SHELL·O·GRAM
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JACKSONVILLE SHELL CLUB, INC.

September-October 2009 **Volume 50 no.5**

Programs

The September meeting will be on Thursday the 24th at the Southeast Branch Public Library beginning at 7:00 PM as usual. Harry Lee will present the Shell-of-the-Month, *Darrylia harryleei* García, 2008. The type locality of which is Roatan, Bay Is., Caribbean Honduras. It is the type species of the turrid genus *Darrylia* García, 2008 and apparently endemic to the Bay Is. This will set the stage for Charlotte Thorpe's illustrated presentation on her most recent collecting expedition to Roatan. Somehow each trip she takes to the Bay Is. seems to produce new and different material - not to mention breath-taking photographs.

The club will next meet on October 22, same day of the week, time, and place. Brian Marshall will present the Shell-of-the-Month, a very local land snail species. Brian has developed a new practice of "Neighborhood Watch." He and his daughter take regular constitutionals and can't resist the urge to snoop around under their fallen palm fronds and other yard debris on nearby properties. The results have been surprising and rewarding. Harry Lee and Charlotte Thorpe will give an illustrated presentation on the superfamily Cancellaroidea. This will be the first discussion of the Nutmegs since Dick Petit, of N. Myrtle Beach, SC, spoke to the club over 30 years ago.

Next Newsletter

Next month the featured article will be on volutes. A few are shown below.

Cymbiola imperialis (Lightfoot, 1786)
Pete Stimpson Collection

Amoria ellioti (G. B. Sowerby II, 1864)
Pete Stimpson Collection

Melo broderipii (Griffith and Pidgeon, 1834)
Pete Stimpson Collection

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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 is sent to the above address.

Beach Shelling and Learning about our local Beaches

Rick Edwards will be conducting shell walks for the GTMNERR (Guana Environmental Education Center) on September 19 and tentatively on October 17 and November 14. If you are new to the area or are a novice collector, you may wish to consider one these guided beach walks.

For information on time and meeting place contact the Environmental Center at 904-823-4500.

A $3.00 parking fee does apply to park in the beach parking lot.

President's Message

Hello Everybody!

After not meeting or two months I hope you are all eager to begin a new Club Year and are looking forward to getting together again.

September is the month that we elect new officers and board members. All prospective board members have not been contacted as yet, but there will be a slate presented to the membership to be voted on at the meeting. (Nominations can also be made from the floor during the voting process). The proposed new officers are as follows: President - Barbara Cathey; Vice President - Harry Lee; Secretary - Laura Rowley; and Treasurer - Charlotte Thorpe.

Thanks to everyone who has worked with me during the last two years. Our local membership is small and it takes everybody helping to keep our club functioning. Don't wait to be "asked" -- VOLUNTEER!!!

Best, Billie 241-3755

Membership Dues are Due Now
Please send in your dues: Individual $15.00 Family $20.00 to
Charlotte Thorpe
1010 24th St. N
Jacksonville Beach, FL 32250
Want to know your due date? Look at your *S-O-G* address tag and if the date has passed or is close to today's date -Your Dues are Due

Interpreting empty landsnail shells

by Harry G. Lee

Three and a half years ago, I decided to tap the brainpower of the subscribers to Mollusca, an Internet list-serve for malacologists, for their thinking on a technique that I and many of other lansnail collectors utilize, soil (or litter, or duff) sampling. So at 3:48 PM 4/18/2006, I wrote to <molluscalist@listlink.berkeley.edu>:

“Here’s a poser for most any collector of empty molluscan shells:Has there been any experimental work to predict the rate of (dis)solution of the empty shells of small (less than 5 mm.) gastropod shells in leaf litter? Certainly pH and other factors exert some influence on the process.”

“The answer may be helpful in relating the shells of a litter sample to the fauna actually living in the immediate temporal and spatial vicinity.”

