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On the occurrence of ectoparasite ticks on *Trachylepis* and *Eumeces* (Reptilia: Scincidae) in Iran

HIVA FAIZI[1], NASRULLAH RASTEGAR-POUYANI[2], AND REZA YARANI[3]

[1, 2, 3] *Department of Biology Faculty of Science, Razi University, 67149 Kermanshah, IRAN*

***Abstract.*—During field work on the lizards of the Iranian Plateau, it was noticed that some of the lizard specimens were infected by various species of ectoparasitic ticks. In this study the ectoparasites of the scincid lizards of western Iranian Plateau (Zagros Mountains) with regards to their respective parasite loads, especially in *Trachylepis aurata transcaucasica* Chernov 1926, are discussed and compared with the other taxa of the Scincidae, e.g., *Eumeces schneideri princeps* Eichwald, 1839. A total of 70 adult lizards including 12 specimens of *E. e. princeps* and 58 specimens of *T. a. transcaucasica* were examined for tick infection. For the first time, we identified a common tick, *Haemaphysalis parvum* (Ixodidae), in the two above-mentioned lizard taxa. Since prevalence was not 100%, in general, adult lizards host higher tick loads than juveniles and the number of ectoparasites found on abdominal and axial regions in all the infected lizards was between 3-5 per infected host.**

Key words. Lizards, ectoparasites, Scincidae, Ixodidae, *Haemaphysalis parva*, Iranian Plateau

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Introduction

Parasites comprise a vast diversity of organisms that are specifically adapted to living in or on another living organism (the host). Over 50% of described organisms can be classified as parasites (Price 1980). Reptiles may be infested with a wide variety of ectoparasites, primarily mites and ticks. The study of parasites' effects on their hosts is necessary for conservation of host populations as is an understanding of host ecology. There have been no parasitological studies of lizards in Iran up to now. Blood parasites and gastrointestinal helminthes in different species of lizards have been studied. (Amo et al. 2004, 2005; Ibrahimm et al. 2005). Ticks of the genera *Amblyomma* and *Aponomma* are most commonly found infesting reptiles (McCracken 1994). Lizards are subjected to a number of parasites and unfortunately this has been one of the least studied areas of herpetology, at least in Iran. Several studies have reported that lizard host numbers greatly influence the densities and life histories of their acarine parasites (Norval 1975; Bull 1978; Wilson et al. 1985), and their importance as a critical determinant of lizard distributions is unlikely. The primary aim of this study is to examine and study the ectoparasites of the two scincid lizards, *Trachylepis aurata transcaucasica* and *Eumeces schneideri princeps*. The identified tick species in our materials, *Haemaphysalis parva* Neumann, 1908, belongs to the family Ixodidae.

Materials and methods

This study was carried out during spring and summer 2003-2005 in the western regions of the Iranian Plateau, Zagros Mountains (Fig. 1). In this study we collected 70 lizard specimens belonging to both *Trachylepis* and *Eumeces* in rocky mountains with small shrubs in the form of grassy and herbaceous steppes, and wooded areas where lizards were captured included the common oak *Quercus libani* and *Q. boissieri*. We examined the ectoparasites of lizards with regard to their respective parasite loads. The collected ticks were first photographed in lateral, dorsal, and ventral views using an Olympus loop (Model: SzX12, Japan). Then, by cooperation with the parasitology lab of the faculty of veterinary sciences, Tehran University, the parasites were identified. The identification of parasites was done by using the identification key of Delpy (1938) and Walker et al. (2003). All of the specimens were preserved 70% alcohol and deposited in the collection of the Razi University Zoological Museum (RUZM).

