



Crawl Count Guide Guía Sobre contar de Huellas

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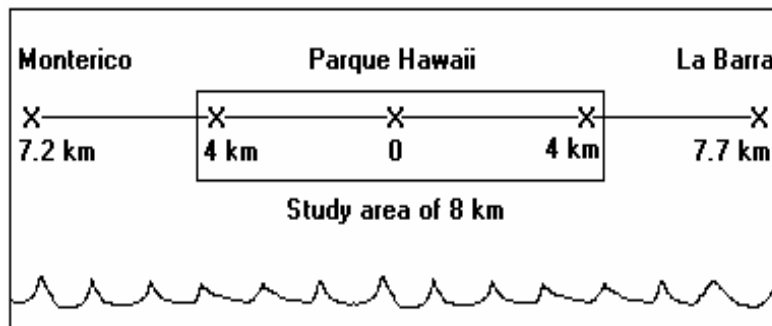
ARCAS-EVS-AMBIOS

WHY WE NEED THESE DATA

During the turtle nesting season it is very important that we count the numbers of nesting turtles. From this data we can determine our population of sea turtles and we can also recognize the most favourable nesting locations along our beach, as well as to try and understand how weather conditions and changes in beach profiles may affect the nesting density.

BASIC METHODOLOGY

As most nesting occurs at night, each morning at sunrise a crawl count is essential. The number of nests is recorded across the study area by a pair of volunteers walking in opposite directions to retrieve the data, or where possible a motorbike may be used. This morning survey can be used alone, but more usually complements and checks observations made during the beach patrols undertaken that night. The night patrols always keep a note of the number of tracks encountered and their positions because sometimes in the morning if many people have walked up and down the tracks checking the nest, the tracks will not seem obvious; even more so if there was also a strong wind or high tide that disguises the tracks even more.



Crawl count study area

For practical reasons we have chosen a crawl count study area of 8 km, of which extends 4 km east and 4 km west of the hatchery. This may not encompass the whole beach the hatchery is responsible for (see Hawaii example in the diagram).

When crawl counting you must pay attention to the beach zone around the vegetation line as most turtles will have nested quite high up the beach close to or even in the grass. When a nest is encountered, a GPS (Global Positioning System – handheld unit using satellite data) is used to record its position.

When the tracks are counted in the morning it is extremely important that the tracks are fully erased by using a broom to sweep the nest area evenly to ensure that the nest is not counted again the following morning. It is also good to trample over the area to make it look less obvious that there was a nest. This is because some local people seem to think that we are disguising the nests and may believe that the eggs are still there, and will re-excavate a new 'nest' feature, causing confusion in the count.

USING THE GPS

Before leaving the hatchery ascertain the battery levels are good and that the system is set to UTM/UPS (projection) and NAD27 Central America Datum (in set-up pages under Navigation or Units). Make sure you know how to access the page on the GPS that shows the position coordinates (with some units it automatically displays this

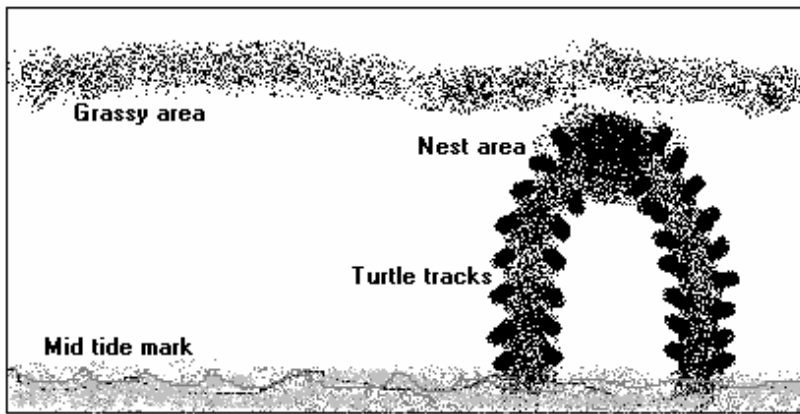
page, other units require you to push mark, others have a more complex system of toggling the buttons).

When taking a position on the beach, after turning on the GPS it takes a minute or so for the system to locate the satellites. – a position will not appear until this has happened. With some units it will state, “ready to navigate” and may also state an accuracy reading; wait a few minutes for the accuracy reading to drop to about 10 metres in order to get an accurate GPS position. Record the position as a Waypoint if you know how to do this, but also ALWAYS write down the position on paper.

