

**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. 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. 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	Stephanie Rousso
Project title	Creation of a Model for Conservation Tourism through Community Based Research and Outreach
RSG reference	16892-2
Reporting period	Final Report Feb 2015 – Feb 2016
Amount of grant	£5000
Your email address	Stephanie@ProFaunaBaja.org or ProFaunaBaja@gmail.com
Date of this report	25 February 2016

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
Continue nest monitoring in 2015 (nest coordinates using GPS)			X	We surveyed over 80% of nests in a 50+ km, non-contiguous area along the Pacific coast of Baja, Mexico in an area proposed for massive coastal development. Maps attached
Expand our study area to 57.5km			X	Our expanded area is actually larger, but not contiguous, as we had originally proposed because one nest monitoring group did not want to collaborate, but another one did, however, further north.
Host 4 workshops with off-road ATV tourism groups		X		Two out of the five ATV tour companies we invited to workshops did not attend or respond to emails or in-person requests. In addition, in the area of the ATV tour routes where we wanted to work a new nest monitoring group formed and did not want to collaborate with us on our project.
Provide “No ATV Driving” – signs at nesting beaches			X	We installed one sign in Migrino Beach with the help of participating ATV tour companies and another sign in Todos Santos Beach with the help of the community.
Train ATV tourism groups to flatten the beach, mark nests and collect data		X		A new nest monitoring group took over the area of the ATV groups. They relocated all the nests to a protective corral. They blocked our efforts to train ATV tour guides because they did not want us in their area. However, one ATV group did agree based on the workshops to alter their route and avoid the beach altogether.

Data Collection		X		ATV Companies did not collect data because nests were relocated by the new nest monitoring group (EcoPlan), however, we adapted an online and mobile app citizen science programme for many other communities around Baja communities to collect and report sea turtle nest sightings, thereby expanding our reach into new communities rather than through ATV tourism, which actually was better result anyway. In our study area, over 80% of the nest locations were recorded.
Data Analysis			X	We have analysed the nesting data for 2015 and compared with 2013 and 2014. We created visual maps and evaluated density of developed areas over the 3 years compared to the adjacent area not currently developed. However, while we did some data analysis with students, I realised there was much more training involved, and it was more of a teaching exercise than a productive data analysis, which in itself is important result to educate the next generation to continue our research. We will continue to review and make statistical references and work towards publishing our work in scientific journals by the end of 2016.
Beach-dune profiling			X++ +	Not only did we achieve all our beach profiles as proposed, an entire community team formed to measure beach profiles on a monthly basis and from my training and assistance, they used the information to stop a new coastal development. This is the essence of what I aim for from the Model. Graphics attached of beach

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

While we knew that convincing the ATV companies to participate in our conservation research initiative was going to be a challenge, we did not anticipate the animosity we received from a new nest monitoring group. “EcoPlan” is a newly formed nest monitoring group in the state who obtained a permit to relocate the nests in the heavy ATV area. Thus, we were unable to monitor the impacts from ATVs on sea turtle nesting and they have not responded to any of our formal courteous requests for information. We were however able

to retrieve the total number of nests based on a formal request to the permitting agency, the Mexican Federal Secretary of the Environment and Natural Resources, however we do not have access to coordinates, if EcoPlan even collected nest locations, to contribute to our overall analysis.

We were also able, with the help of two different ATV companies access the beach to obtain beach profiles for comparison to other areas and install a sign on the beach. To help initiate coordination, we invited EcoPlan to our ATV workshops, which they attended, but remained reluctant to collaborate on projects. It is disheartening since we are all working for the same common goal: conservation of sea turtle habitat and species recovery. We have enough battles with coastal development, plastic marine debris, fisheries bycatch, and poaching, that we should be working together, not against each other. We hope that in the future EcoPlan will want to work with scientific groups like us and that we can work cohesively for the recovery and protection of sea turtles in a holistic manner.

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

Citizen Science Program active in three new communities: Based from positive responses from community workshops, many people started calling me the “Turtle Lady” and began reporting nests and washed up turtles (strandings). Using the citizen science project: iNaturalist.org, one community member created the project, “Sea Turtle Spotter” where people could report turtle sightings (beaches, marinas, and open ocean), nests, poaching activity, and strandings. Due to overwhelming interest in getting involved in conservation efforts and helping develop the model, we created a Sea Turtle Ambassador program in three new communities and significantly expanded our conservation outreach whilst maintaining our budget.

