

TORTUGuiones



Sea Turtle Conservation Project at the Beaches of Nosara
Conservation - Community Outreach - Education

RESOLUCIÓN No ACT-OR-DR-108-15

Progress Report
July 2016

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Summary of Objectives

1. Conservation

- Basic monitoring of nesting sea turtle activity in Playa Guiones and Playa Pelada
- Collection data on the location of the nests, incidence of predation and egg poaching, and events of birth
- Evaluation of conservation efforts and threats to determine which (if any) additional monitoring, research, or conservation measures could be carried out

2. Outreach

- Offer educational talks in schools, hotels, and local businesses
- Involve the community in organized cleanup and community outreach events to encourage their participation.

3. Education

- Creation of educational materials to promote and provide information on the biology and conservation of sea turtles, the National Wildlife Refuge Ostional and our conservation project
- Provide free print and digital materials
- Provide direct links to other useful educational resources on the biology and conservation of sea turtles.

4. Coordination with Local Authorities

- Coordination and communication with local authorities
- Participation in relevant meetings

Summary of Methodology

Placement of Beach Markers

- Based on current monitoring methodology in the Ostional Sector of the wildlife refuge
- Organized several volunteer events to place markers every 50 m in Playa Guiones
- Used 3x3" 2 m pieces of wood with numbers painted on them
- In places where we could not use a post, the number was painted on a tree, hanging sign, or recycled tire
- Markers serve as reference when locating nests for monitoring efforts

Monitoring Sea Turtle Activity

Overview of Techniques and Training

- Conservation efforts based on the recommendations in the guide for research and management techniques for the conservation of marine turtles established by the IUCN/SSC Marine Turtle Specialist Group (1999)
- Volunteers receive basic training in biology and conservation of sea turtles
- Training conducted regularly and presented by the principal investigator

Morning Beach Surveys

- Minimum interference with the natural process (currently no manipulation of turtles)
- Identification of tracks, nests and false crawls
- Photographic records of track confirmed by principal investigator
- Species identification based on animal or tracks, if possible
- Collect data on sightings of nesting sea turtles, hatchlings, and stranded or dead turtles found on the beach
- For each activity, the data collected are:
 - Date
 - Section of the beach
 - Marker number
 - Type of activity (nesting turtle, hatchling, tracks, stranded/dead turtle)
 - Photographs (if possible)
- Reports submitted by following the link found on our website (www.tortuguiones.org) and filling out the form.
- Data are automatically stored in a data sheet

Volunteer Activities

- Trained to identify species and tracks and to report and record data
- Enabled to educate bystanders on basic sea turtle biology and conservation
- Commit to walk a part of the beach regularly in the morning to monitor and report nesting sea turtle activity
- Additionally, anyone can report coincidental sightings of sea turtle activity and submit pictures to us

Determining Nest Destiny

- Incubating = nest in natural, unaltered condition, no exposed eggs or holes
- Poached = footprints, poke marks, a stick, and/or motorized vehicle tracks

- Depredated = paw prints, claw marks, exposed eggs, and/or broken eggshells (or if dogs encountered eating eggs and/or hatchlings)

Nest monitoring

- Monitor for hatching (expected hatch dates based on average incubation duration)
- Protect hatchlings and educate bystanders

Water quality testing

- Weekly water quality testing
- Locations: Playa Pelada, Playa Guiones, and Boca Nosara
- Basic water chemistry test (API Saltwater Master Test Kit for Marine aquariums)
- Test for pH, Ammonia, Nitrite, and Nitrate
- Results are reported and automatically logged to a datasheet
- Reports are also posted to on our Facebook page.

Accomplishments and Results

Conservation

Beach Marker Placement

We held several volunteer events to measure and mark the beach every 50 m at Playa Guiones. We are currently planning and organizing events to place beach markers at Playa Pelada in the months of July and August 2016.

A beach marker map is available in our Facebook albums and on Google Maps at:

<https://drive.google.com/open?id=1GKDW2PeR7RAgzxM7h0AW-xpPfU0&usp=sharing>



Examples of Beach Markers

While we would prefer to use posts along the entire beach to be consistent, these are expensive and they often get stolen. For this reason, using a permanent structure such as a tree is a more cost-effective, long-term option. Where trees were not large enough to paint a number on, we used a hanging sign. In locations where no tree or structure was available, we placed a numbered post. We used recycled tires only in locations where posts were stolen or likely to be stolen (near entrances to the beach).