The following is the very slightly edited report I made back to the subscribers:

The above query elicited ten responses over the next 21 months, many within the first few weeks. For some time I felt the perspectives were a bit too diverse for me to synthesize. After a bit more reflection, a more aggressive sampling of the literature - a generous portion of which was indicated by colleagues, and a substantial amount of microscope time, I think a report is in order. I apologize for my testing the limits of dialectic etiquette and diluting the suspense of the moment. Here is a summary and analysis of land snail shell decay and its implications:

Laboratory analysis of litter and soil samples has been shown to significantly enhance species richness estimates when combined with collections taken concurrently by traditional visual reconnaissance. This synergy of methods operates in diverse ecologic and geographic settings (Emberton *et al*:, 1996: Paleotropical; Thompson, 1995: Neotropical; Lee, 1990, 1993: New World temperate). With more extensive use of litter-soil analysis, particularly with samples in which empty shells comprise the majority of specimens and may be sole representatives of one to several taxa, the relationship between the thanatocenosis and juxtaposed biocenosis must be scrutinized. While there are many processes relevant to their interplay, the rate of shell decomposition in the litter-soil seems an appropriate primary consideration. When a group of malacologists was posed the question: “Has there been any experimental work to predict the rate of (dis)solution of the empty shells of small (less than 5 mm.) gastropod shells in leaf litter? Certainly pH and other factors exert some influence on the process. The answer may be helpful in relating the shells of a litter sample to the fauna actually living in the immediate temporal and spatial vicinity,” the responses were gathered and are discussed below.

Among the earliest comments related to fossilization. Acidity, hydration, oxygenation (Bob Brenner), ambient mineral calcium in soils and water bodies (Andy Rindsberg) were discussed. It is expected that water, acidity, and oxygen favor decay, and ambient calcium favors preservation, of shells - including those of the small land snails. On the other hand, David Campbell reported that his colleague Wendell Haag observed that acidity in the Sipsey R. of Alabama, USA seemed to override the availability of mineral calcium (chalk) in producing a brisk dissolution of empty naiad shells (< 10yrs.to disappearance).

Tom Watters reported finding small snail shells devoid of periostracum but relatively intact lodged between in the teeth of a mastodon excavated in Newark, Ohio. That places the deposit at >10,000 years ago. It would be expected that this was an abrupt burial and that the microenvironment would be well-insulated and calcium-rich. In a similar situation (Auffenberg *et al*., 2006), shells of 46 species of nonmarine mollusk were excavated along with mastodon remains in northern Florida - all were Recent species but two land snails are no longer living as far south (Hubricht, 1985).

Menno Schilthuizen reported on an “experiment” (his quotes) with the shells of pulmonate ariophantid, *Hemiplecta humphreysiana* (I. Lea, 1840), a rather large (55-59 mm) species, observed on the wet (ca 2500 mm rainfall/yr), acidic (pH 4.5) soil of a Malaysian forest. To his surprise, at 2.5 years the mass of each shell was only reduced by a few percent. Thus, at least for large shells, physical and chemical conditions expected to markedly favor decay had only a modest impact on that process. He predicted that, mechanical and biological weathering aside, shells might survive for decades on alkaline soils.

Jane Ward-Booth told of some work she did with the pulmonate hygromiid, *Monacha cantiana* (Montagu, 1803) which demonstrated little change in the mass of these mostly 5-12 mm shells. The shells lost some mass over two years, but neither the presence of snail carcass nor the soil type (clay, chalk, sand/gravel at field margins) had any statistically-significant impact on that parameter. However, she went on to state that other work at the same experimental locations indicated tha*t M. cantia*na “shells were incorporated into the soil within a year.” Likely there were other factors operating in these sites.

Tim Pearce reported on a study (ms now submitted) in which he left snail shells, mostly medium-sized down to about seven mm, in litter collection bags for about six years. His preliminary observations indicated that decay occurred independent of species (and that means, to some extent, size) and habitat of sample origin. He mentioned the additive effects of mechanical breakage and

biodegradation (rasping by invertebrates). He believed he would be able to predict a half-life for the disappearance of shells after more observation.

Charlie Sturm provided a citation to Menez (2002). This paper reported on a four-month study of eight variously-sized species of land snail shells (mean max. dimensions: 3.3, 4.0, 8.5, 12.3, 12.7, 21.2, 23.5, and 28.5 mm) freshly-emptied of their animal contents. After random assignment of comparably-sized specimens of each species to each of four groups, the shells were then affixed firmly, apertures down, two mm off a white or black-painted board surface and exposed to sun or kept in darkness. During this rainless Gibraltar season, periodically the shells were scored 1 to 7 based on degrees of loss of luster up to total loss thereof and becoming brittle. Results indicated that (1) sun-exposure, independent of background coloration (heat?), and (2) smaller shell size favored deterioration. Thus another factor, solar radiation, is shown to play a role i*n post mort*em land snail shell decay - and that size matters.