New Marine Priority Area Proposed: As of December 2015, five university students have decided to make their undergraduate thesis project about sea turtles and one master’s thesis is concluding this year in 2016. Based on this interest from university students and our nest data analysis, the federal Commission for Natural Protected areas (CONANP) decided to designate part of the study area a Marine Priority Area for sea turtles in the area with a high density of nests proven by our research. This means that our study could provide sufficient scientific evidence to help place the nesting beach under legal federal protection from further coastal development pressure as a sea turtle sanctuary or natural reserve.

Data analysis initiated for past 3 years: Our hypothesis that nesting density is lower in areas of expansive coastal development was proven true for the past three nesting seasons. However, the number of nests increased from 2013 to 2015 overall each season, including the developed area, while the density still remained lower than the non-developed areas. This suggests that female olive ridley sea turtles are not as sensitive to coastal development when considering nest site selection as other species. The increase in overall nesting activity is potentially correlated with amount of precipitation and humidity, making the beach conditions more favourable for nesting. However, the development thus far has only constructed a golf course and four houses on the wide beach and the supporting desalination plant. Thus lighting, which the primary deterrent for females is not yet a factor, however disturbance to organic materials in the beach from construction equipment and containment

from the desalination plant may be a factor in the lower density. We will use this information to make sound, scientific recommendations to the Mexican government for vegetated construction set-back and conservation design and planned tourism activities in the Model for Conservation Tourism.

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

Given the limited and challenging response from the ATV companies, we directed the majority of workshops and activities in the communities that have coastal development and ATV pressure, but that were more responsive to working on solutions.

The Todos Santos Community in our expanded area was the most active in our project. They posted a sign opposing driving ATVs on the beach and actively told people daily about the laws protecting the coastal dunes from ATV use and coastal development. This community also formed a beach profiling “club” in which three teams of four residents took beach profile measurements on a monthly basis. I provided the training workshops teaching each of them how to measure the beach profiles and record nests locations within the profiles. I analysed the profile data (attachment) and provided graphics and a brief report explaining the results which we then presented to the municipal government to stop an illegal development in the coastal dunes in front of our expanded nest study area.

The La Ventana and La Paz communities became involved in the project via the inaturalist.org programme, Sea Turtle Spotter. We provided workshops with assistance from Mexican university students to these communities informing them of the laws against ATV beach driving, the damage ATVs can do to nests, and what they can do to help our project. Many ATV drivers, even though they did not give up driving on the beach, at least were supporting data collection and reported many sightings. A few “Sea Turtle Ambassadors” have received permits to collect and preserve sea turtle shells and skeletons. These skeletons have recently been added to the new Marine Museum in the state capital of La Paz. We continue to receive information about sea turtle nests and strandings on the beach and in the marinas and view this advance a new phase of our project that can be included in the Model for Conservation Tourism, our ultimate goal.

5. Are there any plans to continue this work?

Yes, we have successfully created a sustainable nest monitoring project and have plans to keep expanding and finish the community-based model for conservation tourism with the people we have met along the way. The GPS units I purchased from Rufford funds will remain at the main sea turtle research centre. Each year I will give a refresher to the biologists on how to properly use the GPS and care for them. They have agreed to send me the nest coordinates and beach profiles for analysis of subsequent years and to maintain monitoring.

The tourism companies continue to advertise and bring new tourists to the research center or “Sea Turtle Camp”. As we can encourage increased tourism demand for passive sea turtle (wildlife watching) and increase outreach through tourism and education, the better we can

reduce impact from coastal development and ATV use.

More and more university students are becoming interested in studying sea turtle conservation ecology and various have committed to making their thesis or fulfilling their social service hours continuing our research. We began developing a student internship program where foreign students from primarily U.S., Canada, and England can spend 2 to 6 weeks at the research centre and part of their tuition will contribute to a scholarship for Mexican university students, through a type of scientific/ academic tourism programme.

The Todos Santos community wants to keep measuring beach profiles and I have made an agreement with the nest monitoring group there to process their nest coordinates for them and I can add it to my overall analysis and incorporate overall results in the model.

The La Ventana, La Paz, and Los Barrilles community continues to report sea turtle sightings and nest coordinates. The iNaturalist.org program has a mobile app for smartphones and tablets that uses the built-in device GPS, so there is no need to purchase more GPS units and best of all the programme is free.

