

The Rufford Small Grants Foundation

Final Report

Congratulations on the completion of your project that was supported by The Rufford Small Grants Foundation.

We ask all grant recipients to complete a Final Report Form that helps us to gauge the success of our grant giving. The Final Report must be sent in **word format** and not PDF format or any other format. We understand that projects often do not follow the predicted course but knowledge of your experiences is valuable to us and others who may be undertaking similar work. Please be as honest as you can in answering the questions – remember that negative experiences are just as valuable as positive ones if they help others to learn from them.

Please complete the form in English and be as clear and concise as you can. Please note that the information may be edited for clarity. We will ask for further information if required. If you have any other materials produced by the project, particularly a few relevant photographs, please send these to us separately.

Please submit your final report to jane@rufford.org.

Thank you for your help.

Josh Cole, Grants Director

Grant Recipient Details	
Your name	Luciana Alonso
Project title	Research and involvement of local communities to ensure threats reduction to sea turtles at the foraging ground of Cerro Verde MPA, Uruguay.
RSG reference	14.08.09
Reporting period	January 2010 – April 2011
Amount of grant	£5473
Your email address	aloluciana@gmail.com
Date of this report	June 23 rd 2011

1. Please indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.

Objective	Not achieved	Partially achieved	Fully achieved	Comments
Determine the main causes of death and evaluate how fishing activities and solid marine debris contributes to sea turtles mortality.			✓	
Involve local fishermen and school students in conservation activities in order to reduce sea turtles mortality.		✓		Due to the high growth rate of tourism at Punta del Diablo and La Coronilla towns, as well as to the decrease on fish capture, local fishermen turned out to work on touristic activities. Nevertheless, we agreed to work on this issue during the year.

2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).

The planned mini-symposium at the local schools could not be carried out due to logistic problems in taking kids to the beach. In order to overcome this difficulty, and introduce marine debris impact on the environment, this activity was replaced by a play at the schools and collection of recyclables in town.

3. Briefly describe the three most important outcomes of your project.

1. Determine the main causes of death and evaluate how fishing activities and solid marine debris contributes to sea turtles mortality

A total of 81 stranded sea turtles were recorded between January and December 2010 at the foraging and developmental Coastal Marine Protected Area of "Cerro Verde and La Coronilla Islands" and adjacent beaches (Punta del Diablo 34°02' S - 53°32' O; Barra del Chuy 33°44' S - 53°22' O). The most frequent species recorded was green turtle (*Chelonia mydas*) attaining 64.2 % of the total events, followed by loggerhead (*Caretta caretta*) (24.7 %) and leatherback (*Dermochelys coriacea*) (9.9 %).

All of the stranded green turtles (N = 52) were juveniles (Curve carapace length, CCL, mean ± SD = 39.3 ± 7.0 cm; N = 44). The main cause of death was the interaction with marine debris (ingestion = 41.4%; entanglement = 3.4%; indeterminate = 55.2%; N = 29) and turtles that died because of this cause were significantly smaller than the rest of the animals (Mann-Whitney, $U = 20$, $P < 0.001$). Anthropogenic debris ingestion rate was 82.6% (19/23) and according to the index of relative importance (IRI%) the most ingested debris items were plastics (IRI% 69.1) and ropes (IRI% 13.2) while the main colour ingested was white. The kind of debris recorded,

considering the variables abundance and weight, differed between the size of the turtles (NP-MANOVA; $F = 5.72$, $P = 0.014$; $F = 4.88$, $P = 0.049$ respectively). This difference could be associated to the proximity to the ontogenetic shift in diet and habitat of the turtles that have just left the oceanic stage (Arthur *et al.*, 2008).

