



The Drifting Seed

December 1, 1997

Vol. 3, No. 3

THE DRIFTING SEED

A triannual *Newsletter* covering seeds and fruits dispersed by tropical currents and the people who collect and study them.

Distributed to more than 20 countries.

Cathie Katz, Editor and Publisher
Dr. Charles R. (bob) Gunn, Advisor and Columnist
Sue Bradley, Business Manager
John V. Dennis, Sr., Columnist
Pete Zies, Columnist

The 1997 Second Annual International Sea Bean Symposium was an overwhelming success. This issue contains a summary of the weekend, presentations, speakers, Bean-A-Thon, and results of the business meeting.

We also wanted to give the readers who couldn't attend the symposium a chance to meet three of the people who were responsible for its success. Their introductions are on page 9.

Page 6 describes the curse (or magic?) of the famous coco-de-mers.

This issue also contains an article by Pete Zies explaining how the true sea bean (*Mucuna* spp.) has evolved to become a master at self-defense.

The last page includes a simple identification guide for 16 of our most common drift seeds. This addition will be a permanent page in our newsletter.

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FROM YOUR EDITORS

From Bob:

With this issue of our Newsletter, Cathie, THE SEA BEAN LADY, becomes the *sole* editor, and concurrently becomes the *soul* editor. And believe me, both words are apt. Her editorial abilities are well established (that is her job), and her joy, happiness, and love of the subject clearly come through in our Newsletters.

I am writing this on November 1, and I have shipped the entire drift disseminule collection that I have been assembling and curating for 24 years to THE SEA BEAN JOURNEYMAN, Peter J. Basil Zies. He is the new curator and keeper of the collection. I am now in the midst of sending him the paper files (he already has the computer files). Yet for me to start on, are boxing the books, photographs, and slides. The future issues of the collection and our records are in very good hands.

And what caused this change in my life? A selfish reason and our October meeting in Melbourne Beach, Florida. The October meeting clearly showed me that Cathie and Pete are our future. But I knew this already. It was all the folks that helped them, especially those listed on page 9, as well as the 300 who attended, who all demonstrated that they are the future.

My selfish reason is that I want to data bank seed and fruit characters of the 400 seed-bearing plant families. I have spent over 12 years accumulating the data and samples. The former are with me in Brevard, NC, and the latter are housed in the U.S. National Seed Herbarium (BARC) in Beltsville, MD. Joe Kirkbride has agreed to process the data that I generate here in Brevard. We use a computer program called DELTA or Descriptive Language for TAXonomy), which can handle taxonomic data and produce the keys, description, and identifications. And perhaps more importantly, that data can be attached to illustrations and the whole thing recorded on a CD-ROM disk.

Our 1997 meeting was inspiring to all of us, and I urge any who are thinking of attending the 1998 meeting to make it a top priority. Thanks to the town of Melbourne Beach, the Sharrock Shores Resort, Cathie and her gang of wonderful helpers, Pete Zies, the fine fellowship, and the youngsters who made displays and collected tropical seed and fruits. Do not be surprised if there are not more displays by youngsters next year.

From Cathie:

Until recently, I've consistently ignored Bob Gunn's murmurs of retreat from his active role with us. But this time he sounds serious about moving on with his own work. HOWEVER, since I am now Sole-Soul Editor, I am going to use my position to pressure Advisor and Columnist Gunn to fulfill his duties, and I will show no mercy.

I spoke with Pete Zies after he received Dr. Gunn's world seed collection. I could hear the excitement in his voice when he said, "I have boxes of beans everywhere! I feel like a dog in a yard with a bunch of rabbits! I don't know which way to turn first." I feel, as Dr. Gunn does, that we're very fortunate to have Pete assume the responsibility of curating the collection. We're also very grateful to Pete for all his energetic contributions.

This year's symposium was truly magical once again. Our theme song has become "This Magic Moment," (©1960) by The Drifters which Marge Bell miraculously found on CD.

Contributing to the magic was the arrival of Ann and Ian Robertson from Kenya. Ann's talk about the beaches and drift seeds in Kenya was intriguing – learning about the similarities and differences of familiar seeds and seeing photographs of the flowers of some of the seeds was an opportunity I wouldn't have missed for all the beans in the Seychelles. I'm looking forward to seeing Ann and Ian in Kenya this summer.

