

“A three hour tour” - Reflections on Shelling Sint Maarten as a Port During a Cruise

David P. Berschauer

25461 Barents Street, Laguna Hills, California 92653

shellcollection@hotmail.com

ABSTRACT The island of Saint Martin in the Leeward Island chain of the Lesser Antilles has not been thoroughly explored by malacologists. The author had a brief opportunity to visit the island and conduct a cursory survey of the marine molluscan fauna. This paper details that experience and provides an accounting of 91 taxa of marine mollusks found on shore among the floatsam and jetsum of Great Bay, Phillipsburg, Sint Maarten, as well as some intriguing specific findings.

KEYWORDS Saint Martin, Sint Maarten, molluscan fauna, new species.

INTRODUCTION

The island of Saint Martin is part of the Leeward Island chain of the Lesser Antilles (Figure 1). It is a volcanic island, 87 km² in area. The interior is hilly; the highest peak is Pic Paradis at 424 m. Some of the terrain near the coast is flat, there are numerous large lagoons, and the coast is deeply embayed in several places. Politically, the island is part French and part Dutch (Figure 2); the southern half, Sint Maarten, is a constituent country of the Kingdom of the Netherlands, and has a population of over 37,500. The country is 54.3 km² in area, its maximum dimensions being approximately 13 km from east to west, and 6 km from north to south. The capital, Philipsburg, is situated on a large and well-sheltered bay called “Great Bay” on the south coast of the island, at 18.0237°N 63.0458°W.

I visited Sint Maarten via a cruise ship on August 28, 2000. The ship made a short morning port stop at Great Bay in Philipsburg during a low tide, and rather than visit the tourist shops I spent three hours on the beach with my family. I tried snorkeling in the bay,



Figure 1. Map of Caribbean Antilles. (Wikipedia: By Kmusser - Own work, all data from Vector Map, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=14857874>) Red arrow denotes general location of Saint Martin.

However, the water was so churned up with suspended fine particulate coral sand that visibility was less than a foot. Accordingly, I abandoned snorkeling and began searching the beach drift and walking the length of the sand beach from east to west (approximately 1.5 km), and back again. On those parts of the beach that had not been groomed for tourism there was a great deal of beach drift, comprised of elongated patches 2 to 3 m in width. This abundance of shells was almost certainly a result of a storm which had occurred a few days earlier, as well as the effects of dredging the bay, which had

recently taken place (and which continues to the present) to ensure that the harbor entrance stays deep enough to accommodate cruise ships. My two children, Jonathon and Morgan, who were ages 8 and 6, and budding shell collectors at the time, helped me find shells for the first hour that we were on the beach.

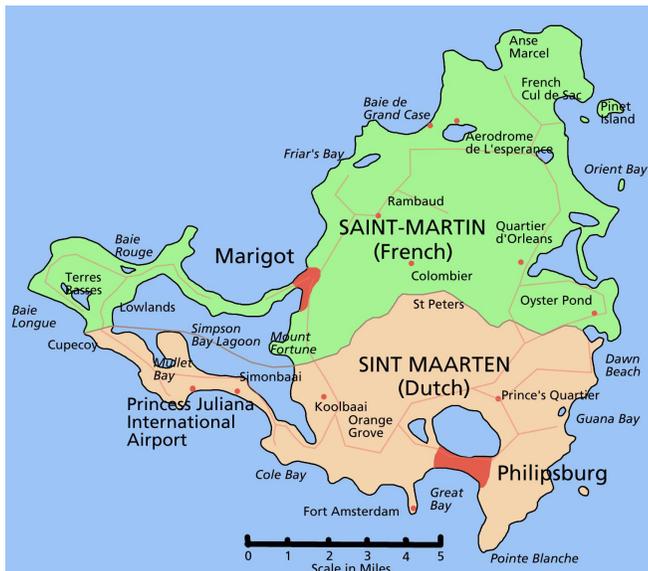


Figure 2. Map of St. Maarten with localities marked (Wikipedia: By Astrokey44 - Own work, made in Corel Painter IX, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=558729>)

A subsequent email inquiry in November 2012 to the Dutch Caribbean Nature Alliance led to a reply from the manager of the Nature Foundation of Sint Maarten, who explained that “there is no official legislation which prohibits the removal of shells from the island that do not fall under a CITES listing” however they discourage removing anything from the beach. Clearly, asking permission could have been discouraging, nevertheless it was nice to know that the full quart sized bag of shells I collected was legal.