Due to the high level of mortality of juvenile green turtles associated with marine debris pollution, the research was extended for this species during 2011 summer – autumn recording 81 new stranding events. Analysis of the stranding events per unit of effort (SPUE = turtles/10 km) showed that the number of events recorded during summer – autumn 2010 (SPUE = 0.30 ± 0.44 , $N = 30$) is not statistically different to the same period in 2011 (SPUE = 0.46 ± 0.54 , $N = 27$) (Mann-Whitney, $U = 0.58$, $P = 0.559$). Then, differences can be explained by the high number of reports received during 2011 in relation with 2010 (2011 = 53; 2010 = 10). This might be associated to an increase on tourism, higher public awareness and/or the fact that Karumbé is better known every year. The CCL of the turtles during 2011 was 37.9 ± 5.1 cm ($N = 43$) and ingestion of marine debris was the main cause of mortality (67.6%) suffering a significant increase respect 2010 (Teste-G (Williams) = 4.31; $P < 0.05$). In this opportunity no statistical differences were registered between the size of the turtles that died because of marine debris ingestion and the rest of the stranded animals (Mann-Whitney, $U = 0.276$, $P = 0.782$). Despite the fact that stranded turtles size did not differ between years (Mann-Whitney, $U = 0.58$, $P = 0.561$), mean CCL of turtles that died because of marine debris ingestion during 2011 (mean \pm SD = 37.8 ± 5.8 ; $N = 23$) is higher than during 2010 (mean \pm SD = 34.2 ± 2.7 ; $N = 12$) (Mann-Whitney, $U = 2.18$, $P < 0.05$).

2. Involve local school students of La Coronilla and Punta del Diablo in conservation activities in order to reduce sea turtles mortality

The 7th festival “Saving the Sea Turtles” was held from 22nd to 28th March 2010 at the local primary school N° 29 T.C. of La Coronilla Town and at the primary School N° 96 of Punta del Diablo. This year the festival was entitled “Our beach, a special place”, and introduced to the children of the communities the coastal marine ecosystem as a whole, highlighting the charismatic fauna species that inhabit the area, as well as the high impact of human activities in habitat degradation with the main focus on pollution with solid marine debris. The festival started with a play performed by Karumbe’s team, where they dressed up as six different species that inhabit Cerro Verde and La Coronilla Islands CMPA (ray, shark, bottlenose dolphin, right whale, tern and sea lion) presented by the familiar sea turtle and acted out the main characteristics of the area where they live and the main problems they are facing since plastics started to be produced. The play finished presenting the 3 R’s rule (Reduction, Reutilization and Recycling), highlighting the need of reduction in the consumption in order to achieve a decrease in trash production. During the festival the children took part in diverse activities which varied from the homework of collecting recyclables, turtle themed track and field type sporting events. One of the activities was to collect as many plastic bottles caps as possible rounding up more than 8,000, which were finally given to the radio signal FM La Coronilla to be used to make blankets for the Hospital of Rocha. By the end of the week of activities, medals were handed out to the 415 kids that took part in the festival. The 8th festival “Saving the Sea Turtles” took place from 28th March to 1st April 2011 and was entitled “Drums convey the good news, the invaders are not immortal” (in reference to a phrase of Eduardo Galeano, Uruguayan journalist, writer and novelist). In this edition, the festival introduced to the children the concepts of native and endemic species emphasizing their value and the concept of invasive exotics as well as their

main threats for conservation. During this edition we kept on with the plastic bottles caps campaign attaining 10,000 caps more for recycling.

3. Involving local communities and public in general in conservation efforts: campaign to replace plastic bags by reusable fabric bags.