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

In 2015, we published two chapters regarding preliminary results in a book entitled, *Successful Conservation Strategies for Sea Turtles* (Chapter 2 we mention Rufford Small Grants Conservation Fund). At the 34th International Sea Turtle Symposium, we presented a poster regarding our work funded by Rufford. These publications were made after the first grant phase and before the second grant phase. Since the second grant phase, I presented our research at an EcoTourism conference in La Paz in October 2015. Now with 3 years of data and visual maps, I still need to finish the statistical analysis and then I plan to submit to the Marine Turtle Newsletter and a scientific journal. I also plan to continue to share results and work with Mexican university students and local sea turtle professionals.

Finally, I have decided to return to graduate school for a Master of Science in Marine Science focused on coastal processes and sea turtle population dynamics. This will not only allow me to share with the local academic community at a broader scale, but also with professors and experts working in coastal and marine ecosystem protection. This will be a second graduate study to compliment my first graduate work on endangered species mitigation to help provide credibility and professionalism for the model for conservation tourism. Through the graduate programme, I will also be publishing various perspectives of my results with the support of two universities, one federal and one state.

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

All the workshops and data collection were completed within 8 months. The following data analysis phase took longer than anticipated yet continues to progress. In 4 months, we completed a basic data analysis and visual evaluation of nest density and beach profiles which is presented in this final report as attachments. Thus, we completed everything on time,

even though positive modifications were made to better the project and achieve more within our proposed budget.

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
Field Data Collection – 6 months	900	900	0	We were actually able to make additional field trips with the budget
Field Station permit fees	300	300	0	Standard, flat amount
Travel stipend 10 trips	500	500	0	
Garmin GPS handheld units x 2	600	321	+279	We were able to purchase GPS on sale in U.S.
ATV Gas and Maintenance	100	380	-220	The survey area was blocked off for access from a new coastal development, thus making travel
Data Analysis and Coordination	1200	1200	0	We spent a lot of time and efforts on analysing the three years of data, and the cost of a new subscription for the mapping program
Community Workshops	800	800	0	Due to challenges with our intended workshop audience, we modified the workshops into more positive response areas and actually held more

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

The goal of this project is to create a model for conservation tourism through community based research and outreach which will provide tourism companies, tourism agencies, and coastal tourism developments to consider low impact options for activities and development designs based on community support and action to protect sea turtle habitat. We are making excellent progress with the model through our successful and sustainable tourism and community examples. Yet, we have focused for the past 3 years on sea turtle nesting habitat.

Now that our nest monitoring and beach profile monitoring is sustainable and community-operated, we feel the next important step is to consider sea turtle foraging habitat and migratory routes to offer a complete model for conservation tourism that includes not only beach-ordinated tourism, but also involves sport fishing, sailing, SCUBA diving, kayaking tourism and marine protected reserves.

I plan to make this the focus of a Master of Science degree starting in autumn 2016 and hope

to apply and receive continued financial support from Rufford. I have support for this large, ambitious but vital projects from The Mexican government, two academic institutions, international sea turtle research initiatives, and four local core communities.

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?

Yes, I used the Rufford logo in all workshops PowerPoint presentations at community conservation workshops, student education workshops, and symposiums. I also included the Rufford logo on a poster presentation that remains exhibited at the University of Baja California Sur and in the book entitled, *Successful Conservation Strategies for Sea Turtles* (Chapter 2 we mention Rufford Small Grants Conservation Fund).

