



# SHELL-O-GRAM

Official Publication of the  
**JACKSONVILLE SHELL CLUB, INC.**

May-June, 2013 \_\_\_\_\_ Volume 54, No. 3

The club will meet at the usual time (7:00 PM) and place (Southeast Branch, Jax Public Library) on May 23. The Shell-of-the-Month will be presented by Charlotte Lloyd. She will discuss a massive applesnail species she found on a shelling trip to Tobago, located in the SE corner of the Caribbean Sea. Harry Lee will present a program on the applesnail family, Ampullariidae, and focus on a poorly understood genus thereof, *Lanistes* Montfort, 1810, which inhabits the rivers and lakes of Africa and Madagascar.

The June meeting will be on the 27th - usual time and place. We will be fresh from our annual shell show and fair, so there will be much discussion of that event. Consequently the program will be abbreviated. After Harry Lee presents a recently discovered new species of landsnail, the Florida Scrub Threetooth, we'll open and "ID Clinic." Members and guests are invited to bring up to five "stumpers" for a panel comprised of Charlotte, Brian, Harry, Rick, and any other volunteer(s) to work on.

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## Tiny Colorful Snails Are in Danger of Extinction With Vanishing Limestone Ecosystems

Apr. 15, 2013 — Researchers from Chulalongkorn University, Bangkok and the Natural History Museum, London (Thanit Siriboon, Chirasak Sutcharit, Fred Naggs and Somsak Panha) discovered many new taxa of the brightly coloured carnivorous terrestrial snails family Streptaxidae. Terrestrial snails are primarily herbivores and only a rare few groups like this one are carnivorous. The animals come from several limestone areas across the world, including some threatened by human exploitation, especially by quarrying.



Three new species from the genus *Perrottetia* were described from north and northeastern Thailand. The species show extraordinary endemism, with each of these colourful snails occurring as "One Hill One Species." This is a very peculiar phenomenon where each one of these highly endemic snails is specific and the only one inhabiting a certain mountain range. They live in rock crevices, feeding on tinier snails, insect larvae and some earthworms species. These beautiful animals are now at risk from extinction with the destruction of limestone ecosystems.

***This image shows the beautiful bright orange-colored Perrottetia dermapyrrhosa, one of the newly described species from Thailand. (Credit: Somsak Panha / CC-BY 3.0)***

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This club meets each month at the Southeast Branch of the Jacksonville Public Library, 10599 Deerwood Park Blvd., Jacksonville, Florida. Please address any correspondence to the club's address above. The *Shell-O-Gram* is issued bimonthly and mailed to all regular members. Annual membership dues are \$15.00 individual and \$20.00 family (domestic) and \$25.00 (foreign). Lifetime membership is available. Please send checks for dues to the above address and made out to the Jacksonville Shell Club. We encourage members to submit articles for this publication. Closing date for article submission is two weeks prior to the first of each month of publication. Articles may be republished provided full credit is given the author and this newsletter and one copy of the complete publication in which the article appears.

**President's Message:**

Dear JSC Members,

I must say this time of the year is my favorite. With summer approaching and temperatures increasing, I look forward to getting back out in nature and being more active after a long winter of hibernation. The club will also withdraw from its dormancy by first attending the Wild Amelia Nature Festival in May. In June we will be holding our 2013 Jacksonville Shell Show. Just as last year, we have partnered with the Gulf Coast Shell Club in Panama City to time our shows a week apart. If all of this activity is not enough, don't worry, July has the COA Convention in store for you in Sarasota. Happy eventing, happy shelling, happy summer!

Brian

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**Colorful Snails Are in Danger of Extinction...continued**

Limestone ecosystems in the world are now being destroyed at an alarming rate. This means we are losing biodiversity resources, a tendency especially threatening for the hot spot areas like Thailand. The new research findings show that key terrestrial invertebrates, such as several new bright carnivorous land snails are still persisting in such areas and are being described even from the highly endangered quarried sites. This demonstrates that there are still remnants of some fundamental ecosystem, which lives and is struggling for survival, a great experience for humankind to learn.

