

Discovery of a Blind Olive Ridley Turtle (*Lepidochelys olivacea*) Nesting at Playa Ostional, Costa Rica

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Resumen: El hallazgo de una Tortuga Lora (*Lepidochelys olivacea*) ciega desovando en Playa Ostional, Guanacaste, Costa Rica sugiere que estas tortugas utilizan señales olfativas para el reconocimiento de su playa de nacimiento. Alternativamente a este sistema de impronta, este comportamiento puede explicarse por el "modelo de facilitación social". Sin embargo, otros datos respaldan la impronta como el factor más significativo.

Various theories have been offered to explain homing in marine turtles. Carr (1967) has suggested that the turtles learn characteristics of their natal beach on hatching which are later used for recognition by adults returning to nest. Olfactory and other signs may be used by sea turtles to return to their hatching beaches (Owens *et al.*, 1982).

The presence of certain anatomical features and the occurrence of massive nesting "arribadas" constitute supporting evidence for an imprinting mechanism in the Olive Ridley (*Lepidochelys olivacea*), which we are currently investigating. An alternative hypothesis is that of the "social facilitation model" of Hendrickson (1958). This hypothesis suggests that turtles that nest for the first time are guided by other experienced turtles after chance encounters provoked by increased random movements at sexual maturity.

On October 14, 1982 at 0130 hours, during a typical arribada at Ostional Beach, Guanacaste, Costa Rica, one of us (J.M.M.) found a blind female *L. olivacea* laying. This turtle did not excavate a nest but rather simply laid its eggs on the sand, near the high tide mark (the tide was low). Density of nesting turtles was approximately one per four square meter area. Cause of blindness is unknown. The right orbit was completely covered with skin. The left orbit possessed a rudimentary aperture, clearly nonfunctional. Actual presence of eyeballs was not determined.

The obvious question is how did this turtle locate the nesting beach and how did it recognize an arribada date. Also of interest is its feeding mechanism. An olfactory recognition of the local water could be important. Alternatively, some type of social interaction may have guided her. The processing of odor information has been investigated in land turtles by Beuerman (1975). Both discrimination and intensity components were found. The fact that there is insignificant interchange of nesting females between Ostional and Nancite Beach, some 90 km away (Cornelius & Robinson, 1982) weakens the "social facilitation model", since turtles from these beaches are known to mix during non-reproductive periods or along migratory routes.

We believe this isolated improbable observations strengthens the case for, and limits the means of an imprinting mechanism for philopatric behavior, and poses new questions regarding synchronous nesting behavior.

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