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The influence of increased contact rate among raccoons on a nematode of public, and wildlife health concern, *Baylisascaris*

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Natural and anthropogenic fluctuations in resource availability can alter the behavioral ecology and population dynamics of wildlife. This may have unintended consequences to wildlife disease ecology, as theoretical models predict parasite transmission is highly dependent on contact rate and density of individuals within a population. We examined the influence of alterations in the behavioral ecology of hosts on the nematode *Baylisascaris procyonis* of raccoons, that can infect and cause disease and mortality in a variety of animals, including humans. Twelve populations of free-ranging raccoons were monitored for three years. After one year of baseline data collection, we experimentally altered the contact rate and resource availability of randomly selected populations via dispersed or clumped food distributions. Rates of contact were measured via remote cameras and host characteristics (age, sex) and infection of *B. procyonis* in individuals were assessed via live-capture and standard sugar flotation techniques. Prevalence of *B. procyonis* averaged 6.5% at three control sites (no food added; n=186 individuals), 14.3% at four sites had dispersed food additions (n=42), and 21% at five sites with clumped food additions that aggregated raccoons (n=81). The 95% confidence interval of prevalence at experimental sites did not overlap with values observed at control sites. Data collected prior to manipulation indicated that differences observed during the experiment were not due to naturally occurring differences at those sites; prevalence of *B. procyonis* averaged 2.3% at sites assigned to the control category, 5.4% at sites assigned to the dispersed food category, and 4.1% at sites assigned to the experimental category. These results support the hypothesis that increased rates of contact can increase transmission of parasites such as *B. procyonis*, and emphasize the potentially important role of anthropogenic activity in wildlife disease ecology when dealing with species that can take advantage of such resources and tolerate aggregations of conspecifics.