
Family Neritidae														
1. <i>Clithon (Clithon) faba</i> (Sowerby, 1836)	137	0	0	50	0	0	553	58	240	0	0	0	0	0
2. <i>Clithon (Pictoneritina) oualaniensis</i> (Lesson, 1831)	0	0	0	0	0	0	183	0	53	0	0	0	0	0
3. <i>Neritina (Dostia) violacea</i> (Gmelin, 1790)	16	0	6	2	0	0	90	9	6	2	1	157	153	20
4. <i>Neritina (Neritina) pulligera</i> (Linnaeus, 1767)	0	0	0	2	0	0	0	0	0	0	0	0	0	0
5. <i>Neritodryus dubia</i> (Gmelin, 1791)	0	0	0	0	0	0	0	0	0	0	0	0	47	152
Family Littorinidae														
6. <i>Littorinopsis melanostoma</i> (Gray, 1839)	5	61	124	0	0	0	0	0	0	7	158	48	129	0
7. <i>Littorinopsis scabra</i> (Linnaeus, 1758)	4	9	19	0	0	0	0	0	0	1	1	0	0	0
8. <i>Littorinopsis undulata</i> (Gray, 1839)	0	15	71	678	0	0	0	0	0	464	466	0	10	0
Family Stenothyridae														
9. <i>Stenothyra</i> sp	10	0	49	0	0	0	0	0	0	1	0	0	0	0
Family Irvadiidae														
10. <i>Fairbankia bombayana</i> Blanford, 1868	3	0	5	0	0	0	0	0	0	0	1	148	58	0
Family Assimineidae														
11. Assimineae (Sphaerassimineae) <i>brevicula</i> (Pfeiffer, 1854)	0	376	400	0	0	0	0	15	18	0	143	272	100	0
Family Thiariidae														
12. <i>Sermyla riqueti</i> (Grateloup, 1840)	31	0	0	0	0	0	127	43	457	0	0	0	0	0
13. <i>Melanoides tuberculata</i> OF Muller, 1774	19	0	0	16	0	14	3	128	5	0	0	0	0	0
14. <i>Tarebia granifera</i> (Lamarck, 1822)	212	0	0	0	0	0	32	25	2	0	0	0	0	0
15. <i>Thiara scabra</i> OF Muller, 1774	0	0	0	0	0	33	0	0	0	0	0	0	0	0
Family Potamididae														
16. <i>Cerithidea (Cerithidae) charbonnieri</i> (Petit, 1851)	0	0	0	0	0	0	0	0	0	0	0	0	327	491
17. <i>Cerithidea (Cerithidea) obtusa</i> (Lamarck, 1822)	0	0	0	0	0	0	0	0	0	4	4	0	0	0
18. <i>Cerithidea (Cerithidea) quadrata</i> Sowerby, 1866	0	0	13	0	0	0	0	0	0	103	3	0	0	0
19. <i>Cerithidea (Cerithideopsilla) alata</i> (Philipi, 1849)	2	2	6	0	0	0	0	0	0	0	3	0	0	0
20. <i>Cerithidea (Cerithideopsilla) cingulata</i> (Gmelin, 1790)	7	164	0	0	0	0	13	0	0	506	75	0	0	0
21. <i>Cerithidea (Cerithideopsilla) djadjariensis</i> (Martin, 1899)	4	14	8	0	0	0	0	0	0	123	68	0	0	0
22. <i>Faunus ater</i> (Linnaeus, 1758)	0	0	0	0	0	0	1	0	4	0	0	0	0	0
Family Muricidae														
23. <i>Chicoreus capucinus</i> (Lamarck, 1822)	0	0	68	0	0	0	0	0	0	3	0	0	0	0
Family Auriculidae (Ellobiidae)														
24. <i>Ellobium aurisjudae</i> (Linnaeus, 1758)	0	1	7	0	0	0	0	0	0	0	0	4	8	0
25. <i>Cassidula aurisfelis</i> (Bruguere, 1789)	0	0	49	0	0	0	0	0	0	0	0	60	0	0
26. <i>Cassidula multiplicata</i> Martens, 1865	0	0	17	0	0	0	0	0	0	0	0	0	0	0
27. <i>Cassidula mustelina</i> (Deshayes, 1830)	1	10	42	0	0	0	14	0	8	18	9	0	0	0
28. <i>Melampus (Micromelampus) siamensis</i> Martens, 1865	0	2	0	0	0	0	0	0	0	0	0	79	1	0
29. <i>Laemodonta punctatostriata</i> (H. & A Adams 1853)	0	24	118	0	0	0	0	2	0	0	0	40	3	3
30. <i>Laemodonta punctigera</i> (H & A Adams, 1853)	0	0	6	0	0	0	0	0	0	18	137	41	0	0
31. <i>Pythia (Pythia) plicata</i> (Gray, 1825)	0	0	0	0	0	0	0	0	0	0	12	14	0	0
32. <i>Pythia (Trigonopythia) trigona</i> (Troschel, 1838)	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Number of individuals (N)	451	679	1,008	748	0	47	1,002	294	785	1,222	959	966	891	666
Number of species (S)	13	12	17	5	0	2	8	8	8	11	13	11	12	4
Most abundant species (N max)	213	376	400	678	0	33	553	128	457	506	466	272	327	491

