

number of days required to complete the route, the number of portages, the longest portage, route difficulty, access points, and the maps needed. Scanning the summaries provides a quick method to narrow down which routes look the most interesting within the time frame and abilities of the group.

*Quetico* is a book that provides very readable pleasant conversation that, in a personal way, brings canoe-

ing to life through its past and more recent adventures. The many reminders of the subtle rewards of canoeing that are conveyed provide a real enticement to begin planning your next trip.

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## More than Kin and Less than Kind: The Evolution of Family Conflict

By Douglas W. Mock. 2004. Belknap Press of Harvard University Press, Cambridge, Massachusetts, USA. 267 pages. U.S.\$27.95.

If you wish to understand how complicated and how variable reproductive behaviours can be, this is the book! Doug Mock offers a wide vista of nature in all its infinite variability and complexity. To explain bird behaviour, Mock invokes human examples, as diverse as his three older brothers, chess, Wall Street, sports teams, and vote counting.

Mock offers creative chapter headings and begins each chapter with a brilliant quotation. He simplifies difficult-to-understand concepts in an instructive and often entertaining manner. As he says, this book is a "mixture of theory and data." He is especially interested in brood size and in siblicide. I will offer a few highlights, some of which mention Canadian research.

Mock attempts to explain both the "hows" and "whys" of concepts that include Darwinian fitness, evolutionary game theory, inclusive fitness theory, evolutionarily stable strategy, parent-offspring conflict, parental manipulation, optimal clutch size, replacement offspring, and the insurance egg hypothesis.

Reproduction is costly. When Collared Flycatcher broods were enlarged artificially, there were fewer breeding adults the following season, and when two eggs were removed, females laid larger clutches the following year. Seychelles Warblers produced 77% male chicks in poor habitat and 88% female chicks in good habitat.

Lifetime monogamy is uncommon among birds but there are notable exceptions. A sample of 919 pairs of Bewick's Swans showed not a single divorce, but if a mate died the survivor would re-pair. From a sample of over 6 000 banded birds, 99.6% of Barnacle Goose pairs were socially monogamous.

Mock discusses Hamilton's rule, promulgated in 1964, whereby "two full siblings should be the evolutionary equivalent of one Self" – or eight cousins – based on the amount of shared genetic material. Altruistic behaviour, such as nest helpers, relates to the mix of relatedness.

What happens in nature often seems counter-intuitive if not outright bizarre. Biologists have difficulty understanding, much less explaining, such events. What conceivable evolutionary advantage could result from a surplus egg or surplus young? Why do some species of eagle and pelican regularly lay two eggs, yet raise

only one young? Why does a parent bird passively watch one of its nestlings kill another, even when surplus food is within reach? Why does a hawk nestling sometimes eat its sibling after killing it, but on other occasions does not?

At Delta Marsh, Manitoba, Spencer Sealy videotaped nests with a single cowbird and a single warbler; the cowbird out-hustled, out-begged and out-stretched its warbler nestmate. In British Columbia, Bruce Lyon studied American Coots, which lose some chicks to starvation in nearly half the broods. Adult coots make a point of getting more food to the youngest, but when Lyon clipped the bright ornamental plumage of the tiny chicks, the clipped birds survived less often.

The late Roger Evans of the University of Manitoba did experiments to study the role of the extra or "insurance" egg in the American White Pelican. He and his student Kevin Cash carefully marked the first-hatching or A egg, and the second-hatching or B egg. Twenty percent of the B eggs hatched. The parent pelican would brood its young, but as soon as the parent stood up, the older young attacked its smaller sibling.

Wahlberg's Eagle, which ranges across central Africa, lays a single egg; not more than three percent of pairs lay a second egg and then the larger chick regularly kills the smaller one.

The Verraux's (Black) Eagle lays two eggs, but an observed first chick began assaulting the second chick soon after it hatched, giving 1 569 blows with its beak to kill its sibling, even though food was plentiful in the nest. The Crested Penguin lays two eggs, but the first egg is up to 40 percent smaller; four days later the second, larger egg is laid and is given the optimal brood patch position beneath the mother, and is usually the sole survivor.

Mock does not restrict himself to birds. He writes about plants, insects and fish, using the firefly as an example of signalling. He tells how, in a pig litter, anterior teats produce more milk than posterior teats, hence the colloquialism, "sucking hind teat."

As Marlene Zuk says on the dust cover, this book about family conflict "is a model of how behavioral ecology can and should be done ... Just don't take it to family reunions."

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