Volunteer Participation

To date, over 100 volunteers have participated and contributed to our efforts by volunteering to set up beach markers and reporting sightings of sea turtle activity. We have received reports from approximately 30 different individuals and have trained 20 different volunteers to conduct surveys. There has been increasing interest for participation from individuals, businesses, and organizations in the local and tourist community and we anticipate much greater volunteer involvement in the near future.

Nest Monitoring Program

Table 1. Summary of sea turtle activity reported from October 2015 through June 2016 in the Guiones Sector of the Ostional National Wildlife Refuge.

Beach	Nest	Sea Turtle	False Crawl	Hatchlings	Dead Sea Turtle	Total Sightings Reported
Guiones	27	10	7	36	3	83
Pelada	10	0	0	4	0	14

Our up-to-date sea turtle data records are available at:

https://drive.google.com/open?id=1hqUUxLcRhFnTvOth_D_StygBTnDJH0_9GqCd04KRyzo

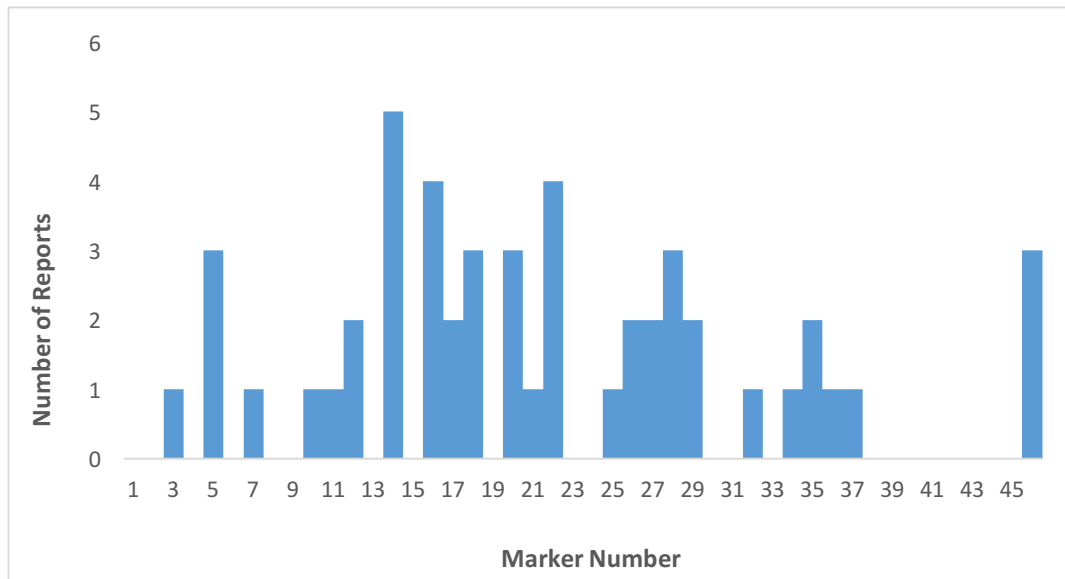


Figure 1. The distribution of reported sea turtle activity at Playa Guiones from October 2015 – June 2016. Reports include sea turtle tracks, nesting sea turtles, hatchlings, and strandings. There were no reports for markers number 46 through 94. For reference, the northern, central, and southern entrances to the beach are located at marker number 11, 25, and 34, respectively.