"The three new *Perrottetia* species exhibit distinct morphological characteristics, which make for a great example for evolutionary studies in unstable environments," comments one of the authors, Dr. Somsak Panha. "More than 50% of limestone ecosystems in this region have been or still are being destroyed. This astonishing case of biodiversity persistence gives a valuable reason to put effort in the conservation of this important world ecosystem. "

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**Welcome New Members:**

Bennett Anna E, and Family, 4443 Seabreeze Dr., Jacksonville Beach, FL, 32250, 904-223-5187

Bernard Chere, and Family, 1422 - 3rd St. N. Jacksonville Beach, FL 32250, 904-654-8090

Kocher, Carl & Regina, 256 Lake Asbury Dr., Green Cove Springs, FL 32043-9547

Morse, Barbara, 452 Lower 36th Ave. S., Jacksonville Beach, FL 32250, 904-699-0597

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If any members are available to help set up the Show on Thursday June 13<sup>th</sup>, please call one of the following club members: Charlotte Thorpe 246-0874, Harry Lee 389-4049, or President Brian Marshal 655-7738. Thanks!!

**An analysis of three east Florida marine mollusk inventories  
by Harry G. Lee and Don Swenson**

For some time the junior author, who resides in Merrimack, New Hampshire and Hobe Sound, Florida has been accumulating shells he has found on the shore of Coral Cove (County) Park (depicted on the map below as "Blowing Rock Park") and vicinity (CC). This stretch comprises the northernmost 1.1 miles of the Palm Beach Co., Florida coastline. The area is near the southern end of Jupiter Island and runs from the Blowing Rocks Nature Conservancy Area, barely inside Martin Co., south by east about 3/4 the way to Jupiter Inlet. Ninety percent of the collection was taken from northern half of the span, yet a few species were limited to the southernmost few hundred yards of shoreline. This tract is a mere 13 miles NbyW of Peanut Island <<http://www.jaxshells.org/peanut.htm>>, a favored collecting area by many Jacksonville Shell Club member over the years, yet the habitats are rather different. Mr. Swenson has collected the area for at least a few days during half the winters from 1995-6 to 2011-2013. He has spent 73 weeks (estimated at over 1,000 hours) beachcombing, the lion's share of the effort being in the last five years. The authors met at the first annual convention of Florida United Malacologists (FUM) at the Bailey-Matthews Shell Museum. Since then we have developed a checklist of the finds, presently 317 species <<http://www.jaxshells.org/coralcove.htm>>. Don's zeal and resourcefulness notwithstanding, the composition of the collection gives an indication that there are about 57 more species findable on his beach.<sup>1</sup> Nonetheless, there are some noteworthy aspects to the species composition in this collection as it now stands, and this report is an attempt to contrast it with what has been recorded from our NE Florida waters (Lee, 2009: 802 species [plus 1 addendum]) and those surrounding Peanut Is. (687 species). Identifications of material from in three inventories have been confirmed by the senior author. Live-collected taxa are marked by an asterisk (\*).



***Ceratozona squalida* (C.B. Adams, 1845) \***

*Geukensia demissa* (Dillwyn, 1817)

***Modiolus americanus* (Leach, 1815)**

***Modiolus squamosus* Beuperrthuy, 1967 \***

*Anadara floridana* (Conrad, 1869)

*Anadara notabilis* (Röding, 1798)

***Anadara transversa* (Say, 1822)**

***Arca imbricata* Bruguière, 1789**

***Arca zebra* (Swainson, 1833) \***

***Barbatia cancellaria* (Lamarck, 1819) \***

***Cucullaearca candida* (Helbling, 1779)**

***Fugleria tenera* (C. B. Adams, 1845)**

***Lunarca ovalis* (Bruguière, 1789)**

*Scapharca brasiliana* (Lamarck, 1819)

***Noetia ponderosa* (Say, 1822)**

*Glycymeris americana* (DeFrance, 1826)

***Glycymeris decussata* (Linnaeus, 1758)**

***Glycymeris spectralis* (Nicol, 1952)**

***Pinctada imbricata* Röding, 1798 \***

***Pteria colymbus* (Röding, 1798) \***

***Isognomon alatus* (Gmelin, 1791) \***

***Isognomon bicolor* (C.B. Adams, 1845) \***

***Isognomon radiatus* (Anton, 1839)**

***Atrina rigida* (John Lightfoot, 1786)**

***Atrina serrata* (G. B. Sowerby I, 1825)**

***Pinna carnea* Gmelin, 1791 \***

***Ctenoides scaber* (Born, 1778) \***

***Lima caribaea* d'Orbigny, 1853**

***Argopecten gibbus* (Linnaeus, 1758)**

***Caribachlamys mildredae* (F.M. Bayer, 1941)**

***Caribachlamys pellucens* (Linnaeus, 1758)**

***Caribachlamys sentis* (Reeve, 1853) \***

***Euvola raveneli* (Dall, 1898)**

***Euvola ziczac* (Linnaeus, 1758)**

***Lindapecten muscosus* (Wood, 1828)**

*Nodipecten nodosus fragosus* (Conrad, 1849)