Among the framework of the 7th festival, a campaign to replace plastic bags with fabric reusable bags was started. Each kid and teacher of La Coronilla and Punta del Diablo primary schools received a reusable "Saving Sea Turtles" bag, being delivered almost 500 units. As all of the bags were the same, each kid painted its own making it unique. In this way, we achieve the objective of introducing reusable fabric bags in most of the local families. Since April 2010, markets of La Coronilla town started to offer the cloth bags to their clients showing their commitment with the sea turtles conservation efforts. Between January and April 2010, 20 public awareness journeys were performed at the touristic beaches of Punta del Diablo, Santa Teresa and La Coronilla, to disseminate basic information about sea turtles biology, conservation status and main threats for their survival, highlighting the critical relevance of Uruguay as a foraging and development ground, focusing on "Cerro Verde and La Coronilla Islands" CMPA. Each public awareness journey counted with the exposition of informative panels, talks, recreative activities with the kids at the beach, beach cleanups and finished releasing a juvenile green turtle. As well, during the tourism week that took place in April, public awareness journeys were performed at Punta del Diablo, where replacement of plastic bags was suggested to tourists offering the fabric ones. Between January and April 2011 the Karumbé's Marine Turtle Centre of La Coronilla reopened its doors with the purpose of making public awareness through guided visits. The CTM counted with an exposition and a rehabilitation area where visitants could see Karumbé's technician team working on the rehabilitation of turtles which stranding cause was almost exclusively obstruction of the digestive tract and entanglement with marine debris. Next to this area the public could inform about the main threats for sea turtles which included a corner of marine debris that directly impact on sea turtles and their decomposition times. By the end of the visit, tourists were offered the fabric bags in order to replace the plastic ones. The public awareness campaign achieved the participation of more than 4,000 tourists and local inhabitants during the beaches journeys in 2010, while 14,500 visitants were received at the CTM La Coronilla during 2011. The campaign was satisfactory, the public got excited learning about the high biodiversity present in the area and rise awareness about how much harmful solid debris can be as well as their far reaching impact on marine habitats and biodiversity. On our experience, replacing plastic bags by reusable ones was a very interesting tool in order to promote a change of habits in the society highlighting the needs of reducing and reusing, mainly in our country where recycling is not yet a state policy.

4. Briefly describe the involvement of local communities and how they have benefited from the project (if relevant).

The local educative communities, which can observe and suffer the impact of the trash production in the local environment every day, got deeply involved in the project taking an active role in the performance of the festivals. The activities that we carried out together not only enabled greater awareness about the dimension and impact of the subject treated but also provided examples of practices that are available to all of us in order to actively work towards nature conservation. The direct engagement of the community in the development of these tasks benefitted them by making possible to leave behind the position of mere spectators, proving to themselves that their

commitment is a key factor that also can produce a real change. Thus, the project laid a solid base from which the educative community can continue with the proposed line through their own initiatives which also ensures the long lasting contribution of the project.

Despite the fact that we could not work directly with local fishermen due to their needs on working on tourism activities, they received in a satisfactory way the work performed during this project as many other key actors in the local communities. Their commitment could be observed in the high number of stranding events they reported as well as incidental captures. In particular, during 2011 activities, when an injured alive leatherback came into rehabilitation because of the entanglement with fishing gears (the animal presented a severe wound on a front limb with exposure of muscle and fissured humerus) artisanal fishermen from Punta del Diablo, showed their concern and came to visit the CTM with donations of medicines to help in the treatment of the animal. Their attitude towards this situation showed a favourable scenario to involve them with much more protagonism on further consevation efforts. The local communities in general supported all of the activities of the project, noticing how a change of habits in order to mitigate solid debris impact on the marine ecosystem as well as spreading the high biodiversity and ecological value of the area can promote the development of a sustainable tourism.

5. Are there any plans to continue this work?

The results among causes death showed that marine debris ingestion is the main threat for juvenile green turtle survival in the area. The fact that the size of turtles that stranded because of debris ingestion increased shows that this threat is also increasing. Then, Karumbé will keep on working on research and conservation at “Cerro Verde and La Coronilla Islands” CMPA focusing our efforts on this task. In the research area censuses will be performed in order to monitor the stranding events and mortality causes. Among conservation activities at the local scale, we will keep on working on the 3 R’s Rule during the development of the annual “Saving the Sea Turtles” festival and making public awareness through the Marine Turtle Centre at La Coronilla Town.

6. How do you plan to share the results of your work with others?

The results of this project will be shared in the following ways:

Marine Debris Impact on Juvenile Green Turtles (*Chelonia mydas*) at Cerro Verde, Uruguay – Bachelor Thesis – María Inés Murman, CAECE University, Buenos Aires, Argentina.