Angela Lush referred me to Cadée (1999), a report on the decay of the shells of the pulmonate helicid, *Cornu aspersum* (Müller, 1774), which usually measure about 30-35 mm in diameter. Field-collected empty shells having lost their periostracum were placed in an undisturbed location in a in the dunes of Texel Island, Holland. Some were placed in a protective nylon net, others not. Over the course of a year, there was a loss of about six percent in the mass of the protected snails. On the other hand, by two months, the unprotected snails had sustained a 65% loss, and some were not found at all. There was overwhelming evidence that the difference was due to the grazing of the confamilial *Cepaea nemoralis* (Linnaeus, 1758). A second feature of the experiment demonstrated that there was little evidence of attrition in the mass of unprotected bird bones concurrently and under the same conditions. Thus rasping of shell remains can be a major, if not overwhelming, factor in the natural disintegration of empty land snails.

Kurt Auffenberg cited Barrientos (2000), a study of the non-native pulmonate helicarionid snail *Ovachlamys fulgens* (Gude, 1900) in Costa Rica. This report included an experiment similar to that of Cadée (1999) in which 23 freshly-killed snails (> 5mm) were placed inside a mesh cage which was positioned in the area from which they were collected in abundance. The half life to disintegration was five months, and by ten mos. there was “disappearance” of all. By correlating the relative percentage of living snails and empty shells over ten months time, he inferred that the decay process was likely even faster (intraspecies rasping?).

An intimate corollary of the question at hand was mentioned at the start: To what extent can a land snail thanatocenosis be useful in the analysis of its companion biocenosis. Are they essentially coeval? Are the diversity and species abundances the same? Pavlicek *et al*. (2008) discuss this issue in their analysis of two closely-approximated xeric land snail faunules in Israel in which living snails constituted only five to eight percent of the shells studied. They mention several factors affecting the relationship of the live to empty snail data including some touched upon above. Certainly slugs will be underrepresented in the in the *post mortem* component of any such inclusive analysis as their most durable remains (jaws) aren’t as resistant to disintegration as are shells under prevailing conditions. Aside from possible different rates of simple physico-chemical decay, patterns of predation and salvage - including shell destruction and hoarding or relatively intact shells by rodents and of empty shell salvage/hoarding by ants were considered. Cadée (1998) discussed these processes in a more general context.

My personal experience in matters related to land snail shell decay is limited to a review of the literature and of field-collected leaf litter and soil consisting of about three dozen sample-lots (~100 liters of raw material *in toto*) mostly from eastern North America, especially the southeastern US. Shells less than five mm are the focus of my attention, and, with, the exception of that provided in the cited literature, there is little formal quantitative and no experimental bases for the following observations:
(1) A much higher proportion of specimens are relatively intact than one would expect from an uninterrupted slow, steady process of decay. Engrafted on this slow disintegration paradigm there may punctuations producing major accelerations of the process, e.g. heavy rains increasing dissolution, vigorous depredations such as whole-shell crunching/consumption by mammals, birds, beetles, or snails, freeze-thaw cycles, physical winnowing by the elements, etc., which tend to “wipe the slate clean” from time to time and allow fresh-vacated shells from the source community to begin another cycle of accumulation.
(2) Despite no. (1), certain species and parts thereof, e.g. *Pupisoma* spp., succineids, *Euconulus* spp., apertures of *Punctum* spp. and subulinids, are characteristically eroded and/or friable when found. A steady process of dissolution (leaching) may best explain the relative susceptibility to decay of calcium-poor shells (or constituent parts) such as these.
(3) Loss of shell material is often topologically uneven, e.g. one side of the spire or body whorl with the rest of the shell nearly pristine. Probably this pattern reflects microchemical change such as appostition to a more corrosive surface, maybe internal (decaying soft parts) or external.
(4) Although I have seen evidence of gastropod rasping in shells of larger species, there are very, very few signs of that process among the microspecies.
(5) In sites that I’ve repeatedly sampled - and that’s not many - I have not seen a significant discrepancy between live-taken and dead-taken shells with respect to species diversity. However, the literature raises a variety of caveats: “*Bona fide”* litter-soil samples must carefully distinguished from soil taken from Quarternary remains, including material in an archaeological context. Striking zoogeographic contrasts can sometimes be found by comparing land mollusk remains not only in very late Pleistocene-early Holocene fossil deposits (Auffenberg *et al*., 2006; Bogan and Grady, 1990) but in archaeological context as first pointed out for marine mollusks by Lyell (1863: 13-14) and later for terrestrial taxa (Hubricht, 1954: aboriginal mound; Lee, 2006: ceremonial ring; Peacock and Melsheimer, 2003: general midden), some dating to a mere 400 YBP, to Recent assemblages - even in close