We've already started planning next year's symposium. We'll be adding a few special features such as "The Drift Bottle Toss" (sending a bottle out to sea with a message from our group) and displays such as the "Bean-O-Matic" (where experts will help you identify your sea beans).

Next year, in addition to our regular panel of speakers, we're honored to have **Dr. Stephen Leatherman** ("Dr. Beach") join us. Dr. Leatherman recently moved to Florida after 16 years of coastal research in Maryland to accept the position as Director of the International Hurricane Center at FIU in Miami. We hope to hear about his forthcoming book *America's Best Beaches*. Other presenters will include **David Cox**, marine biologist at The Environmental Learning Center in Vero Beach and several other marine researchers (in addition to our regular cast of Drifters). A detailed schedule of our next Symposium will be in the September 1998 issue.

Symposium Review
by Peter Zies
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The folklore about sea beans bringing good luck must be true because our second symposium was even better than the first! Dr. Gunn made it safely to the conference, and all in attendance were thrilled to finally meet him. Many beaners arrived on Wednesday to get in a bit of extra beachcombing. By Thursday most participants had arrived, and the weather cooperated by sending strong winds and rough waves which deposited plenty of sea beans to be collected. (I collected 22 hamburgers within 90 minutes).

We socialized at the Sharrock Shores and beachcombed briefly before dinner, after which Jim Angy presented a talk on the barrier island's wildlife as we walked from the pier on the Indian River Lagoon to Ocean Avenue Park at the beach.

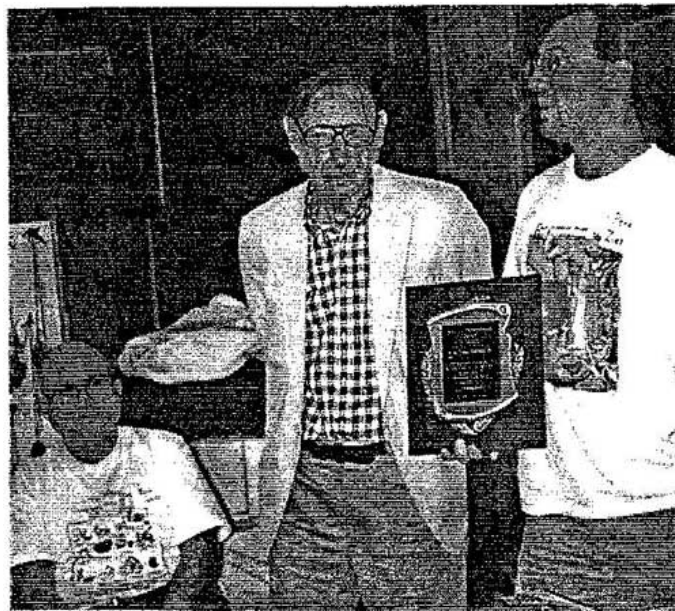
On Friday our conference started in earnest, and a number of displays were set up in the Melbourne Beach Community Center, including Ruth Smith's necklaces, Frank Seymour's jewelry, Ann Robertson's Kenyan drift seeds, Cathie Katz' beach oddities, Curtis Ebbesmeyer's collected drift material, and Joey LaFave's beach toy display. The building was flooded with interested local and out-of-towners, and the day was largely consumed with identification of unknown items and the comparisons of collections.



The magic of the symposium was felt throughout our 4-day event. Everyone finally met Betty and Bob Gunn (yes, folks, there really is a Dr. Bob Gunn). We were fortunate to also meet Ian and Ann Robertson from Kenya, Pat Kenny from Maryland, and Danielle Pierce from Melbourne ... and again we met John Dennis, Cathie Katz, Ruth Smith, Sue Bradley, Curtis Ebbesmeyer, and finally, Frank Believe-in-the-Magic Seymour.

