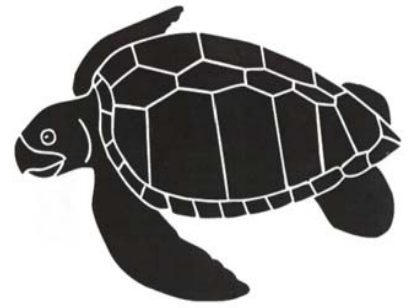


# *The Chelonibia*

Newsletter of the  
**Caretta Research Project**

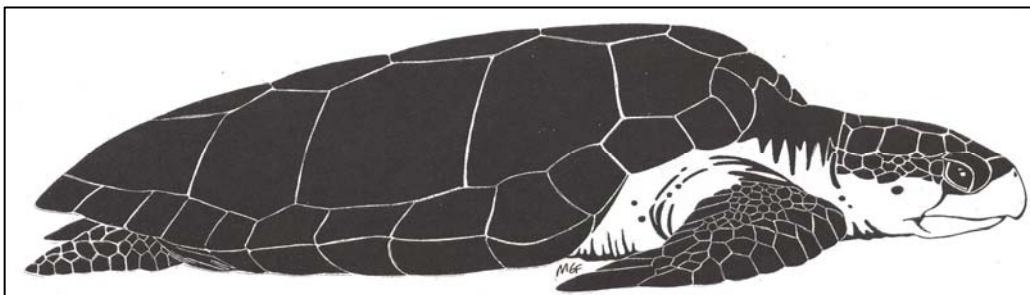


## **2009 Season Ends with 91 Nests**

A total of 91 nests were deposited on Wassaw Island this year, which is above our average of 71 nests per year. Loggerhead nesting started on May 10<sup>th</sup> and ended on August 7<sup>th</sup>. Sixty-three individual turtles were identified on Wassaw: 36 were neophytes, which means they have never been tagged before, 16 were remigrants that had previously been tagged on Wassaw, and 9 had tags from turtle projects on Blackbeard (6), Jekyll (2) and Little Cumberland Islands (1). Two other turtles had tag scars and no history could be determined. Overall, the hatch rate was 68.6%, and thanks to staff and volunteers with the Caretta Research Project, approximately 6,418 hatchlings made it to the water. Additionally, the last crawl of the season that occurred on August 19<sup>th</sup> was from a green turtle! Nightlong patrols had stopped by that time so we missed seeing her. The crawl was distinguished from a loggerhead crawl as loggerheads alternate their flippers as they pull themselves up the beach, while greens pull themselves up simultaneously.

One of this season's remigrant turtles has one of the longest nesting histories with the CRP. She was originally tagged in 1986, and since then she has deposited 31 nests containing more than 3,800 eggs. Her average hatching success rate is 81%, releasing over 3,000 hatchlings into the ocean!

Thank you to everyone who participated this season - we owe the success of the project each year to individuals, corporations and Foundations who have donated services, time, effort and money to our conservation efforts. We appreciate everyone's help in conserving the turtles!



## **Fall 2009**

### **Savannah Science Museum, Inc. Board of Directors**

Chris Walls, President  
Ann Ramee, Vice President  
Catherine Gussler,  
Secretary  
Larry Sprague, Treasurer  
Fabienne Dickinson  
Rolfe Glover  
Chris Klein  
Margie Livingston  
Kathleen Pitt  
Annie Quaile  
John Reddan  
Dale Thorpe  
Lynn Wright

### **CRP Staff**

Kristina L. Williams  
Michael G. Frick

### **2009 Assistants and Leaders**

Jason Fuller  
Debbi Hanibal  
Barbara Stephens  
Ed Strohsahl  
Chris Wells

This newsletter was  
underwritten by the  
**Wormsloe Foundation,  
Inc.**

## First Annual SAVE THE SEA TURTLES CELEBRATION!



Chris Walls, Board President and John Reddan, Board Member and Auctioneer

In November, we held our first annual Save the Sea Turtles Celebration. The party was held at the Bonna Bella Yacht Club, which was an ideal venue for the event-the staff was wonderful, the food was delicious, and the weather perfect (the bugs just made everyone feel like they were on the beach at Wassaw)!

