Increasing Evidence of Leatherback Migrations from Brazilian Beaches to the West African Continent

Antonio de Padua Almeida[1], Henrique Filgueiras[2], Rod Braby[3] & Manjula Tiwari[4]

[1] ICMBIO, Reserva Biológica de Comboios, S/N, Linhares, ES, Brasil, 29900-970 (email: antonio.serra-almeida@icmbio.gov.br)
[2]Fundação Pró-TAMAR, Reserva Biológica de Comboios, S/N, Linhares, ES, Brasil, 29900-970
[3]NACOMA Project, P.O. Box 7018, Swakopmund, Namibia
[4]NOAA-National Marine Fisheries Service, Marine Turtle Ecology & Assessment Program, Southwest Fisheries Science Center, La Jolla, California 92037, USA

Leatherback turtles (*Dermochelys coriacea*) are known to undertake long-distance, transoceanic migrations (Hays *et al*., 2004). In the South Atlantic, however, information on transoceanic movements is very recent. The presence of leatherbacks in Brazilian waters from nesting populations other than the small nesting colony in southeastern Brazil (Thomé *et al*. 2007) was suggested by Barata *et al*. (2004) given the high number of stranded leatherbacks along the southern Brazilian coast.

Billes *et al*. (2006) finally confirmed from tag returns that some of the leatherbacks stranded along the South American coast were indeed from Gabon, which supports one of the largest leatherback nesting populations in the world (Witt *et al*. 2009). More recently, telemetry studies have clearly revealed the movements of nesting leatherbacks from Gabon into the south Atlantic and towards South America (Fossette *et al*. 2010; Witt *et al*. 2011). However, there is increasing evidence now that transatlantic migrations in the opposite direction are occurring from southeastern Brazil.

Regular known leatherback nesting areas in Brazil are restricted to the northern coast of the State of Espírito Santo, where a small population (range 6-92 annual nests) has been monitored since 1982 (Thomé *et al*., 2007). This paper documents known transatlantic movements by nesting leatherbacks from Brazilian beaches to the West African continent.

A nesting leatherback, which was tagged at Comboios Beach, Linhares, in the state of Espírito Santo, Brazil (19°14' S), was found stranded (dead) in the vicinity of Sandwich Harbour (Fig. 1), in the Namib Naukluft Park, Namibia (23°18' S) around February 2008. The leatherback had been recorded nesting on the beach at Comboios on 26 October 2006, during a regular beach patrol by members of the Brazilian sea turtle program, Projeto TAMAR. The turtle was tagged with uniquely numbered tags (style 681 monel tag, National Band Co.) on both hind flippers (#BR 49211/BR 49212). It was found nesting later in the same season, on 5 November 2006. By the time it stranded in Namibia the leatherback had only one flipper tag.

The only previous long distance tag return of a leatherback tagged at a Brazilian nesting beach was reported by Alvarez *et al.* (2009), from a female tagged on Comboios beach in 2006 and found stranded at Tuyú beach, on the northern coast of Argentina approximately 2,500 km from where it had been tagged. More recently, Almeida *et al*. (2011) recorded a transatlantic migration of a leatherback female from Brazil to the west coast of Africa (turtle stopped transmissions ca. 350 km off the coast of Angola) using satellite telemetry. The growing evidence suggests that leatherback migrations from Brazilian nesting beaches to Africa may be more common than previously known.

Our increasing knowledge of leatherback movements across the Atlantic and the impact of fisheries on leatherback populations in the south Atlantic (e.g., Honig *et al*. 2008; Sales *et al*., 2008) dramatically amplifies the need for transoceanic multilateral and multifaceted management of this species.

Acknowledgements: We are indebted to Mr. Neels Dreyer, from Sandwich Harbour 4x4 Tours and Dr. Jean-Paul Roux from the Namibian Ministry of Fisheries and Marine Resources, for reporting the stranding. We are indebted to Milagros López-Mendilaharsu and Scott Eckert for valuable comments on the manuscript. Projeto TAMAR, a conservation program of the Brazilian Ministry of the Environment, is affiliated with ICMBio, co-managed by Fundação Pró-TAMAR and officially sponsored by PETROBRAS.

Literature Cited

Almeida, A.P., S.A. Eckert, S.C., Bruno, J.T. Scalfoni, B. Giffoni, M. López-Mendilaharsu, and J.C. Thomé. 2011. Satellite-tracked movements of female leatherbacks, *Dermochelys Coriacea* (Testudines, Dermochelyidae), from an endangered nesting population in Southeastern Brazil. Endangered Species Research 15:77-86.

Alvarez, K.C., L. Diaz, A.P. Almeida, and S.A. Rodriguez Heredia. 2009. Recuperación de marcas en la costa Norte de la provincia de Buenos Aires, Argentina. Pp. 166-167. *In:* L. Prosdocimi and V.G. Carman (Orgs.) Libro de Resúmenes del IV Jornadas de Conservación e Investigación de Tortugas Marinas del Atlántico Sur Occidental (ASO). Mar del Plata, Buenos Aires, Argentina, 30 de Septiembre - 01 de Octubre de 2009. 200 pp.

Barata, P. C. R., E. H. S. M. Lima, M. Borges-Martins, J.T. Scalfoni, C. Bellini, C. and S. Siciliano. 2004. Records of the leatherback sea turtle (*Dermochelys coriacea*) on the Brazilian coast, 1969–2001. Journal of the Marine Biological Association of the United Kingdom 84: 1233–1240.

