WIDECAST
Red para la Conservación de las Tortugas Marinas en el Gran Caribe

IN PARTNERSHIP WITH

LAST
Latin American Sea Turtles

Volunteer Manual for Pacuare

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INTRODUCTION

It must be recognized that the biological requirements of the species involved are non- negotiable, just as much as the fact that there is gravity on planet Earth. Consequently, the effectiveness of conservation activities is directly related to the degree to which they are able to meet these biological requirements. However, decisions about the design, implementation and maintenance of conservation programs are made within the political area, and reflect the complex interplay between societies and their cultural, political and economic activities – not necessarily scientific opinion or expert recommendations.

Therefore, to be successful, conservation actions must be relevant to the societies in which they are carried out, for in the end biological conservation depends on political decisions made within social and economic contexts. In short, because of their biological characteristics, marine turtle conservation is highly complex, difficult to predict accurately, and requires long-term commitments. In many ways the status of these charismatic animals serves as a barometer of how well modern societies are taking care of the environment upon which we all depend.

Asociación LAST is a Non-Governmental and Non-Profit organization, which has been working in conservation and sustainable development in the coastal zone of Costa Rica under the name of WIDECAST since 2007 and is rooted back to the program of ANAI (1978-2007) LAST (Latin American Sea Turtles) is now the Latin American Program of WIDECAST and has become independent in 2013.

Since 2009 WIDECAST in Costa Rica has been supporting the organization La Tortuga Feliz in Pacuare with scientific advices. Paul Lepoutre took the initiative in April 2004 to establish a conservation project at this part of the Caribbean coast, 2 km north of the Pacuare River mouth. The project covers 7.1 km of coastline. This beach is part of the 50 km stretch between Tortuguero National Park and the harbour of Limón. The area is not only unique in every way, but is also known as a nesting site for many Leatherback and Green Turtles who come to lay their eggs here. Lepoutre's approach was rather unique and had the special attention and support of various organizations around the world, most notably the World Wildlife Fund. In December 2011, La Tortuga Feliz handed over the responsibility and administration of the conservation and research work in Pacuare to WIDECAST. **Nowadays, LAST is managing everything related with the sea turtle work work with own volunteers, but receiving the additional support from volunteers of La Tortuga Feliz**.

As a part of our organizational mission we try to improve the living conditions and education for the local community. Local inhabitants are involved in the conservation program, mainly former poachers are now trained in conservation techniques and patrol the beach together with volunteers, work at the project station or help with guarding the hatchery. Volunteer fees generate a much needed income for the community which helps to minimize the need for poaching turtles and eggs.

In Pacuare, we work hard to improve the conservation status of the nesting sea turtles, in other terms, to reduce poaching and to re-establish a viable nesting population of sea turtles in the North Caribbean. Community outreach and education as well as direct beach protection and sea turtle rehabilitation are, besides networking with others, our most important tools to work with. Volunteers participate in night patrols with local or international research assistants in order to collect scientific data of nesting turtles, to collect the eggs and to guard the species while they are laying eggs and returning to the ocean. Furthermore, volunteers help hatchlings on their difficult way to reach the sea.

For us, as a conservation project, sea turtles always come first, which may result in long hours and exhausting work in the humid, hot and sometimes difficult conditions of the tropics. When you encounter your first turtle nesting on

the beach, we are sure you will understand our philosophy of “Turtles First”. You will also see that all the hard work is absolutely worth it and you will enjoy being part of it!!!

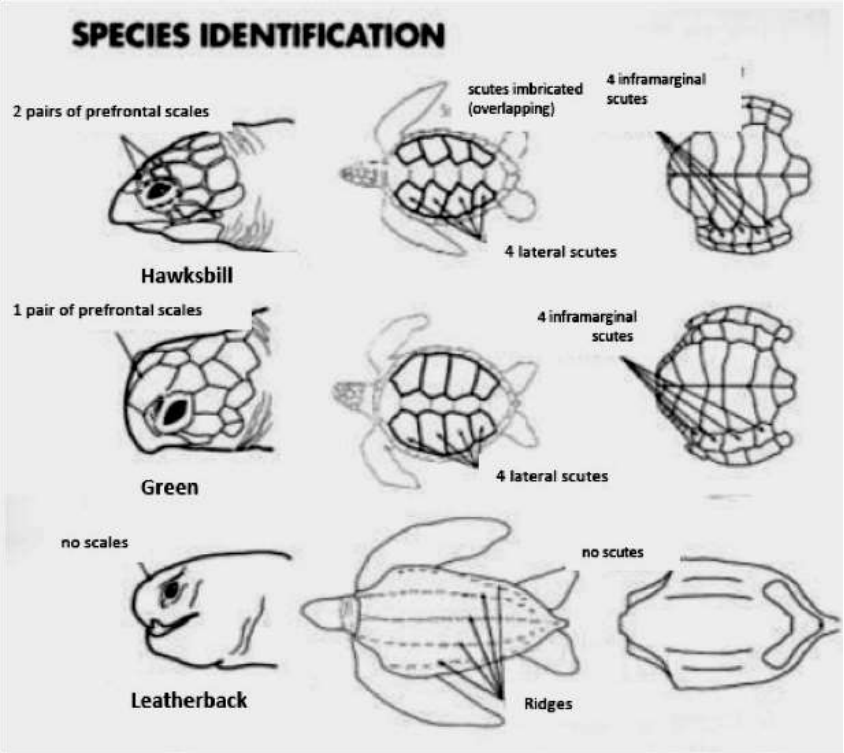
Everyone agrees that without the helping hands of volunteers the project could not have achieved the success it has had over the years.