Thanks to the generosity of many local individuals and businesses, we had numerous items for both silent and live auctions. John Reddan was our auctioneer who riled the enthusiastic crowd into bidding on vacation retreats, dinners and art.

Thanks to everyone and we can't wait til next year!

We would like to thank everyone who contributed to the success of this celebration-Bonna Bella Yacht Club; our sponsors: Parker Companies, The Savannah Bank, Savannah Eye Institute, Savannah Vascular Institute; the silent and live auction donors: Carolina Pharmaceuticals, The Cottage Shop, Dr. and Mrs. Kevin Dickinson, Gaucho, Melanie Elmore, Ogeechee-Canoochee Riverkeeper, Mrs. Cyn Peterson, Mr. and Mrs. Tom Ramee, Mr. and Mrs. Roger Ross, Mrs. Jane Schonian, Mr. and Mrs. Larry Sprague, Savannah Bee Company, See Jane, Mr. and Mrs. R. E. Thorpe, Trends and Traditions, Two Moons Catering and the Zia Boutique. We appreciate everyone's assistance in the preservation of this exceptionally important local program!



Nick Pitt, Amber Waters, Elizabeth Rountree and Gabriel Pitt

## Help Us Clean Up the Coast with Clean Coast!

This year, the Caretta Research Project partnered with Clean Coast, a non-profit volunteer-based organization that holds monthly beach and marsh clean-ups on the Georgia barrier islands throughout the year. Coastal Georgia is one of the most attractive places on the east coast for both tourists and recreational boaters, and although much of the coastline remains remote and untouched, there is still quite a bit of trash found washed ashore on the beach or caught in the marsh. This garbage is awful to look at and is deadly to wildlife, including sea turtles.

Approximately 50 volunteers came over to Wassaw in August, and with our Kawasaki Mules and Caretta participants, we helped pick up and transport trash to their skiff. A record 1,800 pounds of trash was removed from Wassaw this summer!

Both organizations depend on volunteer boat captains to transport more volunteers to the beaches to help collect, separate and tally marine debris. If you are interested in joining us or becoming a volunteer boat captain for the Caretta Research Project or Clean Coast, please check out our websites for more information:

[www.carettaresearchproject.org](http://www.carettaresearchproject.org)  
[www.cleancoast.org](http://www.cleancoast.org)

## Horseshoe Crab Research on Wassaw National Wildlife Refuge

This summer we initiated a pilot study to monitor horseshoe crab (*Limulus polyphemus*) activity on Wassaw Island. This is the first horseshoe crab tagging project in Georgia. Horseshoe crabs are commonly found throughout the Atlantic seaboard, spawning in the spring and early summer. Females emerge onto the beach, many times with the males attached, and excavate nests and deposit their eggs. Horseshoe crabs are extremely important ecologically as well as commercially. Ecologically, eggs are critical for shorebirds, as at least 20 species of shorebirds feed primarily on horseshoe crab eggs during their migrations. Fish eat larval stage and juvenile horseshoe crabs. Adult horseshoe crabs are a main dietary item for sea turtles. Commercially, horseshoe crabs are caught primarily as bait in conch and eel fisheries, and for use in biomedical research, as their blue blood contains a clotting agent (*Limulus Amoebocyte Lysate*) which is used to detect biological contamination in fluids and instruments.

We tagged a total of 325 horseshoe crabs in less than a month, primarily during the last week in May. Horseshoe crab activity declined dramatically after that moon cycle. 324 were sexed: 204 were males, 120 females. Lone crabs were sexed and measured, and mating crabs were measured only if it was possible to do without disturbing the union. Females ranged from 23.7-35.8 (average=29.8) cm prosoma width (n=89), and males 20-28 cm (ave=23.8) (n=170). Fifty-one mating pairs were encountered.