***Plicatula gibbosa* Lamarck, 1801 \***

***Spondylus americanus* Hermann, 1781**

***Spondylus tenuis* Schreibers, 1793 \***

***Anomia simplex* d'Orbigny, 1853 \***

***Crassostrea virginica* (Gmelin, 1791) \***

***Dendostrea frons* (Linnaeus, 1758) \***

*Ostreola equestris* (Say, 1834) \*  
*Hyotissa hyotis* (Linnaeus, 1758)  
*Anodontia alba* Link, 1807 \*  
*Codakia orbicularis* (Montagu, 1808)  
*Divalinga quadrisulcata* (d'Orbigny, 1846)  
*Lucina pensylvanica* (Linnaeus, 1758)  
*Parvilucina costata* (d'Orbigny, 1846)  
*Phacoides pectinatus* (Gmelin, 1791)  
*Arcinella cornuta* Conrad, 1866  
*Chama congregata* Conrad, 1833 \*  
*Chama florida* Lamarck, 1819  
*Chama macerophylla* (Gmelin, 1791) \*  
*Chama radians* Lamarck, 1819 \*  
*Chama sarda* Reeve, 1847 \*  
*Carditamera floridana* Conrad, 1838 \*  
*Americardia media* (Linnaeus, 1758)  
*Dinocardium robustum robustum* (Lightfoot, 1786) \*  
*Laevicardium mortoni* (Conrad, 1839)  
*Laevicardium oviputamen* (Reeve, 1844)  
*Laevicardium serratum* (Linnaeus, 1758)  
*Papyridea lata* (Born, 1778)  
*Trachycardium egmontianum* (Shuttleworth, 1856)  
*Trachycardium isocardia* (Linnaeus, 1758)  
*Trachycardium magnum* (Linnaeus, 1758)  
*Trachycardium muricatum* (Linnaeus, 1758)  
*Mactrotoma fragilis* (Gmelin, 1791)  
*Raeta plicatella* (Lamarck, 1818)  
*Spisula raveneli* (Conrad, 1831)  
*Ensis megistus* Pilsbry and McGinty, 1943  
*Arcopagia fausta* (Pulteney, 1799)  
*Eurytellina alternata* (Say, 1822)  
*Eurytellina lineata* (Turton, 1819)  
*Macoma cerina* authors non C.B. Adams, 1845  
*Strigilla pisiformis* (Linnaeus, 1758)  
*Tellina radiata* Linnaeus, 1758  
*Tellinella listeri* (Röding, 1798)  
*Donax denticulatus* Linnaeus, 1758  
*Donax variabilis* Say, 1822  
*Iphigenia brasiliensis* (Lamarck, 1818)  
*Asaphis deflorata* (Linnaeus, 1758)  
*Semele proficua* (Pulteney, 1799)  
*Semele purpurascens* (Gmelin, 1791)  
*Tagelus divisis* (Spengler, 1794)  
*Tagelus plebeius* (Lightfoot, 1786)  
*Mytilopsis leucophaeata* (Conrad, 1831)  
*Anomalocardia cuneimeris* (Conrad, 1846)  
*Chione elevata* (Say, 1822)  
*Dosinia discus* (Reeve, 1850)  
*Dosinia elegans* (Conrad, 1844)  
*Globivenus rigida* (Dillwyn, 1817)  
*Lirophora latilirata* (Conrad, 1841)  
*Lirophora paphia* (Linnaeus, 1767)  
*Macrocallista maculata* (Linnaeus, 1758)

*Mercenaria campechiensis* (Gmelin, 1791)  
*Mercenaria mercenaria* (Linnaeus, 1758)  
*Pitar fulminatus* (Menke, 1828)  
*Puberella intapurpurea* (Conrad, 1849)  
*Timoclea pygmaea* (Lamarck, 1818)  
*Choristodon robustus* (G. B. Sowerby II, 1834)  
*Sphenia dubia* (H.C. Lea, 1843)  
*Hiatella arctica* (Linnaeus, 1767)  
*Cyrtopleura costata* (Linnaeus, 1758)  
*Martesia fragilis* A.E. Verrill and Bush, 1890  
*Martesia striata* (Linnaeus, 1758)  
Teredinidae: apparently one species only