Should you be in Pacuare when we are rushing around, working and forget to show our appreciation, let us begin by **THANKING** you now for taking part in saving the sea turtles of Pacuare!

Content

1. Sea Turtles

Sea turtle fossils date back to the Jurassic some 100.000.000 years ago. Over those years there have been over 100 species of marine turtles and only 7 remain nowadays. Three of them nest regularly on Pacuare beach and the Loggerhead Turtle has been observed once in 2013. There is the Leatherback turtle (*Dermochelys coriacea*), which comes in larger numbers, later start the Green turtle (*Chelonia mydas*) and the Hawksbill turtle (*Eretmochelys imbricata*) seasons, but they nest in a lesser extent.



Due to the fact that sea turtles are in the water most of the time of their life, they are completely adapted to the sea. The front limbs are modified into flippers and back limbs are like paddles. This allows them to migrate over long distances through water. The carapace is flattened so that it is hydro-dynamically streamlined. Over the years sea turtles lost the ability to protect the head and the limbs by pulling them inside the shell, having instead a more hydrodynamic carapace. Turtles hear well, especially lower frequencies and have a well-developed sense of smell. While their sensory acuity is adapted to live in the water, it is reduced while on land.

The gender of the hatched turtles depends on the temperature of the nest while growing. The perfect temperature of the Leatherback eggs in a nest should be about 29.5 °C (85, 1 °F). At this temperature it will produce a 50/50 mix of males and females. Higher nest temperatures produce more females and lower temperatures more males. This factor is deeply related with weather, deep and structure of nest chamber. After between 50-78 days the baby turtles hatch.

Even before the eggs hatch they face many dangers. Eggs can fail to hatch due to heavy rain or seawater flooding the nest. High tides can wash away the beach and destroy whole nests, or ants, crabs, coatis, raccoons, dogs and pigs can hunt out it as a source of food. Even a natural nest from leatherbacks in perfect conditions will only have a hatch rate of about 15-50%.

Hatchlings emerge from the nest in groups, over a two or three day period. Normally they emerge at night in response to cooling surface temperatures. Sometimes, however, they can emerge after a daytime rainstorm when the rain cools the surface of the sand. Once on the surface the hatchlings open their eyes the first time and are attracted to light causing them to move towards the sea.

In the first few days they get their energy from a yolk sac, which enables them to swim continuously without eating. After they reached the open ocean, they will drift away in the oceanic currents until they reach maturity size and come back to the same beach where they were born to lay their eggs (in case of females). Female sea turtles spend only 1% of their lives' on land nesting. There is only little information about male sea turtles, since they usually, after been born, stay in the water the rest of their lives.

1.1. The Leatherback Sea Turtle (*Dermochelys coriacea*)

The Leatherback turtle is listed as Vulnerable species and is included in Appendix I of CITES and in the Red Data Book of the IUCN. The turtle population is in decline due to the hunting of turtles in some parts of the world for their meat and oil, the over harvesting of eggs, the accidental capture of turtles in commercial fishing nets and the over-development of nesting sites.

Estimates of the number of Leatherback turtles worldwide range from 26.000 to 45.000 individuals. One example of the rate of decline is the nesting beach at Parque Nacional Marino Las Baulas, Costa Rica: In 1988 the population numbered 1400 nesting females and in 2015 only 28 female Leatherback turtles were recorded, declining in 95% annually.

The Leatherback is the most widely distributed of all sea turtles, ranging through all the oceans from the sub-Arctic to the southern extremes of all the continents. The species can travel over 20.000 km (13.000 miles) a year in its search for food, but despite travelling these large distances the females always will return to the same areas to nest.

The Leatherback is also the largest of all sea turtles growing to a length of 2,5 m (8 ft) and weighing between 300-900 kg (700-2100 lbs).

The Leatherback eats all types of jellyfish. The lining of its mouth and throat contain backward facing spines that stop the jellyfish from escaping. Many Leatherback turtles die from eating plastic products since they look similar to jellyfish in the water and they don't see the difference!

The female Leatherback turtle reaches sexual maturity when it is about 20 years old. Then, she returns to the nesting areas where she was born to lay her eggs. However, the nesting colony of Pacuare also nests in beaches from South Nicaragua to Colombia, which is a particularity. The most important nesting beaches on the Caribbean coast of Costa Rica are Tortuguero, Pacuare, Moín, Cahuita and Gandoca. Very little is known about the early life of the Leatherback turtle or how they find their way to the nesting beaches.

It is known that the average female will reproduce every two or three years and that during a season she will nest on average about five times. The eggs that the turtles lay are both, fertile and infertile. The fertile eggs are the biggest ones and on average about 80-90 of these eggs are laid, while a smaller quantity of about 30 infertile eggs, which are much smaller, are laid last.

1.2. The Hawksbill Sea Turtle (*Eretmochelys imbricata*)

The Hawksbill turtle is listed as critically endangered species and is included in Appendix I of CITES and in the Red Data Book of the IUCN. The turtle population is in decline due to the harvesting of eggs, internal organs, incidental capture of turtles in commercial fishing nets and the overdevelopment of nesting sites. The Hawksbill is especially vulnerable for exploitation by man as the shell or carapace is used to create jewellery such as rings, bracelets and hairclips.

