

ATLANTIC LOGGERHEAD TURTLE NESTING STATUS IN SOUTHWEST FLORIDA

The status of the loggerhead turtle (*Caretta caretta*) is precarious along many of its nesting beaches in North America. The southernmost nesting population in the continental U.S.A. apparently has been something of an exception. Davis and Whiting (1977) concluded that the Atlantic loggerhead turtles nesting on the beaches of Cape Sable and other nesting sites in southwestern Florida were increasing through the time of their study in the early 1970s. They estimated that nesting effort had doubled from the early 1960s to the early 1970s, despite raccoon (*Procyon lotor*) depredations on 49-87% of the eggs laid. To evaluate whether this increasing trend, unusual among sea turtle rookeries, did indeed characterize the status of this population, the censuses of Davis and Whiting were repeated after a lapse of eight years.

To obtain comparable data, Davis and Whiting's (1977) methods were followed. Aerial censuses of fresh crawls were conducted once per week in May and August and twice per week in June and July, 1980. All nesting beaches were censused 23 times during this period. Twenty-five crawls were

examined on the ground to determine if raccoon predation was still occurring. A "total nesting effort" was calculated by interpolating between census dates, following Davis and Whiting, and summing all dates. This method has an unevaluated error because it assumes uniform change in nesting numbers between spot censuses.

We calculated that during 1980 1,362 nests were excavated. Of these, 90% occurred on the primary nesting beach on Cape Sable. Nineteen of the crawls investigated led to nests, and 69% of these eventually suffered depredation.

Davis and Whiting (1977) calculated 1,644 nests were constructed in 1972 and 1,069 nests in 1973. The present estimate is midway between these. They found that 89% of the nests in southwest Florida occurred on Cape Sable and that predation destroyed 85% of the nests in 1972 and 75% in 1973. Comparison of these figures with our findings fails to reveal notable changes in the number of loggerhead turtles nesting in southwest Florida over the 1970s.

Raccoon predation is a principal cause of nest mortality among loggerhead turtles (Hopkins et al. 1978). Work by R. Klukas (pers. comm.) demonstrated predation could be reduced by removal of raccoons. Stancyk et al. (1980) reported that transplanting partially depredated nests was also effective. Davis and Whiting argued reasonably that such interference was inappropriate in a National Park where a policy of nonintervention holds, especially if nesting numbers were increasing. Others have questioned such a policy for a threatened species (A. Carr pers. comm. to G. E. Davis). A primary management concern should be whether raccoon numbers along the nesting beaches are artificially elevated above a natural level. This question cannot be resolved because there has been no study of raccoon population density on Cape Sable.

Although there is no evidence of decreased loggerhead turtle nesting in the study area, there is also no suggestion of the population increase predicted by Davis and Whiting. It should be noted too that the total population figure reported by Davis and Whiting depended on one very large count, which influenced the interpolations. The precision of the survey method is not known, and it is not possible to know what sort of change in nesting numbers would be detectable statistically. The use of airplane surveys for monitoring this population of turtles should involve the determination of its precision, and its accuracy. Institution of an accurate monitoring program and evaluation of the natural role of raccoon predation are essential for the conservation of this nesting population of sea turtles.

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