Billes, A., J. Fretey, B. Verhage, B. Huijbregts, B. Giffoni, L. Prosdocimi, D.A. Albareda, J.Y. Georges, and M. Tiwari. 2006. First evidence of leatherback movement from Africa to South America. Marine Turtle Newsletter 111: 13–14.

Fossette, S., C. Girard, M. López-Mendilaharsu, P. Miller, A. Domingo, D. Evans, L. Kelle, V. Plot, L. Prosdocimi, S. Verhage, P. Gaspar, and J.Y. Georges. 2010. Atlantic leatherback migratory paths and temporary residence areas. PLoS ONE 5: e13908.

Hays, G.C., Houghton, J.D. and Myers, A.E. 2004. Pan-Atlantic leatherback turtle movements. Nature 429: 522.

Honig, M.B., S.L. Petersen, and A. Duarte. 2008. Turtle bycatch in longline fisheries operating within the Benguela Current Large Marine Ecosysytem. Collective Volume of Scientific Papers ICCAT 62:1757-1769.

Sales, G., B. Giffoni and P. C. R. Barata. 2008. Incidental catch of sea turtles by the Brazilian pelagic longline fishery. Journal of the Marine Biological Association of the United Kingdom 88: 853–864.

Thomé, J.C.A., C. Baptistotte, L.M.P. Moreira, J.T. Scalfoni, A.P. Almeida, D.B. Rieth, and P.C.R. Barata. 2007. Nesting biology and conservation of the leatherback sea turtle

(*Dermochelys coriacea*) in the state of Espírito Santo, Brazil, 1988-1989 to 2003-2004. Chelonian Conservation and Biology 6: 15–27.

Witt, M.J., B. Baert, A.C. Broderick, A. Formia, J. Fretey, A. Gibudi, G.A.M. Mounguengui, C. Moussonda, S. Nougessono, R.J. Parnell, D. Roumet, G.P. Sounguet, S. Verhage, A. Zogo, and B.J. Godley. 2009. Aerial surveying of the world's largest leatherback rookery: A more effective methodology for large-scale monitoring. Biological Conservation 142: 1719-1727.

Witt, M.J., E.A. Bonguno, A.C. Broderick, M.S. Coyne, A. Formia, A. Gibudi, G.A.M. Mounguengui, C. Moussonda, M. NSafou, S. Nougessono, R.J. Parnell, G.P. Sounguet, S. Verhage, S. and B.J. Godley. 2011. Tracking leatherback turtles from the world's largest rookery: Assessing threats across the South Atlantic. Proceedings of the Royal Society of London B: doi:10.1098/rspb.2010.2467.

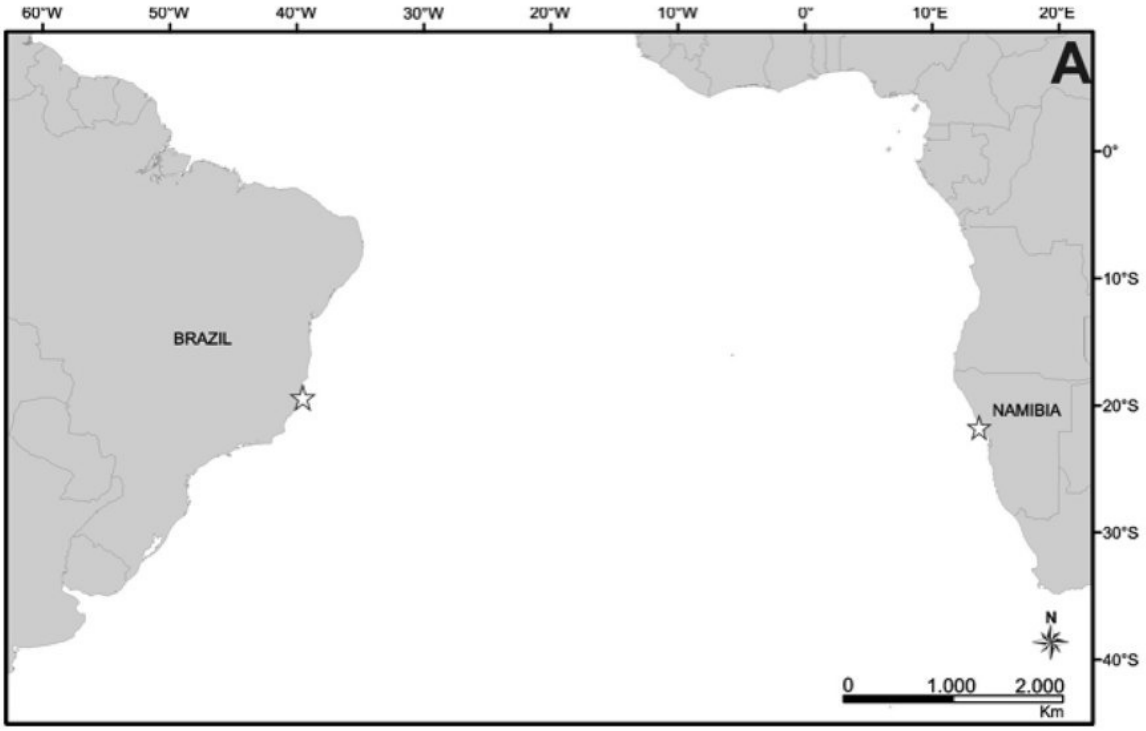

Figure 1. Tagging and stranding sites (stars) in Brazil and Namibia, respectively, of the leatherback with tag numbers BR 49211 and BR 49212.