

2. Abstract

Tick-borne diseases (TBDs) impact on the health, productivity, and profitability of livestock herds in Israel. Different regions are known to suffer a high infection rates of TBDs, but the cause to the variation in infection rates between sites and grazing managements has not yet been fully elucidated. Ticks of different species carry and transmit pathogens, but the importance of native wild animals carrying ticks in the preservation and spreading of tick-borne diseases has not been studied so far. Golden Jackal (*Canis aureus*) and Wild boar (*Sus scrofa*) are both omnivorous mammals whose high distribution is greatly affected by human activity and which thrive in agricultural areas and rangelands. However, to date, their role in the dispersal cycle of TBDs has not been evaluated in Israel. In this work we examined the composition and abundance of tick species on these two native mammals across seasons and range sites. Over a year, in five seasonal rounds, ticks and blood were sampled from 23 jackals and 17 wild boars. Ticks were also sampled from the vegetation in the study sites and from the local cattle herds, which were grazing at various intensities in these areas. All sampled ticks were identified morphologically or by using genetic markers for the mitochondrial gene cytochrome C oxidase I, followed by a PCR analysis to detect the presence of the parasites: *Babesia bovis*, *B. bigemina*, *Theileria annulata* and *Anaplasma marginale*. Eight hundred and fifty ticks belonging to eight species (genus *Rhipicephalus*, *Hyalomma* and *Haemaphysalis*) were collected from various mammal species during the research period. Although we did not find ticks infected with the parasites that cause cattle TBDs on the jackals and boars, all of the sampled tick species are known as ticks of cattle or sheep and are capable of carrying various TBDs parasites. The results indicate a high overlap in tick species' composition between cattle and native species, especially in the wild boars, where the similarity with cattle tick composition was about 80%. Using blood examinations, we also found that wild boars are carriers of the *B. bigemina* parasites. Vegetation sampling results showed that grazing intensity and the site characteristics shape the composition and distribution of tick species. Tick larvae were found mainly in herbaceous areas with less shade, particularly throughout the summer months during the high grazing intensities. Contrary to our hypothesis, cattle feeding sites and resting areas were not found as significant infection sites. The results of this study demonstrate that boars and jackals can take part in the dispersal circle of ticks causing TBDs in rangelands. Moreover, although tick Infection with TBDs' pathogens appears to be low during the research period, there is a possibility that these native mammals can serve themselves as a source of tick infestation.