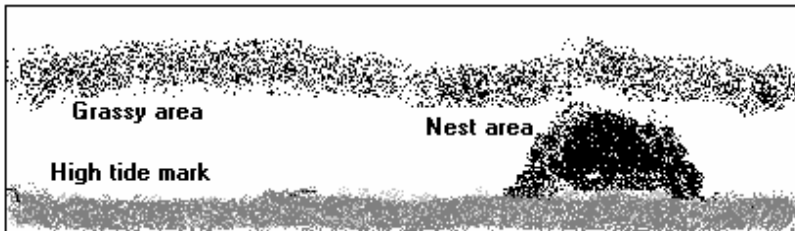
After noting the GPS position, switch the system off properly. The batteries will drain very quickly if the system is left on. The battery life is only a total of about 20 hours even with good quality batteries.

If the GPS is not available or malfunctions, use a description of the locality or leave a clear marker, so that local knowledge can be used to pinpoint the spot later on.

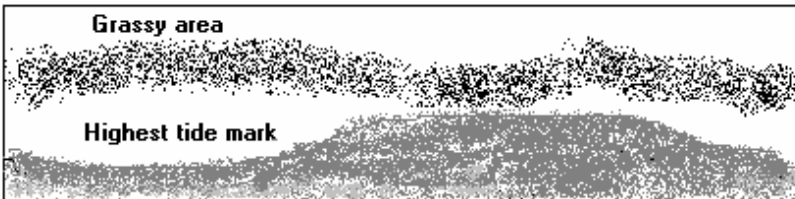
IDENTIFYING NESTS AND COUNTING WITHOUT ERRORS



Turtle tracks at mid tide in the morning



Turtle nest without tracks at high tide



Same nest after a higher tide

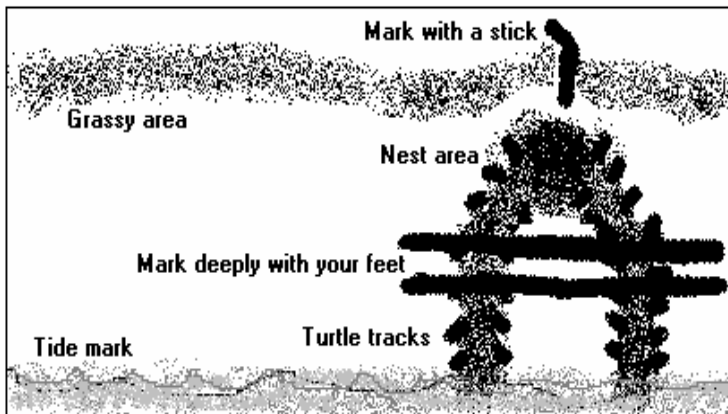
A nest is usually identifiable by its small body pit and much disturbed sand and more often than not the whole of the nest chamber is clearly visible from when it was raided by a local egg collector. Also, during a normal tide, several metres of her tracks are still visible, especially if she nested after high tide. If she nested on an incoming tide then possibly only the nest area is visible as the tracks may have been erased by the waves.

Sometimes when the tides are very high, being very close to or above the grass at the top

of the beach, this will erase all tracks and nests that occurred before the high tide

during the night. It is essential that during these times of abnormally high tides, the tracks encountered DURING the night are marked with the GPS as they may be destroyed by the morning. As there is only one GPS unit, the other volunteers must make a note of where and when they encountered tracks during the night, and also mark just above the nest area with a big stick (when using a stick to mark the nest, make sure it is positioned above the nest area - this is important because if the stick is placed right on the nest area, often it is removed when a local person tries to excavate the nest in the hope he finds some eggs). There are many landmarks along the beach and using a map, a rough position can be identified then compared with the following mornings track counts. If 12 nests were counted during the night but only 8 were remaining in the morning, the missing nests must be recognised by the person counting the tracks in the morning and the volunteers who marked them during their patrol. If a stick was used to mark the nest then it will be easily identifiable when counting the tracks in the morning.

Be aware of the counting inaccuracies that can arise. The ideal situation is a night patrol group that turns around (furthest away from the hatchery) just after high tide, as tracks left after high tide will be visible and accounted for during the morning crawl count.



At night note gps position and mark tracks.