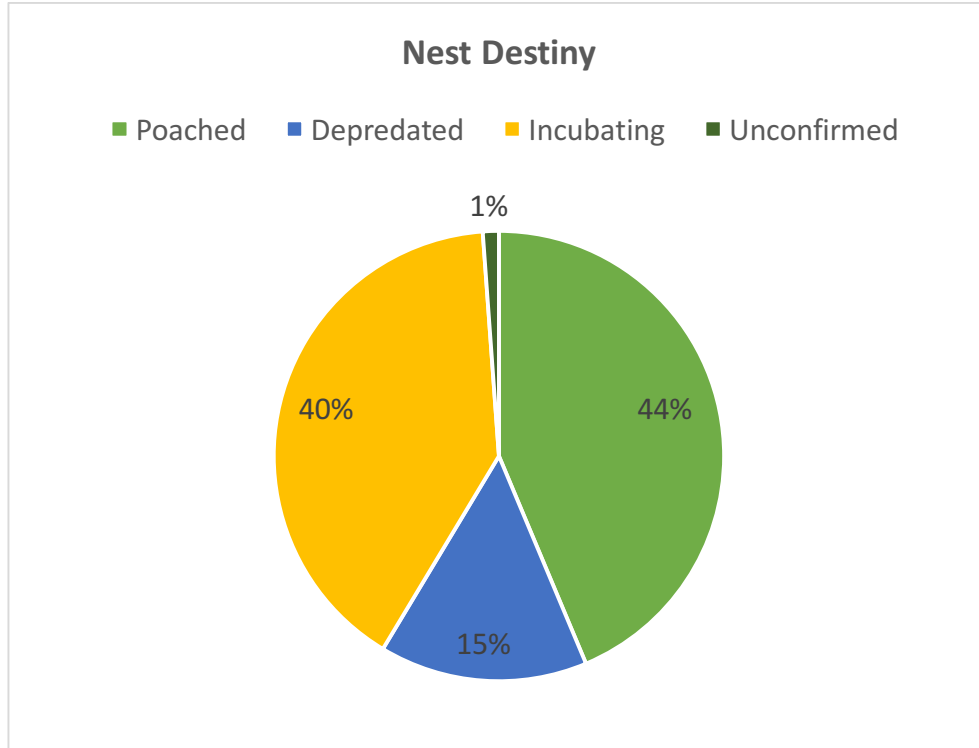


Figure 2. Summary of the destiny of sea turtle nests reported in the Guiones Sector of the Ostional National Wildlife Refuge.

Data Validation

While we do our best to maintain long-term volunteers that are trained to conduct morning beach surveys, we also receive a lot of reports of coincidental sightings from locals and tourists alike. All reports are confirmed with photographs whenever possible

Potential Biases in our Data

It is important to note that these numbers are likely underestimates, given that we currently do not have complete coverage of these two beaches on a consistent basis. These data are also likely spatially and temporally biased given that (1) most volunteers monitor areas that are within walking distance of central Pelada and Guiones and (2) the number of active volunteers is likely linked with the high season for tourism (December – April).

Playa Pelada

In general, we have very little coverage and receive far fewer reports from Playa Pelada. A trained volunteer monitored Playa Pelada every day for the months of December 2015 and January 2016 and reported 12 different sightings in that time. We therefore assume we have fewer reports from Pelada due to the smaller local and tourist population and not the lack of sea turtle activity.

Water Quality Test Results

We conducted weekly water quality tests at all three locations. We typically recorded readings of 0 ppm across the board for all of the parameters tested at all sites (pH, Ammonia, Nitrite, Nitrate). There were a limited number of incidences (7 out of 36 total measurements) where a slight increase in ammonia occurred (0.25-0.50 ppm). According to the World Health Organization's Guidelines for Drinking Water Quality, levels above 0.25 ppm are an important indicator of fecal pollution in water (i.e. from waste water, sewage, or domestic animal waste contamination).

Our up-to-date water quality test results datasheet is available online at:

<https://docs.google.com/spreadsheets/d/1EPyWpWMVUbUlegQNxX06k02t9FS1N6t207dHzZdmCJY/edit?usp=sharing>

Outreach and Education

Overall, we established a presence within the community and increased awareness throughout educational talks and the distribution of educational materials on the wildlife refuge and sea turtles.

Education

Our educational program has reached over 100 children and adults from various schools and programs within the immediate community of Nosara.

We have created various educational materials (flyers, brochures, presentations, social media posts) to target the following educational campaigns:

- TORTUGuiones project information
- Ostional National Wildlife Refuge
- Sea turtle biology and conservation
- No plastics/Marine Debris
- Water quality
- Sustainable fisheries

We have also designed signs to be placed at each entrance to the beach to inform visitors about the wildlife refuge, its geographical limits, and the regulations that apply. This design has been approved by MINAE and we expect signs to be posted within the next several months.

Educational materials are available at our public Dropbox folder:

<https://www.dropbox.com/sh/50y6mbb7wq28yfx/AADCidhaQ8NpvJCVVvGUoYXia?dl=0>

Materials are also available at our website (www.tortuguiones.org), in our Facebook photo albums, and upon request via email (tortuguiones@gmail.com).



