# Marine Turtle Conservation and Ecotourism on Trinidad's North Coast

University of Glasgow Darwin Initiative for the Survival of Species Annual Report 2003





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#### 1.Darwin Project Information

Project title	Marine Turtle Conservation and Ecotourism on Trinidad's North coast		
Country	Trinidad, West Indies		
Contractor	University of Glasgow		
Project Reference No.	162/10/026		
Grant Value	£94,000.00		
Start/Finishing dates	Start date: 01.03.02 Finish date: 30/04/04		
Reporting period	Annual report for 01/03/02 – 30/04/03		

# 2.Project Background

This project is located on the north east coast of Trinidad, in the small rural villages of Grand Riviere and Matelot. Although not far from the main town of Sangre Grande, the road leading to the area is long and pot-holed, and is viewed in the country as difficult and laborious to reach. Matelot is found at the end of the tarmac road, although the Paria Main road does continue for 22km in the style of a narrow donkey track to the next village on the west side, Blanchisseuse.

The north east coast is an area of low employment, with the main occupation being fishing and farming – often for subsistence rather than wholesale. There is some tourism in the area, the two small hotels in Grand Riviere attracting wealthy native and non-native tourists. It appears, however, that only a modest part of the income from these hotels filters down into the local community. Matelot only receives Trinidadian tourists around certain holiday times, mainly day-trippers or campers, as there is no accommodation or catering facilities available. Many villagers find this very frustrating, as there is no control over visitors, and their presence generates no direct benefits to the community other than purchases in village shops.

The north coast beaches support a large population of leatherback turtles, and a smaller population of hawksbills. The Grand Riviere community has formed a turtle protection group who monitor the turtles on Grand Riviere beach and take tourists on tours to watch them. Grand Riviere beach is a legally protected area, and the guides receive limited help from the Government to patrol it. Matelot does not have the advantage of having a turtle-nesting beach in the village. There are several beaches where many turtles nest along the coast, however, and the Pawi group (project partners) wish to make use of these areas for ecotourism, and to protect and study the turtles at the same time.

Current reports from around the world indicate profound long term declines in numbers of sea turtles. This information concurs with the apparent diminution of four of the turtle species using the north coast (hawksbill, green, olive ridley and loggerhead). However, from looking into the history of leatherback turtles in Trinidad, there is good evidence of a recent increase in population, not only on the north coast, but also on the eastern beaches. It is unclear why this is happening, but it may be due to pressures on nesting beaches elsewhere, e.g. coastal development and human disturbance. Trinidad is clearly a significant region for nesting leatherbacks, in the context of serious declines elsewhere. It is therefore vital that we work to avoid the occurrence, on these beaches, of the pressures that have led to population declines elsewhere. A long-term worry is a frequently discussed proposal to complete the tarred road along the north coast, and link Blanchisseuse to Matelot. The beach developments this would encourage could be very serious for the turtle population.

#### 3.Project Objectives

#### **Purpose and objectives of the project:**

The project is largely centred on the participation of several local NGOs who are fundamentally involved in the research. A programme of educational workshops on turtle biology and conservation, and the principles of ecotourism is being provided to interested members of the local community as well as the surrounding schools to help increase awareness of the younger generations and build on local knowledge. Training in the collection of data and monitoring the turtles is also being implemented.

An investigation into the ecotourism potential of the area is ongoing. The idea is that small local groups will be proficient in collecting valuable data on nesting turtles, and will attract tourists keen on protecting biodiversity and on adventurous activities, thus enhancing community development and environmental awareness on the north coast, and making the project economically sustainable for the future.

The data collected during this project will provide important insights into nesting success and threats to nesting on these remote beaches. Compared to many other nesting sites, these beaches have some unusual features, such as high rainfall, high mobility of sand and a very narrow nesting area. Information about the status of the different species of sea turtles nesting on the north coast of Trinidad will also be valuable for the Trinidadian Wildlife Section, enabling them to make informed decisions on future plans for conservation efforts. This research will also to contribute to global efforts to conserve endangered marine turtle populations.

Overall, the project will be an important contribution to research into the conservation of sea turtles, and will be beneficial to the low-income communities on the north coast, the turtle populations, and the country in general.