^aStation number

Table 3
Total individuals, percent composition and total station frequency of brackish-water mollusks.

Species	Total individuals	% ^a	Total frequency
<i>Clithon (Clithon) faba</i>	1,038	10.7	5
<i>Clithon (Pictoneritina) oualaniensis</i>	236	2.4	2
<i>Neritina (Dostia) violacea</i>	462	4.8	11
<i>Neritina (Neritina) pulligera</i>	2	- ^b	1
<i>Neritodryas dubia</i>	199	2.0	2
<i>Littorinopsis melanostoma</i>	532	5.5	7
<i>Littorinopsis scabra</i>	34	0.3	5
<i>Littorinopsis undulata</i>	1,704	17.5	5
<i>Stenothyra</i> sp	60	0.6	3
<i>Fairbankia bombayana</i>	215	2.2	5
<i>Assimineae (Sphaerassimineae) brevicula</i>	1,324	13.6	7
<i>Sermyla riqueti</i>	658	6.8	4
<i>Melanoides tuberculata</i>	185	1.9	6
<i>Tarebia granifera</i>	271	2.8	4
<i>Thiara scabra</i>	33	0.3	1
<i>Cerithidea (Cerithidea) charbonnieri</i>	818	8.4	2
<i>Cerithidea (Cerithidea) obtusa</i>	8	- ^b	2
<i>Cerithidea (Cerithidea) quadrata</i>	119	1.2	3
<i>Cerithidea (Cerithiopsilla) alata</i>	13	0.1	4
<i>Cerithidea (Cerithiopsilla) cingulata</i>	765	8.0	5
<i>Cerithidea (Cerithiopsilla) djadjariensis</i>	217	2.3	5
<i>Faunus ater</i>	5	- ^b	2
<i>Chicoreus capucinus</i>	71	0.7	2
<i>Ellobium aurisjudae</i>	20	0.2	4
<i>Cassidula aurisfelis</i>	109	1.1	2
<i>Cassidula multiplicata</i>	17	0.2	1
<i>Cassidula mustelina</i>	102	1.1	7
<i>Melampus (Micromelampus) siamensis</i>	82	0.8	3
<i>Laemodonta punctatostrata</i>	190	2.0	6
<i>Laemodonta puncigerta</i>	202	2.1	4
<i>Pythia (Pythia) plicata</i>	26	0.3	2
<i>Pythia (Trigonopythia) trigona</i>	1	- ^b	1

^aBased on total number of brackish-water mollusks = 9,718; ^bLess than 0.1%

Table 4
Natural infection of brackish-water mollusks of Surat Thani Province, southern Thailand.

Family/Species	% Infection	Type of cercaria	Station number
Potamididae			
<i>Cerithidea (Cerithideopsis) alata</i>	0 (0/3)		11
<i>C. (C.) cingulata</i>	4.8 (2/42) ^a	A (1) ^b U (1)	2
	38.5 (15/59)	A (1) B (11) U (3)	10
	34.2 (25/73)	A (15) B (8) U (2)	11
<i>C. (C.) djadjariensis</i>	4.5 (1/22)	A (1)	11
<i>C. (Cerithidea) charbonnieri</i>	2.7 (2/73)	A (1)	13 U (1)
	0 (0/29)		14
<i>C. (C.) obtusa</i>	0 (0/4)		11
<i>C. (C.) quadrata</i>	0 (0/3)		11
Auriculidae (Ellobiidae)			
<i>Cassidula mustelina</i>	0 (0/18)		11