Hawksbill sea turtles are found extensively all over the world including the Atlantic, Pacific and Indian Ocean, the Persian Gulf and the Red and Mediterranean seas. In the western Atlantic they can be found from Cape Cod, Massachusetts south to northern Brazil. Nesting occurs on isolated beaches in the Gulf of Mexico and the Caribbean Sea. The most significant nesting beach in Costa Rica for Hawksbill turtles is Cahuita beach, in Cahuita National Park recording an annual average of 50 nests.

The Hawksbill is a medium sized sea turtle weighting 40 – 60 kg (100 – 150 pounds) and growing to a carapace length of around 1 m (3 feet). One of the most obvious features is the animal's narrow, sharp beak used for foraging among coral crevices. This carnivorous turtle has a highly variable diet consisting mostly of sponges, jellyfish and invertebrates such as crustaceans, sea urchins and molluscs.

Unlike the Leatherback, Hawksbills can cross reefs and rocks to nest, but will also lay on open, sandy beaches! Females nest every two or three years but can lay up to six times during a season at an average of 15-21 day intervals. The age at sexual maturity for females is unknown and dependant on reaching a certain weight. Females can lay up to 200 or more eggs, the average being about 130. Nest depth is around 40-50 cm (15-20 inches).

1.3. The Green Sea Turtle (*Chelonia mydas*)

The Green Sea Turtle is listed as a Threatened species and is included in Appendix I of CITES and in the Red Data Book of the IUCN. The turtle population is in decline due to the hunting of turtles in some parts of the world for their meat and oil, harvesting of eggs, accidental capture of turtles in commercial fishing nets and the over development of nesting sites. The green turtle can be found throughout the world in all tropical and sub- tropical oceans. In the U.S., Atlantic green turtles can be found around the U.S. Virgin Islands, Puerto Rico and continental U.S. from Texas to Massachusetts. In Costa Rica on the Caribbean coast the most important nesting beach is Tortuguero with more of 100,000 nests per season. Pacuare records 50-100 nests/season.

Green sea turtles got their name from the color of their body fat, which is green from the algae and seagrass they feed on. This is their sole diet and they are the only sea turtle that is strictly herbivorous as an adult. It is the largest of the hard-shelled marine turtles. Adults weight around 100 kg (220 pounds) and measure over 1 m (3 feet). Individuals reach sexual maturity at around 25 years old – sometimes taking up to 50 years. The nesting females usually return to their home beach in intervals of 2, 3 or more years, and lay an average of 115 eggs in each nest, which is about 50 cm (19 inches) deep. She can lay as many as 5 times in a season at 11 to 18 day intervals. The eggs hatch after about 60 days of incubation.

2. Volunteer Work

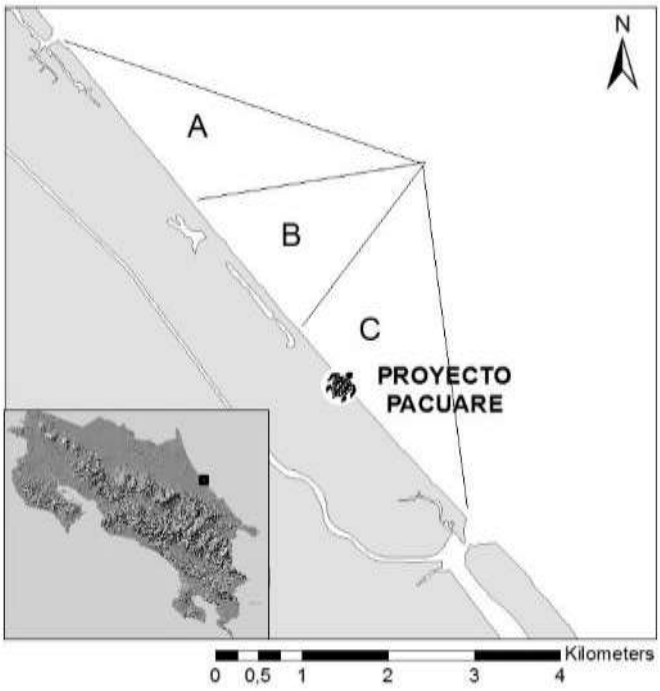
On arrival at the project volunteers will get training on conservation and monitoring techniques for marine turtles nesting in Pacuare. The training includes how to use the equipment and how to work with the reptiles. There will also be a special training for the hatchery. You will always work with an experienced person who will be able to show you the finer points of working with turtles, handling eggs and data collection. **BUT IN TERMS OF YOUR TRAINING YOU NEED TO READ AND STUDY THIS MANUAL.**

The work will be split into these main working areas: night patrols, hatchery duties, station duties and other daytime work such as beach clean-up. Sometimes you might be asked to help also with exhumations.

Please beware that the staff always will try to schedule everyone as fair as possible. If there are troubles or problems with your duties, you should talk to the persons in charge before 4:00 pm and remember that schedule changes may not always be possible.

2.1 Night Patrol

An experienced team member will lead each patrol. One of the main tasks for volunteers will be to patrol the beach in order to protect nesting turtles and their nests from poachers as well as natural threats like predators and beach erosion. When on patrol please follow your team leader´s instructions. Always walk in a line behind the team leader and never approach a turtle before the leader or without his instructions. **Every time you work with a turtle you must use latex gloves and red light all the time!**