#### The main objectives are as follows:

- To determine the population size and hatching success of each species of marine turtle nesting on the north coast beaches.
- To analyse the temperatures within leatherback turtle nests with regards to sex ratio, metabolic heating and hatching synchrony.
- To explore the extent of insect infestation of turtle nests and evaluate its threat to turtles.
- To address the conservation problems of the north coast of Trinidad and assess the main dangers to the turtle population.
- To educate and train the local people in turtle biology, conservation, research data collection and tour guiding.
- To investigate the ecotourism potential of the area, and to help the local groups establish a visitor-guiding scheme.
- To promote the effective management of the turtles as a resource of biodiversity and a source of alternative income.

\*Please see Logical Framework in Appendix 1.

#### Modifications of objectives or proposed operational plan:

A change in the host country co-ordinator was an unexpected development within the project. This was due to disputes between the original co-ordinator group (TTO) and the community group (PAWI) which necessitated an unscheduled pre-project visit to Trinidad by the PI and researcher. TTO's role was found to be no longer necessary as a mediator between the researcher and the community group. After talks with the Government Wildlife Section, it appeared that it would be more reasonable for Stephen Poon (wildlife officer in charge of marine turtle conservation) to take the host country co-ordinator role. We are still working with TTO for publicity purposes. There will be little effect on the budget or the timetable.

There has been one other notable problem encountered over the last 6 months. On arrival in Trinidad, it appeared that the boat and engine that was meant to be used for the data collection (belonging to the Grand Riviere group) had gone into disrepair and was unusable. Due to this, project money was used to purchase a boat and engine. This has affected the project from a budget perspective only, the timetable was not affected – besides the data collection starting a couple of weeks later than planned. An attempt will be made to find alternative funding to cover the money used for the boat and engine.

Both of these issues have been discussed with DEFRA and approved. No changes have been made to the original agreement.

# 4.Progress

This report covers the whole of the DEFRA-funded project so far (it began in March 2002). Previous work on Trinidad's north coast by the PI and researcher had established the rationale for the project, carried out preliminary research, and made links with relevant counterparts. As noted above, disagreements amongst the counterparts necessitated a very intensive series of pre-project meetings in January 2002: the meetings resulted in some changes of plan but also a firm basis for proceeding.

#### Training

#### • Student training

Training in turtle nest data collection and monitoring was provided for two groups of students from the University of Glasgow: the first group then worked from April to late June; the second group from July to late August. This formed an informal part of their degree studies for most of them. Overseas experiences of this sort have a very valuable motivating effect on students, allowing them to gain important skills and to bring what they learn in the classroom to life. One student also carried out his 4<sup>th</sup> year zoology research project on infestation of marine turtle nests by insect larvae: the project forms a substantial part of the course degree assessment.

We advertised several times for student volunteers from the University of the West Indies to participate in fieldwork. However, undergraduate students were restricted during these dates due to examinations, and then summer vacation, and were not enthusiastic about involvement without payment.

#### • NGO training

Training was provided, on a volunteer basis, for 20+ members of the communities of Matelot and Grand Riviere. This was an intensive course in conservation biology, biodiversity, marine turtle biology and ecotourism. The course ended in a test and then a graduation ceremony. Passing the course, which nearly all participants did, was a considerable achievement for many members of the community, since they had limited recent experience of formal education. Although the training was successful in terms of learning attainments, it has so far proved more difficult to achieve conditions in which all participants can put their learning into practice. This will only really be achieved once there is a significant ecotourism presence in Matelot. This reservation does not apply to those participants from Grand Riviere who are already involved in tour guiding.

#### • Work with children

We had hoped to do educational work with local children. One of our adult course participants was keen to set up a summer children's group in Matelot, with our help. This got started, but did not develop significantly, largely due to lack of time.

#### • Research

The research being carried out is in two main parts:

- a) marine turtle nesting on Trinidad's north coast, and threats to turtles. We monitored three main beaches (Madamas, Grande Tacaribe and Paria) throughout the nesting season, to make an estimate of turtle numbers, nesting success and ecological factors relating to success. We also carried out non-invasive experiments on turtle nests: 1) on hatching synchrony 2) on metabolic heating in nests 3) insect infestation of nests and its effects on hatching success. The data are under analysis, but will be more meaningful after a second season.
- b) Research on the impact of our educational and community development efforts. This is being written as a narrative, supported by questionnaire data.