Correspondence. [2]*Email: nasrullah.r@gmail.com*

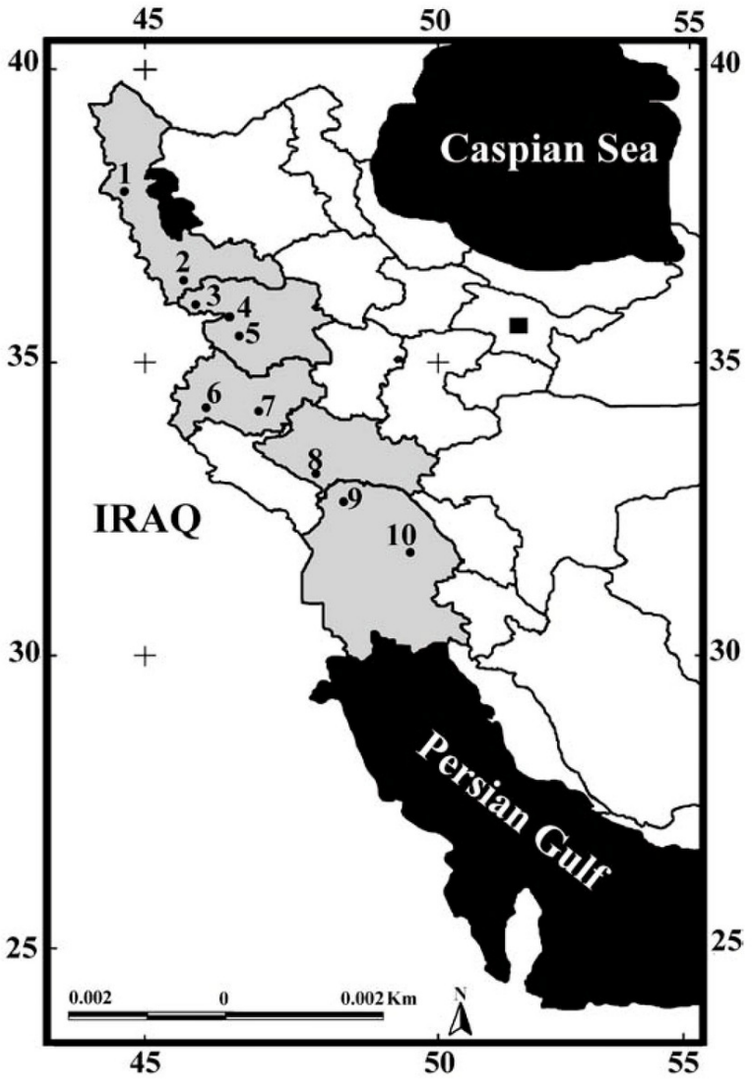

Figure 1. Map of sampling localities (grey areas) for the collected parasites (*Haemaphysalis parva*). (1) Ghotur, (2) Bukan, (3) Baneh, (4) Marivan, (5) Sarvabad, (6) Esalm Abad-e-Gharb, (7) Kermanshah, (8) Poldokhtar, (9) Dezful and Andimeshk, (10) Masjed solaiman and Haft Gel.