Nine of the tagged horseshoe crabs were reported to USFWS in Annapolis, MD. Six were found dead: 5 on Wassaw and one on Ossabaw Island. Three were found and released alive—two on Wassaw, and one on Little Tybee Island.



We will continue this horseshoe crab monitoring program on Wassaw National Wildlife Refuge by tagging horseshoe crabs during their spawning events in 2010. We hope that in the future we can expand to collaborate with other organizations conducting research on horseshoe crabs, and possibly increase coverage to include data collection on other barrier islands.

## 2009 COLLABORATIONS

**Georgia Southern University:** This was our ninth year working with Dr. David Rostal from GSU, studying the effects of incubation temperature on hatchling development and sex and nest success. Researchers from the **University of Alabama at Birmingham**, **Illinois State University** and the **Duke Center for Marine Conservation at Duke University** joined us in a 3-year, group project studying how the health of the mother turtles influences the health of eggs and hatchlings, and if there are differences throughout the season and between multiple seasons. Blood samples were taken from 25 individual nesting turtles for hormone and blood composition analysis. Six eggs were removed from each of these nests and temperature dataloggers placed within.

**University of Florida:** Blood and biopsies were taken from 47 individual turtles for stable isotope analysis to determine foraging locations of turtles before they returned to the nesting beach and whether or not they feed between their nesting bouts. Sixteen of these turtles were bled throughout the season to determine if they foraged between nesting events. Biopsies were taken from eight additional individuals.

**University of Georgia:** We collect adult biopsies and eggs from 38 individual turtles for a PhD student studying genetics at the University of Georgia to reassess the genetic population structure of eastern U.S. nesting loggerheads. We also collected 16 biopsies from non-nesting individuals and 12 eggs from missed nests to help him match mitochondrial DNA of fresh eggs with previously biopsied females, allowing us to identify the “mother” of any nests that are missed on the beach.

# Symbiotic Barnacles from Hawksbill Turtles Are New to Science

By Mike Frick

Long-time readers of this newsletter are likely aware that loggerhead sea turtles (*Caretta caretta*) host an immense variety of plants and animals (epibionts) on the skin and carapace (shell) regions; and that among sea turtles, loggerheads are the sea turtle species most heavily colonized by epibionts. Recent studies, however, have shed light on the diversity of epibionts hosted by hawksbill turtles (*Eretmochelys imbricata*), and their results indicate that this reef-dwelling turtle may rival, and possibly supplant, the loggerhead as 'the crustiest turtle'.

To date, nearly 200 species of epibionts have been reported from loggerhead turtles – including algae, sea squirts, sea stars, barnacles and crabs. Hawksbills, likewise, host these organisms, but they also host an array of reef animals not seen from loggerhead turtles - like foraminiferans and snapping shrimp. Recently I was sent a collection of barnacles to examine from a dead stranded adult, male hawksbill turtles from Juno Beach, Florida (Palm Beach County). In this collection of barnacles was a species rarely encountered in U.S. waters, *Platylepas decorata*, originally described in 1854 by Charles Darwin; and there was another species I had never encountered before.



Hawksbill Sea Turtle in Florida. photo by Caroline Rogers.

Because I have seen just about every species of symbiotic barnacle known to colonize sea turtles, I knew what I had in hand was 'new' to science. Like another 'new' species I had encountered from Gabonese leatherback turtles, this new hawksbill barnacle was obviously a member of the genus *Stomatolepas*. This genus was described in 1916 by Henry Pilsbry of the Philadelphia Academy of Science to include a species of barnacle he had encountered from the mouth of a loggerhead turtle from Florida; hence the prefix '*Stomato*', which means mouth and then '*lepas*', which means shellfish (both from Latin). Pilsbry's specimen was further defined as *Stomatolepas praegustator*, '*prae*' meaning fore and '*gustator*' referring to the gastrointestinal system.

As it turned out in later studies, other members of the genus *Stomatolepas* were discovered, and not all were associated with the mouths of turtles. Loggerhead turtles, among other turtle species, also host *S. praegustator* on the outside of the body: on the soft skin around the neck and flippers. These regions, particularly on leatherback turtles, are also good places to find *Stomatolepas elegans* and *Stomatolepas pilsbryi*. A rare congener called *Stomatolepas transversa* is boat-shaped and grows only along the sutures joining the plates of the belly scales of hard-shelled sea turtles.