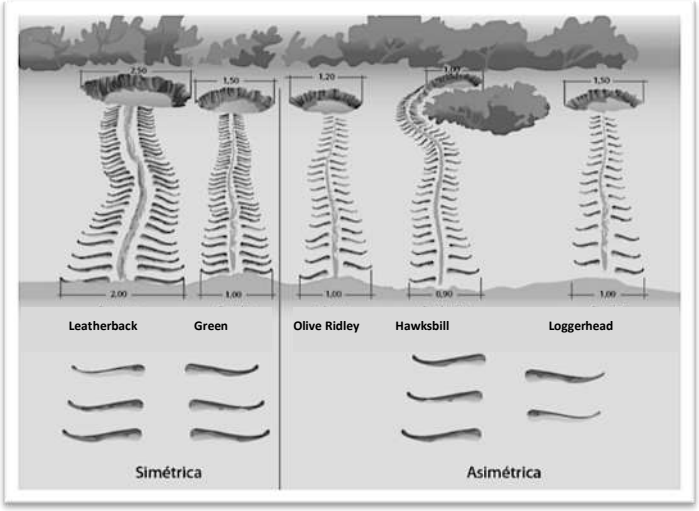
The beach has a total length of about 7.1 km (4.4 miles) and is separated into 2 sectors (A and B). Also, you find markers every 50 m on the beach that will orient you on the beach for data collection. Patrol shifts normally take 4 hours: 8 pm to 12 midnight and 12 mn to 4 am. You will be asked to be always 15-30 min earlier ready. Sometimes patrols can be longer if turtles are encountered.

Although poaching does still happen, poachers are not a threat to volunteers. **If you meet with a poacher, do not do interact with them.** Normally we work with the unwritten poacher law: The first person who gets to the turtle is the owner of the eggs.

Once the turtle has selected her nest site and dug her body pit she will then begin to excavate the nest chamber. She does this using her rear flippers, digging alternately with each flipper.
At this stage the turtle will fall in a kind of hormonal trance, so it is now safe to approach the turtle, always from behind, and prepare to carry out all necessary work **without disturbing her**. If you are instructed to collect the eggs for relocation, hold the bag that has been placed by the guide into the chamber when the turtle is ready to begin the egg laying process. If you are not removing the eggs you should still be in a position to record biometric work, give light to recorder, or record all data. If you are trained and certify by technical personnel of LAST you can search wounds, scars or injuries as well other information from nesting female, always after the nesting process..

While eggs are falling in the bag, another team member should be measuring the depth and diameter of the nest chamber. To release the bag with eggs from the nest chamber, previously you or your patrol partners widening the mouth of the nest to let out the bag with eggs, anticipating that this will not collapse.

The turtle will lay around 110 eggs, 80 being large fertile eggs and, in the case of the leatherback turtle, about 30 smaller infertile ones that she lays last. When small eggs are being laid this is your sign to be ready to pull the bag careful from the hole. The bag can be heavy so if you need help insure that another team member is standing by. Once the last egg is laid, close the bag and pull it from the hole. **No other work with the turtle should be done until the egg laying process is finished. Do not give the bag to non-patrol members. If you cannot take out the bag, leave close and mark the hole with a stick or the metric tape, wait for the turtle move during camouflaging process and dig up gently the bag.**



After the eggs are collected, the absolute maximum relocation time should be 1 hour, although it is possible to relocate up to 6 hours after the eggs have been laid. Otherwise, the embryo will die if you move the eggs after this time.

2.1.1. Collecting Eggs

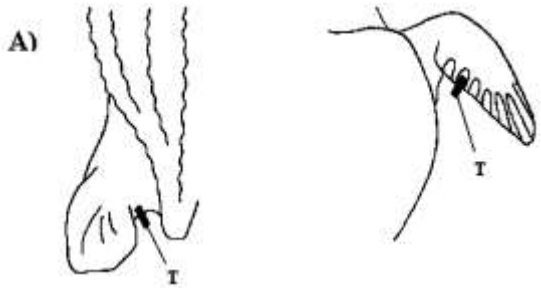
a. Put on your latex gloves
b. Wait until the female finishes constructing the nest and covers the hole with one of her flippers. Carefully place the plastic bag around the tail and the cloaca.
c. Measure the depth and width of the nest.
d. After the infertile eggs begin to fall and the female moves her back flipper to begin covering the eggs with sand, this is the moment to remove the bag.
e. Transport the eggs

2.1.2. Internal Tagging (PIT-microchip)

The project leaders are responsible for bringing the PIT equipment on patrol and marking females at the right moment.

2.1.3. External Tagging

a. Females are tagged while they are covering the nest, **after** they have laid their eggs. Not before, nor later.
b. The Leatherback females (A) are tagged on the membrane between the tail and back flippers. The Hawksbill and Green turtles (B) are tagged at the front flippers in the second scale along the posterior edges of the front flippers.
c. All tag codes are read and repeated verbally three times.
d. The turtle only needs to have ONE set of tags.
e. The project leaders are responsible for bringing the tagging equipment on patrol and marking females at the right moment.



2.1.4. Biometry

All measurements of length and width of the females are taken after she finishes laying the eggs, never before. Measurements may be taken if the patrol finds her returning to the sea and is sure that she has already nested.

Do not measure the females when:

a. They have just left the sea.
b. They are in process of constructing the chamber.
c. They are in process of laying eggs.
d. They are returning to the sea after deciding not to nest.

Measurements of females in motion are generally imprecise and produce untrustworthy data. All measurements must be taken 3 times and repeated "loud and clear" to the data recorder. If the female has lost part of the back portion of her carapace, this should be indicated in the data book. If there is a lot of sand on the carapace, please clean it. However, the recorded length should be the measurement of the whole carapace, including the missing portion. In other words, the female's original size is the data that must be entered into the database. If she is measured as less, this will warp the data.

