

Atlantic sea turtle population threatened by egg infection

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An international team of Mycologists and Ecologists studying Atlantic sea turtles at Cape Verde have discovered that the species is under threat from a fungal infection which targets eggs. The research, published in *FEMS Microbiology Letters* , reveals how the fungus *Fusarium solani* may have played a key role in the 30-year decline in turtle numbers.

"In the past 30 years we have witnessed an abrupt decline in the number of nesting beaches of sea [turtles](#) worldwide," said Drs. Javier Diéguez-Uribeondo and Adolfo Marco from Consejo Superior de Investigaciones Cientificas- CSIC Spain. "While many of the reasons for this are related to the human impact of the costal environment it has been suspected that the decline is also due to pathogenic microorganisms."

Fusarium solani is a complex fungal strain which represents over 45 phylogenetic and biological species. The [fungus](#) is distributed through soil and can cause serious plant diseases. The fungus is known to have infected at least 111 plant species spanning 87 genera and has also been shown to cause disease in other animals with immunodeficiency.

During embryonic development turtle [eggs](#) spend long periods covered by sand under conditions of high humidity and warm temperatures, which are known to favor the growth of soil-born fungi.

Dr Diéguez-Uribeondo's team focused their study on the loggerhead sea turtle (*Caretta caretta*) population on Boavista Island, Cape Verde, off the West African coast. While Boavista Island represents one of the most

important nesting regions for this species a high hatching failure rate is driving population numbers down.

The team sampled egg shells with early and severe symptoms of infection, as well as diseased embryos from sea turtle nests located in Ervatao, Joao Barrosa and Curral Velho beaches and discovered 25 isolates of *F. solani* associated with egg mass mortalities.

Although this fungal species has been previously described in association with different infections in animals, its relationship to hatching failure had not been investigated before this study.

The finding that strains of *F. solani* may act as a primary pathogen in loggerhead [sea turtles](#) represents an extremely high risk to the conservation of loggerhead sea turtles across the area.

However, the description of these particular fungal strains causing this infection may help in developing conservation programs based on artificial incubation and may aid the development of preventative methods in the field to reduce or totally erase the presence of *F. solani* in turtle nests.

"This work reveals that a strain of *F. solani* is responsible for the symptoms observed on turtle nesting beaches," concluded Dr Diéguez-Uribeondo. "This shows that the infection represents a serious risk for the survival of this endangered species, while also showing immunologists and conservationists where to focus their research."

Provided by Wiley

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