



ScienceWatch- No Place Like Home

Our society readily accepts the striving for independence exhibited by most teenagers as a necessity to prepare them for the time when they will move out and, hopefully, be self-sufficient. In contrast, the child who continues to live at home into adulthood is often thought of as the least successful sibling. Lacking the skills to strike out on his own he settles for “delayed dispersion”. In nature, delayed dispersion of offspring is commonly seen in birds, mammals and even spiders. Young that hang around the nest site (or web site) after they are able to leave are usually called “helpers”. Helpers, the common wisdom says, forgo their own reproductive success by helping their parents raise successive broods. Since the new offspring are also siblings of the helper, the latter manages to partially perpetuate its own DNA. Implicit in this model of delayed dispersion is the supposition that the helper is too weak to do what is required to raise its own young so it substitutes as a nursemaid and babysitter instead.



Not so, according to recent studies of two very different birds, one in Sweden, the other in North Carolina. Delayed dispersion occurs in both the Siberian jay (*Perisoreus infaustus*) and the red cockaded woodpecker (*Picoides borealis*), but in both cases it is the stronger, dominant sibling that stays at home. The jay study was conducted by a team headed by Jan Ekman at the Department of Population Biology, Uppsala University, Uppsala, Sweden and published in the September 2002 issue of *Animal Behavior*. For several years the team caught and tagged Siberian jays in the northern Swedish forest to determine the timing of nesting and dispersion of the fledglings. They found that some offspring stay behind instead of leaving for other territories in the fall, and these “stay-at-homes” do not provide help at the nest the following year. Why do they stay?

To answer that question the team set out in the spring of 2000 to discover what the stay-at-homes might have in common. Breeding females were fitted with radio transmitters to help locate nests. Nestlings were color-banded to identify individual birds and studied for sibling interactions. The team focused on nine sibling pairs in which one of the pair left the area while the other stayed behind. Prior to pair separation each bird was labeled “dominant” or “aggressive” based on contests with its sibling such as bill clicking or actually forcing the sibling off its perch. Dominant birds could be either male or female, but they always came out on top in any sibling conflict. In each case these larger, tougher birds were also the ones that stayed behind.

Since the dominant sibling always stays behind, often chasing out the weaker one, there must be some benefit from staying. Ekman *et al.* believe it comes from parents that continue to allow the stay-at-home to feed in an already well-established territory. Even though they do not breed during this time, prior studies showed that the prolonged family association resulting from delayed dispersal yields greater reproductive success for the

stay-at-homes later on. Parents take note! Perhaps all those teenage years watching TV and raiding the refrigerator have some benefit?

A similar situation exists for the endangered red cockaded woodpecker living in old growth longleaf pine forests in North Carolina. In the case of the woodpecker it is always the female young that disperse early from the nest. One or more males may stay on to help the parents and during this time the helpers do not breed. But eventually one male, the dominant male, inherits the territory. The study by Gilberto Pasinelli and Jeffrey Walter, Department of Biology, Virginia Polytechnic Institute, Blacksburg, VA, was published in the August issue of *Ecology*. They found that not only is it always the dominant males that stay behind, but the better the inheritance (the territory and surrounding forest), the greater the number of males that stay. Clearly the young recognize a good thing, and they are willing to fight for it and even temporarily forgo reproduction for greater success later on.



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