2.2. Hatchery Duty

Hatcheries are built for a greater control and increased survival chance of hatchlings. Best would be to leave them naturally *in situ* or relocate them on the beach. However, in Pacuare every nest left on the beach is going to be poached. Apart from protection from poachers and natural predators, hatcheries serve to protect nests from the changing dynamics of the beach and climate. From day to day, eroding waves and watercourses caused by changing tides and heavy rainfalls change areas and beach profiles, which can even destroy whole nests. Also an increase of nest temperatures caused by the **global warming** affect the balance between male and female hatchlings, with the worst result that finally only hatch females.

There is one beach hatchery at Pacuare beach, which has to be guarded and monitored 24 hours per day. Hatchery work during the day is normally a one/two-person job. Hatchery shifts will be 6 hours long: 6 am to 12 noon; 12 noon to 6 pm; 6 pm to 12 mn and 12 mn to 6 am. In a time of lot of volunteers, the shifts could be shorter. At the moment of your hatchery shift, please ask a verbal report from previous volunteer to have an idea what happened during the last hours.

2.2.1. Temperature/Rainfall

We are monitoring air temperature with a thermometer every 6 hours and with Hobos in the egg chambers we take temperatures in different areas and of different species in the hatchery.

We also measure with a pluviometer (rain gauge) the rainfall at the hatchery, to compare this data afterwards with temperature and hatching success of the nests. The rain is to be measured only at 6:00 am (by shift change). For this you need to read 3 times how many millimeters (mm) it rained, write this in the data sheet, empty the pluviometer and place it back how it was.

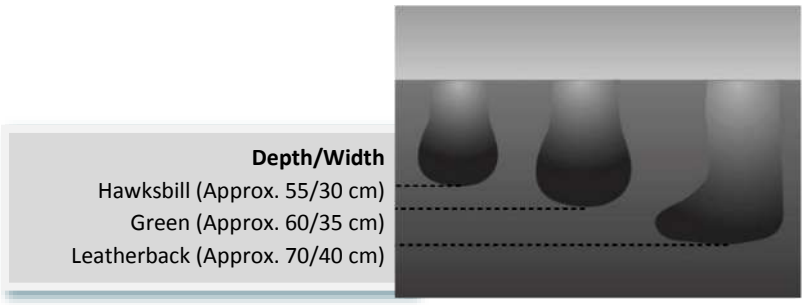
2.2.2. Eggs

When you receive a bag of eggs, keep the bag closed to avoid heat loss. Put on your gloves. Handle the bag very carefully. **Do not run with it or swing it around.**
The hatchery is rationed in squares, where the nests are built. There is a rule that each square that takes a nest follows an empty one to avoid that different nests affect each other (temp., infections, oxygen). Choose immediately an empty space in the hatchery on the hatchery map, respecting the rule empty-full-empty, read out the code and mark the field as used on the map.

	1	2	3	3
A	O	X	O	X
B	X	O	X	O
C	O	X	O	X
D	X	O	X	O

O = nest
X = no nest
Nest Code: B2

If the eggs are from a Hawksbill or Green turtle you must select a space at the back of the hatchery and the nests are made in a "pear" shape. For the eggs from Leatherback turtles dig the nest in the form of a boot with the depth and width written on the tag accompanying the bag of eggs. Also, choose the next indicated space in the front line of the beach (nearest to the sea).



Count the eggs by type as you transfer them from the bag to the hole, from the bottom to the top, noting the numbers and the nest code in the data sheet. First transfer the normal eggs (the larger ones) and later the infertile ones (smaller) counting them. Never allow the eggs to come in contact with dry sand on the beach surface! During this process **ALWAYS** use latex gloves and do not handle eggs more than necessary.

After transferring the eggs, cover them with moist sand to a thickness of at least 40 cm (15, 8 inches) and press lightly to compact it. Next cover the entire hole with sand and compact it. Remember to write all information in the proper data sheet. All clutches will arrive with an information card inside, please note this information in the hatchery sheet, this will help to cross and track nesting information.

Place the mesh basket centered on the nest burying the border about 10 cm (4 inches) into the sand and securing it with sand. If, while working in the hatchery you knock over a basket, please return it to its original place.

During the day your responsibilities in the hatchery are: taking the temperature data, prevent the entrance of predators into the hatchery, remove all types of plants and roots in the area of the hatchery, remove crabs and do not let in strangers. After mid-May to December, you need to walk inside checking nest by nest for hatchlings. Remember, this is due to the incubation time (50-78 days), and since patrol activities start in mid-February first nests start to hatch around mid-May.

If you see that a nest has hatched the night before on the beach, confirm the location of the nest, and make a note of the nest code, the date, and the number of tracks found.

2.2.3. Hatchlings

Check the baskets inside and outside the hatchery every 20 minutes, using a red light and always directing it towards de ground. Remember that the patrols use the red lights to communicate with each other and if you shine horizontally, you could confuse them. Also, NEVER remove, lift or touch the baskets, since this could facilitate the entry of parasites that harm the eggs and/or baby turtles.

When you see hatchlings emerging, gently place the baby turtles in the plastic containers located in the hatchery. Fill in the data sheet with all the necessary information (# baby turtles, biometric of 15 and weight etc.). If you find hatchlings outside a basket and cannot figure out to which nest it/they belong, make a note of this and leave the spot for the nest code blank in the data sheet.

For the entire process of releasing turtles, always use latex gloves and **do not handle the hatchlings excessively.** Taking photos with flash, use of white light, and taking videos are strictly **prohibited.**

If the hatchlings are born in the late afternoon or in the night, liberate them immediately after counting and measuring them. To do this, walk a distance to the north or south, never using the same site twice (this stimulates predation in the sea).