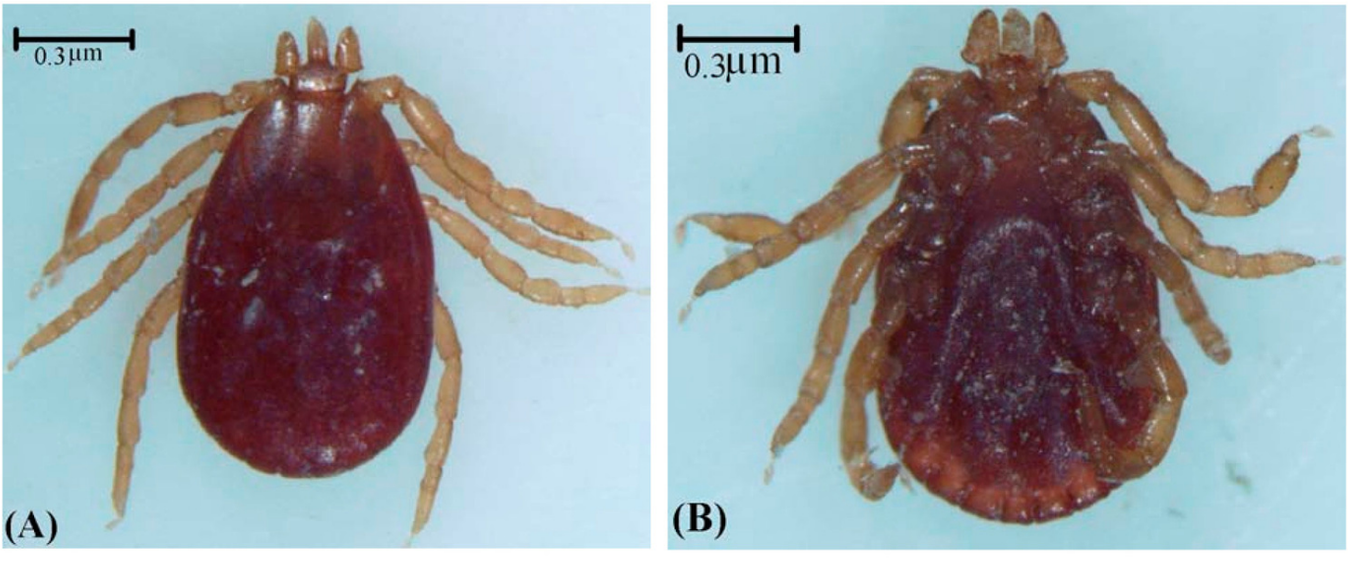

Figure 2. *Haemaphysalis parva* (Family: Ixodidae), collected from the underarm region of *Trachylepis aurata transcaucasica* and *Eumeces schneideri princeps*; dorsal (A) and ventral (B) views.

Table 1. Epidemiological indexes of *Haemaphysalis parva* in examined lizards (for details refer to text).

Host species	Class host stage	No. of examined specimens	No. of infected specimens	No. of of ticks on each individual	Prevalence (%)	Mean intensity	Mean abundance
E. schneideri	Adult	9	5	3-5	55.5	3.67	18.35
(*n*=12)	Juvenile	3	1	1-3	33.3	1.33	1
T. a. transcaucasica	Adult	40	18	3-5	45	3.38	60.84
(*n*=58)	Juvenile	18	7	1-3	38.8	1.78	12.46

Results

The number of ectoparasites found on abdominal and axial regions in lizards was between 3-5 for all the investigated lizard species e.g., *E. schneideri* and *T. a. transcaucasica*. The number of larvae, nymphs, males, and females of collected parasites were not considered. Prevalence and infection intensity were higher in adults, and also in larger lizards, than in juvenile lizards (Table 1). In this table, prevalence is expressed in percentage and is the number of individuals of a host species infected with a particular parasite species. Mean intensity is the arithmetic mean, of the number of individuals of a parasite species per host infected, and is counted for each hosted individual (adult or juvenile of each species). Mean abundance is the arithmetic mean, of the number of individuals of a parasite species per host category examined, and was counted for each examined hosted group (in adults or juveniles of each species). These two taxa host a common tick belonging to the genus *Haemaphysalis* (Family Ixodidae), identified as *H. parva* (Fig. 2, A and B).

Discussion

This parasitic tick found on lizards has been recorded for the first time in the western Iranian lizard's fauna. As well, from the view point of geographic distribution, *Haemaphysalis parva* has never been recorded from Kermanshah, Lorestan and Khuzestan Provinces (Telmadarrai et al. 2004).

In our examined specimens, adult lizards were usually carrying greater tick loads than juveniles. Because most parasitological studies in Iran have been carried out by veterinary sections of universities and institutes, almost all the available data in this field are restricted to ticks of paramount importance from view points of health and veterinary medicine, not in the case of lizards, snakes, turtles, and amphibians but for domestic animals. Accordingly, there are records of these ticks on cattle, but not on amphibians and reptiles (Nabian, et al. 2007). Our study is one of the first attempts to determine the ectoparasitic ticks on some lizards of the Iranian Plateau; the exact degree of impact, of these ticks on their ectothermic hosts, has yet to be revealed. Based on Rahbari et al, 2007, the record is rare for western parts of Iran, and mainly for Kurdistan and West Azerbaijan Provinces. *H. parva* is reported from the Caspian Sea area, in mountainous and semidesert zones, the immature stages are frequently found on small rodents such as social voles (*Microtus socialis*; Filopova et al. 1976).

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References

Amo, L., Lopez, P., and Martin, J. 2004. Prevalence and intensity of haemogregarinid blood parasites in a population of the Iberian rock lizard, *Lacerta monticola*. *Parasitology Research* **94**(**4**):290-293.

Amo, L., Lopez, P., and Martin, J. 2005. Prevalence and intensity of haemogregarine blood parasites and their mite vectors in the common wall lizard, *Podarcis muralis*. *Parasitology Research* **96**(**6**):378-381.

Bull, C. 1978. Dispersal of the Australian reptile tick *Aponomma hydrosauri* by host movement. *Australian Journal of Zoology* **26**:(**2**):305-322.

Delpy, L. 1938. Les espèces iranienes du genre *Haemaphysalis* Koch 1844. *Annales de Parasitologie Humaine et Comparee* (Paris) **16**:1.