11. Any other comments?

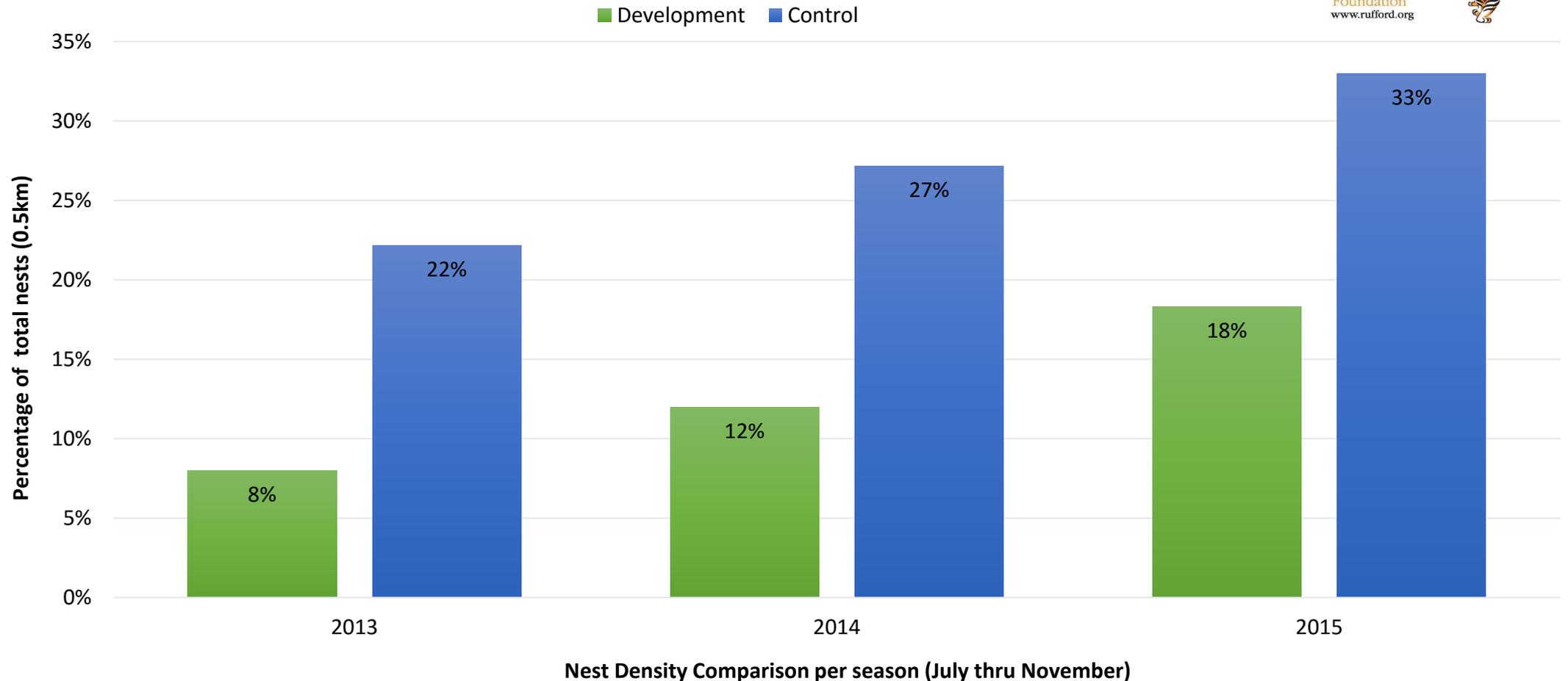
Due to the Rufford grant programme, my team and I have been able to make a significant and positive presence not only in the local community, but also regionally. I am now considered by many to be the “Turtle Lady”, and part of an elite team of sea turtle biologists. I am constantly asked to give presentations and workshops and lectures. Rufford has also facilitated many Mexican university students to consider a career in wildlife biology, a field of study not readily chosen by university students in Mexico as a whole.

Thank you Rufford – you have truly changed and improved my career path and made my dreams come true.