Symposium Review by Peter Zies (continued)

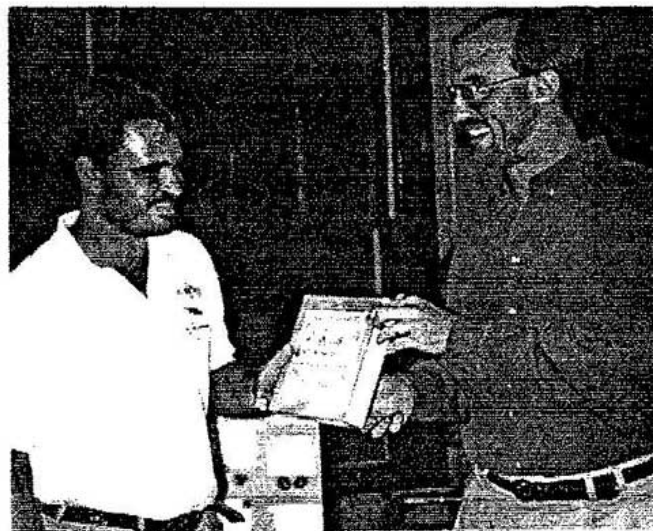
After dinner on Friday, the conference was officially opened with the presentation of the Lifetime Achievement Award to John Dennis. I explained that our theme for the second Symposium was quality field work, and that John had embodied that over the last four decades. As much as Dr. Gunn has done for our hobby with his careful research and identification, it could not have been accomplished without John's tireless specimen collection. The award was met with vigorous applause, and John addressed the gathered audience briefly. (Shown right: Bob Gunn, John Dennis, Pete Zies.)



Dr. Gunn was then introduced, and finally gave his long-awaited lecture on sea beans, and the coco-de-mer in particular. His slide show kept the audience enthralled. The luck of the beans continued for our conference, and a number of coco-de-mers were presented for viewing, including one bought at a garage sale by Terri Larson in Merritt Island for \$2.00!

I gave a brief description of the more common drift seeds to prepare the competitors for the Bean-A-Thon.

Saturday began early with a Bean-A-Thon at 8 am. Participants scoured Brevard County's 40-odd miles of public beaches and returned with huge bags bursting with finds. Special certificates to those who picked up trash paid off, and a 55-gallon drum was filled with garbage collected from the beach.



Huge numbers of seeds were also collected, and among the high scores. **Terri Larson** topped the list with 3395 points for the Most Beans Award. **David Williams** (shown middle right) collected the Rarest Bean Award for finding a *Caryocar microcarpum* (it looks like a black porcupine cashew) and his cousin **Rondall Owens** (shown below right) picked up the Grand Slam Award for finding all five "keepers" (sea heart, nickernut, sea purse, hamburger, and starnut palm). **Paula Boys** received the Special Bean Award for he enthusidatic support and energetic participation throughout the conference. The Ultimate Beach Find award went to **Matt Giammarino** for his skillful beachcombing at his young age and his unusual foam globs. For the Non-Bean Award, I found a large orange ship's distress beacon (along with two spirula shells) which beat out a toilet set found by **Frank Seymour**, and a green prophylactic on a light bulb found by Melbourne Beach Town Historian **Frank Thomas**.



Symposium Review by Peter Zies (continued)

Saturday afternoon gave us lectures and presentations. **Gerry Heyes** from the Sea Turtle Preservation Society informed us of recent research in sea turtle studies.

Ruth Smith (shown to the right (in scarf) with **Pat Kenny**) continues with her nationally recognized necklace collection, which included many new specimens gathered on her recent trip to the Amazon.

Dave Williams then explained Tagua Nut carving and scrimshaw. He demonstrated "reverse scrimshaw" on sea hearts, creating many beautiful pieces as we watched.



We were fortunate to have **Ann Robertson** (shown to the left with **Bob Gunn**) from Kenya, East Africa. Ann gave a slide show about beaches in Kenya and her efforts to protect a rare tree, *Gigasiphon* sp., from eradication by illegal timber operations. Her example should be inspiration for us all, since the destruction presently taking place in the Amazon could soon rob us of our own seeds.

Dr. Curtis Ebbesmeyer rounded out the lecture series with his display and discussion of things that float, which included a number of finds from the weekend, like bottles from Cuba and Mexico and the distress beacon. (Curt pictured right with **Pete Zies** and the distress beacon.)

Curt-the-detective explained that all those one-inch plastic balls we had been finding recently were from roll-on deodorant sticks. His talk pointed out the enormous impact humans have on the ocean, overcoming the sea's imaged infinite ability to absorb waste.