Sea Turtles Research and Conservation at Cerro Verde, Uruguay - Oral presentation – M. Sc. Gustavo Martinez Souza, Symposium of Sea Turtles Conservation: Strategies in Three Countries of South America, July 18th 2011, Curitiba, Brazil.

Marine Debris Impact on Juvenile Green Turtles (*Chelonia mydas*) at Cerro Verde, Uruguay – Poster Presentation – María Inés Murman, Luciana Alonso & Jorge Pérez Comesaña, Sixth Meeting on the Research and Conservation of Sea Turtles in the Southwestern Atlantic (ASO) – November 27th-30th 2011, Florianópolis, Brazil.

Causes of Mortality in Juvenil Green Turtles (*Chelonia mydas*) at the Feeding Area of Cerro Verde and La Coronilla Islands, Uruguay – Oral Presentation – Luciana Alonso & Gabriela Vélez Rubio, Sixth

Meeting on the Research and Conservation of Sea Turtles in the Southwestern Atlantic (ASO) – November 27th-30th 2011, Florianópolis, Brazil.

Research and Conservation of Sea Turtles at the Foraging and Developmental Ground of Cerro Verde and La Coronilla Islands CMPA – Oral Presentation for the local communities of La Coronilla and Punta del Diablo – November, 2011, La Coronilla, Uruguay.

Marine Debris Impact on Juvenile Green Turtles (*Chelonia mydas*) at the Feeding Area of Cerro Verde and La Coronilla Islands, Uruguay – Poster Presentation at the 32nd Annual Symposium on Sea Turtle Biology and Conservation – March 12th-17th 2012, Oaxaca, Mexico.

Results and Recommendations on Solid Marine Debris Impact on Sea Turtles Populations at “Cerro Verde and La Coronilla Islands” CMPA, Uruguay – Report for the National System of Protected Areas (SNAP) and the Programme “Strategic Action Plan for the Sustainable Management of Plastic Bags” of the National Agency of Environment (DINAMA).

7. Timescale: Over what period was the RSG used? How does this compare to the anticipated or actual length of the project?

The RSG was planned to be used from December 2009 up to November 2010. The start of the project was delayed one month and finished on April 2011, being the actual length 16 month instead of 12. Due to the results of the mortality studies and the fact that we could not achieve the objective of involving local fishermen it was decided to strengthen the other objectives.

8. Budget: Please provide a breakdown of budgeted versus actual expenditure and the reasons for any differences. All figures should be in £ sterling, indicating the local exchange rate used.

Item	Budgeted Amount	Actual Amount	Difference	Comments
1. Transportation				
Car rental (3 month)	990	990	0	
Fuel	720	720	0	
Bus tickets for Census from Montevideo to the study area (500 km) (2 p/ month for 2 technicians for 8 months)	246	307	61	2 extra trips to the study area due to bad weather conditions during July and August
Internal transports for Environmental and Research Activities at Cerro Verde area	75	80	5	2 extra trips to the study area due to bad weather conditions during July and August
2. Living Expenses				
Food supplies during research activities (2.5 £ per person (2) during 6 days every month (8 month))	240	300	60	2 extra trips to the study area due to bad weather conditions during July and August
Food supplies during research and environmental education	600	690	90	Partial funding for four extra month of monitoring