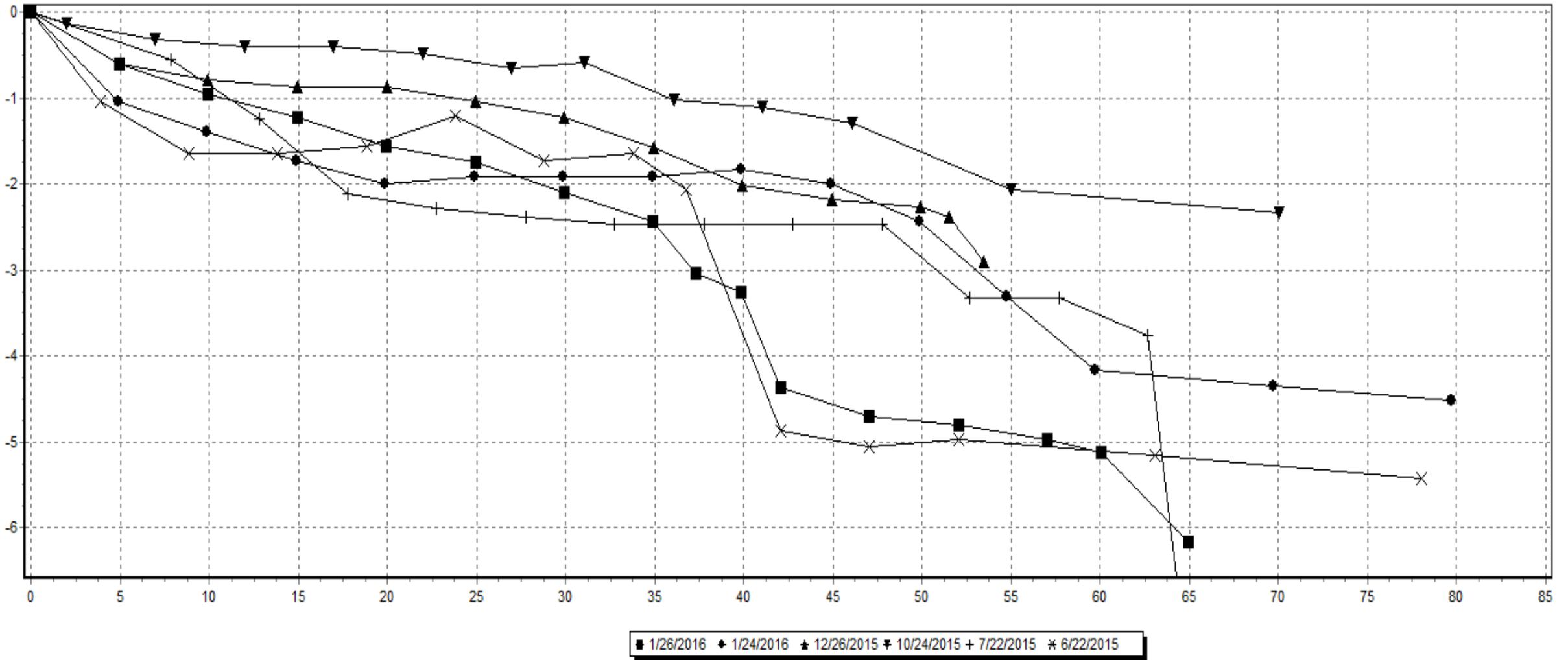
Visual representation of the difference in nesting density in front of a first phase coastal development golf course and an adjacent non-developed area for the past three nesting seasons 2013, 2014, 2015. The golf course and construction has a lower density than the non-developed area, however, female Olive Ridley turtles are not as affected like other species. Continued monitoring of construction until final development phase of 90 0.5 hectare homes with lights and erosion are required to evaluate the full impact to nest site selection and nesting activity. Each