Outreach

To date, we have reached out to the local community through 10 different informational table and volunteer training workshop events. TortuGuiones has participated in Bandera Azul Ecologica events, beach cleanups and workshops as well as providing an information table at several local farmer's markets and art fairs.

We have focused a lot of our outreach efforts on social media by establishing and maintaining active accounts on Facebook (531 likes), Instagram (110 followers), and twitter. We have also distributed brochures and flyers (electronically and in print) with information about the wildlife refuge and sea turtle conservation to local businesses and organizations.

The Voice of Guanacaste brought awareness to our organization and our cause by featuring us in their May 2016 print issue as well as in an [online feature](#) of this issue.

Coordination with local authorities

In addition to maintaining open communication and transparency with MINAE and submitting this progress report, we have:

- Provided comments and attended meetings regarding the draft of the new Management Plan for the Ostional National Wildlife Refuge
- Presented the TortuGuiones project at the CIMACO meeting
- Attended an informational community meeting on the new refuge law

Sponsorships and Partnerships

We have currently established sponsorships and partnerships with several local businesses and organizations which support us by various means.

Sponsorships

The following sponsors provide funding as well as logistical support to TortuGuiones:

- Nosara Civic Association
- Harmony Hotel (Harmony Fund)
- Guanacaste Community Fund
- Quebec Labrador Foundation
- Various Private Donors

See Appendix I for specific details on the funding provided by these organizations.

Partnerships

The following partners have at the very least expressed interest in supporting our cause and most have already provided support in a variety of ways. Some examples of support received include: hosting and organizing fundraisers, offering logistical support and networking connections, offering use of their facilities/equipment/meeting space, and connecting us with volunteers.

- Nosara Spanish Institute
- Prove Nothing
- Costas Verdes
- Giardino Tropicale
- Olas Verdes
- Blue Spirit
- Point Pacific Design
- Nosara Day Camp
- Global Leadership Adventures
- Harmony Soundscapes
- Nativa Gallery
- Organico Mini-Market
- Guiones Mini-mart

Current Conclusions

Based on the data we have collected, it appears that sea turtles are nesting at Playa Guiones and Playa Pelada year-round. Given that we have not collected data during the peak nesting period for Ostional yet (July – October), we expect increases in sea turtle activity for the next 6-months.

Based on our initial evaluation of sea turtle activity in the Guiones Sector, we have identified the following key areas of concern (in order of relative importance and urgency):

(1) Poaching

The main obstacle we face in deterring and stopping poaching within the Guiones Sector is the lack of a MINAE official on-site. Due to issues of jurisdiction, local police are unable to enforce regulations within the refuge. Poaching appears to be associated with motorized vehicle traffic entering/exiting the beach from the farthest north and south entrances of the beach in the early hours of the day (4 – 6 am). In almost every case, evidence suggests that a stick that was used for probing, to locate the nest cavity. Sticks are often left behind just next to the undisguised, empty nest cavity. Incidences of poaching appear more common during the rainy season/low tourism season, although this may also be associated with increases in nesting at this time of year.

(2) Motorized vehicle traffic

Although motorized vehicle traffic is prohibited within the wildlife refuge, motorized vehicles frequently drive across long stretches of beach. These activities are of primary concern due to their link to poaching activity. Additionally, these activities pose a safety risk, they destroy beach flora and fauna, and disrupt sea turtles in a number of ways. The issue remains, however, that beachfront houses in South Guiones require beach access with motorized vehicles because there is no alternative route to their home.

(3) Lack of awareness about the wildlife refuge

The overall lack of awareness about the Ostional National Wildlife Refuge (objectives, geographical limits, regulations, etc.) is a conservation concern for the area. The lack of signage for within the Guiones Sector makes for many residents and tourists that are unaware that they are within the limits of the refuge, let alone that regulations exist to protect local wildlife.

(4) Light pollution

While light pollution from residential and commercial buildings within the Guiones Sector of the refuge is currently minimal, the lack of awareness on the potential impacts of light pollution on local wildlife and the high rates of development make light pollution a conservation concern for the area. Additionally, there are reports of hatchling disorientation due to bonfires on the beach, which occur frequently despite their being prohibited within the refuge.

(5) Domestic Animals

The regular presence of domestic animals (e.g. dogs, horses) within the wildlife refuge is a concern. Fifteen percent of our reported nests were depredated by dogs and animal waste is a threat to water quality, especially in the rainy season.