activities (2.5 £ per person (2) during 4 month)				green turtles mortality
3. Field Equipment				
Sample collection equipment: containers, plastic bags, formalin solution, tweezers, disposable gloves, labels, scalpel blades	121	161	40	Partial funding for four extra month of monitoring green turtles mortality
GPS (2 units)	62	62	0	
Photo camera	180	180	0	
Spring scale	30	30	0	
4. Environmental Education				
Reusable cloth bags (1000 units)	640	640	0	
Printing material for cloth bags (500)	302	302	0	
Materials for Mini-Symposium (cardboards, photocopies, pencils, markers, paints, brushes, etc.)	121	0	121	Funding was diverted to the 7 th "Saving the Sea Turtles" Festival activities to attain the objective through another activity.
Materials for 7 th "Saving the Sea Turtles" Festival (cardboards, photocopies, pencils, markers, paints, brushes, etc.)	0	121	-121	Funding was diverted to the 7 th "Saving the Sea Turtles" Festival activities to attain the objective through another activity.
Graphics layout of panels for public awareness campaign through MTC La Coronilla	0	200	-200	Funding for the original objective of involving local fishermen was diverted to extend replacement of plastics bags with fabric ones trough the public awareness campaign, as well as to avoid the higher impact on the environment of the brochures and posters.
Printing of brochures (500 copies) and posters (100)	302	0	-302	Were not produced due to the decision of making the panels to attain a lower impact on the environment.
Informative panels for public awareness campaign through MTC La Coronilla	0	500	500	Funding for the original objective of involving local fishermen was diverted to extend replacement of plastics bags with fabric ones trough the public awareness campaign, as

				well as to avoid the higher impact on the environment of the brochures and posters.
T-shirts for fishermen	90	0	-90	This objective could not be achieved
Multimedia Projector	485	0	-485	This objective could not be achieved
Notebook	450	450	0	
Administrative costs (Telephone, copies, etc.)	120	120	0	
Total	5774	5473	-301	Difference between the original budget and the total amount received from RSG

Exchange rates £1 = Uruguayan Peso 38.92 = US Dollar 1.65). All rates of exchange are based on information provided at www.oanda.com

9. Looking ahead, what do you feel are the important next steps?

We believe is really important to perform during 2012 the workshops about sea turtles reanimation and release techniques as well as the impacts on the marine ecosystem of dumping plastic fishing gear, synthetic material and ghost nets with local fishermen that could not been done during the implementation of this project.

During the course of this year, a report will be presented to the National System of Protected Areas of Uruguay detailing the produced information and making grounded recommendations for the development of the management plan of the “Cerro Verde and La Coronilla Islands” CMPA. As well, another copy, will be delivered to the Uruguayan state programme “Strategic Action Plan for the Sustainable Management of Plastic Bags” – DINAMA (National Agency of Environment) which is supported by the British Embassy.

Due to the forthcoming participative development of the management plan of the area, local key actors are getting organized through spaces of discussion and work, at La Coronilla and Punta del Diablo. Then, Karumbé will keep on working in order to support these groups and cooperate in order to strengthen the conservation strategies and the development of a sustainable ecotourism.

Due to the fact that sea turtles are highly migratory species and that their survival is threatened by marine debris ingestion and entanglement not only in Uruguay but also at a regional scale, the development of regional conservation strategies is a priority. Then, in order to optimise conservation efforts, Karumbé is currently working together with PRICTMA (Argentinian Sea Turtles Research and Conservation Regional Programme) and NEMA (Research and Environmental Monitoring Programme of Rio Grande do Sul, Brazil) on the production of an international action plan.

10. Did you use the RSGF logo in any materials produced in relation to this project? Did the RSGF receive any publicity during the course of your work?

RSGF logo was printed on all of the fabric reusable bags delivered during the project. As well, the logo was included in the publicity of the 7th and 8th festivals “Saving the Sea Turtles”. The RSGF logo will be included in all of the publications, posters, oral presentations and reports that will be produced to share the results of the project.

11. Any other comments?

Since 1999, when Karumbé started the research activities on sea turtles, the main cause of death along the Uruguayan coast for juvenile green turtles has been the interaction with fishing gears. Preliminary studies at CMPA “Cerro Verde and La Coronilla Islands” during 2008 and 2009 showed that bycatch in artisanal fisheries was also the main cause of death for this area (mortality rate 58%), while the interaction with marine debris was the cause of death of the 18% of the stranded turtles. The high rates and increasing trend on green turtles mortality because of solid marine debris ingestion evidenced in the present study is worrying, being critical information in order to make grounded recommendations on the development of conservation strategies at Cerro Verde and La Coronilla Islands.