#### • Difficulties

Our data collection was reduced by two 'boat' incidents. First, as noted above, we had to purchase a boat, unexpectedly, since the intended boat was no longer seaworthy. Then later, some carelessness on behalf of our counterpart group led to the boat's engine falling into the sea. Replacing this took two weeks. Although extremely frustrating, this incident was a valuable lesson in the problems of making the project sustainable.

#### • Enhancement

On the basis of the first season's experience, several refinements have been made to the nest monitoring programme: for example, a novel method for observing hatching has been devised. We also decided that it was necessary to compare insect nest infestation on the North coast with that on the East coast, since results are currently discordant.

#### Timetable for the next reporting period:

# March-June 2003: Expedition leader plus team of 3 volunteers arrive in Trinidad

**a**) Begin north coast beach monitoring programme, collection of scientific data and experimental work **b**) Teach in the local schools (both secondary and primary), a course on conservation and marine turtle awareness **c**) Continue working with the local youth club to involve local youths in the project **d**) The first pilot ecotour (adult group) arrives in April to participate in an organised trip to the north coast beaches to evaluate the success of the NGO training scheme to date. **e**) Begin to organise the first national marine turtle conservation conference in Trinidad.

**July 2003:** University of Glasgow undergraduate team arrives in Trinidad and takes over from the initial volunteer team.

**a**) Continue the beach fieldwork **b**) Implement the second ecotour (school group) out to the north coast beaches with improved organisation and logistics based on the experience of the first tour. **c**) Begin a basic IT course for adults in the north coast communities

**August 2003 to March 2004: a)**Hold the Trinidad and Tobago Marine Turtle Conference **b)**The end of the field season will conclude with discussions with the Trinidadian counterparts (Wildlife Section and NGO groups) to examine the success of the field season. The project team will then return to the UK. The project leader will analyse the scientific data collected and will write a report on the progress of the NGOs and the success of the training. A report with a full account of the project will be completed. Scientific papers based on the results of the two field seasons will be written.

# 5.Partnerships

#### Collaboration between UK and host country partners over the last year:

The Trinidad Government's Wildlife Section: Stephen Poon of the section acts as host coordinator for the project. We have regular discussion with him and his Director, Nadra Gyan, on the progress of the project - either face to face in Trinidad, or by email - Stephen and Nadra are committed to doing much of the logistical work for the turtle conference.

The Pawi Club in Matelot is our day to day counterpart. Members of the group accompany our team on the beaches, and all have taken our training course.

The Grand Riviere Nature Tour Guides Association (GRNTGA) is our NGO link at Grand Riviere. In our original application, our counterpart in the village was the Grand Riviere Environmental Awareness Trust (GREAT) but this has essentially been disbanded and subsumed into GRNTGA. GRNTGA has taken part in our training course.

Tacaribe Tour Operators (TTO). As noted earlier, TTO's part in the project has been greatly reduced as a result of major dissension between them and the Pawi Club. They may continue to have a role in the ecotourism aspects, but this has yet to be finalised.

Nature Seekers Incorporated, based on the east coast of Matura, is Trinidad's major turtle conservation/ecotourism NGO. We have good relations with them including their agreement for part of our research to be at Matura this coming season, and their agreement to contribute to the turtle conservation conference.

The University of the West Indies Zoology Section provides office space for the PI and Researcher when in Trinidad but not at Matelot. (Unfortunately, the recent death of Professor Peter Bacon, Trinidad's most prominent academic marine turtle expert, has deprived us of part of our link with UWI).

The interaction with the Government's Wildlife section is amiable and helpful, but they do not have the resources to be heavily proactive. The clash between Pawi and TTO and the folding of GREAT have demonstrated the fragility of NGO's in Trinidad, and the importance of good personal relationships.

#### **Collaboration with similar projects:**

Links established since the project began are:

• Local high school and primary school in Matelot. Head teacher and biology teacher have been enthusiastic in agreeing to our involvement in teaching about biodiversity, marine turtles and environmental protection.