The evening was capped by a panel discussion in which **Cathie Katz** and I were joined by Bob Gunn, John Dennis, Ann Robertson, Ruth Smith and Curt Ebbesmeyer. Ann Robertson presented Bob Gunn with her beautiful book, *Flowering Plants of Seychelles*. A wide ranging discussion and more show and tell continued through the night.



Our business meeting was held Sunday morning. Outreach programs to local schools were discussed (and will be pursued), as well as a call for donations to offset the \$1,500 annual expense for the newsletter. The best news from the business meeting was the decision for an immediate reprint of the 1976 World Guide (with updated scientific names) rather than waiting for the second edition to be complete years from now.

The Second Symposium was a clear success. Thanks go to each one of you for your part in it! The warm welcome received from the town officials of Melbourne Beach and the locals was enough to convince us to hold next year's conference at the Community Center again. The dates will be October 15 – 18, 1998, with Friday and Saturday open to the public.

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Coco-De-Mer (*Lodoicea maldivica*)

[Extracted from Dr. C. R. Gunn's paper, October 17, 1997]

"Males of this "living fossil" may reach over 100 feet (females about 80 feet) and are almost indestructible, and yet they do not seem to compete with other tropical plants. The weakness is that it take three years for a pollinated ovary to produce an immature fruit, seven to eight years for the fruit to ripen, three or more years to germinate, and 100 years for the tree to mature. It takes 20-30 years before trees bear fruit, and each tree has 20-30 ripe fruits at any given time. Endocarps can only drift in seawater after their endosperm is consumed and the embryo has died; therefore, the species could not spread from Praslin."

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The Largest Seed in the World (or the Curse of the Coco-De-Mer?)

by Cathie Katz

Since I first met Dr. Gunn, too many interesting coco-de-mer incidents have occurred for me not to share them with you now. (The first one ended with Dr. Gunn reassuring me that the "curse of the coco-de-mer" has ended.) When I visited the Gunns in Annapolis in 1993, we took photos (using three different cameras) of us holding the famous coco-de-mers – my reliable camera broke just before the photo session, and the other photos of the coco-de-mer just didn't develop. Dr. Gunn sent one successful photo to me from Betty's camera – and that has since mysteriously disappeared. Then, during his move form Annapolis to North Carolina, one of his coco-de-mers disappeared, not to be found to this day.

Last year, Dr. Gunn's scheduled speech about the coco-de-mer was cancelled because of his emergency surgery. We began to question whether we should even say the words coco-de-mer any more. Was the curse real? Did it continue?

The End of The Curse of The Coco-de-Mer

This year, despite our fears, we scheduled Dr. Gunn's speech anyway, preparing ourselves for another mishap. However, the saga took another unexpected (but happier) twist. About two months before the symposium, I received an e-mail from **Terri Larson** in Merritt Island, Florida who wrote, "I think I found a coco-de-mer." Yikes! I immediately sent e-mails up and down the east coast to let everyone know we might have to re-write the physics of the world's currents ... in a saner moment, I sent Terri a copy of Dr. Gunn's coco-de-mer speech with a note explaining, "I don't think it's possible that you found a coco-de-mer on our beach ... it's probably a huge coconut, an unrelated species." I explained what I knew from Dr. Gunn: that the seeds come from Praslin, an island in the Seychelles. It's impossible for them to have drifted from the Indian Ocean to the Atlantic. Well, Terri later informed us that she had indeed found a coco-de-mer ... at a garage sale ... and then at the Symposium she told us that she paid only \$2.00 for it. The spontaneous, collective *groan* from all the sea beaners in the Community Center could be heard all the way to the Seychelles! (Thanks for the news, Terri, and for sharing your garage sale treasure with us.)

