

HABITAT DEGRADATION OF A SEA TURTLE NESTING SITE IN VENEZUELA (YEARS 2014 UNTIL 2020)

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ABSTRACT: The effect of the installation of a gas pipeline in the Obispo Isthmus in the Paria Gulf, Venezuela, is reported here since years 2014 until 2020. The ongoing habitat degradation produced by deforestation and the consequent mudslides on the southern beach produced a hardening of the sand (ceramization), avoiding the nesting activity of the critical endangered hawksbill sea turtles (*Eretmochelys imbricata*) which reached zero nests during each reproductive season. Hawksbills could not use the area as their reproductive grounds in those seven years. Although Obispo beach is a secondary rookery (a dozen turtle nests on a season) a compensation effect was observed in the neighbor beach of Cerezo in the same period of observation.

Key words: Sea Turtles, Rookeries, Habitat degradation, Ceramization, Paria Gulf

RESUMEN: El efecto de la instalación de un gasoducto en el istmo de Obispo ubicado en el Golfo de Paria, Venezuela, es reportado acá desde el año 2014 hasta el 2020. La consecuente degradación de hábitat por deforestación y deslizamientos de tierra en la playa sur, causaron endurecimiento de la arena (ceramización), evitando la actividad de anidación de la tortuga marina carey (*Eretmochelys imbricata*) en peligro crítico, alcanzando hasta cero nidos durante cada temporada. El carey no logro usar esa área como su territorio reproductivo en siete años de observación. Aunque, la playa de Obispo es un sitio reproductivo secundario (una docena de nidos de carey por estación) se observó un efecto de compensación en la playa vecina de Cerezo durante el mismo tiempo de registro.

Palabras Clave: Tortugas Marinas, Sitios de anidación, Degradación de hábitats, Ceramización, Golfo de Paria

Gas and oil production is still vital to the energy supply of the modern world. However, drilling and piping these hydrocarbons sometimes destroy reproductive areas of wildlife where these products are extracted and conducted. Such is the case of a gas pipeline in the eastern part of Venezuela under the name Dragon-Cigma Project, in order to carry such gas from off shore wells to the processing sites at Güiria, which costs around 4.833 MM USD (VILORIA 2013) and is crucial for the national economy. The construction in this project was started in the year 2014, but until year 2020 no significant recovery of the area is visible at the Obispo beach. Just a bay of 100 meters in arc but significant as a nesting place of the hawksbill sea turtle in the south part of the Isthmus at the east tip of the Peninsula de Paria National Park (Fig. 1.4., Photo 1), has been reported.

The initial impact was the deforestation of the Obispo hill in order to set the machinery in the construction site in early year 2014. After finishing the next year 2015, they retired all the personal, cranes, and tools, but the hill where the gas pipeline was established remained deforested. Without vegetation, mudslides occur with the continuous rains of the region. These mudslides cover the original sand of the beach, where a ceramization process occurred, hardening the substrate which avoid female hawksbill turtles from laying their nests during the reproductive season - May and September. Because of the habitat destruction, the nesting trend dropped to zero (Fig. 2A, BALLADARES & QUINTERO-TORRES 2019).

A national permit was granted to Petróleos de Venezuela (PDVSA, Venezuelan Oil Industry) in the

year 2012 by the Environment Ministry (Minec), and the National Park Authority (Inparques). However, three years later after the impact, several communications to PDVSA were sent by the first author and Minec Sucre State regarding the problem. Nevertheless, these letters and calls had no practical answer at all. Environment

Ministry and private initiatives (e.g. Timberland de Venezuela) reforested the hill in 2018 with the original local tree *Araguaney* (*Handroanthus chrisanthus*) but plantlets grow slow and mudslides still occur, although non successful hawksbill nesting happens yet. Try to cash the environmental fee is absurd cause it was made

