EDITORIAL -- BIRD PARASITES

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Birders tend to ignore bird parasites. (Birds do not!) In fact, with the exception of brood parasitism, most birders will wonder why I am even bringing it up. However, much of what birds do and how they look is the result of many millennia of coevolution with their parasites. The literature abounds with articles on this fascinating subject.

Perhaps the most important, and controversial, paper is the hypothesis proposed by Hamilton and Zuk in 1982. They postulated that bright coloration in birds is correlated with susceptibility to blood parasites. Ponder this, the next time you focus on a Baltimore Oriole, Scarlet Tanager, or a Blackburnian Warbler. How can this be? Consider trying to use a table cloth for more than one meal. What color cloth would be more apt to show stains, a dull drab dark one or a brightly colored one? According to Hamilton and Zuk, bright coloration in some birds evolved because the parasitic damage is more easily detected during mate selection.

Sex itself, in all animals, can be attributed to (or blamed on) parasites. Sexual reproduction is a way of avoiding parasites by creating a different genome each generation (Wertheim 1986). Mating rituals reflect this. When a magnificent tom turkey struts his stuff, he is really advertising his superior health and fitness, an important component of which is being relatively free from parasites. A ratty looking gobbler plagued by feather lice might be less likely to attract hens. Many bird accouterments are used as parasite signals, most notably being elaborate feathers on the heads and tails, but even air sacs.

Nesting is another avian activity influenced by parasites. Nests are constructed not only to withstand the vicissitudes of the weather and to protect against the raids of predators, but also to ward off parasites. Decorating nests with sprigs of plants to ward off pests has long been noticed by birders and, indeed, there is a basis for it (Clark 1991). Many birds return to the area where they were fledged, but usually build new nests rather than reuse old ones. However, some will use the nests of other species, capitalizing on species specificity of parasites. In colonial nesters the size and location of the colonies are often dependent on the population densities of the parasites (Brown and Brown 1986). Clutch size has been influenced by parasites (Oppliger and others 1996).

Seabirds often, by necessity, have to use the same sites year after year under extremely crowded conditions, but parasites may be kept under control by insects living in or on the ground beneath the nests (Duffy 1991), an excellent example of a complex symbiotic relationship.

Virtually every bird, like every other animal and plant, in the wild is host to parasites, yet most people have difficulty appreciating this natural situation. We tend to think that parasites and the diseases they cause are evil plagues that must be treated or eradicated. Yet, parasites are the most numerous group of organisms on our planet and, as such, represent our greatest chunk of biodiversity. Equal rights for parasites is a cause I champion (Windsor 1995).

But biodiversity goes beyond parasites, into the larger category of symbiosis. A parasite benefits at the expense of the host whereas in other symbiotic (living together) relationships the symbiont benefits but the host is not affected (commensalism) or both the symbiont and its host each benefit (mutualism). When symbiosis is considered, each free living creature you see is in reality an assemblage of several species, perhaps 50 or more. The next bird you see is not just the single species you tick off on your checklist. It could be hosting dozens of other species in its gut, blood, air sacs, skin, feathers, and feet. These organs are teaming with bacteria, fungi, worms, mites, lice, and fleas. The European Starling plays host to 126 species of helminths (parasitic worms) (Cooper and Crites 1976a) and the American Robin has 46 species (Cooper and Crites 1976b). These are just the worms! Enumerating all the parasites would produce too long a reference list. Many of these symbionts are species specific. Therefore, when a host species goes extinct, biodiversity suffers a multiple hit. We did not just lose Bachman's Warbler; we lost many of its symbionts as well. So what? You may ask. Good riddance! You may exclaim. Not so fast. Many of these symbionts spend other parts of their life cycles outside of their avian hosts. Every species is involved in a vast complicated web of interactions with other species . At one extinction, we also lose many of these interrelations (Windsor 1995-96).

The Kingbird is not a total stranger to parasitism; witness articles by Benton and Shatrau in 1960 and by Post in 1964. The most recent is by Blake Klauber in the previous issue. My purpose in this editorial is to stimulate interest on these matters and to encourage the submission of more articles on bird parasites. Bird banders are in an ideal position to recognize ectoparasites but finders of dead birds can also participate. Just to leave you with some idea of the enormity of the subject, there is a series of nine papers by Pence (1973) in which 73 species of nasal mites

were found in 93 species of birds in Louisiana. Perhaps New York could also be a gracious host.

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