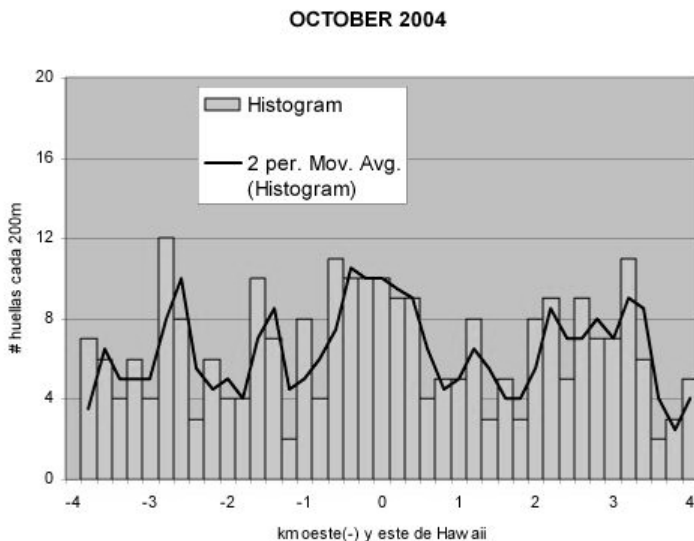
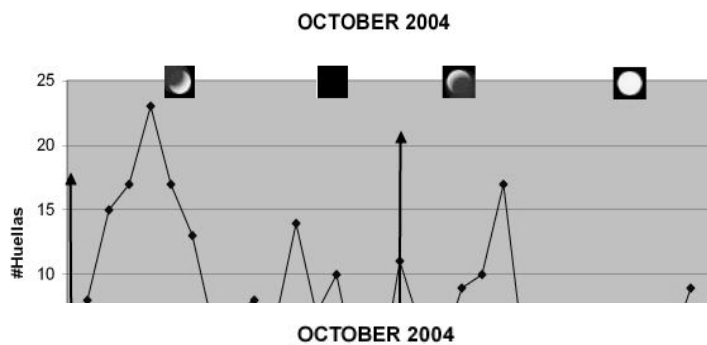
When a nest is encountered during the night and its position entered on the GPS system, mark the track so as you know they have already been counted. This may be done by drawing a thick line across the tracks near the nest. Then when counting the tracks in the morning it is clear that the GPS position will have already been noted.

You may sometimes encounter one of the previous days nests excavated for a second time as sometimes, even after sweeping the nest area, it may still look obvious to an egg collector that a nest was there so he may re-excavate the nest in the hope of finding some eggs. After noting its GPS position check it with the previous days data, if the nest has already been noted, then don't note it a second time. Obviously this co-ordinate may not be exactly the same due to the inaccuracy of the GPS system, but if both GPS positions are close to just a few metres then it will appear likely that it is the same nest.

During the nights of a heavy storm or strong winds, it is possible that the tracks may be half erased to some extent, or almost fully erased in the most extreme of storms. These tracks may be easily recognized during the night but maybe quite difficult in the morning if the storm persists through the night. The tracks may have disappeared but there still may be an obvious chamber due to the local egg collectors excavating the nest leaving behind a big hole.

If you think you encounter the remains of a nest that hasn't any tracks or an obvious hole then the only way to be certain is to use the broom handle. Prod the nest area in an increasingly circular fashion from the center of the body pit until the soft area of the nest is located. It should seem very obvious as the area around the nest chamber will seem hard but when the hole of the nest is found, the broom handle will press easily through the nest. (Being extremely careful not to push too hard). It may also be worth excavating the nest in the hope to find some eggs, as the nesting turtle may have gone undetected during the heavy storm.

Sometimes the local people don't help make our job easy. It is quite common for the local people to encounter a turtle just emerging from the waves, they will pick her up and carry her to the top of the beach. She is placed just behind the vegetation so she will be unbothered by any flashes of torches by any passers by. Once they have collected the eggs, normally they carry her back to the beach for her then to crawl back to the ocean. It is also known that some people carry her back to the waves so her nest is completely undetectable by ourselves. This doesn't exactly happen a lot but it is known that these people are disguising the nest completely so as we don't expect a donation from this nest in the morning. In this situation it is probably likely that a donation won't be made in the morning so if any suspicious activity is noticed, wait around on the beach for a while, and if you notice that they do have a bag of eggs, then try to obtain the "legislated" donation. Then mark the area with a stick so it can be noted in the morning on the GPS as the actual nest area won't be visible from the beach.



RECORDING DATA

Use the standard EXCEL datasheet developed for the purpose. An example sheet is shown on the next page.

Every effort is made to process the data on a monthly basis, and this information is shown on the project website:

www.ambios.net/seaturtles

Examples of data, illustrating temporal and spatial variation in nesting, are shown here.