Nesting Density Effects from Coastal Development

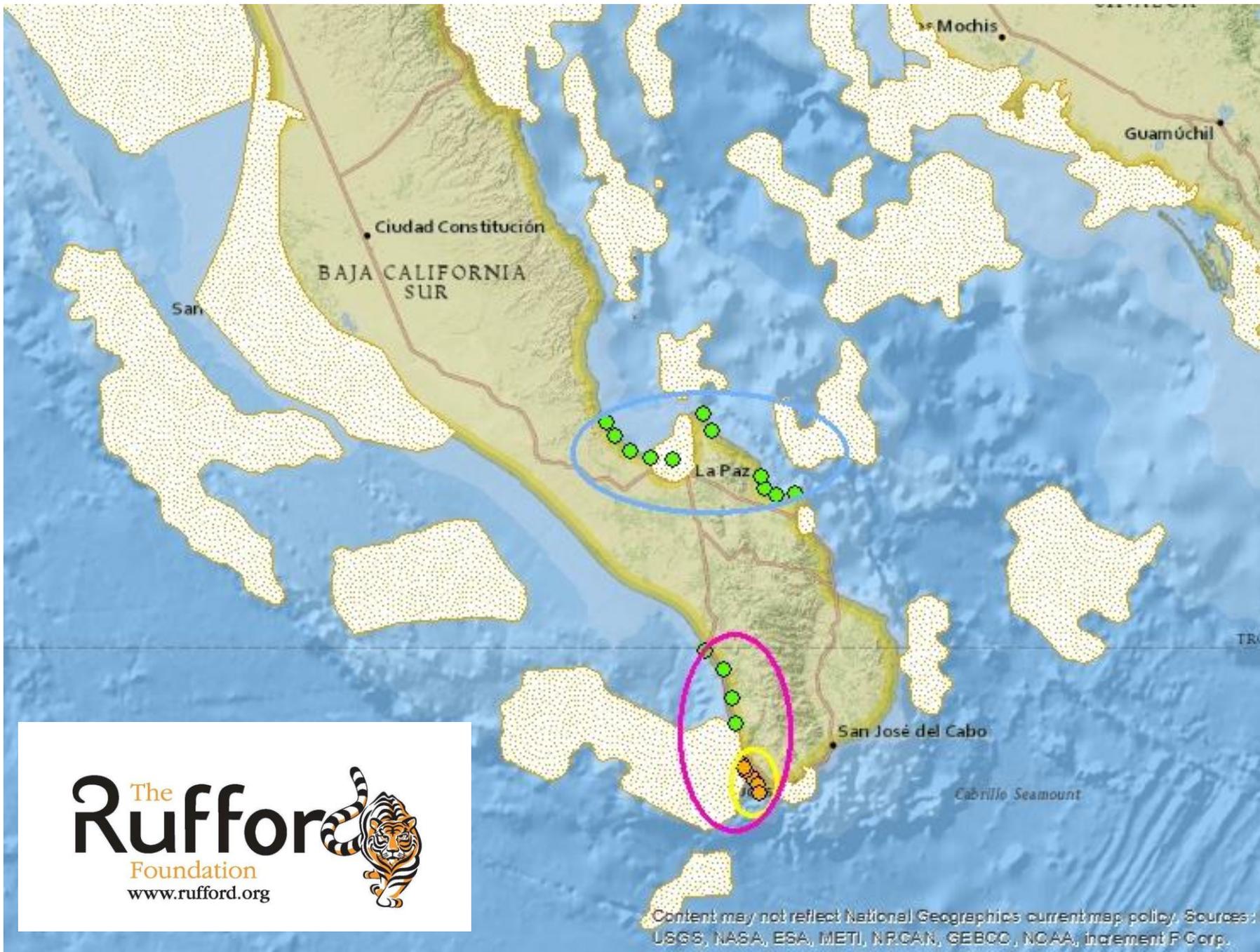


This graph shows the density comparison of nests between a development area and the adjacent area currently without coastal construction (control). The numbers represent the percentage of all nests found within the two comparative areas. The amount of nests recorded increased every year, a combination between more females nesting and increased monitoring effort from Rufford and other funds. Yet, the density remains lower in the developed area compared to a non-developed area, which provides sufficient background to propose set-back distances for coastal construction limits to protect nesting beaches in Mexico based on this case study.

International Bocana South



Graphic of beach profile measurements at one survey site within the study area. This graphic shows the morphology of the nesting beach through the 2015 hurricane season. This type of graphics and analysis provides background in conjunction with nesting density to propose stronger regulations and protection measures for nesting beaches that are threatened by expansive and unregulated coastal development. The methodology, community support and results will be highlighted in the model.



This map depicts the areas where our project has expectantly expanded into new communities and new sea turtle nest reports. The blotched areas represent marine priority areas with the Commission for Natural Protected Areas, of which our original study area is now included for the importance as a high density reproductive zone for olive ridleys turtles.

Legend

-  Original study area
-  Expanded nest monitoring & beach profile club
-  Expanded beach profiles % citizen science reporting



Content may not reflect National Geographic's current map policy. Sources: USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.



One of the signs placed on the beach in front of the sea turtle hatchery in Todos Santos. The sign was provided by the community after a discussion from one of our workshops.

Sign placed in front of a construction zone fenced off for future coastal development. Made by a local artist in the community of Todos Santos.



Aerial photo of the sea turtle hatchery and nesting beach at the sea turtle research center. This site is the original study area and is now proposed as part of the Marine Priority Habitat program with the federal Mexican government.

In 2015, biologists recorded over 1800 nests. This hatchery was filled. When this photo was taken in January 2016, the last of the nests were hatching and students from Colorado State University spent a weekend cleaning and preparing for the next season.





Above: Mexican university students in a new sea turtle elective class for an undergraduate degree in Marine Biology host a workshop on sea turtle anatomy, biodiversity, and conservation for the public at the sea turtle research station during the 5th annual sea turtle festival.

Below: After a community workshop in La Paz, kids from a local school came to look at a real sea turtle shell and learn about conservation.





Sea Turtle mural painted before a community conservation workshop. To the left of the mural, another mural was painted by the kids of the community, some children of poachers.

The mural and workshop was open to the public to raise awareness for protection of beaches and sea turtles from ATV driving and coastal development.



Sea turtle photos/reports submitted by residents in La Ventana and La Paz through the new citizen science reporting project, Sea Turtle Spotter using the platform, iNaturalist.org.

Above Left: Nesting loggerhead in La Ventana

Above right: sick juvenile green sea turtle La Ventana

Bottom right: dead hawksbill, first record of adult in La Paz bay.