• SAD for Toco: this NGO is campaigning for the North-east corner of Trinidad to be the "green" region of the country, devoted to high environmental standards and organic agriculture, as an alternative to proposed mega-projects, such as the building of a major natural gas ocean terminal, which could be environmentally damaging and disastrous for biodiversity. We met members of this group in January 2002 and have had fruitful discussions since. They have received major funding for a community development programme in the region, aimed at capacity building in the rural communities, especially management and financial training for small businesses.

Another important link is the Trinidad office of the United Nations Development Programme. Their staff have worked with the North Coast NGO's in conjunction with us, and aim to develop the capabilities of these groups to the stage where they could benefit from UN funding under the GEF programme. GREAT did receive a GEF grant, but did not use it sustainably, and the UNDP staff are determined to ensure a more successful outcome in the future.

Finally, the University of Glasgow's Exploration Society provides the Glasgow student volunteers for the turtle monitoring part of the project. These students have fund-raised so successfully that ExSoc has been a financial contributor to the project, rather than a cost.

#### 6.Impact and Sustainability

#### **Profile of the project within the country:**

The project is well known and welcomed by our counterpart organisations. Within the country as a whole, it is not so well known, though this is no bad thing. We have not thought it sensible to attempt great media exposure until more has been achieved. An article has appeared in one of Trinidad's three national newspapers ("Trinidad Guardian"), and an interview with the north east local radio station (Radio Toco) is planned. The marine turtle conference will be a good opportunity to present the work of the project to the national media.

The data we have collected has made clear to the Government's Wildlife Section that the remote north coast beaches, previously not surveyed with any regularity, are another set of important marine turtle nesting areas, to add to those already known at Matura, Fishing Pond and Grand Riviere. The Wildlife Section is under-funded, but is now providing part-time funding to a team of wildlife wardens around the country, and some of these are at Grand Riviere and Matelot.

The longer term future for the conservation of the north coast beaches, and the role of ecotourism will be a strong focus of the second year of the project.

#### 7. Post-project follow up activities.

[The time-scale for a post-project follow-up in our case is very awkward since the project has only been in progress for one of its two years, and much of the case for a follow-up is likely to emerge from the second year's work, just begun. However, since a deadline of July 2004 would clearly be too late, we attempt the case now.]

Since our original application (October 2000), several developments have impacted on the potential for a sustainable marine turtle/ecotourism development on Trinidad's north coast:

- Emergence of SAD for Toco as an NGO training provider with a relevant community development agenda.
- Implementation of a Trinidad Government rural employment scheme (CEPEP), which provides resources for local environmental improvements.

- Wildlife section income to locally-based wildlife wardens.
- Nature seekers (Matura) have successfully joined the EarthWatch International programme, bringing overseas visitors to participate in turtle conservation.
- Developments at Grand Riviere: expansion of good quality accommodation, and opening of a tourist information centre.

All factors are favourable for the development of ecotourism on the north coast of Trinidad. Most members of these scattered communities lack full-time regular employment, but are used to making a living in a variety of ways - Ecotourism is unlikely to provide a full-time income for more than a few, but by adding to the range of environment related work (CEPEP, wildlife wardens, Grand Riviere tour guiding) could become part of a long term strategy.

The problem for Matelot as an ecotourism base for the remote north coast beaches, is its lack of relevant facilities - accommodation, office, minimal shopping. Providing these will take considerable financial investment, which will only happen once there is demonstration of demand.

Our plan for a post-project follow-up is to encourage the development of Grand Riviere as a base from which ecotourists can benefit from the remote north coast beaches. Darwin funding will employ a member of GRNTGA to market the tourist potential of the area, and to liaise with the Matelot community.

Follow up funding will also deal with another problem that has emerged from our try-outs with ecotourist groups. As well as ecotourists arriving on the north coast beaches by boat they can hike there and/or back via the "Paria Main Road", an old donkey track. This track is in poor condition in many places and needs considerable work to make it more accessible, but in a way where erosion will not be a problem. Furthermore, as more people begin to use the remote north coast beaches, there is a growing litter problem. Some of these problems can be solved by CEPEP funding, but a coherent approach to the value of the area needs to be developed and put to the relevant Government agencies. Darwin follow-up funding is the most likely available resource that can achieve this. Our interactions with the local NGOs and the Wildlife Division suggest there is real commitment to the developments we propose. The follow-up will allow the establishment of a turtle tagging programme. This began at Matura a few years ago and is generating important data on turtle populations and movements. Adding the North coast beaches is vital for improving biodiversity knowledge.

