

Gathering of Strangers

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1976, she asked how and why species partition the nesting territory. She found that the aggressive behavior of birds was the most critical determinant of nest-site selection. She divided heronries into areas of homogeneous versus heterogeneous vegetation. In both cases, nest-site selection was not random. In all the vegetatively heterogeneous colonies, birds nested on specific plants or on branches that were a certain distance from open areas or had a definite degree of visibility. The most intriguing finding of the study was how birds distributed themselves in the vegetatively homogeneous colonies. Species "aligned themselves vertically in a particular order which correlated with body length" (Burger 1978). In other words, the larger the bird, the higher up it was in the vegetation. The place chosen in the vegetation seemed to reflect the ease with which a bird could escape should a predator approach the nest site. If present in the colony, Great Blue Heron, as the largest of the species in the heronries, chose the highest place in a given nesting area. If Great Blue Herons were not nesting, then Great Egret had the highest place in a tree.

Why did this pattern emerge? It could be because early arrivals at the nesting territory take the choicest spots, aggressive confrontations between birds ends with the largest bird victorious, or some combination of the two.

Burger's studies showed that the arrival times bore no relation to nest height or the body size of a species. Rather, aggressive behavior played the decisive role in the ultimate nest site of a bird. Two types of evidence were offered. First, larger species won their battles with smaller species and then defended the space around them. Second, late arriving larger species fought with smaller and ear-

lier arriving species and displaced them from the most desirable nest sites.

McCrimmon (1978) found four variables important in nest-site selection: vegetation structure, nest accessibility, protection, and distance from the center of the shrub or tree. These explanations accounted for 69 percent of the variation in nest-site characteristics of five waders in North Carolina, including Great Egret, Snowy Egret, Cattle Egret, Tricolored Heron, and Little Blue Heron.

Many studies have argued that social interactions (how close one nesting bird is to another bird) and vegetation are critical in determining nest-site selection. One study focused on the particular properties of nest placement and distribution in relation to vegetation and then discussed the role social interactions might play in choosing nest sites (Beaver, Osborn, and Custer 1980). The evidence is that there is a strong preference for a physically sturdy nest site. For one thing, males of all the studied heron and egret species perform their courtship display at this site. Secondly, most mating takes place at the same site. Researchers posit that social interactions modify the decisive role of nest stability only when a colony is extremely crowded or when the vegetation allows nests to be placed at many levels.

It is well known that Black-crowned Night-herons, Little Blue Herons, Green Herons, Cattle Egret, and Tricolored Herons use old nests. One study went a step further to examine the effect of old nests on the selection of nests during the next breeding season. It was carried out at the Clark's Island heronry, the largest mixed-species heronry in Massachusetts. There were two sets of trees: one a group of 21 experimental trees from which 52 old nests were removed and marked, and a second control group of 22 trees in which

53 nests were marked but left untouched.

In the control group, Black-crowned Night-herons used old nests in 86 percent of the cases and Snowy Egrets used them 60 percent of the time. In the first nesting in each tree, Black-crowned Night-herons used old nests in 85 percent of the cases and Snowy Egrets used them 76 percent of the time. The data on first nestings in trees therefore support the hypothesis that herons and egrets are interested in old nests (Davis 1986).

But the appeal of once-used nests does not mean that these birds are restricted in choosing an acceptable nest. One of the remarkable features of herons, egrets, and ibis is their great flexibility about where and with whom they will live. They do not seem to require any single type of tree or shrub in which to build a nest. For example, in the study done on Clark's Island, there were startling shifts in nesting habitat. While Glossy Ibis nested solely in deciduous bushes in 1975, three years later all but one of the ibis nests were found in eastern red cedars. In a similar way, Great Egrets moved their nests from blueberry bushes to pitch and white pine trees (David and Parsons 1982). This flexibility confirms Rand's earlier work (1956). He described Great Blue Herons as preferring to build their nests in a "grove of tall trees," but where such habitat is absent they build nests in low mangroves or on the ground among rocks as they do on the islands of Salt Lake City. Rand described Snowy Egrets as building their nests "in cypress or mangrove trees or in bushes in a marsh or pond as in Florida..." but in the west they make their nests "on bent-over reeds in sloughs and marshes."

Obviously, nest-site selection is a complicated matter for colonial breeders.