spatial juxtaposition.The orderly accumulation and decay of shells in the soil and litter, particularly in the former stratum, may also be perturbed by other factors such as sequestration in caves (Bogan and Grady, 1990) or caches of vertebrate and invertebrate predators and salvors (Barber, 1988; Pavlicek *et al*., 2008); mechanical destruction by animals, either by predators/shell-harvesters (Cadée, 1998) or simple incidental crushing; lotic redistribution, first described by d'Orbigny (1849: 111) and renowned for potentially misleading zoogeographers (see Hubricht, 1985); and disinterment relatively ephemeral deposits such as loess, silt, or talus (Hubricht, 1985).

In conclusion, it appears that the physical, chemical, and biological vicissitudes of normal land snail habitats combine to make long term preservation of their shells a very rare event. Of course, cataclysmic burial such as probably befell the proboscideans cited above, or anthropogenic interment into similarly-favorable insulation from orderly disintegration, may preserve material many orders of magnitude longer. Relative lack of size, thickness, total mass, and surface area (maybe not all) of empty shells appears to favor a short post-mortem existence in the litter and soil. Hydration of this matrix undoubtedly plays a role, but solar-induced decay may occur in the absence of rainfall. Gastropod grazing is the major factor in shell decay in some situations involving larger taxa, and other animals certainly may play a role in others. In some systems disintegration may occur in less than one year, yet, despite physical and chemical conditions perceived as optimal, shell decay may proceed much more slowly for very large shells. Shell remains of alien spatial and/or temporal origin driven by taphonomic vagaries may contaminate soil and litter samples. Nonetheless, all these disruptions of orderly accumulation and decay seem to be avoidable with attentive sampling of litter and soil.

Thus the natural half-life of shells in the litter depends on many variables but is generally constrained. The survival of microshells is likely shorter and more predictable than for the shells of larger species, but precise estimates will probably require more disciplined observations and experimental analysis adjusted to the study area - as Tim Pearce seems to have considered. However, the likelihood that the half-life of an assemblage of empty microshells in litter/soil in temperate or tropical areas is more than a decade or two is quite low. This fact makes it unlikely that the species composition, even in samples in which living snails may be very poorly represented, differs significantly from the malacofauna surviving in any habitat exposed only to "normal" disintegrative processes. However, absolute proof that the empty shells (thanatocenosis) represent the species composition of the surviving faunule (biocenosis) will almost always require a much more exhaustive search for living material, the production of which is greatly influenced by vagaries such as biocyclic, climatic, and more subtle ecological rhythms. It is exactly this procedural deterrent that makes the empty-shell surrogate a valuable tool in biodiversity studies, especially for the smaller taxa. However, diligence must be exercised to avoid the taphonomic pratfalls discussed above. Risk of a significant discontinuity between the living and the dead snail components at any given sample site appears too low to warrant concern in the direct application of the latter to diversity estimates of the biocenosis.