Code No.	Quantity	Description	
1A	1	Part of the work on the Darwin Initiative, along with other work, will contribute to Ms Suzanne Livingstone's thesis (this was discussed with the Initiative Secretariat).	
4A	5	GU Undergraduates and postgraduates worked with the project	
4B	8	researcher in two successive 8 week periods. All were provided with basic introductory training on turtle nesting biology and then learned the details in the field while carrying on the projec work. All UK citizens.	
4C	2		
4D	8		
6A 6B	22 1	All Trinidadian local people from the Matelot, Grand Riviere area. Training was spread over 3 weeks, but totalled about 30h.	
-	-	Included biodiversity, conservation, turtle biology, ecotourism, and tour-guiding - taught by seminars.	
		Unfortunately, no Trinidadian undergraduates were able to join us (their financial problems were the cause).	
		Practical field follow-up of the theory course was partially successful only, but it is to be a priority this year.	
7	1	Training material was in form of paper-based handouts and illustrations.	
		Technology available in village not high.	
8	17	Researcher	
	6	Project leader	
9	1	A plan for turtle conservation on the North coast will be part of the final report (next year).	
11A	3	Data not yet complete enough for any papers to be submitted, but well on track for at least 3 publications after the second field season.	
11B	1	Report of the first season's work has been included in the GU Trinidad Expedition 2002 Report.	
14B	2	The Project is leading the organisation of a seminar on Marine Turtle Conservation and Ecotourism in Trinidad, to be held in August 2003, and attended by all Trinidad turtle conservation NGOs and others. We hope to organise a later, follow-up meeting in 2004, depending on the results of the first one.	
14B	4	Project researcher has presented an account of progress to a GU Divisional Seminar Series, to the AGM of Glasgow Natural History Society, to a second year course in Conservation Biology and to a Darwin Day event organised by GU for Glasgow school children. She has been invited to speak to the conference of the British Chelonia Group in October.	

# 8.Outputs, Outcomes and Dissemination Table 1. Project Outputs (According to Standard Output Measures)

		More will be planned later.	
15A	1	Trinidad Guardian has covered an account of the project. More planned in the future.	
15D	1	Glasgow Evening Times story, based on Darwin Initiative conference/press release (Project leader was personally interviewed).	
20	£6,000	We hope to be able to hand over a vehicle (pick-up), a laptop computer and a boat with engine. Decisions on these will depend on their condition, and the project's finances. Purchasing a boat was an unanticipated expense for the project.	
23	£5,000	Project leader: proportion of GU salary, based on time devoted to project.	
	£5,000	Funds raised by student volunteers to cover flights, subsistence.	
	£1,350	Successful small grant applications to purchase specialist equipment for experimental work.	
		Further inputs in second year.	

#### Differences in actual outputs against those in initial proposal:

The success of this project will be evaluated in several ways.

- 1. The scientific data on nesting biology (metabolic heating, nest infestation etc.) of the marine turtles will be analysed and written up for submission to peer-reviewed publication.
- 2. The educational programmes for school children and adults will principally be evaluated by questionnaire and interview.
- 3. The ecotourism development aspect will have several measures: in particular, numbers of visitors attracted, and their levels of satisfaction with the experience. The tourist parties brought over from the UK will fill in questionnaires about their experience and answer questions on the trained local people as tour guides.
- 4. Resolution of conflict between fishermen and turtles will be assessed by monitoring turtle deaths, but also by frequent interviews with the fishermen.

Long-term evaluation is very important to this project for several reasons; largely to do with the benefit of population studies over long periods. It is not until a database over several consecutive years has been built up that trends in turtle populations can be seen. This will be the third year of data collection. It is our intention to apply for funding for a long-term project in the near future to help maintain the work until it is self-sustaining through the local community. Glasgow University expeditions to Trinidad are an annual event, therefore allowing this long-term work to be realistic.