^aNumber of snail(s) found with cercariae/total snails crushed; ^bNumber of snail(s) found with cercariae

Types of cercariae : A = cercaria with cystogeneus gland, neither eye-spot nor collar spines; B = cercaria with eye-spot, 4 and 3 penetration gland cells, and tail with fin; U = undetermined.

community on the mainland and the second on Samui Island in Surat Thani Province, 28 brackish-water mollusk species were present on the mainland, and 15 species were evident on Samui Island, of which 11 snail species were common to both the mainland and Samui Island (Table 5). Measurement of community similarity, based on species presence, illustrated an index of similarity of 0.51 (Table 5).

DISCUSSION

Surat Thani Province in southern Thailand is rich in brackish-water snails. In this investigation, 32 species of brackish-water mollusks were found along the Gulf of Thailand (Table 2). Comparison of this investigation with Brandt's report (1974), and with the exception of unidentified species of *Stenothyra*, showed that 25 species collected were commonly present in the provinces of Thailand, 5 species were rare (present in some provinces of the country), and 1 species was very rare (known only from Surat Thani Province) (Table 6).

It is noteworthy that some species that had not been previously found in Surat Thani Province were

obtained in this study – for example, *Littorinopsis melanostoma* of Chon Buri (Table 6). In contrast, many of the rare species named in Brandt's investigation, were not found in this study – for example, *Neritina (Vittoida) variegata* of Surat Thani and *Clenchiella microscopica* of Rayong, Chanthaburi, Trat, Bangkok and Surat Thani provinces.

Table 3 demonstrates the fundamental unit (species) of the natural community actually existing in nature, during the time of the investigation and among a variety of environmental stations. Among these brackish-water snails, *Neritina (Dostia) violacea* was the most common species since it was found in 11 stations (Tables 2 and 3). With the results obtained, more specific studies of the quantitative ecology of these snails are needed to confirm these findings.

The brackish-water snail *Cerithidea* that was most sensitive to trematode infection was *C. (Cerithideopsis) singulata*. Since the second type of cercaria seemed to be a human parasite, it will be identified after determination of the DNA sequences. It is also interesting to note that high infection rates of *C. (C.) cingulata* were recorded in stations 10 and 11.

Table 5
Brackish-water snail species from the mainland and Samui Island, Surat Thani Province.

Species	Mainland	Samui Island
<i>Clithon (Clithon) faba</i>	*	*
<i>Clithon (Pictoneritina) oualaniensis</i>		*
<i>Neritina (Dostia) violacea</i>	*	*
<i>Neritina (Neritina) pulligera</i>		*
<i>Neritodryas dubia</i>	*	
<i>Littorinopsis melanostoma</i>	*	
<i>Littorinopsis scabra</i>	*	
<i>Littorinopsis undulata</i>	*	*
<i>Stenothyra</i> sp.	*	*
<i>Fairbankia bombayana</i>	*	
<i>Assiminea (Sphaerassiminea) brevicula</i>	*	*
<i>Sermyla riqueti</i>	*	*
<i>Melanoides tuberculata</i>	*	*
<i>Tarebia granifera</i>	*	*
<i>Thiara scabra</i>		*
<i>Cerithidea (Cerithidea) charbonnieri</i>	*	
<i>Cerithidea (Cerithidea) obtusa</i>	*	
<i>Cerithidea (Cerithidea) quadrata</i>	*	
<i>Cerithidea (Cerithideopsilla) alata</i>	*	
<i>Cerithidea (Cerithiopsilla) cingulata</i>	*	*
<i>Cerithidea (Cerithiopsilla) djadjariensis</i>	*	
<i>Faunus ater</i>		*
<i>Chicoreus capucinus</i>	*	
<i>Ellobium aurisjudae</i>	*	
<i>Cassidula aurisfelis</i>	*	
<i>Cassidula multiplicata</i>	*	
<i>Cassidula mustelina</i>	*	*
<i>Melampus (Micromelampus) siamensis</i>	*	
<i>Laemodonta punctatostrata</i>	*	
<i>Laemodonta punctigera</i>	*	
<i>Pythia (Pythia) plicata</i>	*	
<i>Pythia (Trigonopythia) trigona</i>	*	*

*Asterisks indicate the presence of a brackish-water mollusk species in a particular area. Index of similarity = $2 \times 11 / (28+15) = 0.51$

Both stations are disposal areas for solid wastes with poor sanitation, and many kinds of wastes including human feces were found in station 11 (Table 1). Those facts mean that life cycles of some trematodes have been well maintained between final hosts and intermediate hosts. Therefore, field collection of *Cerithidea* species for further study is recommended.

