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Preliminary studies on the tick fauna of the Maltese Islands

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Ticks can parasitise every vertebrate class and are distributed worldwide. They are both economically and medically important, as some species may transmit pathogens to wild and domestic animals, and in some cases to humans.

Almost no studies have ever been made on this group of organisms in the Maltese Islands. *Rhipicephalus sanguineus* was recorded as associated with dogs and *Ixodes ricinus* was recorded as the most common ectoparasite on various animals especially dogs. The latter species was not found in the present study. In fact, the information on *Ixodes ricinus* was entirely based on what veterinary personnel reported and this was never validated by morphological or molecular studies. In a recently published check-list of Maltese Arachnida one specimen of *Hyalomma marginatum* was also reported as collected from Malta on a rabbit.

This study aimed to collect data on the tick species that occur locally and to gather information on aspects of their occurrence and host associations. More than 550 ticks were collected between May 2016 and June 2017 by both a passive and an active sampling method. Visits were made to six veterinary practices and three animal sanctuaries in Malta both of which were encouraged to collect ticks and submit them to the passive surveillance scheme. In addition, members of the public also submitted samples of ticks to the authors. Ticks associated with hosts were removed with tweezers or with a tick removal tool and placed in 70% ethanol. Active searching for ticks was conducted on 14 animal farms and a cat sanctuary. In addition, tick sampling by field surveying was done using the flagging and dragging technique. Nineteen sites were sampled in Malta, Gozo and Comino. Where possible some sites were also sampled twice.

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Ticks were found on 64 dogs, 13 cats, five hedgehogs, three rabbits, one bird, one horse and one human. Seventy-nine ticks were also collected from the vegetation. Details of the specimen location, host and the date of collection were recorded. Identifications were based on morphology using the taxonomic keys and morphometric tables available for tick identification and were carried out using a Leica M80 stereomicroscope. Ticks were classified to species level for adult specimens and up to generic level for juvenile stages (larvae and nymphs). In total six species were found as occurring in the Maltese Islands.