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Schmidt, Terri S. and Burney, Curtis M., "Effects of Ghost Crab (*Ocypode quadrata*) Invasion on Loggerhead Sea Turtle (*Caretta caretta*) Nests at Hillsboro Beach, Florida" (1997). *Oceanography Faculty Proceedings, Presentations, Speeches, Lectures*. Paper 297.
http://nsuworks.nova.edu/occ_facpresentations/297

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EFFECTS OF GHOST CRAB (*OCYPODE QUADRATA*) INVASION ON LOGGERHEAD SEA TURTLE (*CARETTA CARETTA*) NESTS AT HILLSBORO BEACH, FLORIDA

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The Broward County Sea Turtle Conservation Project has used nest relocation to protect sea turtle eggs from the negative impacts associated with incubating and hatching on highly urbanized beaches. Since 1991, the hatching success of nests relocated to large open beach hatchery sites on Hillsboro Beach has averaged about 5 to 15 percent lower than for in situ nests. Burrowing ghost crabs have been accused of substantial egg predation, but their invasion of turtle nests can escape detection, because of the small size of their burrows. In the summer of 1994, a study was conducted to assess the extent and effects of ghost crab predation to determine if this could be partially responsible for the reduced hatching success of these relocated nests.

Weekly surveys of the three Hillsboro Beach hatchery sites were conducted and each nest was inspected for evidence of ghost crab infestation. When burrows over nests were found the nest number was recorded. Several days after hatching, these nests were excavated by Broward County Sea Turtle Conservation Project workers. The number of empty shells, dead hatchlings, pipped eggs and unhatched eggs with and without visible development were recorded. The emergence success and percentages of dead hatchlings, pipped and unhatched eggs in crab-invaded and uninvaded nests were plotted and compared with the Mann Whitney U Test.

Fig.1 shows the distributions of emergence success and the unemerged categories. The incidence of ghost crab predation was low in the open beach hatcheries. Only 23 out of a total of 1085 nests were invaded by adult crabs. However, median emergence success (Fig. 1A) was significantly lower in egg chambers penetrated by adult crabs. This was primarily due to higher proportions of unhatched eggs with (Fig. 1B) and without signs of visible development (Fig. 1C) in the invaded nests. Ghost crab predation did not significantly alter the proportions of pipped eggs (Fig. 1D) or dead hatchlings which failed to emerge from the nests (Fig. 1E).

The low incidence of crab predation indicates that large numbers of ghost crabs were not attracted to the hatchery sites in order to feed on turtle eggs. However when nests were invaded their median emergence success was significantly lower than in uninvaded nests. Ghost crabs do not appear to invade hatching nests in order to feed on hatchlings emerging from their shells.

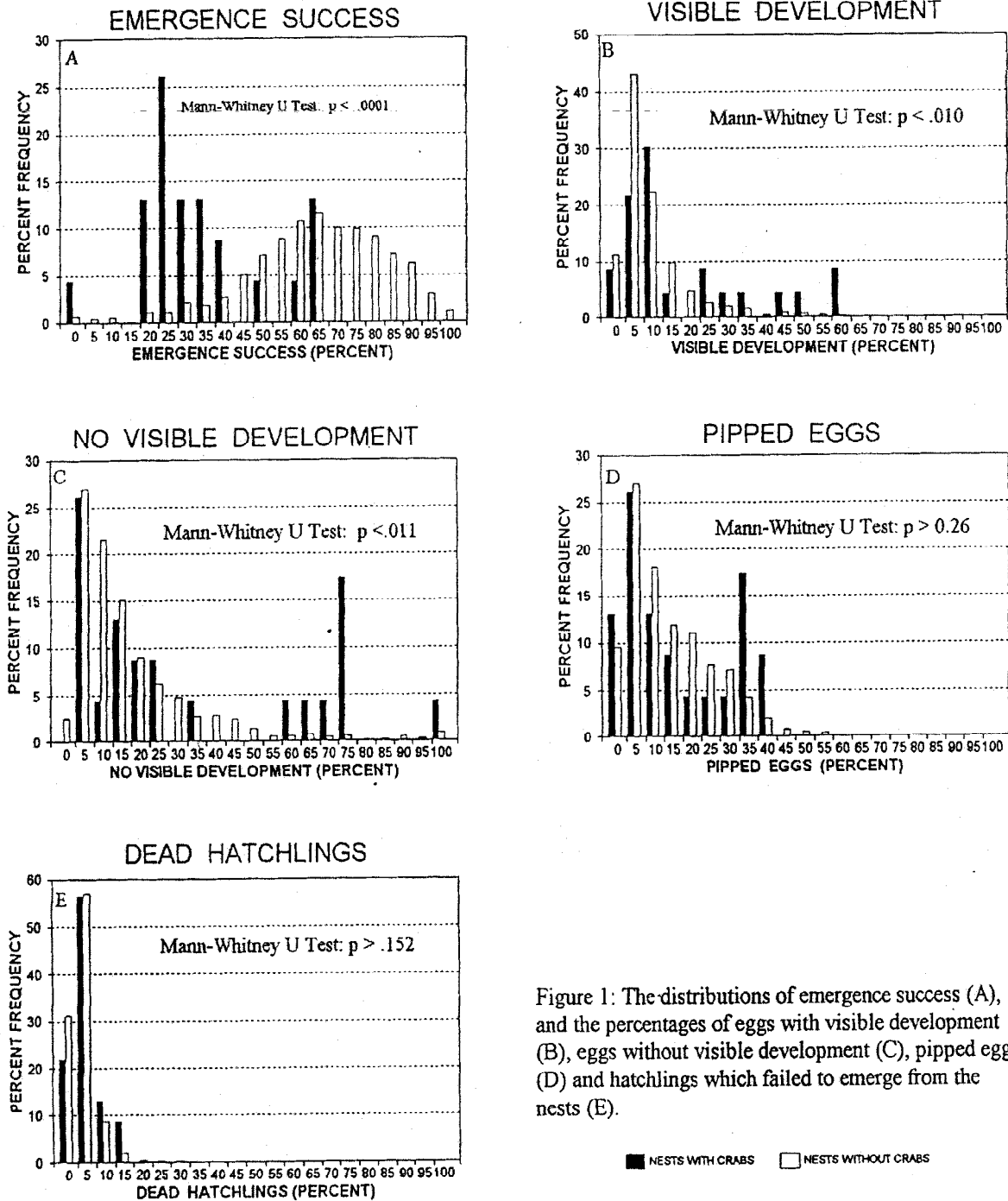


Figure 1: The distributions of emergence success (A), and the percentages of eggs with visible development (B), eggs without visible development (C), pipped eggs (D) and hatchlings which failed to emerge from the nests (E).