

Short note

Movements of the leatherback turtle nesting females along the Paria peninsula, Northeastern Venezuela

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Abstract: Utilizing nocturnal nesting records, this study presents, for the first time, evidence of southern migratory patterns exhibited by the leatherback turtle (*Dermochelys coriacea*) originating from primary national rookeries in the Southern Caribbean Sea between 2005 and 2014, specifically to Los Garzos Beach in the Paria Gulf, Venezuela. Additionally, this research provides detailed observations regarding nesting activities at the aforementioned beach. Throughout this decade, a total of 195 sightings of the species were documented; however, only two females were identified as previously tagged outside of Los Garzos. The individuals tagged in situ made a total of ten visits, resulting in eight successful nesting events. The remigration interval for the nester tagged WC7419, also tagged at Los Garzos Beach, was recorded at two years, with an average nesting frequency of approximately nine days per season. Despite the limited number of recaptures, it is posited that the migratory movements associated with leatherback nesting during this period were extensive throughout the Peninsula which are approximately 90 kilometers apart. Conversely, data from the subsequent decade (2015–2024) reveal a concerning decline in nesting trends, potentially attributable to reduced migratory behaviors resulting from anthropogenic impacts and various biological factors.

Keywords: Sea turtles; Nesting beaches; Remigration; Sea turtle tagging.


Since the initial documentation of nesting behavior in the leatherback turtle (*Dermochelys coriacea*) along the Paria Peninsula (Sucre State, northeastern Venezuela) in the late 1970s (Pritchard & Trebbau, 1984), numerous studies have substantially advanced the understanding of this species in the region. The Paria Peninsula encompasses approximately 150 kilometers of coastal shoreline situated between the Caribbean Sea and the open Atlantic Ocean. While the Caribbean coast is predominantly characterized as a marine environment, the southern region, including the Paria Gulf, exhibits estuarine features attributable to its proximity to the Orinoco River Delta (Fig. 1).

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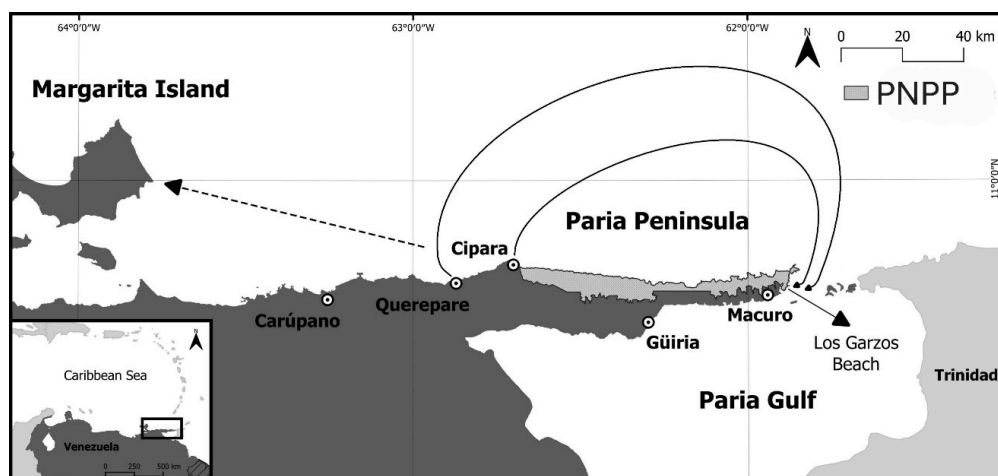


Figure 1: Leatherback turtle nesters with possible migration routes over northeast Venezuelan coast. Continuous lines are confirmed movements reported on this study (inner state), and the dotted lines means former interstate reports.

The northern coast of the Paria Peninsula represents the most significant rookery for leatherback turtle (*D. coriacea*) in the Venezuelan mainland, as documented by multiple scholarly investigations (Balladares & Quintero-Torres, 2019; Fajardo et al., 2010; Guada, 2025; 2000; Rondón-Medicci et al., 2010; 2011; Sasso et al., 2021; Wallace & Eckert, 2018). Notably, one of these initiatives has been operational since 1999 and 2002 respectively, at two primary nesting sites along the northern peninsula, namely Cipara and Querepare Beaches. Furthermore, Los Garzos Beach (LGB), situated within the Paria Peninsula National Park (PPNP), functions as a vital nesting habitat for the hawksbill turtle (*Eretmochelys imbricata*) on the Venezuelan mainland (García-Cruz et al., 2020), but in addition is a nesting rookery for *D. coriacea* (Balladares & Quintero-Torres, 2019). A systematic nocturnal monitoring at the LGB site was conducted annually from March to July during the period 2005 through 2014, providing valuable data on nesting activity within this critical habitat.

The “Sea Turtle Research and Conservation Project in the Paria Peninsula” has successfully tagged over 1,300 individuals of leatherback turtles at Cipara and Querepare Beaches between 1999 and 2024 (Guada, 2025). Concurrently, within the framework of the “Gulf of Paria Sea Turtle Conservation Project,” a total of 195 sightings of nesting female leatherback turtles have been documented at Los Garzos Beach (LGB), resulting in the identification of 234 nesting events. Among the tagged individuals, particular attention is drawn to four female turtles observed at these locations, with a specific focus on two individuals from the northern sites that were subsequently recaptured. The details of these recaptures are summarized in Table 1.

