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Notes on *Solenopsis geminata* (FABRICIUS, 1804) (Hymenoptera, Formicidae: Myrmicinae) in the intertidal zone of Rodrigues (Republic of Mauritius)

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Abstract

Observations concerning an occasional nesting of *Solenopsis geminata* (FABRICIUS, 1804) in the intertidal zone of Rodrigues are recorded.

Key words: Formicidae, Solenopsis geminata, intertidal zone, Rodrigues.

Zusammenfassung

Beobachtungen über ein gelegentliches Nisten von *Solenopsis geminata* (FABRICIUS, 1804) in der Gezeitenzone von Rodrigues werden mitgeteilt.

Introduction

Ants are terrestrial Hymenoptera frequently associated with aquatic habitats. In marine littoral habitats they are predators or scavengers foraging on marine debris. However, only few species are adapted to persist in the intertidal zone, e.g. the ponerine ant species *Odontomachus malignus* SMITH, 1859 (BROWN 1976, OLSON 2009).

During a search for intertidal beetles at Anse Fumier (Figure 1) in December 2007 I observed several workers of *Solenopsis geminata* (FABRICIUS, 1804) foraging in the rocky part near the sea water level at low tide. In April and May 2008 I revisited this area and found two nests in the upper part of the intertidal zone, which is flooded during high tide. Nest 1 situated under a stone had a mound of fine gravel (Figure 2). Nest 2 was in a hole surrounded by algae (Figure 3). The observations were mainly carried out at nest 2.

Workers try to return to the nest as long as the nest area is flooded temporarily. After inundation of the nest the remaining workers are seeking refuge in crevices, which are flooded later. Workers do not survive on the water surface (Figure 4), but are often swept on rock, where they can get out. Under water workers try to return to the nest or are seeking refuge in crevices or in algae mats actively (Figure 5). One worker reached the water surface during her search, but returned to deeper water immediately.

Nest 1 was inundated about 180 minutes, the higher situated nest 2 about 150 minutes. During high tide I could not find workers in the study area (Figure 6). During receding tide workers left the nest after exposition of the entrance (Figure 2).

During visits in 2009 and 2010 I found nests only above the high tide mark, but observed workers foraging in the intertidal zone.

Figure 1: Anse Fumier with limestone coast and *Casuarina* forest in background (Photo M. Madl).

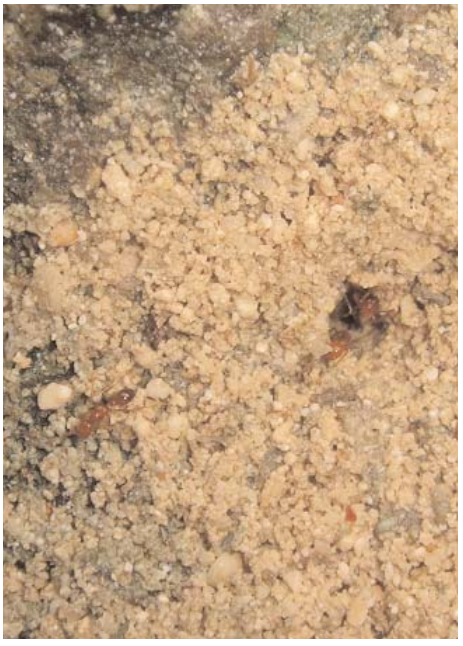

Figure 2: Nest 1 with workers leaving nest at low tide (Photo M. Madl).

Figure 3: Nest 2 with workers leaving nest after exposition of the nest entrance during receding tide (Photo M. Madl).

Figure 4: Workers on water surface, both did not survive (Photo M. Madl).

Figure 5: Worker searching refuge under water (Photo M. Madl; processed by H. Schillhammer).

Figure 6: Study area at high tide (Photo M. Madl).

The study area at Anse Fumier is a limestone coast, which consists of aeolianite calcarenite. It is exposed to rapid marine erosion (de BLIC 1986, SADDUL 2002). The small bare rock area is surrounded by a *Casuarina* forest, which has a depauperate invertebrate fauna. This could be the reason, why *Solenopsis geminata* has entered the intertidal zone searching for food. I have never seen *Solenopsis geminata* in the intertidal zone of the sandy part of Anse Fumier.

In 1941 *Solenopsis geminata* was recorded as a pest species in Rodrigues (JAUFFRET 1942: 31). In January 1945 chemical control of the red ants (*Solenopsis geminata*) was stopped. "The campaign of destruction could not keep pace with the dissemination of the ant colonies" (JAUFFRET 1946: 32).

Solenopsis geminata, an omnivorous ant species, is widely distributed and occurs in various habitats. Although mainly known as a pest species, *Solenopsis geminata* can be beneficial in biological control programs (TSCHINKEL 2006, WAY, JAVIER & HEONG 2002).

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