

Leatherback Sea Turtle Nesting in Dominica

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Background

The Rosalie Sea Turtle Initiative, or Rosti, is a non-profit organization founded in 2001. It operates out of Rosalie, Dominica, with main activities on the beaches of Rosalie, La Plaine, Londonderry, and Woodford Hill. Rosti is dedicated to the conservation of Dominican sea turtles via an extensive education and public relations campaign involving community-based

initiatives, volunteers, and local businesses. It has made significant progress on a nation-wide scale and is an exemplary model of a community-based conservation effort.

Leatherback sea turtle nesting was observed on two nights. Measurement of the beach slope on La Plaine beach was taken, and spatial measurements of the nesting on La Plaine and Rosalie were recorded. Rosti activities on these nights were observed and public campaign efforts were documented.

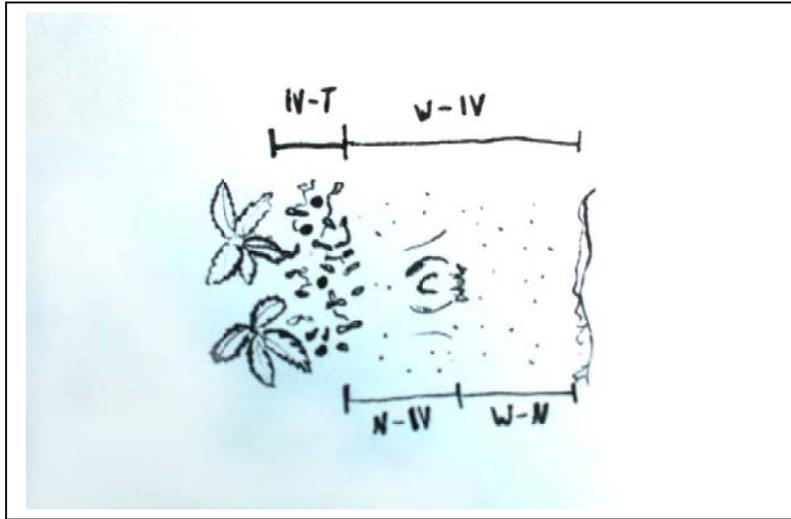
Three species of sea turtle have been reported nesting on Dominican beaches, the most common being the Leatherback sea turtle or *Dermochelys coriacea*. The Leatherback sea turtle is the largest living sea turtle, with a maximum size of 8 feet long and a maximum weight of nearly a ton. The females nest 5-7 times on average during a nesting period from March to July in general and April to June on Dominica. *Chelonia mydas* and *Eretmochelys imbricata* occur less commonly on Dominican beaches. *Chelonia mydas* or the Green sea turtle nest an average of 3.3 times per season (between July and September on Dominica). The *Eretmochelys imbricata* or Hawksbill nests an average of 4.5 times during a nesting season roughly between May to October on Dominica. Hawksbill and Leatherback turtles are listed as endangered by the IUCN, and breeding colonies of Green sea turtles in the Caribbean are considered threatened. All three species are seriously impacted by human hunting practices and egg collecting.

Dominica is a mountainous tropical island located in the Lesser Antilles in the lower Caribbean. It has a population of about 60,000, mostly concentrated around the perimeter of the island. It achieved independence from French colonial status in 1978 and is heavily dependent on tourism and export of produce. Main sources of public communication are the local radio station and outdoor advertisements.

Research

Two of the beaches on Dominica exhibited turtle activity and were relatively accessible to study: La Plaine and Rosalie. Rosalie is a beach area on the southeast side of the island, close to a road and immediately behind a resort development project. The beach is also partially flanked by a

rock wall, and the surrounding land is privately owned. La Plaine is located slightly north of



Rosalie. It is directly off a road and is immediately and easily accessible to the general public. Both beaches are enclosed on ends by rocky outcroppings extending into the ocean, and both are composed primarily of magnetite and volcanic sand.

These beaches host significant nesting populations of Leatherback sea turtles, as well as the two less common species.

During the course of this four night study, three individual Leatherback turtles were observed nesting, two on La Plaine and one on Rosalie beach. Several nestings also occurred on interval evenings on both beaches. Where recent nesting had occurred, spatial measurements of

nests were taken. All of these nests were assumed to be sites of Leatherback turtle nesting.

IV-T -measurement from first vegetation on beach to tree line

W-IV- measurement from water line to first vegetation

N-IV- measurement from nest to first vegetation

W-N-measurement from water line to nest

	<u>La Plaine</u>				avg	<u>Rosalie</u>				avg
IV-T	4.73	4.17	7.62	7.32	5.96	12.35	5.87	17.07	11.76	
W-IV	10.72	14.74	19.51	13.06	14.51	21.47	34.73	17.38	24.53	
N-IV	1.73	4.60	3.79	4.04	3.54	6.05	7.53	7.16	6.91	
W-N	8.99	10.14	15.72	9.02	10.97	15.42	15.42	10.22	17.61	

methods and materials: Appendix I

The slope at La Plaine was measured as 10.03 degrees below the horizontal provided by the upper beach. The slope on Rosalie was noticeably less, which correlated with a longer distance between nest and water line. These results seem reasonable as the female turtles would be expected to make a nest closer to the water line as long as the eggs are less likely to be flooded by tidal waters.

Tremendous opportunities for future sea turtle research exist on Dominica. A larger scale study on aspects of Leatherback sea turtle nesting that included control beaches would be tremendously beneficial. Another option would be analysis of gradual progression of beach composition between the tree line and the water. Other options include comparing beach aspects in instances of nesting versus non-nesting emergences (also know as false crawls) to create better explanations for aborted digging efforts. On a personal note, a long-term study would be the most advantageous when actually observing the sea turtles, as a researcher may have time to get over the tremendous feeling of wonder and amazement that a Leatherback sea turtle inspires, and actually achieve some science.