An Abundant Universe

Also at the symposium, I was able to bring TWO coco-de-mers (one of them polished). They were on loan to The Drifters as a result of a joke played on me by my co-workers at The Applied Physics Laboratory: When I returned from Pennsylvania in September, I walked into my office at Cape Canaveral and saw two huge seeds. "Oh, m'gosh!!!" I yelled, "Coco-de-mers!!! Where did they come from!?" My palms were sweating and my head was spinning out of control. My co-workers Mary Witcher and Bobbie Harrington said very calmly, "Oh Rhonda Theobald found them here on the beach. I was struck dumb – the first time my co-worker ever knew me to be speechless. Their fear of my having a stroke made them confess: Mary discovered the seeds at the house of her neighbor, **Allan Chang-Fane**. Allan is originally from the Seychelles but is now living on Merritt Island. The coco-de-mers were brought from his home island. When Mary asked if she could borrow the seeds to play a trick on me, Allan graciously agreed. Ha ha. (Allan also agreed to let me keep the coco-de-mers through the symposium. Thanks, Allan. I still have them. Ha ha.)

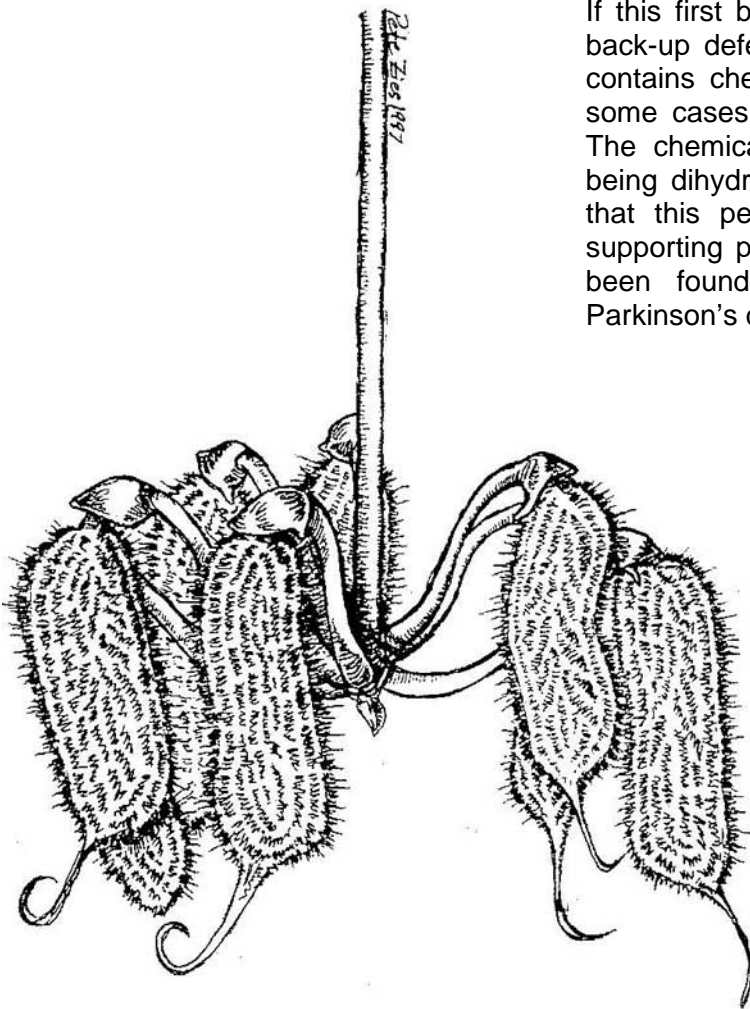
FEATURED ARTICLE

Sea Bean Self Defense

by Peter Zies

You might imagine that our favorite floating friends would never need to worry about their personal safety, but that is exactly the case. Relatively speaking, the hamburger beans are giants. A seed predator might have to eat dozens, or even hundreds, of another species of seeds to equal the nutritional content of one *Mucuna*. It's as if you and I were faced with the choice of having an appetizer or a four-course meal. The *Mucuna* has "realized" its predicament, so to speak, and has taken a number of evolutionary steps to protect its generous seed content.

The most obvious defense mechanism developed by the hamburger beans is their rock-hard outer seed coats. They are sufficiently durable to deter all but the most determined efforts to crack them. Although many jungle animals are omnivorous and include seeds in their diet (such as insects, parrots, monkeys and a host of small mammals), rodents are best adapted for feeding on seeds. Anyone who has seen a beaver, rabbit or rat is familiar with the chisel-like incisors that typify this group of animals. These teeth continue to grow throughout the life of the animal, and by gnawing on the hardest thing they can find they wear down their teeth and offset this growth. Rats in New York City are said to have gnawed through lead pipes, and I have found a *Mucuna* on Canova Beach, Florida chewed wide open, for which rats are the prime suspect. In the rain forest, a tropical rodent known as an agouti is the major seed predator and consumes a wide variety of seeds.