To release the hatchlings, place the baby turtles on dry sand at least 5 meters (5,5 yards) above the reach of the waves on dry sand. This is so the turtles will remember the necessary biological parameters for their return to the same nesting beach. Never release them near or in the sea. Stay close by them in order to inform the patrol and keep them safe from dogs and other predators.

Avoid turning on your flashlight for at least 20 minutes after the release. Light can disorient them so that they walk towards the forest rather than the sea. Warn and inform the night patrols about the hatchlings that they don't step on them.

If the turtles are born during the day, put them in the big box with the black interior (to be released later). Put new, moist sand in the box, place the baby turtles inside, and cover the box. The darkness and humidity cause the baby turtles to remain quiet and conserve energy. They can be released in the late afternoon/evening. Do not open and close the box and **avoid handing them excessively. This will cause them to lose energy and get stressed**. The box has to be cleaned perfectly everyday to avoid any contamination.

2.2.4. Exhumation

Every nest must be exhumed after the last few hatchlings are born (around 2 days after the first one hatches or the incubation period is passed), to record hatching success. Only research assistants and experienced volunteers may carry out this task. Volunteers are sometimes asked to help. Exhumations take place late afternoon, in case you need to release any hatchlings.

2.2.5. Cleaning of the hatchery/equipment

It is very important for the eggs that the hatchery stays as clean as possible all the time, to avoid crabs, flies and ants. **Never eat something next or inside the hatchery.** If you see a crab or ants in the hatchery remove them and look if you can find the reason why they are there. If you find a reason try to remove it. If there are any leaves or branches also remove them and take them out of the hatchery. This attracts other organisms like ants or fungus.

The equipment, including the containers, has to be clean and sand free in order to avoid transferring bacteria or others from one turtle to the other. Also, the salt water destroys the equipment if there is no proper maintenance of it – this is why it should be washed with freshwater every certain time.

2.3. Beach Cleaning

The beach is constantly being filled with wood debris brought by the nearby rivers, reducing the nesting area available for turtles, as well as presenting risks for the turtles and the hatchlings (e.g. acting as barriers on the beach). Beach cleaning will take place either in early morning, or mid afternoon. The beach cleaning has to be done twice a week so that it is easy for the turtle to lay eggs and return to the sea and also to insure that naturally born babies reach the sea. This activity includes the collection of plastics and other garbage, as it also includes removing logs and other obstacles from the beach.

Example of working plan

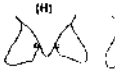
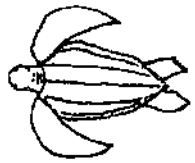
Monday, 1st March 2011

I Shift / I Turno	SECTOR A	SECTOR B	SECTOR ( )
	Leader: Felix	Rangel/ Marie	
	Volunteers: Lisa Manuel K. Aron	Alex Susana Michel	
II Shift / II Turno	**SECTOR A**	**SECTOR B**	**SECTOR ( )**
	Lepo/ Chris	Greivin	
	Smith Manuel R. Isa	Daniel Lara Yurai	Luis
Hatchery A		**Hatchery B**	
	Roger		
	Nicole/ Sabrina		
	Sebastian/ Marieke		
	Peter/Tessa		

OTHER ACTIVITES / **OTRAS ACTIVIDADES**

3 PM: Beach Cleaning
Tomorrow: 5PM Documentation Film "Turtles In Danger" @Gilberto's House

Example of data sheet

Dato/Data	Tortuga 1 / Turtle 1
1. Fecha / Date	03.04.2011
2. Hora / Hour Inicial / Final Initial / Final	8:26 PM/9:47 PM
3. N° Mojon / N° Wooden marker	22/23
4. N° Marca derecha / N° right tag	NJ-786
5. N° Marca izquierda / N° left tag	NJ-785
6. PIT	151550054A
7. Evidencia marca previa / Evidence of previous tag Hueco / Hole (H) Cicatriz / Scars (S) Corte / Cuts (C)	Hueco / Hole (H) Cicatriz / Scars (S) Corte / Cuts (C) 
8. Longitud de caparazón / Curve length carapace (cm)	163cm/163,2cm/163,3cm
9. Ancho del caparazón / Curve width carapace (cm)	111,4cm/111,3cm/111,4cm
10. N° / huevos normales / N° normal eggs laid	78
11 N° huevos vanos / N° Yolkless eggs laid	19
12. Sector de la playa / Beach sector	☠ Marea baja / Low tide line ☠ Marea alta / High tide line ☠ Berma / Berm
13. Profundidad y ancho del nido / Nest depth width (cm)	72,5 cm
14. Destino de nido / Nest destination	1. Natural / Natural 2. Camuflado / Camouflaged 3. Vivero / Hatchery 4. Robado / Poached 5. Relocalizado / Relocated
15. Código de nido en vivero / Hatchery nest code	2B
16. Posición de la tortuga . Position of the turtle	☠ Cabeza hacia el mar/ Facing water ☠ Espalda hacia el mar/ Back to water ☠ Agua a la izq. o der./ Water on left or rigth
17. Ectobiota - Daños / Ectobiota - injuries – scars	
18. Comentarios / Comments	Baula/Leatherback
19. Quién marcó? / Who tagged? Quién tomó los datos? / Who took the data?	Greivin/ Maria

3. Rules

3.1. Use of light

It is a general rule for the entire Central American Region that only red lights are used on the nesting beaches. Exceptions include:

- Cases of emergency, when it is necessary to send a message to adjacent patrols.
- When looking for egg poachers in the vegetative zone behind the beach.