*Patelloida pustulata* (Helbling, 1779)  
*Diodora cayenensis* (Lamarck, 1822)  
*Diodora dysoni* (Reeve, 1850)  
*Diodora listeri* (d'Orbigny, 1847)  
*Diodora minuta* (Lamarck, 1822)  
*Diodora viridula* (Lamarck, 1822)  
*Fissurella barbadensis* (Gmelin, 1791)  
*Fissurella nodosa* (Born, 1778)  
*Fissurella rosea* (Gmelin, 1791)  
*Lucapina sowerbii* (G.B. Sowerby I, 1835) see Lee (2012)  
*Astraliium phoebium* (Röding, 1798)  
*Eulithidium pterocladicum* (Robertson, 1958)  
*Lithopoma americanum* (Gmelin, 1791)  
*Lithopoma caelatum* (Gmelin, 1791)  
*Lithopoma tuber* (Linnaeus, 1767) \*  
*Turbo castanea* Gmelin, 1791 \*  
*Tequila fasciata* (Born, 1778)  
*Tequila lividomaculata* (C.B. Adams, 1845)  
*Calliostoma adela* Schwengel, 1951  
*Calliostoma euglyptum* (A. Adams, 1855)  
*Calliostoma pulchrum* (C.B. Adams, 1850)  
*Nerita fulgurans* Gmelin, 1791 \*  
*Nerita peloronta* Linnaeus, 1758 \*  
*Nerita tessellata* Gmelin, 1791 \*  
*Nerita versicolor* Gmelin, 1791 \*  
*Smaragdia viridis* (Linnaeus, 1758)  
*Vitta usnea* (Röding, 1798)  
*Vitta virginea* (Linnaeus, 1758)  
*Cerithium atratum* (Born, 1778) \*  
*Cerithium eburneum* Bruguière, 1792 \*  
*Cerithium quinaicum* Philippi, 1849  
*Cerithium litteratum* (Born, 1778) \*  
*Cerithium lutosum* Menke, 1828  
*Cerithium muscarum* Say, 1822 \*  
*Batillaria minima* (Gmelin, 1791)  
*Cerithidea scalariformis* (Say, 1825)  
*Modulus modulus* (Linnaeus, 1758)  
*Vermicularia knorrii* (Deshayes, 1843)  
*Cenchritis muricatus* (Linnaeus, 1758)  
*Echinolittorina placida* Reid, 2009

*Echinolittorina ziczac* (Gmelin, 1791) \*  
*Littoraria angulifera* (Lamarck, 1822) \*  
*Tectarius antonii* (Philippi, 1846)  
*Schwartziella catesbyana* (d'Orbigny, 1842)  
*Strombus alatus* Gmelin, 1791 \*  
*Strombus costatus* Gmelin, 1791 \*  
*Strombus gigas* Linnaeus, 1758 \*  
*Strombus pugilis* Linnaeus, 1758  
*Strombus raninus* Gmelin, 1791 \*  
*Bostrycapulus aculeatus* (Gmelin, 1791) \*  
*Crepidula convexa* Say, 1822  
*Crepidula fornicata* (Linnaeus, 1758) \*  
*Crepidula maculosa* Conrad, 1846  
*Xenophora conchyliophora* (Born, 1780)  
*Dendropoma corrodens* (d'Orbigny, 1842)  
*Dendropoma irregulare* (d'Orbigny, 1841)  
*Petaloconchus mcgintyi* (Olsson and Harbison, 1953)  
*Petaloconchus nigricans* (Dall, 1884)  
*Petaloconchus varians* (d'Orbigny, 1841)  
*Serpularbis decussatus* (Gmelin, 1791)  
*Erosaria acicularis* (Gmelin, 1791)  
*Luria cinerea* (Gmelin, 1791)  
*Macrocypraea cervus* (Linnaeus, 1771) \*  
*Macrocypraea zebra* (Linnaeus, 1758) \*  
*Cyphoma gibbosum* (Linnaeus, 1758)  
*Cyphoma mcgintyi* Pilsbry, 1939  
*Cyphoma signatum* Pilsbry and McGinty, 1939  
*Pseudocyphoma intermedium* (G.B. Sowerby I, 1828)  
*Cleotrivia antillarum* (F.A. Schilder, 1922)  
*Hespererato maugeriae* (J.E. Gray, 1832)  
*Niveria quadripunctata* (J.E. Gray, 1827)  
*Niveria suffusa* (J.E. Gray, 1827)  
*Pusula pediculus* (Linnaeus, 1758)  
*Natica livida* L. Pfeiffer, 1840  
*Naticarius canrena* (Linnaeus, 1758) \*  
*Neverita duplicata* (Say, 1822)  
*Polinices hepaticus* (Röding, 1798)  
*Polinices lacteus* (Guilding, 1834)  
*Sigatica carolinensis* (Dall, 1889)  
*Sinum maculatum* (Say, 1831)  
*Sinum perspectivum* (Say, 1831)  
*Cassis madagascariensis spinella* Clench, 1944  
*Cassis tuberosa* (Linnaeus, 1758)  
*Cypraecassis testiculus* (Linnaeus, 1758) \*  
*Semicassis granulata granulata* (Born, 1778) \*  
*Tonna galea* (Linnaeus, 1758) \*  
*Tonna pennata* (Mørch, 1852)  
*Ficus papyratia* (Say, 1822)  
*Charonia variegata* (Lamarck, 1816)  
*Cymatium comptum* (A. Adams, 1855)  
*Cymatium cynocephalum* (Lamarck, 1816)  
*Cymatium femorale* (Linnaeus, 1758)  
*Cymatium krebssii* (Mørch, 1877)  
*Cymatium labiosum* (Wood, 1828)