If this first bulwark is breached, the *Mucuna* has developed a back-up defense, in that the seed coat's physical composition contains chemicals that are, at a minimum, distasteful and in some cases poisonous to whatever is trying to eat the seed. The chemical is known as "L-Dopa", the full scientific name being dihydroxyphenylalaline. (As an aside, it should be note that this peculiarity about the *Mucuna* is one more reason supporting preservation of the rain forests, since "L-Dopa" has been found in research to be effective in treatment of Parkinson's disease.)

A resourceful seed predator, faced with these defenses, would seek to find a method of circumventing them. Why not attack the seeds before the "L-Dopa" concentration levels had become toxic, and before the seed coat had hardened? This would necessitate getting at the seeds in their developmental stage, which means in their seed pods. Apparently, this is a problem the *Mucuna* did face at some point in their evolutionary past, as they have developed defenses for the seed pods as well as for the seeds themselves.

The seed pod defenses are two-fold; the first being the location of the pods on the vine. Rather than being on the vine, or in proximity, the *Mucuna* pods hang on a long stem, in some instances several feet long. This makes the pods harder to reach for the larger seed predators, as their weight prohibits their approaching the seeds, while smaller seed predators would be exposed to the view of animals that might prey on them.

The second defense is the coat of stinging hairs that covers the seed pods. Anyone who has accidentally encountered a stinging nettle (*Cniduscolus stimulosus*) is familiar with the concept, but apparently the pain is much worse with these seed pods. One source explains "The pods are very bristly-hairy, the bristles are easily dislodged by a touch and are extremely irritating to the skin, often producing troublesome blisters." (L.H. Baiely, Standard Cyclopedia of Horticulture) and another source states "It is actually worse than poison ivy in that it causes an almost immediate reaction – an almost unbearable itching and burning of the skin and can cause blindness if it gets in the eyes... I am told that a good dose of it causes its victim to literally go out of his mind from the pain." (in litt. Andrew Guthrie, July 6, 1966). Faced with such daunting defenses, the vulnerable immature seeds become much less attractive, and a seed predator is likely to move on to an easier target.

In this fashion, the *Mucuna* defends its potential progeny and ensures that the beautiful seeds are able to reach maturing and disperse in their intended manner and eventually make the long ocean journey to our shores and into our appreciative hands.

References

David R. Murray, Ed. *Seed Physiology, Germination and Reserve Mobilization*, Academic Press, HBJ, 1984.

J.D. Bewley & M. Black, *Physiology & Biochemistry of Seeds in Relation to Germination*, Plenum Press, NY, 1994.

NEWS AND NOTES FROM READERS

Laura Heaton of Melbourne sent her sister, **Jennifer Parsons** of Belair, Maryland, a handful of various sea beans from Florida. Jennifer, who teaches at Homestead Wakefield Elementary School, brought them to show her students. Her classes have since used the sea beans in projects which include sprouting and growing them. Each day, students can "win" a bean for the day. Jennifer is producing a video documenting her students' bean activity. We hope to hear more and perhaps see the video at the next symposium. Thanks Jennifer!

Acknowledgements:

Thank you to Melbourne Beach Town Manager **Dick Williams** and **Elaine Williams** for their support and for the invitation to return next year. And to **Mr. Sharrock** of the Sharrock Shores Resort for creating a comfortable and welcome beachside atmosphere. **Eleanor Hillman** of the Astronaut Trail Shell Club for helping make the raffle a wonderful success and for volunteering to be next year's raffle captain, **Casey Jones** for donating his country almond plant and for stumping the experts with his unidentified beach objects (Casey, bring them back next year and we'll try again.) **Doug Durreet** for bringing his large seed collection which we hope to see again next year when we have more time to go through it all, **Elizabeth Bishop** of The Florida Native Plant Society, **Margaret Broussard** from Friends of The Scrub, **Ed Perry** and **Gayle Sinclair**, from Sebastian State Park. (Gayle, thanks for sharing your neat display), **Don and Maureen Picard** from Canaveral National Seashore, **Nathan and Mark Lane** for coming from Daytona Beach (Thanks, Mark for the wonderful review in Daytona's *News-Journal* the following week.), **Nancy Leeds** and **Debbie Wilson** from The Gumbo Limbo Nature Center in Boca Raton, **Danielle Pierce** (Danielle, thanks for sharing your beautiful sea bean display and the marriage vow in a bottle. Congratulations to **Janice Scott** who took time from her busy campaigning schedule to join us. Janice fought a hard battle to win a seat on the Cocoa Beach Commission – our barrier island's wildlife will benefit from Janice's dedication to the environment.