#### Table 2: Publications

Type *	Detail	Publishers	Available from	Cost £
(e.g. journals, manual, CDs)	(title, author, year)	(name, city)	(e.g. contact address, website)	

No publications this year, other than Report of GU Expedition, in which there is a summary account of the Darwin Initiative work. Details on request.

#### **Details of dissemination activities:**

At the planned turtle conservation and ecotourism conference, we will discuss how to disseminate the results of the varied relevant initiatives. A published account of the conference is one possibility. How to fund this will be discussed in the run-up to the meeting.

#### The outputs from the project will be:

- Several publications in refereed journals.
- A team of local people trained in turtle biology and tour-guiding.
- The establishment of a plan to set up a community-based ecotourism business, centred on marine turtles and their conservation.

#### 9. Project Expenditure

**Table 3: Project expenditure during the reporting period** (13 months - from starting of project to 30/4/03)

	Item	Budget	Expenditure
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(**NB** Some of these expenditure figures are estimates. Our Finance Office has not quite sorted out its recording system for this project).

#### **Recently agreed changes to the budget:**

Buying boat and engine – destruction of engine (no insurance)

Project leaders travel to Trinidad covered by a separate grant

Vehicle and boat maintenance

Office administration costs subsumed by Project leaders budget

Printing costs subsumed into field equipment

# 10. Monitoring, Evaluation and Lessons

#### Methods employed to monitor and evaluate the project:

Monitoring of training for local Trinidadians included a formal post-course test, and a questionnaire. Our view is that though course participants were keen to learn, it has been harder to put this learning into practice. This will be the focus of our work in the second year.

Monitoring of trial ecotourist experience is also by means of questionnaires and also informal interview.

The key task is to help the north coast local community members to realise that they must be well organised in order for an ecotourism business to take off, and that co-operation amoungst different groups in essential. This will not be easy to achieve in a society where individualism is prevalent, and local inter-community rivalries are common.

#### Lessons learned from this years work:

How communities in rural areas work and that there is a lot of local politics involved. Need to get over these small hurdles to help people to work together. General fieldwork logistics – how the country works in general. That it is important who you know.

Some methodology of turtle monitoring and experimental work has been modified to make it more relevant and to fit in with other data collected in Trinidad. Experimental design refined.

To exert more control over Trinidad counterparts and make sure that objectives are being achieved. If left to own devices, often important work gets overlooked.

# 11. Author(s) / Date

- Miss Suzanne Livingstone
- Dr Roger Downie 29<sup>th</sup> May 2003

Project Summary	Measurable indicators	Means of verification	Important assumptions
Goal			
To assist Trinidad to monitor and conserve its north coast marine turtle resources by designing a financially sustainable ecotourism programme, benefiting low-income groups in Trinidad	Sustainability of the scheme once established	Numbers of ecotourists; income generated (source- accounts of both NGO's)	Continued commitment of Trinidad government to turtle conservation, with north coast remaining an area not served by a metalled through road
Purpose			
Establishment of a sustainable turtle conservation programme, linked to ecotourism	Effects on local people; effects on the north coast turtle populations; impact on tourists.	Numbers of ecotourists; income generated (source accounts of both NGO's)	Continued interest of members of local NGO's in ecotourism: for example, new sources of local employment could be a distorting factor; or any source of adverse publicity affecting visitor numbers in Trinidad.
Outputs			
<ul> <li>Training of local people in turtle biology and ecotourism guiding.</li> <li>Training of students in turtle monitoring.</li> <li>Research reports that will highlight results</li> </ul>	Records and evaluation of training; submission of research reports	Databank of records maintained by the NGO'; research journals.	Most local people have received little formal education: it is a basic assumption that we can devise a training programme suitable for their needs.
both of turtle monitoring and of the innovative ecotourism scheme.			
Activities			
Training workshops; beach patrols; educational work with tourists, local people and students; report writing.	Activities undertaken on schedule and to planned specifications.	Project reports and feedback to DETR; papers published in scientific journals.	We propose to pilot our ecotourism scheme on student s, but are keen to test it on real tourists. An assumption therefore, is that there will be a willing tourist population. Since tourism is still a small sector of the Trinidad economy, this cannot be guaranteed.

# 12. Appendix 1 – Logical Framework from original proposal