3.2. While working with a sea turtle

- Never take a picture of the turtles using a flash or other artificial lights
- Never walk or stand in front of the turtle
- Never shine a flashlight in a turtle's face
- Never allow strangers to join the patrol and don't give any detailed information about the work, just pass the basic information
- Never drink alcohol before you go on duty and never arrive for patrol drunk
- No use of illegal drugs will be tolerated, a contempt causes an exclusion
- Always arrive 15 minutes earlier for patrol
- If you encounter poachers, report it to the WIDECAST staff, never deal with them by yourself
- If you encounter a sea turtle in the daytime photos are allowed, however respect the turtle at all times. Remember you are dealing with a wild animal that is critically endangered and the idea of conservation is not to stress them but to help them.
- Always handle egg bags as gently as possible (the more gently you are with the eggs the higher the hatch rate)
- Never use repellent while working with the turtles or their eggs.
- Dispose of food from the hatchery. Otherwise this will attract ants.
- If possible do not walk on the high part of the beach as this may damage natural or relocated nests.
- Walk in a line during patrols, like this you can follow your patrol leader avoiding tripping over obstacles on the beach.

3.3. Safety Rules

- Closed-toe shoes must be worn at all times when patrolling at night. Used needles from marine debris are occasionally found and even small tree roots and sticks poking up in the sand directly in front of you in the dark can cause serious foot injuries which may take months to heal in the humid conditions. Remember – you cannot work if you cannot walk!
- **No one walks the beach at night by her- or himself**. This is a LAST policy as you may be approached by strangers, be washed out to sea by a wave fall over and hurt yourself or may even be approached by wild animals.
- Walking the beach by yourself during the day is allowed but it is best if you can take someone with you. If possible do not take any personal belongings of high value with you as this invites robbery. If you are approached by what you perceive to be dangerous locals, tell them if asked that you are not a tourist and that you are working with LAST. **Do not start a confrontation.**
- Swimming during the night is forbidden. When swimming during the day, never enter the water alone and always ask a staff member for information about the currents. If an incident happens never try to swim back to the beach directly but rather swim back diagonally to the beach. This will enable you to save energy for swimming back rather than fight the currents. Also, it is not allowed to swim in the lagoons nor canals because this is the favorite place of crocodiles. **Be aware that you swim under your own responsibility.**
- Make sure you drink a lot of water, especially if you are not used to tropical weather.

- During daytime, always make sure you use sun block even when it's cloudy. The sun can be very strong and working with sunburn can be very uncomfortable and painful.
- Please, always take into consideration that you are in small village where the economic situation is very difficult for the local community. Use Ipads, cameras or other expensive equipment or materials with **discretion, and always make sure you store them in a safe place**. Don't leave anything outside visible to the public view since this will attract robberies.

4. The Area and what to do around

Community – The community that lives on that beach you are working in is a very small one and everybody knows everybody. There are a lot of community members working together with LAST as patrol leaders or hatchery attendants. But also, the poachers are part of the community. So never confront poachers that might share a bad mood in the community and can damage the project.

Bataan – You enter the project from Bataan taking a taxi ride/public bus to the Goshen dock and from there you navigate with a boat through the canals until you get to the project site. Bataan is a very little town, but has internet access and some little shops. Our station manager leaves to Bataan on Mondays and Thursdays to pick up or bring back volunteers. If there is space in the boat, you can ask to go/come back with him. Consider that you might have to pay/contribute for the bus/taxi ride.

Activities in the project – Also the project site offers a lot of free time activities for volunteers. If you want you can go fishing and you can help in small projects, like cleaning, working on the beach or maintenance work in the project. Those who speak a little Spanish can support the local community in their daily duties, like agricultural work. You can also play volleyball or soccer on the beach – just be aware of your energy since the turtles are going to need you during the night.

5. Travelling to the Project

LAST: Tibás, 200 metros norte y 25 metros oeste de la Municipalidad de Tibás, casa a mano izquierda, con rótulo amarillo y negro con una tortuga (SAN JOSE, TIBAS, 200 NORTH AND 25 WEST FROM THE MUNICIPALITY OF TIBÁS (BY THE MAIN PARK))
Important numbers: LAST office: 2236-0947

San José – Bataan: Take the bus to Bataan from the Caribbean Bus Terminal "Los Caribeños". The Station is located half the way from San José City to Tibás and 10 minutes in Taxi away from the LAST office (Central, 8 blocks north from the Parque Central, in San José).
The bus leaves at 9:00am, there are later busses but they do not get in time to Bataan. The bus ticket costs around ₡3000 (about 6 $) and we recommend to buy it one day before your departure, to make sure that you have a seat reserved. Drop off the bus at "Bataan centro".

Bataan – LAST: In Bataan you will meet a LAST member and a taxi driver, who will bring you to the project site. You take a taxi to the boat dock (45 min), from where it is a 40-60 min boat ride. The whole trip from the bus station in San Jose to the project site takes around 4-5 hours.

6. Welcome to Costa Rica

6.1. Cultural differences

Rhythm of life: In Costa Rica, life moves sometimes slower than in your country. This seems to be a great thing (and it is), but sometimes it can be annoying.

Communication: Most Costa Ricans (Ticos) themselves will admit that they try to avoid confrontation and in order to make everyone happy they often promise more than they can deliver. "NO" is not a part of the national vocabulary, and the peace loving Costa Rican has invented a thousand ways to dance around that word.