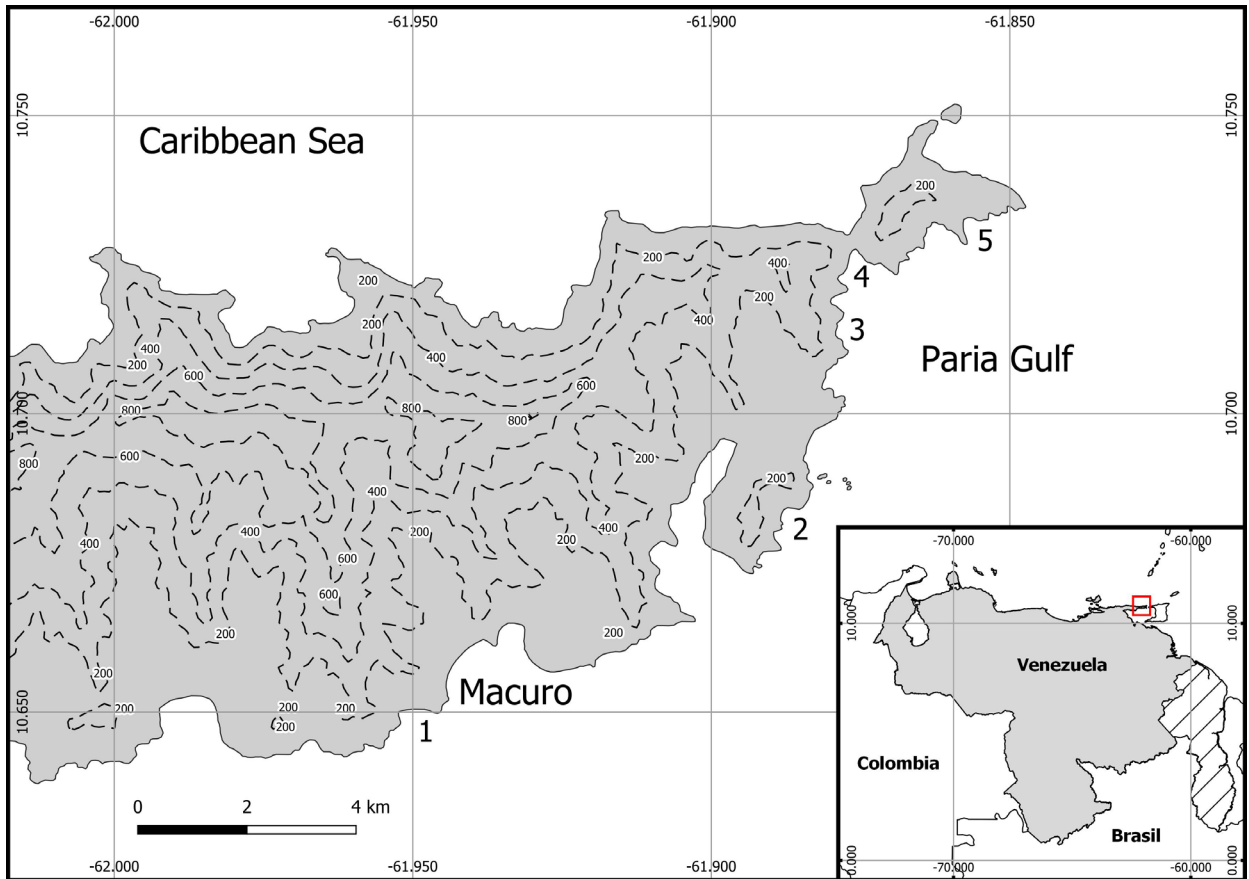


Fig. 1. Location of the main five nesting places of sea turtles in the Paria Gulf, Venezuela. Number four (4) is Obispo beach where the gas pipe was installed. 5 is Cerezo beach.

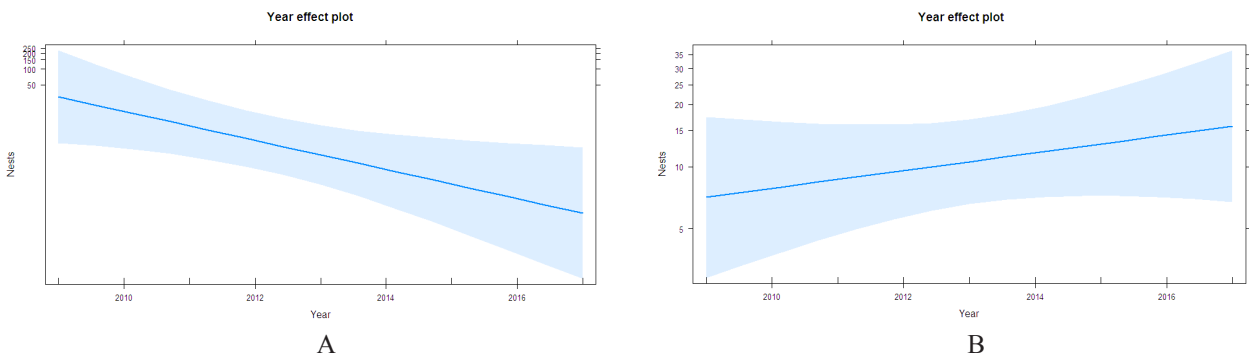


Fig. 2A Nesting negative trend at Obispo beach since 2014 until 2017. B. Positive nesting trend at the neighbor beach of Cerezo.

in national currency which has the highest inflation of the world in the last decade (EULER HERMES ECONOMIC RESEARCH 2017).

Nowadays with the worsening of the Venezuelan crisis, no energy, no gasoline, even no funds for wildlife conservation are available. Keeping the sea turtle conservation project at the area is extremely hard. This preservation program in the Paria Gulf is running since the year 2003 with very relevant achievements like nests poach control (BALLADARES & DUBOIS 2014). What is going to happen? Perhaps the natural recovery of the vegetation of the hill will take a few more years, and the hawksbill nesting maybe returns when the mudslide stops. Hawksbills, as other sea turtle species, switched beaches to the nearest place when impact happens (MAISON *et al.* 2020), and we observed that in Cerezo

beach (Fig. 2B). This compensatory habitat phenomena perhaps is not enough; then, restoring Obispo beach is essential as the original nesting area was, and because it is inside a National Park and hawksbills are one of the most endangered sea turtle species of the world (MORTIMER & DONNELLY 2008) and also in Venezuela.

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Photo 1. Beginning of the deforestation and construction of the gas pipe at Obispo Isthmus in the year 2014. Photographed by Luis Cova.

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RECIBIDO: OCTUBRE 2021

ACEPTADO: DICIEMBRE 2021