

Foster's or island rule in populations of *Phrynocephalus mystaceus* and *Eremias velox* (Reptilia, Lacertilia) on the sandy massif Sarykum

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Abstract. The sandy massif Sarykum, whose age is about 100 thousand years, is an island habitat for psammophilic species of terrestrial vertebrates. The paper presents new morphometric data on the populations of two species of psammophilous lizards living in this area. These are the nominative subspecies of the Secret Toadheaded Agama (*Phrynocephalus mystaceus mystaceus* Pallas, 1776) and the Caucasian Central Asian Racerunner (*Eremias velox caucasica* Lantz, 1928). Body length of sexually mature males of the Secret Toadheaded Agama averages 76.5 ± 3.7 mm ($n = 30$), and adult females – 68.9 ± 4.2 mm ($n = 29$). Comparison of the obtained materials with similar parameters of the Kazakhstan population of the subspecies shows that mature individuals of the Sarykum population are significantly smaller: for males $td = 1.33 \geq tst$ with a confidence level $\alpha = 0.80$, and for females $td = 2.07 \geq tst$ with $\alpha = 0.95$. It is known from the literature that all the pre-Caucasian populations of this species are isolated. Perhaps the small size of mature individuals in them also serve as an example of the manifestation of Foster's rule. The data of the presented study indicate a similar feature of the Sarykum population of the Caucasian Central Asian Racerunner. The body length of mature males at Sarykum is 63.6 ± 2.9 mm ($n = 9$), and that of females is 58.4 ± 3.0 mm ($n = 17$). The calculation of the reliability of differences by the Student coefficient shows that the length of the trunk of males ($td = 2$) and females ($td = 0.61$) of the Sarykum population does not statistically differ from the averaged materials for the region. At the same time, mature individuals of the Sarykum population are significantly smaller than the nominative subspecies from Kazakhstan: for males $td = 1.40 \geq tst$ with a confidence probability $\alpha = 0.80$, and for females $td = 2.20 \geq tst$ with $\alpha = 0.95$. It is obvious that Foster's rule does not manifest itself in the subspecies population living on the Sarykum sandy massif, and the conspicuous small size of mature individuals is determined by comparison with the size of the nominative subspecies. An interesting fact is that immature foot-and-mouth of both species do not differ in size from individuals of the same age of other populations. Probably, at this stage of ontogenesis, the overall physiologically optimal size for the species is preserved.

Keywords: Foster's rule, island effect, Sarykum, isolated population, *Phrynocephalus m. mystaceus*, *Eremias velox caucasica*

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