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Abstract
During the year 2014 the data collection for the project was continued as outlined in the first and second interim reports. Thus, data are now available for the period May 2012 to December 2014 with the prospect of continuing until May 2015, providing a full 3 years of data. This has allowed us continue with our qualitative and quantitative analyses. Variation continues to be substantial among the intensively studied and small scale sites for both the biotic and abiotic (including microclimatic) parameters within and between years. The mean density of nymphs, for example, varied from 0 to 120/100m2 between sites for 2013, while for 2014, although substantial intersite variability occurred, the density ranges between 0 and <50 nymphs/100m2. Both bimodal (spring and autumn) and unimodal (spring) peaks occurred depending on the site and year, indicating that the bimodal scenario expected for Central Europe does not always occur. This has substantial implications for transmission risk analysis. There were also differences between years when comparing small mammal activity in the intensively studied sites. After the dramatic reduction in rodent populations following the long, cold winter of 2012/2013, the all populations recovered in 2014 to the levels seen in 2012 except for the higher altitude Black Forest site which remained at the same level as 2013. Over the 3 years of the study to date, a total of 18,937 ticks were collected from small mammals. Of these 94.2% were I. ricinus (larvae 92.6%, nymphs 1.6%) together with limited numbers of Dermacentor reticulatus (5.1%), Ixodes acuminatus (0.3%) and Ixodes trianguliceps (0.4%). Difference between years and sites were the rule rather than the exception. As with data from dragging for nymphs, both unimodal and bimodal (and in one case trimodal) patterns of abundance were found for larvae. At not site was the same pattern of abundance found over all three years. Due to reduced funding, the analysis of pathogens has not yet been finalized. Data have, however, become available for Candidatus Neoehrlichia mikurensis for 2013. These show generally high prevalences with substantial geographical differences with values at the intensive stations ranging from 0% (Black Forest) to 23.58% (Hardtwald). The first large scale analysis of data was initiated in cooperation with Prof. Dr. F. Rubel from the University of Veterinary Medicine, Vienna, Austria. This has produced the first map of its type in Europe of I. ricinus nymph abundance, based on a general linear model taking into consideration climate grid data from the German Weather Service. Abundance is calculated on a 5x5 km grid system. The model accounts for 78% of the variability in the tick data collected.