*Cymatium martinianum* (d'Orbigny, 1847) \*  
*Cymatium muricinum* (Röding, 1798)  
*Cymatium nicobaricum* (Röding, 1798) \*  
*Cymatium parthenopeum* (von Salis, 1793)  
*Cymatium tranquebaricum* (Lamarck, 1816)  
*Gelagna succincta* (Linné, 1771)  
*Linatella caudata* (Gmelin, 1791)  
*Distorsio clathrata* (Lamarck, 1816)  
*Bufo nana* (Bruguière, 1792)  
*Bursa granularis* (Röding, 1798)  
*Epitonium albidum* (d'Orbigny, 1842)  
*Epitonium lamellosum* (Lamarck, 1822)  
*Epitonium multistriatum* (Say, 1826)  
*Epitonium rupicola* (Kurtz, 1860)  
*Janthina globosa* (Swainson, 1822) \*  
*Janthina janthina* (Linnaeus, 1758) \*  
*Melanella* species (too worn and broken for specific ID)  
*Niso hendersoni* Bartsch, 1953  
*Chicoreus florifer dilectus* (A. Adams, 1855)  
*Chicoreus pomum* (Gmelin, 1791)  
*Eupleura caudata* (Say, 1822)  
*Favartia cellulosa* (Conrad, 1846)  
*Hexaplex fulvescens* (G.B. Sowerby II, 1834)  
*Murexiella levicula* (Dall, 1889)  
*Plicopurpura patula* (Linnaeus, 1758) \*  
*Stramonita haemastoma floridana* (Conrad, 1837)  
*Stramonita rustica* (Lamarck, 1822) \*  
*Thais deltoidea* (Lamarck, 1822) \*  
*Trachypollia nodulosa* (C.B. Adams, 1845)  
*Urosalpinx cinerea* (Say, 1822)  
*Vokesimurex rubidus* (F.C. Baker, 1897)  
*Vasum muricatum* (Born, 1778) \*  
*Colubraria testacea* (Mørch, 1852)  
*Engina turbinella* (Kiener, 1835)  
*Gemophos auritulus* (Link, 1807) \*  
*Gemophos tinctus* (Conrad, 1846) \*  
*Hesperisternia multangula* (Philippi, 1848)  
*Busycon carica* (Gmelin, 1791)  
*Busycon sinistrum* Hollister, 1958  
*Busycotypus canaliculatus* (Linnaeus, 1758)  
*Busycotypus spiratus* (Lamarck, 1816)  
*Melongena corona* (Gmelin, 1791)  
*Ilyanassa obsoleta* (Say, 1822)  
*Nassarius acutus* (Say, 1822)  
*Nassarius albus* (Say, 1826)  
*Nassarius consensus* (Ravenel, 1861)  
*Nassarius polygonatus* (Lamarck, 1822)  
*Nassarius vibex* (Say, 1822) \*  
*Fasciolaria hunteria* (G. Perry, 1811)  
*Fasciolaria tulipa* (Linnaeus, 1758)  
*Hemipolygona distincta* (A. Adams, 1855)  
*Leucozonia nassa* (Gmelin, 1791) \*  
*Leucozonia ocellata* (Gmelin, 1791)  
*Polygona infundibulum* (Gmelin, 1791)

