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Disease Monitoring in Endangered Spur-thighed Tortoises in Armenia

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ABSTRACT

The health status of reptiles is important for effective conservation and disease control in wild populations. This study represents the first comprehensive investigation of pathogens affecting wild populations of the endangered Spur-thighed tortoise (*Testudo graeca*, VU, IUCN) in Armenia. In 2023-2024 we collected 32 individuals of *T. graeca ibera* from different localities in the Northern Armenia. PCR screening of oral swabs for *Testudinid herpesvirus* (TeHV 1-4), *Mycoplasma* spp., and *M. agassizii* and serological testing (ELISA) for *TeHV* antibodies revealed that one tortoise tested positive for *Testudinid herpesvirus* (TeHV) and two others showed infection with *Mycoplasma* spp. The result of examination of blood parasite screening on blood smears stained by Giemsa-Romanowsky of 129 tortoises from different regions showed that nearly 65% of examined individuals carried blood parasites. The statistical analysis indicated no significant differences in infection rates between tortoises form distinct areas of Ararat Plain, Artsakh, Iran, and Northern Armenia ($F_4 = 1.91$, $P = 0.32$). Also, no notable variations were found in parasite load between sexes ($F_1 = 0.79$, $P = 0.37$). However, the tortoises from Iran showed the highest parasite load (9.12 ± 5.35 parasites/2000 erythrocytes), followed by populations in Northern Armenia (6.27 ± 1.55), Artsakh (3.58 ± 1.31), and the Ararat Valley (2.96 ± 1.32). The detection of *TeHV* and *Mycoplasma* infections, combined with widespread blood parasite occurrence, emphasize the need for ongoing surveillance to better understand disease dynamics and develop appropriate management interventions to protect Armenia's tortoise populations from emerging health threats.

Keywords: viral, bacterial, blood parasite infections, *Testudo graeca*

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