*Stomatolepas* are different from most barnacles because they actually occur embedded within the skin of the turtle, not superficially like most barnacles. *Stomatolepas* produce a series of scale-like emanations that act as little fingers that clasp and then pull the turtle skin over the shell of the barnacle – leaving only the opening of the barnacle shell exposed to the outside environment. This mode of attachment is similar to crouching down in an open sleeping bag and then zipping it up around you as you stand up. By attaching this way the barnacle does not puncture the skin of the turtle nor does it elicit a reaction from the turtle's immune system to reject the barnacle from the skin. In the past this genus has been referred to as a 'burrowing' species, but as we can see from the above explanation, this is not the case. *Stomatolepas* are generally embedding barnacles.

Yet, as with most generalities inferred in nature, there are exceptions to the rule. In the present case, and with regards to *Stomatolepas*, the aforementioned ‘new’ species encountered from hawksbill turtles is a partially embedded to largely superficial *Stomatolepas* species. Right now I am describing this form as *Stomatolepas bernardonii* and it is unique amongst the stomatolepadine barnacles in that it is relatively flat, and there are hollow spaces between the ornamentation on the outer wall of the barnacle and the body chamber housing the shrimp-like animal within. In the adjacent photograph you can see that a small hair like an eyelash could be passed down through this hollow.

*Stomatolepas bernardonii* is also different from other *Stomatolepas* in that only the bottom or newest, scale-like ornaments grasp the skin of the host turtle (the bottom ring of calcium comprising the basal edge of a barnacle is always the newest growth). Moreover, *S. bernardonii* grows in tight clusters whereby the edges of the shell that are no longer used to ‘pinch’ the skin of the host turtle are instead used to interdigitate with the ornamentation of their neighbor – fitting together like pieces in a puzzle. As the width of the barnacles increase they become more tightly packed together, essentially holding onto one another and to the host turtle at the same time.

Because only a dozen or so specimens represent the only known examples of this species known to science, and these are from only a single host hawksbill turtle, there is still much to learn about this new species. It is possible that *S. bernardonii* also occurs on other turtle species and it may be found in regions outside of Florida. Hopefully barnacle collections will continue to come my way and hopefully these will contain more specimens of *S. bernardonii*. Until then, it appears that this new species is endemic only to hawksbill turtles.



*Stomatolepas bernardonii* ag



*Stomatolepas bernardonii*

### Excellent Year for Leatherback Nesting in Georgia!

Georgia had a record 7 leatherback nests, and thanks to Brian Shamblin’s (UGA) genetic research, we know that only two leatherbacks deposited these nests! One of the turtles was one that false crawled on Wassaw in 2005. This year, she nested on Sea Island, Sapelo, Cumberland, and then twice on Jekyll Island. The second leatherback first nested on Juno Beach (FL), then on Cumberland and St. Simon’s Island.



## FUN PROGRAMS ON OUR WEBSITE!



Two volunteers, Peter Ravdin and Michele Gill, have incorporated our nesting data into a Google Earth map of Wassaw Island! Check out the map throughout the summer, as turtles will appear along the beach where nests were deposited. As you move the cursor over the turtles, data on each nest will pop up and you can see the date the nest was laid, who deposited it and the hatching success of the nest. You can also do a “fly-over” the island, where you can see the cabins and the Fort!

Check it out at  
**[www.carettaresearchproject.org](http://www.carettaresearchproject.org)**

In addition to this season’s nesting data, you’ll find information on:  
**open dates and fees**  
**Adopt-A-Turtle updates**  
**pictures of previous seasons**

In addition, you can also:  
**download publications**  
**read about the Adventures of the Remigrator and Paco**  
**download your favorite tattoo design, and**  
**check out the Big Books of Jim!**

We’d like to thank our amazing webmaster, Christopher Wells, for all of his hard work in designing, creating and maintaining the site.