RESULTS

Not surprisingly my bag of shells from Sint Maarten sat untouched in my shell room for several (more than ten) years before I got around to identifying my finds. My usual “go to” Caribbean shell books *Caribbean Seashells*, by G.L. Warmke & R.T. Abbott (1961), and *Seashells of the West Indies*, by M. Humphrey (1975) were taxonomically out of date but useful; nevertheless many of the shells stubbornly refused to be identified. Rosenberg (2009) lists 89 marine mollusk species that have been reported from St. Maarten/Saint-Martin in the literature. Additional sources checked were island specific monographs about the marine mollusks of St. Maarten/Saint-Martin (Coomans, 1963a; Coomans, 1963b; Coomans, 1967). Next I resorted to using *Bahamian Seashells* by C. Redfern (2001), and checking images on Eddie Hardy’s website www.gastropods.com. These further resources helped me identify all but two of the species I found, which led me to asking for expert advice from two of the world’s leading experts, Roland Houart (Muricidae) and Dr. Edward J. Petuch (Conoidean gastropods).

A rare and interesting find cast up on the shore of Great Bay was five specimens of *Trigonostoma rugosum* measuring 15.6 mm to 20.4 mm in length (see Figure 3). Rosenberg (2009) lists *T. rugosum* only from East Florida and from St. Croix, Virgin Islands. The FLMNH collection database has ten records of this species from the Virgin Islands, (including St. Croix and St. Thomas) collected by such notable malacologists as G.W. Usticke and E. Vokes, and one specimen from “NE of Contoy Pt., east coast of Mexico” (presumably this refers to Isla Contoy). Further, the ANSP database (Academy of Natural Sciences Philadelphia) shows four recorded lots from the St. Croix, and two recorded lots from St. Thomas in the U.S. Virgin Islands, collected in

the 1950s to 1960s by such notable malacologists as G.L. Warmke and G.W. Usticke. The Jacksonville Shell Club website (www.jaxshells.org), posts a photograph of a large 33 mm shell that Harry G. Lee found in 1964 in dredge spoils on the south shore of San Juan Bay, Puerto Rico. As for more southerly locations there is a photo of a 17 mm shell said to be from Guadeloupe on the website of the Association Francaise de Conchologie. This interesting find makes my collecting *Trigonostoma rugosum* on Sint Maarten a new locality for this rare species.



Figure 3. *Trigonostoma rugosum* 15.6 mm in length.

I also found four juvenile muricids (smallest 13.2 mm, and largest 22.8 mm in length) of a pretty little *Phyllonotus* species (see Figure 4). The shells are bright red in color with whitish varices and did not appear to be juveniles of *P. pomum*. I sent macro photography images of the two shells to Roland Houart of the Institute royal des Sciences naturelles de Belgique, together with an email on August 2, 2011. Roland Houart was helpful and tentatively identified them as *P. oculatus* (Reeve, 1845), saying “the protoconch of *P. oculatus* is multispiral (3 to 3.5 whorls) and conical. I think you have a specimen with intact protoconch [the smaller individual], maybe you can compare it.” Rosenberg (2009) has records of *P. oculatus*

from Florida, Colombia, Guadeloupe, Dominica, St. Vincent, and Brazil; the record from Sint Maarten is also a record of a notable and uncommon species from a new locality.

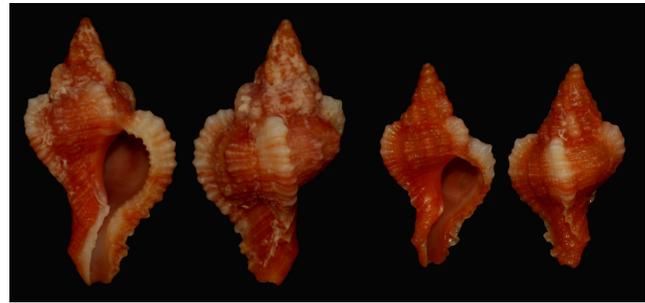


Figure 4. *Phyllonotus oculatus*, at 22.8 and 13.2 mm in length.

What proved more difficult, and therefore most interesting, were nine little cone shells ranging in size from 17 mm to 20 mm. Clearly they were in the genus *Jaspidiconus*, but even with further research, their identification eluded me. Therefore, I sought the assistance of Dr. Edward J. Petuch of Florida Atlantic University as he was the leading expert on Caribbean cones, and sent him macro photography images of all nine shells. The photos so intrigued Dr. Petuch that he asked that I mail him three of the shells; this should have been a clue that I had found something entirely new - but like most of us, I just assumed that it was a difficult identification.

Not long after the shells arrived, I got an email from Dr. Petuch letting me know that I had in fact discovered a new species and that with my permission he wanted to keep the specimens so that he could name it. I readily agreed, and guessed that this neat new cone would be given a geographic or descriptive name. I was pleased and honored to later learn that the new little cone species was named *Jaspidiconus berschaueri* Petuch & Myers, 2014 (see Figure 5). It turns out that the “three hour tour” with the cruise ship and our little walk on the beach

was more productive than I could have ever imagined.



