



V 16 Tick challenge in populations of woodland rodents

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Rodents represent the most important hosts for larval *Ixodes ricinus* as well as being the primary source of *Borrelia* spp. infections in ticks. We have followed rodent populations and associated larval and nymphal *I. ricinus* populations using a mark-recapture approach over 2 years in a forest in NE Poland. In this environment, the rodents *Apodemus flavicollis* and *Myodes glareolus* have approximately 2 cohorts per year, a spring cohort born in March–June, maturing and breeding in late summer (July–September) to produce an overwintering cohort which breeds the following spring. Maximum life span in this system is approximately 19 months, but most animals survive less than 6 months in the spring cohort, and approximately 9 months in the overwinter cohort. The principal larval tick challenge is from May–September, when the daily probability of larval attachment rises to nearly 1. Although larval infections may be found in most months, the daily challenge from October to May is much lower, with a daily probability of attachment of less than 0.3. The overwintering cohort therefore experiences their greatest tick challenge as old animals, while the summer generation is more heavily exposed when 2–5 months old. There is also a strong sex bias in tick challenge, with mature male rodents having much heavier burdens than females or young animals. There is therefore a disproportionately heavy challenge on mature males of the overwintering generation when they are approximately 9–12 months old, which may result in some mortality for this group of rodents. The consequences of this cohort-based difference in the pattern of tick challenge for the transmission dynamics of *Borrelia* spp. and other tick borne pathogens remains to be investigated.

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