### We’d like to extend our sincere THANKS! to our “TURTLE RUNNER” BOAT CAPTAINS:

Dr. and Mrs. Kevin Dickinson	Mr. and Mrs. Rolfe Glover	Mr. and Mrs. Phillip Grainey
Dr. and Mrs. Joseph Gussler	Mr. Bill Hopkins	Mr. and Mrs. Jerry McLaughlin
Mr. and Mrs. Aaron Philips	Ms. Kathleen Pitt	Mr. and Mrs. Richard Prisco
Mr. and Mrs. Tom Ramee	Mr. Mel Sykes	Mr. and Mrs. Al Townsend
Dr. and Dr. Chris Walls	Mr. and Mrs. Charles Warnock	Mr. and Mrs. Alex Young

### A special thank you for their continued support over the years:

- Beth Betbeze and Lillian Powell, Angie Sheets and Jake McMillan, and all of the members of the Wassaw Island, LLC for their support which makes this possible;
- Jane Griess, Peter Range, Chuck Hayes and the rest of USFWS Coastal Refuges for assistance with all necessary permits and for their continuing advice and support;
- The 2,825 volunteers who have helped study and protect Wassaw Island’s loggerhead sea turtles!

# ACKNOWLEDGMENTS

**We would like to thank the following individuals and organizations for their support and contributions since October 2008:**

## INDIVIDUALS:

Mr. and Mrs. Charles Alling, Jr.	Mrs. Kirby Beam	Dr. and Mrs. Charles Belin, Jr.	Mr. and Mrs. Fred Bergen
Mr. and Mrs. Scott Bernard	Dr. Margaret Blom	Ms. Birgit Bolton	Ms. Amy Bradley
Mr. and Mrs. Malcolm L. Butler	Dr. and Dr. David Byck	Ms. Laura Card	Mr. and Mrs. Steven Cass
Ms. Katie Charron	Mrs. Frank Chisholm	Mr. and Mrs. F. Chisholm, Jr.	Mr. and Mrs. Bob Christian
Mr. and Mrs. Nathaniel Clapp	Mr. and Mrs. Nevy Clark	Ms. Linda Cline	Mr. and Mrs. Steve Cox
Ms. Dorothea Coy	Mr. and Mrs. Phillip Crawford	Mr. and Mrs. James Daly III	Mrs. Sally Dayton
Mr. and Mrs. Edward Derst III	Dr. and Dr. John DeVaro	Dr. and Mrs. Kevin Dickinson	Capt. and Mrs. Joseph Dobbs
Mr. and Mrs. Theodore Dwight	Ms. Mary Eckwall	Mrs. Donna Edwards-White	Ms. Josephine Ewing
Ms. Suzanne Ewing	Ms. Tess Ewing	Dr. and Mrs. Charles Ferris	The Fuller Family
Mr. Brad Folmar	Mr. and Mrs. Rolfe Glover IV	Ms. Susan Goldis	Mr. Jesse Gourevitch
Mr. and Mrs. Mitchell Green	Capt. J. N. Groover and Family	Dr. and Mrs. Joseph Gussler	Mr. Dennis Hamilton
Mr. and Mrs. Laurence Hanson	Ms. Kathleen Harlander	Mr. and Mrs. Glen Hart	Mr. and Dr. John Helmken, II
Mr. Robert Hoffman	Mr. Boyd Holtan	Mr. and Mrs. James Holtzclaw	Mr. and Mrs. Erwin Houston
Mr. and Mrs. Jack Huber	Mr. and Mrs. Fred Irwin	Mr. and Mrs. G. Terry Jackson	Mrs. Katherine Jacobson
Mrs. Jamie Jobe	Mr. and Mrs. Timothy Jones	Mr. and Mrs. Christopher Klein	Mr. and Mrs. Martin Leffler
Ms. Eleanor Legg	Mrs. Margie Livingston	Mr. and Mrs. Melvin Lockwood	Mr. and Mrs. Mark Lofton
Mrs. Janice McGibbon	Mrs. Judith McLaughlin	Mr. and Mrs. Tom McMullin	Mrs. Suzanne Mendonsa
Ms. Emilie Miller	Mr. and Mrs. B. R. Moore	Mrs. Christine Persons	Mr. and Mrs. Frank Peterson
The Pfaller Family	Mrs. Kathleen Pitt	Ms. Lillian Powell	Ms. Annie Quaile
Mrs. George Quaile	Mr. and Mrs. Thomas Ramee	Mr. and Mrs. John Reddan	Ms. Katherine Reed
Mr. and Mrs. Louis Reynolds	Dr. and Mrs. Daniel Rose	Mr. and Mrs. Glen Scarbrough	Mrs. Katherine Scardino
Mr. and Mrs. James Scavo	Ms. M.J. Seipp	Mr. and Dr. James Sentman	Mr. and Mrs. Steven Simpson
Mr. Jim Sims, Jr.	Dr. and Dr. Douglas Smith	Mr. and Mrs. P. Solomons, Jr.	Ms. Louise Spang
Mr. and Mrs. Larry Sprague	Mr. and Mrs. Robert Stephens	Dr. and Mrs. Henry Stevens III	Mr. and Mrs. Martin Sullivan
Ms. Elizabeth Sweeney	Mr. David Tate	Mr. and Mrs. R.E. Thorpe, Jr.	1LT F. Slade Thorpe
Mr. and Mrs. Phil Tisovec	Mr. and Mrs. Charles Usher	The Walls Family	Mr. and Mrs. Charles Warnock, Jr.
Mr. Ross V. Waters	Mr. and Mrs. John Whelan	Mrs. Melynda Wieters	Mr. and Mrs. Ray Williams
Mrs. Suzanne Williams	Mr. and Mrs. W. A. Winburn	Mr. and Mrs. Thomas Wright	The Wright Family
Mr. and Mrs. Chris Yarbrough	Dr. and Mrs. James Yeckley	Mr. and Mrs. Alexander Young	Mr. and Mrs. Tracy Young
Ms. Erica Zweifel			