Figure 5. *Jaspidiconus berschaueri*, from 17 to 20 mm

List of species found:

The total for this list is 91 taxa of marine mollusks, comprising 63 species of Gastropoda, 27 species of Bivalvia, and 1 species of Scaphopoda.

GASTROPODA

Lottiidae

- Tectura antillarum* (Sowerby, 1834)
- Patelloida pustulata* (Helbing, 1779)

Neritidae

- Smaragdia viridis* (Linnaeus, 1758)

Fissurellidae

- Diodora cayenensis* (Lamarck, 1822)
- Diodora dysoni* Reeve, 1850
- Diodora listeri* (d'Orbigny, 1847)
- Fissurella angusta* (Gmelin, 1791)
- Hemitoma emarginata* Blainville, 1825
- Hemitoma octoradiata* (Gmelin, 1791)
- Lucapina sowerbii* (Sowerby, 1835)
- Lucapina suffusa* (Reeve, 1850)

Trochidae

- Tegula fasciata* (Born, 1778)

Turbinidae

- Astrarium phoebium* (Roding, 1798)
- Turbo castanea* Gmelin, 1791

Calliostomatidae

- Calliostoma pulchrum* (C.B. Adams, 1850)

Phasianellidae

- Eulithidium affine* (C.B. Adams, 1850)

Cerithiidae

- Cerithium eburneum* Bruguière, 1792
- Cerithium litteratum* (Born, 1778)

Modulidae

- Modulus modulus* (Linnaeus, 1758)

Turritellidae

- Torcula exoleta* (Linnaeus, 1758)

Strombidae

- Eustrombus gigas* (Linnaeus, 1758)

Calyptraeidae

- Crepidula convexa* Say, 1822

Vermetidae

- Dendropoma irregulare* (d'Orbigny, 1842)
- Serpulorbis riisei* (Mörch, 1862)

Triviidae

- Pusula pediculus* (Linnaeus, 1758)
- Niveria quadripunctata* (Gray, 1827)
- Niveria suffusa* (Gray, 1832)

Naticidae

- Naticarius canrena* (Linnaeus, 1758)
- Polinices lacteus* (Guilding, 1834)
- Sinum maculatum* (Say, 1831)

Cassidae

- Semicassis cicatricosa* (Gmelin, 1791)

Ranellidae

- Guttarium muricinum* Roding, 1798

Epitoniidae

- Epitonium denticulatum* (Sowerby, 1844)

Buccinidae

- Gemphos auritulus* (Link, 1807)

Columbellidae

- Costoanachis sparsa* (Reeve, 1859)
- Columbella mercatoria* (Linnaeus, 1758)
- Conella ovulata* (Lamarck, 1822)
- Steironepion moniliferum* (Sowerby, 1844)

Nassariidae

- Nassarius albus* (Say, 1826)

Fascioliariidae

- Fasciolaria tulipa* (Linnaeus, 1758)
- Polygona infundibulum* (Gmelin, 1791)
- Leucozonia nassa* (Gmelin, 1791)

Muricidae

- Phyllonotus oculatus* (Reeve, 1845)

Harpidae

- Morum oniscus* (Linnaeus, 1767)

Mitridae

- Mitra barbadensis* (Gmelin, 1791)

Costellariidae

- Vexillum gemmatum* (Sowerby, 1874)

Olividae

- Oliva reticularis* Lamarck, 1811

Olivellidae

- Olivella nivea* (Gmelin, 1791)
- Olivella petiolita* (Duclos, 1844)

Terebridae

- Hastula hastata* (Gmelin, 1791)

Pseudomelatomidae

- Crassisipra fuscescens* (Reeve, 1843)
- Pilsbryspira albocinctum* (C.B. Adams, 1845)

Conidae

- Lindaconus spurius* (Gmelin, 1791)

Conilithidae

- Jaspidiconus berschaueri* Petuch & Myers, 2014

Jaspidiconus nodiferus (Kiener, 1847)
Jaspidiconus cf. *verrucosus* (Hwass in
 Bruguière, 1792)

Cancellariidae

Trigonostoma rugosum (Lamarck, 1822)

Pyramidellidae

Tubonilla interrupta (Totten, 1835)

Haminoeidae

Atys caribaeus (d'Orbigny, 1841)

Haminoea petiti (d'Orbigny, 1841)

Bullidae

Bulla striata Bruguière, 1792

BIVALVIA**Cardiidae**

Americardia media (Linnaeus, 1758)

Trachycardia muricatum (Linnaeus, 1758)

Chamidae

Chama congregata Conrad, 1833

Chama macerophylla Gmelin, 1791

Semelidae

Semele bellastrata (Conrad, 1837)

Tellinidae

Tellinella listeri (Roding, 1798)