Filopova, N. A., Neronov, V. M., and Azad, F. 1976. Data on Ixodid tick fauna (Acarina: Ixodidae) of small mammals of Iran. *Entomologicheskoe Obozrenie* **55**(**2**):467-479. (In Russian).

Ibrahim, H. M., Fadiel, M. M., and Nair, G. A. 2005. Gastrointestinal helminths of the lizard *Chalcides ocellatus* from Benghazi, Libya. *Journal of Helminthology* **79**(**1**):35-39.

McCracken, H. 1994. Husbandry and diseases of captive reptiles, p. 461-547 *in Wildlife. The Post Graduate Committee in Veterinary Science Proceedings* **233**.

Nabian, S., Rahbari, S., Shayan, P., and Haddadzadeh, H. 2007. Current status of tick fauna in north of Iran. *Iranian Journal of Parasitology* **2**(**1**):12-17.

Norval, R. 1975. Studies on the ecology of *Amblyomma marmoreum* Koch 1844 (Acarina: Ixodidae). *Journal of Parasitology* **61**:(**4**)737-742.

Price, P. 1980. *Evolutionary Biology of Parasites*. Princeton University Press, Princeton. 256 p.

Rahbari, S., Nabian, S., and Shayan, P. 2007. Status of *Haemaphysalis* tick infestation in domestic ruminants in Iran. *Korean Journal of Parasitology* **45**(**2**):129-132.

Telmadarrai, Z., Bahrami, A., and Vatandoost, H. 2004. A survey on fauna of ticks in west Azerbaijan province, Iran. *Iranian Journal of Public Health* **33**(**4**):65-69.

Walker, A. R., Bouattour, A., Camicas, J. L., Estrada, P. A., Horak, I. G., Latif, A., Pegram, R. G., and Preston, P.M. 2003. *Ticks of Domestic Animals in Africa: a guide to identification of species*. Biosience Reports, United Kingdom. 157 p.

Wilson, M., Adler, G., and Spilman, A. 1985. Correlation between abundance of deer and that of the deer tick, *Ixodes dammini* (Acari: Ixodidae). *Annals of the Entomological Society of America* **78**:(**2**)172-176.

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Hiva Faizi earned his B.Sc. in plant biology from Shahid Beheshti University (SBU) and his M.Sc. in Animal Biosystematics from Razi University. He is currently employed as a specialist in ecological studies and environment at Mahab Ghodss Consulting Engineering Company. His special interests are morphology, systematics, taxonomy, and biogeography of the Iranian Plateau with special reference to reptiles and amphibians. During his M.Sc. he studied the genus *Trachylepis* in Iran from different perspectives, including morphology, osteology, parasitology, and systematics of *Trachylepis aurata transcaucasica*. Hiva has described a new species of Asaccus lizard, *Asaccus kurdistanensis* with his supervisor Prof. Nasrulla Rastegar-Pouyani and his collaborator Prof. Göran Nilson. Hiva has also studied the near eastern fire salamander, *Salamandra infraimmaculata seminovi*, from Kurdistan province, western Iran. Hiva is collecting data and samples of *Neurergus microspilotus* and *Neurergus kaiseri* to start a Ph.D. project on population genetics and genetic diversity of the two previously mentioned species.

Nasrullah Rastegar-Pouyani earned his B.S. in Zoology from Razi University Kermanshah, Iran in 1986 and his M.S. in Zoology from Tehran University, Tehran, Iran in 1991, where he studied herpetology with the agamids as the central object. He started his Ph.D. in Gothenburg University, Sweden in 1994 under the advisement of Professor Göran Nilson and graduated in 1999, working on taxonomy and biogeography of Iranian Plateau agamids with *Trapelus* as the main object. His research interests include taxonomy and biogeography of the Iranian Plateau, the Middle East and Central Asian herpetofauna.

Reza Yarani earned his B.Sc. in Animal Biology in 2009 from Razi University of Kermanshah, Iran. Reza is now working toward a masters degree in cellular and molecular biology at Razi University, as well as working at the Medical Biology Research Center, where he is working on isolation and culture of skin cells, especially, melanocytes and multipotent skin-derived precusor stem cells. In addition, he works on actinidin isolation and purification as a good protease for cell isolation. Furthermore, Reza is working on anti-angiogentic effects of various drugs and herbs. His research interests include cell culture, cancer, angiogenesis, stem cell, pathology, and cellular and molecular research.