*Triplofusus giganteus* (Kiener, 1840)  
*Aesopus stearnsii* (Tryon, 1883)  
*Columbella mercatoria* (Linnaeus, 1758)  
*Columbella rusticooides* Heilprin, 1886  
*Costoanachis avara* (Say, 1822)  
*Costoanachis sertulariarum* (d'Orbigny, 1839)  
*Costoanachis translirata* (Ravenel, 1861)  
*Mitrella dichroa* (G. B. Sowerby I, 1844)  
*Nitidella nitida* (Lamarck, 1822)  
*Scaphella junonia* (Lamarck, 1804)  
*Scaphella dubia* (Broderip, 1827)  
*Oliva fulgurator* (Röding, 1798)  
*Oliva sayana* Ravenel, 1834  
*Olivella* sp. aff. *floralia* (Duclos, 1853)  
*Olivella mutica* (Say, 1822)  
*Olivella perplexa* Olsson, 1956 Olsson, 1956  
*Morum oniscus* (Linnaeus, 1767)  
*Eratoidea hematita* (Kiener, 1834)  
*Prunum amabile* authors non (Redfield, 1852)  
*Prunum apicinum* (Menke, 1828) \*  
*Prunum carneum* (Storer, 1837)  
*Prunum guttatum* (Dillwyn, 1817)  
*Prunum roscidum* (Redfield, 1860)  
*Mitra barbadensis* (Gmelin, 1791)  
*Mitra nodulosa* (Gmelin, 1791)  
*Cancellaria reticulata* (Linnaeus, 1767)  
*Trigonostoma tenerum* (Philippi, 1848)  
*Tritonoharpa lanceolata* (Menke, 1828)  
*Hastula cinerea salleana* (Deshayes, 1859)  
*Hastula hastata* (Gmelin, 1791)  
*Terebra concava* (Say, 1826)

*Terebra dislocata* (Say, 1822)  
*Terebra floridana* Dall, 1889  
*Terebra protexta* (Conrad, 1846)  
*Terebra taurina* (Lightfoot, 1786)  
*Terebra species* (deep mid-whorl spiral groove)  
*Crassispira cubana* Melvill, 1923 Cuban Drillia  
*Crassispira fuscescens* (Reeve, 1843)  
*Pilsbryspira albocincta* (C.B. Adams, 1845)  
*Pilsbryspira monilis* (Bartsch and Rehder, 1939)  
*Pyrgospira ostrearum* (Stearns, 1872)  
*Conus anabathrum* Crosse, 1865  
*Conus burryae* Clench, 1942  
*Conus daucus* Hwass in Bruguière, 1792  
*Conus delessertii* Récluz, 1843  
*Conus flavescens* G.B. Sowerby II, 1834  
*Conus jaspideus jaspideus* Gmelin, 1781  
*Conus jaspideus stearnsii* Conrad, 1869  
*Conus mus* Hwass in Bruguière, 1792  
*Conus regius* Gmelin, 1791  
*Conus spurius atlanticus* Clench, 1942  
*Cryoturris dorvilliae* (Reeve, 1845)  
*Architectonica nobilis* Röding, 1798  
*Psilaxis krebsii* (Mørch, 1875)  
*Longchaeus crenulatus* (Holmes, 1859)  
*Bulla occidentalis* A. Adams, 1850  
*Melampus bidentatus* Say, 1822  
*Melampus coffeus* (Linnaeus, 1758)  
*Siphonaria alternata* Say, 1826  
*Siphonaria pectinata* (Linnaeus, 1758) \*  
*Spirula spirula* (Linnaeus, 1758)  
*Argonauta argo* Linnaeus, 1758

Taxa shown in red (underlined in B&W version), whether **bold** or **not** [103; 32.5%] are not reported from northeast Florida while those in black (not underlined in B&W version), **bold** or **not** [214; 67.4%] are known from here (Lee, 2009). Those shown in **red boldface** (underlined in B&W version) or **black boldface** [231; 72.9%] have also been recorded from **Peanut Island** (PI); of these, the taxa in **black bold** (not underlined in B&W version) [166; 52.4%] are also reported from PI and northeast Florida (NEF); those in **red bold** (underlined in B&W version) [66; 20.8%] are also known from PI but not reported from NEF; and those in black non-bold (not underlined in B&W version) [48; 15.1%] are also present in NEF while absent from PI. Finally taxa in **unbolded red** (underlined in B&W version) are reported neither from NE Florida nor Peanut Island [37; 11.7%]. The last four concordances are depicted in Figure 1.

