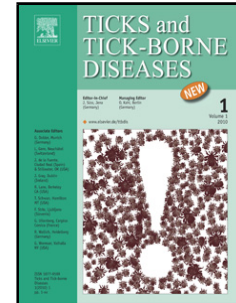


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Author: Krzysztof Dudek Piotr Skórka Zofia Anna Sajkowska  
Anna Ekner-Grzyb Monika Dudek Piotr Tryjanowski



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1 Distribution pattern and number of ticks on lizards

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3 Krzysztof Dudek<sup>a</sup>dudeekk@gmail.com, Piotr Skórka<sup>b</sup>, Zofia Anna Sajkowska<sup>c</sup>, Anna Ekner-Grzyb<sup>d</sup>,  
4 Monika Dudek<sup>e</sup>, Piotr Tryjanowski<sup>a</sup>

5

6 <sup>a</sup>Department of Zoology, Institute of Zoology, Poznan University of Life Sciences, Wojska Polskiego  
7 71 C, 60-625 Poznań, Poland,

8 <sup>b</sup>Institute of Nature Conservation, Polish Academy of Sciences, Mickiewicza 33, 31-120 Kraków,  
9 Poland

10 <sup>c</sup>Laboratory of Didactics Biology and Nature, Faculty of Biology, Adam Mickiewicz University,  
11 Umultowska 89, 61-614 Poznan, Poland,

12 <sup>d</sup>Department of Behavioural Ecology, Faculty of Biology, Adam Mickiewicz University, Umultowska  
13 89, 61-614 Poznań, Poland,

14 <sup>e</sup>Laboratory of Neurobiology, Institute of Zoology, Poznan University of Life Sciences, Wojska  
15 Polskiego 71 C, 60-625 Poznań, Poland,

16

17 Tel.: +48 61 848 7651, fax: +48 61 848 7650

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20 Abstract

21 The success of ectoparasites depends primarily on the site of attachment and body condition of their  
22 hosts. Ticks usually tend to aggregate on vertebrate hosts in specific areas, but the distribution pattern  
23 may depend on host body size and condition, sex, life stage or skin morphology. Here, we studied the  
24 distribution of ticks on lizards and tested the following hypotheses: occurrence or high abundance of  
25 ticks is confined with body parts with smaller scales and larger interscalar length because such sites  
26 should provide ticks with superior attachment conditions. This study was performed in field conditions  
27 in central Poland in 2008-2011. In total, 500 lizards (*Lacerta agilis*) were caught and 839 ticks (*Ixodes*  
28 *ricinus*, larvae and nymphs) were collected from them. Using generalized linear mixed models, we  
29 found that the ticks were most abundant on forelimbs and their axillae, with 90% of ticks attached  
30 there. This part of the lizard body and the region behind the hindlimb were covered by the smallest  
31 scales with relatively wide gaps between them. This does not fully support our hypothesis that ticks  
32 prefer locations with easy access to skin between scales, because it does not explain why so few ticks  
33 were in the hindlimb area. We found that the abundance of ticks was positively correlated with lizard  
34 body size index (snout-vent length). Tick abundance was also higher in male and mature lizards than  
35 in female and young individuals. Autotomy had no effect on tick abundance. We found no correlation  
36 between tick size and lizard morphology, sex, autotomy and body size index. The probability of  
37 occurrence of dead ticks was positively linked with the total number of ticks on the lizard but there  
38 was no relationship between dead tick presence and lizard size, sex or age. Thus lizard body size and  
39 sex are the major factors affecting the abundance of ticks, and these parasites are distributed nearly  
40 exclusively on the host's forelimbs and their axillae.

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