Auffenberg, K., I. R. Quitmyer, J. D. Williams, and D. S. Jones, 2006. Non-marine Mollusca: 247-261 *in* Webb, D. S. [ed.], 2006. *The first Floridians and last mastodons: the Page-Ladson Site in the Aucilla River*. Springer Press, Dordrecht, Netherlands. i - xxv + 1-587.
Barber, R. J., 1988. The use of landsnails from prehistoric sites for paleoenvironmental reconstruction pp. 11-28 *in* Nicholas, G. P. [ed.] *Holocene human ecology in northeastern North America*. Plenum, New York.
Barrientos, Z. 2000. Population dynamics and spatial distribution of the terrestrial snail *Ovachlamys fulgens* (Stylommatophora: Helicarionidae) in a tropical environment. *Revista de Biología Tropical 48*(1):71-87.
Bogan, A. E. and F. V. Grady, 1990. Two Pleistocene molluscan faunas from eastern West Virginia pp. 189-213 *in* Purdue, J. R. , W. E. Klippel, and B. W. Styles (eds.) Beamers, Bobwhites, and Blue-Points: Tributes to the career of Paul W. Parmalee. *Illinois State Museum Scientific Papers 23* (also as the *University of Tennessee, Dept. of Anthropology Report of Investigation 52).*
Cadée, G. C., 1998. Waarom ligt de aarde niet bezaaid met lege schepen van landslakken? *Correspondentieblad van de Nederlandse Malacologische Vereniging 304*: 111-113. [Why is the surface of the earth not covered with empty shells of land snails? (Henk Mienis translation)]
Cadée, G. C., 1999. Bioerosion of shells by terrestrial gastropods. *Lethaia* 32(3): 253-260.
d'Orbigny, A., 1849. *Cours élémentaire de paléontologie et géologie stratigraphique vol. 1*. Masson, Paris. 1-157 [not seen]
Emberton, K. C., T. A. Pearce, and R. Randalana, 1996. Quantitative sampling land-snail species richness in Madagascan rainforests. *Malacologia 38*(1-2): 202-212.
Hubricht, L., 1954. The snails from two Indian shellmounds near Clarksville, Virginia. *The Nautilus 67*(3): 90-92. Jan.
Hubricht, L., 1985. The distributions of the native land mollusks of the Eastern United States. *Fieldiana 24*(1359): pp. 1-191 + viii. June 28.
Lee, H. G., 1990. Toward an improved strategy for landsnail collecting. *Shell-O-Gram 31*(1): 3,6-8. Jan.-Feb. Abstracted in **Lee, H. G., 1993.** Toward an improved strategy for landsnail collecting. *American Conchologist 21*(1): 12-13. March. See also <http://www.jaxshells.org/freshwat.htm>.
Lee, H. G., 2006. Archaeology team really digs shells. *Shell-O-Gram 47*(6): 4-6. Nov-Dec. See also <http://www.jaxshells.org/arko.htm>.
Lyell, C., 1863. *The Antiquity of Man*. John Murray, London. xii + 1-520.
Menez, A., 2002. The degradation of land snail shells during the annual dry period in a Mediterranean climate. *Iberus* 20(2): 73-79.

Pavlicek, T., H. K. Mienis, S. Raz, V. Hassid, A. Rubenyan, and E. Nevo, 2008. Gastropod biodiversity at the "Evolution Canyon" microsite, lower Nahal Oren, Mount Carmel, Israel. *Biological Journal of the Linnean Society 93*: 147-155. Jan.
Peacock, E. and R. Melsheimer, 2003 Terrestrial gastropods from archaeological contexts in the Black Belt Province of Mississippi. pp. 27-47 *in* Peacock, E. and T. Schauwecker [eds.], *Blackland Prairies of the Gulf Coastal Plain nature, culture, and sustainability.* University of Alabama Press, Tuscaloosa.
Thompson, F. G., 1995. New and little known land snails of the family Spiraxidae from Central America and Mexico (Gastropoda, Pulmonata). *Bulletin of the Florida Museum of Natural History 39*(2): 45-85. Nov. 6.

Winners of the 2009 Jacksonville Shell Show

Scientific Division

A-1-1. Beautiful: Ist Place Ribbon: "The Color Purple" Selma Hutchinson in memory of Fred Chauvin..

A-1-3. One Area: 1st Place Ribbon: "Shells of Oman", Gene Everson; **COA Award**
2nd Place Ribbon: "Shells of Li Ch'iu Islands, Jim Smith

A-1-4. Self-Collected SEUS & Caribbean: 1st Place Ribbon: Brian Marshall - **Best NE FL Exhibit Award**
2nd Place Ribbon: "Junonia", Christopher John Stalder

A-1-7. One Minor Family: 1st Place Ribbon, Family Mitridae, Harry & Joan Berryman; **DuPont Award**
2nd Place Ribbon: "Xenophora" Vicky Wall
2nd Place Ribbon: Turritellidae" Gene Everson –**Judges Special Award Ribbon**

A-1-9. One Single Specimen: 1st Place Ribbon: *Busycon carica* (bispinosa) (Gmelin, 1791) Jeff Ward,
Self-Collected Shell of the Show Award
2nd Place Ribbon: *Partulina confusa* (Sykes, 1900) Vicky Wall

A-1-10. Educational: 1st Place Ribbon: "There's More Than One Way to Collect a Shell"
Vicky Wall, **Winner of the R. Tucker Abbott Award,& Judges Special Award Ribbon**
2nd Place Ribbon: "*Mytilapsis leucophaeata* in my Back Yard" Barbara Cathey
2nd Place Ribbon: "Exception to the Rule" Harry Lee