Eurytellina punicea (Born, 1778)

Tellina radiata Linnaeus, 1758

Veneridae

Chione cancellata (Linnaeus, 1767)

Lirophora paphia (Linnaeus, 1767)

Macrocallista maculata (Linnaeus, 1758)

Tivela abaconis Dall, 1902

Arcidae

Anadara notabilis (Roding, 1798)

Arca zebra (Swainson, 1833)

Barbatia cancellaria (Lamarck, 1819)

Glycymerididae

Glycymeris decussata (Linnaeus, 1758)

Tucetona pectinata (Gmelin, 1791)

Ostreidae

Dendrostrea frons (Linnaeus, 1758)

Plicatulidae

Plicatula gibbosa Lamarck, 1801

Pectinidae

Argopecten lineolaris (Lamarck, 1819)

Lindapecten muscosus (Wood, 1828)

Aequipecten gibbus (Linnaeus, 1758)

Spathochlamys benedicti (Verrill & Bush, 1897)

Caribachlamys ornata (Lamarck, 1819)

Caribachlamys sentis (Reeve, 1853)

Leptopecten bavayi (Dautzenberg, 1900)

Nodipecten nodosus (Linnaeus, 1758)

Spondylidae

Spondylus ictericus Reeve, 1856

SCAPHOPODA**Dentaliidae**

Laevidentalium liodon (Pilsbry & Sharp, 1897)

CONCLUSION

The total number of mollusk species previously recorded for the island of Sint Marteen was 89 (*see* Rosenberg, 2009), however Rosenberg's species list includes 17 sea slugs and approximately 24 micromollusks. During this "three hour tour" I collected and herein report 91 species on Sint Maarten, only four of which are also listed in Rosenberg 2009, which brings the species count on Sint Maarten up to 176. Finally, since my list of mollusk species found on Sint Maarten is based only on shells found in beach drift, no shell-less species are included and no true micromollusks were included.

ACKNOWLEDGMENTS

Special thanks to Roland Houart for his expert advice and help with the little muricids, to Susan Hewitt for help at the early stages of this article, and to my now good friend Ed Petuch for taking the time out of his busy professional schedule to talk to and befriend an amateur, as well as entertain ideas about an interesting new cone shell. Thanks also to Tadzio Bervoets, Manager of the Sint Maarten Nature Foundation for providing helpful information. The information from Gary Rosenberg's database Malacolog 4.1.1 is provided with the permission of the Academy of Natural Sciences Philadelphia (ANSP), and the maps in Figures 1 and 2 are reproduced under a Creative Commons license from Wikipedia, with credit to the authors given in the figure legends.

REFERENCES

Coomans, H.E. 1963a. The marine Mollusca of Sint Martin, Lesser Antilles, especially from the French part, by H.E. Coomans (American Museum of Natural History, New York). Extrait du Journal de Conchologie, Vol CIII, 1963, Paris.

- Coomans, H.E. 1963b.** The marine Mollusca of St. Martin, Lesser Antilles, collected by H. J. Krebs, reprinted from "Studies on the Fauna of Curacao and other Caribbean Islands, Vol. XVI.
- Coomans, H. E. 1967.** The non-marine Mollusca of St. Martin (Lesser Antilles), reprinted from "Studies on the Fauna of Curacao and other Caribbean Islands, Vol. XVI.
- Humphrey, M. 1975.** Seashells of the West Indies. Taplinger Publishing Company, New York, NY. 351 pp.
- Petuch, E.J. & R.F. Myers. 2014.** New Species of Conidae and Conilithidae (Gastropoda: Conoidea) from the Bahamas, Eastern Caribbean, and Brazil. *Xenophora Taxonomy* 3:34-47.
- Redfern, C. 2001.** Bahamian Seashells - A Thousand Species from Abaco, Bahamas. Bahamianseashells.com, Inc., Boca Raton, FL. 280 pp.
- Rosenberg, G. 2009.** Malacolog 4.1.1: A Database of Western Atlantic Marine Mollusca. [WWWdatabase (version 4.4.4)] URL <http://www.malacolog.org>
- Warmke, G.L. & R.T. Abbott. 1961.** Caribbean Seashells. Dover Publications, Inc., New York, NY. 348 pp.

Taxonomic Note: The living animals of *Harpa queenslandica* Berschauer & Petuch, 2016 compared with *Harpa major* Röding, 1798. Photographs taken by Tassej Weinreich in 2008 in a tank environment following collection of the specimens in the Cairns Region, Queensland, Australia, and reprinted herein with his permission. These images show that both the shell and the animal of *H. queenslandica* is not albino and has a different type of pigmentation than *H. major*.



Harpa major Röding, 1798



Harpa queenslandica Berschauer & Petuch, 2016