Special thanks to **Florence and Bill Willmot**, **Helen and Marvin Veverka**, **Ian and Ann Robertson**, **Lorraine and Stuart Roberts**, **Betty and Bob Gunn**, **Harriet DiGioia** and **Paula Boys** for their generous contributions. And thanks to **Dr. Glen Wagner** for his very generous donation and his priceless insights.

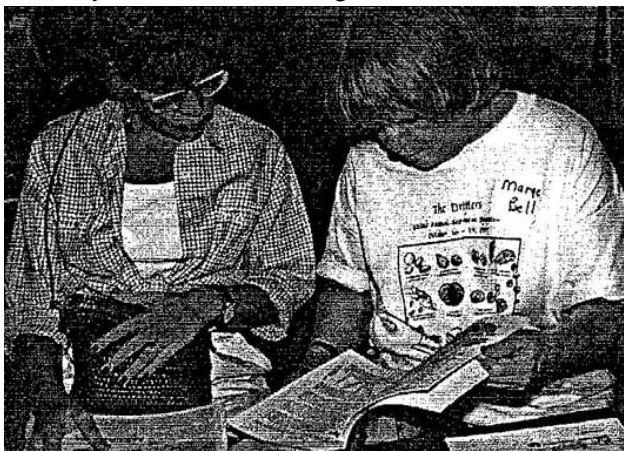
The magic that filled the Community Center during our 1997 International Sea Bean Symposium would not have been possible without three special people.

Sue Bradley, our Treasurer, (shown right with Cathie Katz) managed to keep track of all the transactions, donations, and sales while organizing and providing information to the attendees. She accomplished all this in the midst of buying and selling a house. She and her husband Don now live in the Treetops in South Melbourne Beach.



Throughout the year preceding the 1997 Symposium, Sue kept track of T-shirt orders, Drifting Seed donations, and Cathie's last-minute requests. Sue constantly played detective at deciphering Cathie's tiny scraps of notes. At our business meeting Sunday morning, after a week of non-stop activity, Sue was able to give a complete accounting of our financial status. She stayed up late Saturday night to calculate that *The Drifting Seed* is now in the black!

In the last couple of years, Sue has become an avid sea bean collector – anyone who crosses her path gets “the sea bean story” and she has managed to inspire many novices who weren't able to tell the difference between a Mary's bean and a tar glob. Thanks Sue!



Camera-shy **Marge Bell**, (in above photo with Marilyn Waters on the left) is one of our latest and greatest Drifter members. Marge works full time with Harris Government Communications Systems Division in Palm Bay as a technical writer. Marge kept us organized with constant reassurances, “Mom's Tips”, music, note paper, messages, name tags, telephone calls, pens, clips, advice, maps, local restaurant and shopping knowledge, trash bags and even transportation service. With a quiet energy, Marge accomplished endless tasks and met our constant demands.

Marge has been a resident of Brevard County since 1964 and is active in community service ranging from contributing to arts programs to helping young businesses thrive. She used her knowledge of our area's resources to help put together our symposium. She even found a CD with our theme song, “This Magic Moment” by The Drifters for next year's symposium. Thanks Marge for helping to create the magic of the weekend.

Jim Angy (shown above right) has lived in this area for more than 40 years and is a well known, award-winning Florida photographer and wildlife expert. He is also a respiratory therapist in Melbourne. He and his family live in Indialantic.