Table 1: Recapture and remigration intervals of leatherback turtles tagged at the Paria Peninsula, Sucre State, Venezuela.

Tag code	Tagging site	Tagging date	Recapture site	Recapture date or remigration interval
WC2286*	Querepare Beach	2005-04-24	Los Garzos Beach	2006-04-22 2010-04-08
WC7419*	Los Garzos Beach	2010-03-29	Los Garzos Beach	2012-04-30 2012-06-07
WC7410*	Los Garzos Beach	2010-04-28	Los Garzos Beach	2010-05-31
WC10226/WC10227	Cipara Beach	2011-03-18	Los Garzos Beach	2011-04-30

* The location of the tag was lost.

The first individual, tagged with the metallic tag a WC2286 at Querepare Beach and was subsequently observed nesting at Los Garzos Beach one year later. The second individual, identified as WC10226/WC10227, it was tagged in 2011 at Cipara Beach and recaptured at Los Garzos Beach (LGB) one month after the initial tagging.

Additionally, two gravid females tagged at LGB were observed approximately one month after tagging. The first female, identified as WC7410, was sighted once following its initial capture, while the second female, WC7419, was observed on three subsequent occasions, including one month after tagging and two additional recaptures recorded by 2012.

The international migratory behavior of leatherback turtles within the Caribbean Sea has been extensively documented in the scientific literature by numerous researchers (Eckert et al., 2006; Guzman & Estévez, 2024; Horrocks et al., 2016; James et al., 2007; Sasso et al., 2021; Sherrill-Mix et al., 2007). Nevertheless, detailed characterization of species-specific movement patterns at the country level within Venezuela has, to date, been predominantly limited to the work of Horrocks et al. (op. cit.), Although Rondón-Medicci et al. (2011) showed evidence for the interstate migration of leatherback between Sucre State (Paria Peninsula) and Nueva Esparta State (Margarita Island) inside Venezuela. In the present study. We provide, for the first time, empirical evidence with observational data pertaining to nesting movements in the southern sector of the Paria Peninsula, with particular emphasis on the estuarine waters of Paria Gulf at the designated nesting site known as Los Garzos Beach.

It is essential to emphasize that the implementation of regular night shift operations was discontinued in 2015 owing to the prevailing national socio-economic crisis and the subsequent deficiency of funding allocated to government-sponsored conservation initiatives. Notwithstanding this cessation, a concerning trend has emerged regarding the nesting activity of leatherback turtles, which has markedly declined from double-digit figures to a single digit over the past decade (2015–2024; Balladares 2024, Internal Reports, Ministry of the Environment (before 2015) and currently referred as Ministerio de Ecosocialismo, MINEC (after 2015).

We hypothesize that this decline may be attributable to multiple interconnected factors. These include an oil spill incident off Trinidad in 2017 (Balladares & Quintero-Torres, 2019), and the cumulative impacts of both direct and indirect fisheries interactions, as well as potential bet-hedging strategies employed by the species (Patino-Martinez et al., 2022). These environmental and anthropogenic pressures are likely to have significant implications for the migratory and nesting behaviors of leatherback turtles within the region.

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Data availability

Data available at: <https://doi.org/10.53157/ecotropicos.v9jd-jdnp>

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- Conceptualización: CB.
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- Investigación: CB.
- Metodología: CB.
- Administración del proyecto: CB.
- Recursos: CB.
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Resumen: Movimientos de tortugas cardón hembras anidantes en la región de la Península de Paria al Sur del Mar Caribe

Utilizando registros nocturnos de anidación, este estudio presenta, por primera vez, evidencia de patrones migratorios del sur exhibidos por la tortuga laúd (*Dermochelys coriacea*) origi-

naria de las principales colonias nacionales en el mar Caribe Sur, entre 2005 y 2014, específicamente en la playa Los Garzos en el Golfo de Paria, Venezuela. Además, esta investigación proporciona observaciones detalladas sobre las actividades de anidación en la mencionada playa. A lo largo de esta década, se documentaron un total de 195 avistamientos de la especie; sin embargo, solo dos hembras fueron identificadas como previamente marcadas fuera de Los Garzos. Los individuos marcados in situ realizaron un total de diez visitas, resultando en ocho eventos de anidación exitosos. Es importante destacar que dos de los individuos marcados ex situ fueron rastreados hasta la costa noroeste de la península de Paria, originarios de sitios de anidación en Cipara y Querepare, El intervalo de re-migración para la anidante marcada como WC7419, también registrada en la playa Los Garzos, fue recapturada dos años después, con una frecuencia de anidación promedio de aproximadamente nueve días por temporada. A pesar del número limitado de recapturas, se plantea que los movimientos migratorios asociados con la anidación de la tortuga cardón durante este período fueron extensos en toda la península, los cuales están aproximadamente a 90 kilómetros de distancia. Por otro lado, los datos de la década siguiente (2015–2024) revelan una tendencia preocupante a la disminución en las actividades de anidación, posiblemente atribuible a una reducción en los movimientos migratorios debido a impactos antropogénicos y diversos factores biológicos.

Keywords:

Tortugas marinas, playas de desove, remigración, marcaje de tortugas marinas.

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