While between one in eight and one in nine Coral Cove (CC) species is absent from the other two inventories, over two-thirds the CC fauna is shared with PI (232 species) and two-thirds with NEF (214 species), and over half of it (166 species) is shared with both. Of the 114 CC species with more restricted overlap of occurrence, the affinities are somewhat greater with PI (20.8 vs. 15.1%). Statistically there is borderline significance difference in these data (Pearson Chi-Square = 3.47;  $p = 0.042691$ ),<sup>1</sup> but the difference seems small in contrast to the distances involved, 13 mi S to PI; 220 mi N to the NEF area. Thus, despite its much greater proximity to PI, CC can properly lay claim to being a sort of zoogeographic middleground between the Carolinian and Caribbean Provinces.

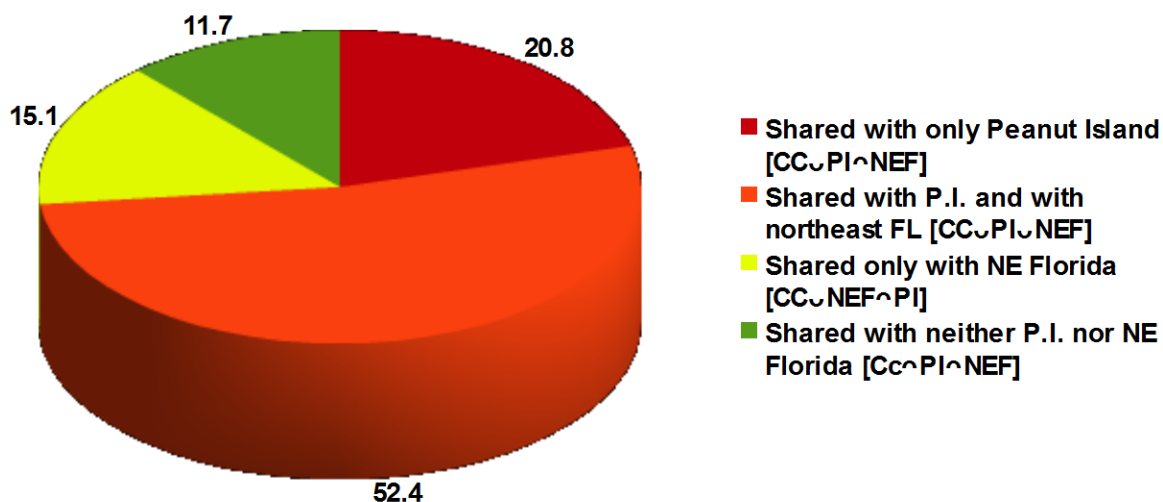
It appears that this 13 mile span of east Florida coastline is witness to a rather dramatic change in the composition of the mollusk remains cast on its shore. What's happening in this stretch? The most conspicuous explanation is the proximity of the Gulf Stream, which is evident within a mile of the shore in southern Palm Beach Co. but begins to veer offshore

along that portion of the Gold Coast. The provenance of higher water temperature and a current-borne biota promotes a nearshore microcosm of the Caribbean Faunal Province in rather stark contrast to the Carolinian, which dominates the shore from about Cape Hatteras to about Cape Canaveral. Thus far our data strongly suggest that the dominion of the Caribbean Province dissipates rather rapidly from PI northward. In a follow-up study we'll see what happens in the next dozen miles north of Coral Cove; stay tuned!

<sup>1</sup> The Chao estimator (e.g., Cameron and Pokryszko 2005: 544) predicts how many species might actually be present but were not found in a survey such as this. Don's records of frequency (no. specimens per species found) allowed the application of this statistical method which is the no. single specimen occurrence squared divided by the ("doubletons" times two).

<sup>2</sup> Vassar College website provides an electronic calculus: <<http://vassarstats.net/odds2x2.html>>.

**Figure 1. Coral Cove Overlap of Malacofauna [n=317 species]**



Starting at noon and moving clockwise

Literature cited:

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