Sense of humor: Costa Rican sense of humor is quite different also. Costa Ricans like to laugh about everything. This may include you. Sometimes you're going to hear some jokes about you. Don't feel upset; don't think they don't like you. It's the way here. You are going to discover that they laugh about themselves too. Additionally, recent studies imply that Costa Rica is the happiest country of the world. So, you will see nicknames or jokes are not meant to upset you, it is part of the daily life and culture.

6.2. Values and Attitudes

Costa Ricans are known for their friendliness, helpfulness, hospitality and healthy curiosity. They tend to look for compromise and peaceful resolutions and try to avoid conflicts. Also, they have a more relaxed interpretation of time which means they might lack punctuality.

The Costa Rican society is strongly family-oriented and celebrations usually bring together the entire extended family. Furthermore, they are very polite and expect politeness in return. It is very common to use "please" and "thank you" and normally the formal "usted" is used instead of the informal "tú", also while talking with friends. Family ties are strong and elderly are respected and cared for. The main religion is Roman Catholic and a lot people are quite religious.

Ticos are very proud of their beautiful country and its stable democracy but unfortunately there is a general disregard for the cleanliness of public areas.

As the Costa Rican society is a macho society, compliments are plentiful. Males traditionally express their appreciation of a female passerby. This should not be seen as an insult and it is best to simply ignore the remark. We also do not recommend to sunbath top less or similar, because Costa Ricans are still very conservative in this matter.

Ticos tend to put things off and in general, things tend to take a lot longer than anticipated. Words such as "mañana" (tomorrow) or "ahorita" (right now) are used. This does not mean that things will happen. The way Ticos give directions might also be confusing for visitors: the words north, south, east and west are commonly used.

6.3. Travelling in Costa Rica

Traveling in Costa Rica is generally good, though road and weather conditions have to be taken into consideration. There are areas, where a four-wheel drive vehicle is necessary. Please take into account that many Ticos are dangerous drivers and don't pay much attention to the rules of the road.

There is a vast bus network offering good and inexpensive travel. On weekends and during holiday periods it's the best to buy your ticket a day or two ahead to reserve a seat. In city buses, you should pay with coins or a bill of 2.000 Colones or less.

Taxis are plentiful in the city and outlying areas and fares are reasonable. They are red, have a yellow triangle on the door and should have a working taxometer called "María". Try to avoid the illegal taxis!

6.4. Phone calls

Probably you will have to use the phone to call somewhere. There are a lot phone boxes in the whole country. We recommend you to buy a prepaid call card. There are three different service providers in Costa Rica. You can find it in the most of the shops, pharmacies etc. We recommend taking a phone card from ICE Kölbi (1000 colones), due to the fact that this is the only provider that works in Pacuare and in most remote areas. Phone signal and 3G internet is available only on the beach and only with KOLBI operator Nokia phones usually work best, make sure the phone is unlock to receive a Costarican SIM card

7. SOME USEFUL VOCABULARY

SPANISH	ENGLISH	DEUTSCH	FRANCAIS
Tortuga	turtle	Schildkröte	Tortue
Nido	nest	Nest	Nid
Huevos	eggs	Eier	Oeufs
Playa	beach	Strand	Plage
Mojón	(wooden) marker	Markierungspfosten	Poste
Arena	sand	Sand	Sable
Agua	water	Wasser	Eau
luz (roja/ blanca)	(red/white) light	(rotes/weißes) Licht	Lumiere (blanche /rouge)
Hueveros	poachers	Wilderer	Braconniers
Patrulla	patrol	Patrouille	Patrouille
Lluvia	rain	Regen	Pluie
Depredador	predator	Raubtier	Predateur
Hueco	hole	Loch	Trou
Profundidad	depth	Tiefe	Profondeur
Cangrejo	crab	Krabbe	Crabe
Cicatriz	scar	Narbe	Cicatrice
Marea	tide	Gezeiten	Marée
Rastro	track	Spur	Trace
Marcas	Marks/tags	Marken	Marques
Cinta	(measuring) tape	Messband	Metre
Guantes	gloves	Handschuhe	Gants
Bolsa	(egg) bag	Beutel	Sac
Placas	tags	Kennmarke	Plaques (métalliques)
hoja de datos	data sheet	Datenblatt	Feuille de données
Lápiz	pencil	Bleistift	Crayon
Palo	stick	Pfahl	Bout de bois
Aplicador	applicator	Applikator	Applicateur
¿Qué hace la tortuga?	What is the turtle doing?	Was macht die Schildkröte?	Que fait la tortue?
Ella esta (haciendo)…	She is (doing)…	Sie (macht) …	Elle est en train de ....
Subiendo	emerging	Schlüpft	Emergent
poniendo huevos	laying eggs	Legt Eier	Pondre des oeufs
la cama	body pit	Köpergrube	Le lit du nid
hueco/ nido	hole/ egg chamber	Loch/ Eierkammer	Trou / Nid
Tapando	tapping	Bedecken	Refermer
Camuflando	camouflaging	Tarnen	Camouflant
Rayón	false crawl	Falsche Spur	Fausse sortie
Descanso	break	Pause	Pause
Tronco	log	Baumstamm	Tronc
más rápido	faster	Schneller	Plus vite
más lento	slower	Langsamer	Plus lentement
por favor, apaga su luz	please, turn your light off	Bitte mach dein Licht aus	Eteignez la lampe, SVP
… camina en fila	walk in a line	Lauft in einer Reihe	Marcher en file
¿estás bien?	are you alright?	Geht es dir gut?	Est-ce que ca va?
¿estás enfermo/a?	are you sick?	Bist du krank?	Est- tu malade?

Notes: