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# FIRE ANTS (HYMENOPTERA: FORMICIDAE) ALONG AN IMPORTANT SEA TURTLE NESTING BEACH ON ST. CROIX, USVI

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Several predatory ant species, notably *Solenopsis geminata* and *Solenopsis invicta*, are known to attack and kill hatchlings of ground-nesting birds and reptiles. Here, we surveyed ants along a sea turtle nesting beach on St. Croix, USVI to evaluate the prevalence of predatory ants.

*Solenopsis geminata*, a New World native, has a broad native distribution through South, Central, and North America. It also is found throughout the West Indies, where it may or may not be native (Wetterer 2010). *Solenopsis invicta*, a South American species, arrived in North America in the mid-20th century and has spread through much of the southeast US and to California. Recently, *S. invicta* has spread to the West Indies, where it was first found in Puerto Rico in 1981 and St. Croix in 1988 (Wetterer & Snelling 2006). *Solenopsis invicta* is now known from >20 West Indian islands (Wetterer & Davis 2010).

Sea turtle hatchlings are especially vulnerable to fire ant attack because hatchlings can take up to several days after pipping before emerging from their nests (Parris et al. 2002). During this time, fire ants may invade the nests by the thousands and attack hatchlings. Ants also sting hatchlings as they exit the nest. Even a single sting can greatly reduce the probability of survival. Hatchlings may die as a result of the ant stings or increased predation and misorientation due to impairment caused by stings, particularly stings to their eyes (Krahe 2005).

In Costa Rica, where *S. invicta* has not yet been recorded, Wetterer (2006) surveyed ants along an important sea turtle nesting beach at Tortuguero National Park, where ants have attacked sea turtle nests. Wetterer (2006) found *S. geminata* at 32 of 42 bait stations (76%), including very high numbers at all disturbed sites near Tortuguero village. McCurdy & Wetterer (2008) surveyed ants along a less-disturbed sea turtle

nesting beach in Carate, Costa Rica and found *S. geminata* was less common, occurring at only 8 of 54 bait stations (15%).

*Solenopsis invicta* has become the dominant ant species along many beaches of the southeastern U.S. Wetterer et al. (2007) surveyed ants on sea turtle nests along a beach in Palm Beach County, Florida. *Solenopsis invicta* was by far the most common species (on 431 nests). In contrast, *S. geminata* occurred on only 3 nests.

We investigated the prevalence of *S. geminata* and *S. invicta* on the most important sea turtle nesting beach on St. Croix. In Mar 2006, we surveyed a 1.7-km stretch of beach in Sandy Point National Wildlife Refuge (17.68°N, 64.90°W), from marker 37 in the east to marker 210 in the northwest. We set out white note cards (7.6 × 12.7 cm), each with about 1 g of canned tuna at 50-m intervals (except for 1 pair 30 m apart) next to 36 permanent marker stakes along the vegetation line adjacent to the beach. We collected the cards 2 h later and put them into individual zip-lock bags. Stefan Cover (Harvard University) identified the ants.

At 33 bait cards, we found ants representing 8 species (Table 1; one or 2 species per bait); 3 cards with no ants present all had the tuna removed, probably by mongooses, which commonly took bait from bait cards elsewhere on St. Croix (JKW, personal observation). Fire ants were present at 16 of 33 bait stations (48%: *S. geminata* occurred at 11 sites (markers 37, 47, 52, 57, 67, 77, 107, 112, 127, 132, and 205); *S. invicta* occurred at 5 sites (markers 92, 97, 147, 150, and 165).

*Solenopsis geminata* was the more common fire ant at Sandy Point and could be an important threat to sea turtle nestlings. *Solenopsis invicta*, however, may pose a greater long-term threat to sea turtles at Sandy Point and elsewhere in the West Indies if *S. invicta* populations continue to increase and displace *S. geminata*. Our present

TABLE 1. EXOTIC AND NATIVE ANT SPECIES AT 33 BAIT CARDS PLACED ALONG THE BEACH AT SANDY POINT NATIONAL WILDLIFE REFUGE, ST. CROIX.

| Exotic species                  | sites | Native species                  | sites |
|---------------------------------|-------|---------------------------------|-------|
| <i>Solenopsis geminata</i>      | 11    | <i>Dorymyrmex antillana</i>     | 14    |
| <i>Solenopsis invicta</i>       | 5     | <i>Brachymyrmex heeri</i>       | 2     |
| <i>Paratrechina longicornis</i> | 4     | <i>Crematogaster steinheili</i> | 1     |
| <i>Monomorium floricola</i>     | 2     | <i>Monomorium ebeninum</i>      | 1     |
| <i>Paratrechina bourbonica</i>  | 1     |                                 |       |

study provides a baseline concerning fire ant populations at Sandy Point. In the future, it would be valuable to resurvey ants at Sandy Point to determine whether *S. invicta* comes to dominate this beach. Future studies also should examine whether certain types of vegetation adjacent to beaches encourage or discourage infestation by *S. geminata*, *S. invicta*, and other predaceous ants.

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#### SUMMARY

Whereas *Solenopsis geminata* has probably been present on St. Croix for centuries, *Solenopsis invicta*, was first recorded on the island in the 1988. In Mar 2006, we surveyed ants along the beach of Sandy Point National Wildlife Refuge, the most important sea turtle nesting beach on St. Croix. We found *S. geminata* was more common than *S. invicta* (at 33% and 15% of baits, respectively). However, *S. invicta* usually displaces *S. geminata* in open habitats and thus, *S. invicta* no doubt poses a greater long-term threat to sea turtles on St. Croix.

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