Rosti:Past Present and Future

The Rosalie Sea Turtle Initiative was founded by Beverly Deikel and Patris Oscar. They recieved and continue to receive academic support from Dr. Karen Eckert and Dr. Scott Eckert of Duke University, and other support from Widecast.org. Soon after, Rowan Byrne joined as head coordinator and general leader, which position he retains today. Rosti's early objectives were to formulate a recovery plan based on conservation and community support. It was the first program of this kind on the island, and was not without its share of opposition. Local people have consumed sea turtle eggs and meat since early colonization of Dominica. Sea turtle hunting in the water is restricted by license to a small period of the year with hunting on any beach being illegal, but a prominent poaching industry remained aided by public apathy.

At present, Rosti operates an island-wide conservation program which grows with every season. They have worked hard at gaining public support and spreading information about sea turtles. Rosti examined the local culture and took advantage of the two main media sources on the island. They use air space on the public radio station to run advertisements for Rosti and to give people advice about what to do when encountering a nesting sea turtle. They have also printed stickers with the Rosti emblem and distributed them to the public. These stickers are often found on bus stops, public buildings, and automobiles on most locations around Dominica.. They also host celebrations such as Hatching Day, which will occur this year most likely on July 9th with sponsorship from Digicel and the National Bank of Dominica. The sponsorship by local businesses helps create a mental connection in the public viewpoint between turtles, community, and business. Rosti is also working with the Dominican government and the Ministries of Agriculture and Tourism to update poaching regulations in order to make them consistent with a conservation-oriented public viewpoint. There is work underway to increase the fine for poaching to a more substantial amount and change the hunting season to protect the turtles during their entire breeding seasons.

These efforts are in addition to the main conservation activity, the protection of sea turtles while nesting and relocation of eggs to a safe hatching area. I was fortunate enough to accompany Rowan Byrne on an evening of typical Rosti activity. The evening began with a phone call to the Rosti hotline, which is another name for Rowan's personal cell phone. It was a report of two sea turtles nesting on La Plaine. At the beach, the turtles were being observed by volunteers as well as a small number of public onlookers. The turtles were at the stage in nesting called camouflaging, where they move large amounts of sand over their nesting site in an attempt to camouflage it. Each of the turtles observed by Rosti members is tagged with a serial number on the right and left loose skin between the hind flipper and the cloaca. One of these turtles had a loose tag, and it was replaced with a fresh one. The volunteers allowed a few members of the crowd to take pictures with the turtle, then everyone was made to stand back and turn off all lights as the turtles moved back into the ocean. The eggs had been collected as soon as they

were laid, and were driven over to the hatchery. Sea turtle eggs can be moved if necessary for the first 48 hours; after that the embryo and yolk structure has been formed and movement is fatal for the developing turtle. The eggs were counted and buried in two holes in the hatchery, dug by Rosti members. The eggs were covered and marked with natural markers (coconuts, palm fronds) to indicate their position. The hatchery is in a relatively secret location and is meant to be indistinguishable from the surrounding area in order to deter disturbance.

I was also present for the first part of the nesting process a later evening, on Rosalie beach. A few observers and one of the beach patrollers watched an adult Leatherback turtle dig a body pit and nest. Once the turtle began to lay eggs, its measurements were taken and tag numbers recorded. The eggs were collected in preparation for movement to the hatchery.

The future of Rosti is a bright one. Rowan Bryne is publishing a book on the history of the Rosti organization, which will be available sometime in the fall of 2007. Rosti was also recently registered as a Dominican non-profit entity, which is an important step in the process of transferring control of Rosti into the hands of Dominicans.

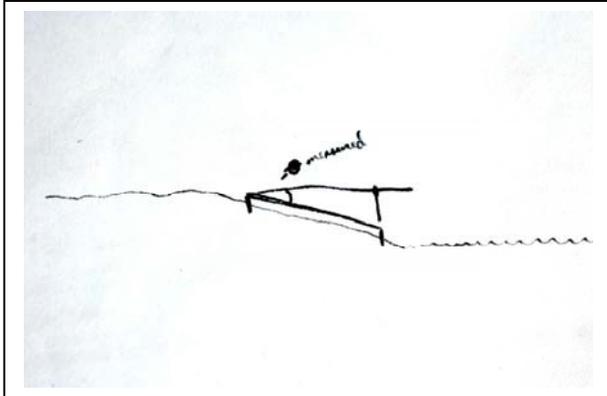
In a world where the average person's connection with nature is increasingly severed, eco-tourism is becoming a powerful force in the tourism industry. Dominica is ideally suited to take advantage of this growing phenomenon, and preservation of the natural environment will bring many benefits, both tangible and intangible. In the four years Rosti has been active on Dominica, it has already made great strides in the struggle to operate a conservation program that is both effective and community friendly. Preserving the sea turtles of Dominica for future generations is a difficult but valuable task, one that which the Rosalie Sea Turtle Initiative is quite equal.

Appendix I

Measurements of distances from the first vegetation to the water line, first vegetation to tree line, first vegetation to nest and nest to water line were measured using a 25 feet measuring tape. Nests were measured from the approximated site of the actual nesting hole. Measurements were then converted into meters.

The slope of La Plaine beach was estimated using a system of two stakes and three strings, the lower string measuring 15 ' 2 " and the upper string measuring 16'. The upper string was held over the bottom string. A third weighted string was hung from the upper string over the

lower stake to create a 90 degree angle, then trigonometry was used to establish a slope. The average of three readings was used. The measurement of the slope at Rosalie was not taken due to the extreme foul-up and accidental abandonment of recording equipment.



Appendix II

Leatherback sea turtle, Rosalie Beach



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References

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