## CORPORATE CONTRIBUTIONS:

Colonial Foundation, Inc.	Custom Car and Truck	Georgia Ports Authority
Georgia Power	Parker Companies	Patagonia
UPS Foundation		

## FOUNDATIONS / GRANTS:

Beavertides Foundation	Chatham Foundation	Hunter Foundation
J.C. Lewis Foundation, Inc.	The Jolly Foundation	Kiah Fund
Norcross Wildlife Foundation, Inc.	Publix Super Markets Charities	Savannah Community Foundation, Inc.
Savannah Presbytery Ecology Fund	Shared Earth Foundation	Southern States Educational Foundation
Wal-Mart Foundation	Wormsloe Foundation, Inc.	

## SPECIAL CONTRIBUTIONS:

Mr. Dave Cahoon and Mr. Jack Reid for coming down to fix our Mules  
Peter Range and the U.S. Fish and Wildlife Service and Mr. Scott Lewis for helping with vehicle transport to and from the island  
Mrs. Melynda Wieters for reflective nest markers  
Mr. Christopher Wells for designing and maintaining our website  
Mr. and Mrs. Andrew Mendonsa in honor of and in memory of Hadrienne Mendonsa  
Mr. Scott Hempling and Ms. Margaret Flaherty - in honor of Ms. Juliet Garlow  
Mr. and Mrs. Channing Smith, Jr.—in honor of John “Crawfish” Crawford

*Protecting Georgia's Loggerheads since 1973*

# **CARETTA RESEARCH PROJECT**



CARETTA RESEARCH PROJECT  
P.O. Box 9841  
Savannah, Georgia 31412  
Phone: 912-447-8655  
E-mail: [WassawCRP@aol.com](mailto:WassawCRP@aol.com)  
Website: [www.carettaresearchproject.org](http://www.carettaresearchproject.org)

Non-Profit  
Organization  
US Postage  
PAID  
Savannah, GA  
Permit #304