Distributional relationships of brackish-water snail species on the mainland and on Samui Island had moderate similarity, with a calculated index of similarity of 0.51 (Table 5). The information available showed that the nature of brackish-water snail

communities of Surat Thani Province, between the mainland and Samui Island, featured some similarity, but not high similarity. Concerning land use by the local people in the station areas investigated (Table 1), the brackish-water snails of Surat Thani Province are facing degradation of habitat by human use. Thus, brackish-water snails may be an indicator for studying environmental health impacts in the future.

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Table 6
Brackish-water snail species recorded from Surat Thani Province, southern Thailand

Species	Brandt's investigation		This investigation	
	Common ^a	Province ^b	Common ^a	Province ^b
<i>Clithon (Clithon) faba</i>	*		*	
<i>Clithon (Pictoneritina) oualamiensis</i>	*		*	
<i>Neritina (Dostia) violacea</i>	*		*	
<i>Neritina (Neritina) pulligera</i>		Rayong, Trat, Surat Thani		Surat Thani
<i>Nerithina (Vittoida) variegata</i>		Surat Thani, Phatthalung		
<i>Neritodryas dubia</i>	*		*	
<i>Littorinopsis melanostoma</i>		Chon Buri		Surat Thani
<i>Littorinopsis scabra</i>	*		*	
<i>Littorinopsis undulata</i>	*		*	
<i>Clenchiella microscopica</i>		Rayong, Chanthaburi Trat, Bangkok, Surat Thani		
<i>Fairbankia bombayana</i>	*		*	
<i>Fairbankia cochinchinensis</i>		Samut Prakan, Surat Thani		
<i>Assimineia (Metassimineia) phlippinica</i>		Surat Thani, Nakhon Si Thammarat		
<i>Assimineia (Sphaerassimineia) brevicula</i>	*		*	
<i>Chamlongia harinasutai</i>	* ^d	Rayong, Chanthaburi Surat Thani		
<i>Sermyla riqueti</i>	*		*	
<i>Melanoides tuberculata</i>	*		*	
<i>Tarebia granifera</i>	*		*	
<i>Thiara scabra</i>	*		*	
<i>Cerithidea (Cerithidea) charbonnieri</i>		Surat Thani ^c		Surat Thani ^c
<i>Cerithidea (Cerithidea) obtusa</i>	*		*	
<i>Cerithidea (Cerithidea) quadrata</i>	*		*	
<i>Cerithidea (Cerithideopsilla) alata</i>	*		*	
<i>Cerithidea (Cerithideopsilla) cingulata</i>	*		*	
<i>Cerithidea (Cerithiopsilla) djadjariensis</i>	*		*	
<i>Faunus ater</i>		Chanthaburi, Trat		Surat Thani
<i>Chicoreus capucinus</i>	*	Songkhla, Narathiwat	*	
<i>Morrisonietta acicula</i>		Samut Prakan, Rayong, Surat Thani		
<i>Morrisonietta bandonensis</i>		Surat Thani ^c		
<i>Morrisonietta krungtepensis</i>		Rayong, Bangkok, Surat Thani		
<i>Morrisonietta spiralis</i>		Rayong, Surat Thani		
<i>Ellobium aurisjudae</i>	*		*	
<i>Cassidula aurisfelis</i>	*		*	
<i>Cassidula multiplicata</i>	*		*	
<i>Cassidula mustelina</i>	*		*	
<i>Melampus (Micromelampus) siamensis</i>	*		*	
<i>Laemodonta punctatostriata</i>	*		*	
<i>Laemodonta punctigera</i>	*		*	
<i>Pythia (Pythia) plicata</i>	*		*	
<i>Pythia (Trigonopythia) trigona</i>		Trat, Chumphon Prachuap Khiri Khan		Surat Thani

^aCommon = commonly present in provinces of Thailand; ^bRare = present in described provinces of Thailand; ^cVery rare = known only from a specified province of Thailand; ^dProbably present in more localities around the Gulf of Thailand

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