BOOK REVIEWS

Coloniality

The Black-Tailed Prairie Dog. Social Life of a Burrowing Mammal. JOHN L. HOOGLAND. University of Chicago Press, Chicago, 1995. xiv, 557 pp., illus. $90 or £71.95; paper, $34.95 or £27.95. Wildlife Behavior and Ecology.

The abundance, diversity, and observability of ground squirrels, prairie dogs, and marmots have attracted a number of researchers to long-term studies of their behavior and ecology, and over the past 20 years studies of these burrow-dwelling animals have increasingly contributed to the elaboration and evaluation of basic tenets of behavioral ecology. One of the efforts in this direction, John Hoogland's 16-year study of a colony of black-tailed prairie dogs in Wind Cave National Park, South Dakota, is of particular interest because this species is the most elaborately social of the ground squirrels studied to date. In this book Hoogland analyzes data from some 51,000 person hours of observation. This intensity of effort yields sample sizes to be envied by most field workers.

Although coloniality is the stated "obvious and most important theme of the book," reproductive biology is as prominent a theme. Seven of the 17 chapters deal with aspects of reproduction and reproductive strategies. Two of these feature the two most remarkable aspects of prairie dog social life—the killing of related juveniles by adult females and the subsequent communal nursing of the survivors. Others deal with mating behavior, reproductive success, avoidance of inbreeding, and female "manipulation" of sex ratio. Among these and other chapters, which discuss coloniality, social structure, antipredator calling, kin recognition, and population dynamics, most behavioral ecologists will find their favorite topics addressed, usually in some depth.

"Prairie dog family scanning for predators." [From the dust jacket of *The Black-Tailed Prairie Dog*; courtesy of Wind Cave National Park]

Prairie dog pocketed. "If captured when young, prairie dogs make excellent, engaging pets." [From *The Black-Tailed Prairie Dog*]

Hoogland's perspective is unabashedly and pervasively adaptationist. As he points out in the first chapter, Darwin's theory of natural selection has explicitly guided his research. Although the adaptationist program, as outlined by Ernst Mayr in 1983, continues to be a fruitful framework for investigations in behavioral ecology, signs of the excesses of injudicious panselectionism creep in here. The repeated use of such words as "curiously," "amazingly," and "surprisingly" when data are not in accord with predictions from theory sometimes leaves the impression that invariant perfection via natural selection is to be expected. In some places, for example in the discussions of reproductive synchrony and of infanticidal behaviors, an evolved function is suggested on what seem to be somewhat shaky theoretical or empirical grounds. There is some tempering, though. A theme mentioned in the introduction is that "animals do not always evolve a mechanism for doing something that human observers might regard as adaptive." And Hoogland points out that his data on sex ratios of prairie dogs call into question the generality of various theories of sex-ratio manipulation. The chapter on sex ratio is especially welcome, as the data do not support expectations from a variety of adaptive hypotheses. Too often only data that fit some novel prediction from theory enter the primary literature.

Hoogland says he had three groups of potential readers in mind while writing; how might those groups react to the book? Amateur biologists and tourists will indeed be charmed and fascinated by the 101 photographs, many of which capture natural behaviors and illustrate well the points made in the text. Photos are put to especially good use in the excellent chapter on methods. This audience may be intimidated, however, by the 39 tables and 188 graphs used to support analysis of data. This is surely the most highly quantitative of the volumes in the publisher's Wildlife Behavior and Ecology series.

Students with interests in behavioral ecology and sociobiology will no doubt benefit from the richness of the 93 pages of more than 1700 references. Only 25 percent of the references deal with ground-dwelling squirrels; the rest range from classical papers on general theory to data papers on species as diverse as fruit flies and polar bears. Although the comparative use of references too often involves mention in passing rather than deeper analysis, even such brief mention serves as an entree to relevant literature on other species.

Those of us who study various species of the family Sciuridae will greatly appreciate a single volume that details "all that John Hoogland has been fortunate enough to learn about prairie dogs" (his suggestion for an alternative subtitle for the book). I would have liked more of a synthesis of data from other species, especially regarding the question why only prairie dogs have developed the strictly territorial "coterie" system of social organization and how the absence of hibernation might influence the social system. But my primary reaction is to marvel at the magnitude of the task accomplished and appreciate Hoogland's efforts in presenting his data and thoughts on the social life of prairie dogs in such a detailed and accessible way.

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