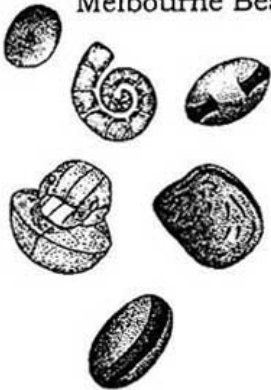
Jim's photographs have won national awards and have been shown in magazines such as Audubon's Florida Naturalist, People Magazine, Florida Wildlife, Popular Photography, Wildlife Photography, Southern Outdoors, Orvis Outdoor Catalog, and on calendars, postcards and greeting cards for the Nature Conservancy. Jim is active in our community by presenting wildlife programs to schools and nature groups. Jim helped throughout the entire 1997 Symposium as our photographer and wildlife expert. His wildlife photographs and the symposium photographs will be on view next year. Thanks Jim for all your extra work and creativity throughout the symposium!



The Drifting Seed

PO Box 510366
Melbourne Beach, FL 32951

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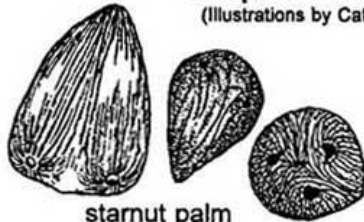
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Simple Guide to Common Drift Seeds

(Illustrations by Cathie Katz and Pamela J. Paradine)



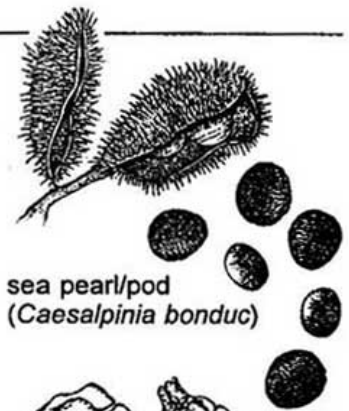
hamburger bean
(*Mucuna* spp.)



starnut palm
(*Astrocaryum* spp.)



country almond
(*Terminalia catappa*)



sea pearl/pod
(*Caesalpinia bonduc*)



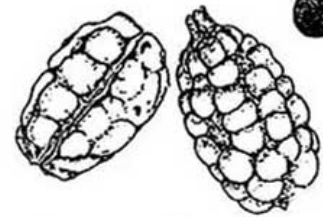
bay bean/pod
(*Canavalia rosea*)



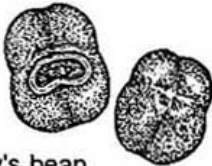
sea heart
(*Entada gigas*)



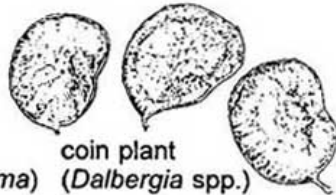
golfball/pod
(*Manicaria saccifera*)



hand grenade
(*Sacoglottis amazonica*)



Mary's bean
(*Merremia discoidesperma*)



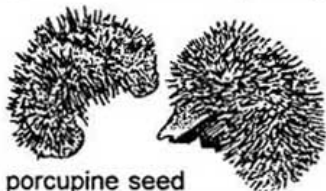
coin plant
(*Dalbergia* spp.)



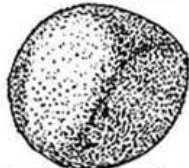
sea purse
(*Dioclea reflexa*)



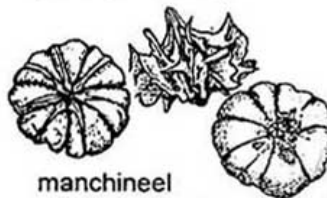
hog plum
(*Spondias mombin*)



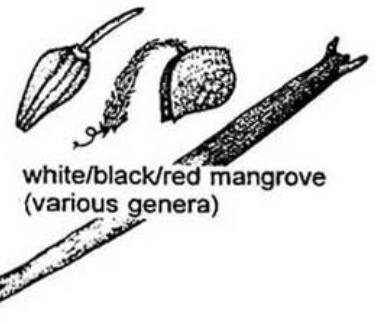
porcupine seed
(*Caryocar microcarpum*)



Jamaican naval spurge
(*Omphalia diandra*)



manchineel
(*Hippomane mancinella*)



white/black/red mangrove
(various genera)