Recommendations

The following are recommendations and actions we are currently taking to address our concerns:

(1) Poaching

We recommend intermittent police presence at beach entrances to enforce laws that are applicable outside the refuge limits and deter illegal activities. We also recommend increased security and vigilance at beach entrances in general (security guard, video cameras, and/or camera traps), especially in the early hours of the day, to discourage poachers from entering the beach. We are currently involved in efforts to raise the funds necessary to support a MINAE official for the Guiones Sector of the wildlife refuge. In light of poaching issues, we are also considering increasing our monitoring efforts and presence on the beach to deter poachers and protect nests and will propose this in our research proposal to renew our current permit.

(2) Motorized vehicle traffic

We recommend the placement of motorized vehicle barriers at each entrance to the beach within the Guiones Sector of the wildlife refuge. These barriers should single out motorcycles and quads while allowing pedestrian, surf, and bicycle traffic to enter relatively unobstructed. Barriers should be heavy-duty to prevent their removal or vandalism. We are currently working on some designs, putting together a budget, and reaching out to local businesses and organizations to fund motorized vehicle barriers at the beach entrances. An alternative route should be provided before traffic is blocked entirely from South Guiones.

(3) Lack of awareness and education about the wildlife refuge

We are currently distributing brochures and flyers electronically and in print to educate locals and tourists about the wildlife refuge. Our beach entrance signs will also inform all visitors about the wildlife refuge and the regulations that apply.

(4) Light Pollution

We are offering education and community outreach to provide the community with information on light pollution, the impacts that it can have on local wildlife, and how to mitigate this. We recommend that minimizing light pollution be considered a priority in all zoning regulations for the wildlife refuge and surrounding buffer zones. We are also looking to coordinate with the Bomberos de Nosara for help with discouraging bonfires on the beach.

(5) Domestic Animals

Given the current lack of enforcement, we recommend education and outreach to at the very least encourage people to leash their dogs and not to leave them unattended. We are also planning on education and outreach with local horse tours to minimize horse traffic within the wildlife refuge and encourage the use of manure bags.

Please note that all of the above concerns are tied with education about the wildlife refuge and the enforcement of existing regulations. Overall, we feel this presents a justified and urgent need for a MINAE official to be stationed within the Guiones Sector to maintain a presence, enforce regulations, and mitigate current conservation threats.

APPENDIX I : ACCOUNTING

FUNDING SOURCES

Name	Type	Amount
Nosara Civic Association	Sponsoring Organization	\$500
Carol Kennedy	Private	\$184
Information Table Donations	Private	\$50
Elizabeth Cundill	Private	\$150
Quebec Labrador Foundation	Sponsoring Organization	\$250
Information Table Donations	Private	\$81
Nativa Gallery Fundraiser	Business Partnership	\$160
Nosara Day Camp Educational Event	Business Partnership	\$40
Information Table Donations	Private	\$98
Jay Evarts	Private	\$50
Guanacaste Community Fund	Sponsoring Organization	\$1,500
Harmony Fund	Sponsoring Organization	\$1,200
Harmony Soundscapes Fundraiser	Business Partnership	\$60
Sticker Sales	Income	\$50
Total raised to date:		\$4,373

EXPENDITURES

Category	Description	Subtotal
Educational materials	Printed brochures, flyers, etc.	\$667.64
Supplies	Paint, paint brushes, wood posts, etc.	\$680.77
Merchandise	Stickers, bracelets, t-shirts, etc. for fundraising	\$415.07
Website	Yearly starter site (weebly.com)	\$96.00
Total expenditures to date:		\$1,859.48

APPENDIX II: TORTUGUIONES NON-PROFIT ASSOCIATION

(Paperwork submitted December 2015)

Mission

To protect sea turtles and their habitat within the Guiones Sector of the Ostional National Wildlife Refuge through sea turtle conservation, outreach, and education.

Board of Directors

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Secretary	Ethel Arraya
Fiscal	Earle Lawrence
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7. Julianne Koval
8. Elena Vega de Pablo
9. Laurence Nicole Bezy
10. Karla Gallegos Volio
11. Janice Linnen
12. Spacialle Novak
13. Hector Enrique Mora
14. Ethel Araya Chaves
15. Gerardo Bolaños Céspedes
16. Earle Grandon Lawrence

Annual meetings

The second Saturday of January

Reelection of the Board of Directors

Every two years