A-1-11. Ten Feet and Under: 1st Place Ribbon: "Shells of Sao Tome" Gene Everson; winner of the
"Ten Feet and Under" Plaque

A-1-12. Northeast Florida Collection: 1st Place Ribbon: " NEFL Shells" Rick Edwards

A-1-15. Related Specialty: 1st Place Ribbon: "The Spell of the Shell" Vicky Wall

A-1-16: Beginner: 1st Place Ribbon: "Yellow Sea of Japan", Zhongliang Lu, **Shell-of-the-Show Award** for
Neptunea constricta (Dall, W.H., 1907)

A-2. Non Marine Mollusks: 1st Place Ribbon. "Left-handed Land Snails; Normal and Abnormal"
Harry G. Lee - **Winner of the Clench Award**

Arts & Crafts Division

B-1-1. Pictures: 1st Place Ribbon: Selma Hutchison; 2nd Place Ribbon: Shannon Webster
B-1-2. Flower Arrangements: 1st Place Ribbon: Mary Robertson; 2nd Place Ribbon, Kellie Ater
B-1-3. Christman Related: 1st Place Ribbon: Shannon Webster; 2nd Place Ribbon: Laura Rowley
B-1-4. Mirrors: 1st Place Ribbon: Mary Robertson; 2nd Place Ribbon: Laura Rowley
B-1-5 Jewelry & Personal Acc.: 1st Place Ribbon: Mary Robertson; 2nd Place Ribbon: Mary Robertson
B-1-7 Photography: 1st Place Ribbon: Karlynn Morgan
B-1-8 Novelties: 1st Place Ribbon: Tom Duhon; 2nd Place Ribbon: Shannon Webster
B-1-11 Home Décor: 1st Place Ribbon Barbara Cathey; 2nd Place Ribbon: Mary Robertson
B-1-12 Sailor's Valentine: 1st Place Ribbon: Jane Santini; 2nd Place Ribbon: Selma Hutchison
B-1-14 Miscellaneous: 1st Place Ribbon: Mary Robertson; 2nd Place Ribbon: Shannon Webster

Judges Special Award Ribbons – William Edwards for his Silk Screen and Pauline Hall – Hanging Basket

Most Creative Award – Jane Santini for her Sailor's Valentine

Helen Murchison Award – Barbara Cathey- Painted Chair

Gertrude Moller Award – Posthumously awarded to Tom Duhon for his 8 by 12 foot 3-Ring Circus

School Kits a Success

School Kits were well received. A new list of additional schools has been developed for those wishing to participate in our offering of kits. Below is the list of initial shells offered and may need to be modified for future kits. Please bring your suggestions to the next meeting

Sinistral Amoria undulata (Lamarck, 1804)

Amoria undulata (Lamarck, 1804)
Harry G. Lee Collection

List of shells for School Kits

1. **Knobbed Whelk *Busycon carica* (Gmelin, 1791)**
2. **Lightning Whelk *Busycon sinstrum* Hollister, 1958**
3. **Pearwhelk *Busycotypus spiratus* (Lamarck, 1816)**
4. **Shark Eye *Neverita duplicata* (Say, 1822)**
5. **True Tulip *Fasciolaria tulipa* (Linnaeus, 1758)**
6. **Eastern Banded Tulip *Fasciolaria hunteria* (G. Perry, 1811)**
7. **Crown Conch *Melongena corona* (Gmelin, 1791)**
8. **Lettered Olive *Oliva sayana* Ravenel, 1834**
9. **Florida Rocksnail *Stramonita haemastoma floridana* (Conrad, 1837)**
10. **Horse Conch *Triplofusus giganteus* (Kiener, 1840)**
11. **Eastern Auger *Terebra dislocata* (Say, 1822)**
12. **Eastern Mudsnail *Ilyanassa obsoleta* (Say, 1822)**
13. **Thick-lip Drill *Eupleura caudata* (Say, 1822)**
14. **Common Atlantic Slippersnail *Crepidula fornicata* (Linnaeus, 1758)**
15. **White Baby Ear *Sinum perspectivum* (Say, 1831)**
16. **Channeled Duckclam *Raeta plicatella* (Lamarck, 1818)**
17. **Disk Dosina *Dosinia discus* (Reeve, 1850)**
18. **Common Jingle *Anomia simplex* dOrbigny, 1832**
19. **Incongruous Ark *Anadara brasiliana* (Lamarck, 1819)**
20. **Green Mussel *Perna viridis* (Linnaeus, 1758)**