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New paternity analyses may confound current population models for loggerhead sea turtles (*Caretta caretta*)

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Mating systems play an important role in shaping life history evolution and population dynamics of a species and should be considered when planning conservation efforts. Polyandry, a single female mating with multiple males, may result in the multiple paternity of progeny arrays. Recent studies have suggested that multiple paternity occurs in most species of reptiles but within the Testudines there is a high degree of variation. Previous studies on the loggerhead sea turtle (*Caretta caretta*) have shown that within large rookeries, the occurrence of multiple paternity within nests ranges from 30% (Florida) to 95% (Greece). Our study is the first to study nests from the smaller and more threatened Northern Management Unit for the presence of multiple paternal contributions. On a small beach on Wassaw Island, GA, nesting mothers and up to 20 offspring were sampled from 90 nests (19.5% of nests laid) over three nesting seasons (2008 – 2010). Our study determined that 75% of nests sampled had multiple fathers with an average of 2.65 fathers contributing to each nest; the number of fathers per nest did not change over the three year loggerhead nesting cycle. There was a positive relationship between the number of fathers per nest and female size (SCL), but there was no relationship between number of fathers and hatching success. Finally, 195 individual paternal genotypes were identified over the three years, but each individual only contributed to one nest throughout the three year nesting cycle. We compare our findings with current population models.