

Some features of thermobiology of steppe-runner *Eremias arguta* (Gmelin, 1789) and spotted toadhead agama *Phrynocephalus guttatus* (Gmelin, 1789) (Squamata, Reptilia) in cohabitation in the Northern Pre-Caspian

N. A. Chetanov^{1, 2✉}, N. A. Litvinov¹, S. V. Ganschuk¹, M. V. Yugov¹

¹ Perm State Humanitarian Pedagogical University
24 Sibirskaya St., Perm 614990, Russia
² Perm State University
15 Bukireva St., Perm 614990, Russia

Article info

Short Communication

<https://doi.org/10.18500/1814-6090-2023-23-3-4-164-168>
EDN: OWNGAZ

Received July 14, 2023,
revised July 21, 2023,
accepted July 24, 2023,
published December 25, 2023

Abstract. The paper presents data on temperatures of the body and the selected substrate for the steppe-runner and the spotted toadhead agama. Thermal preferences and modal classes for both species were determined, and interspecies differences were analyzed. Significantly higher average temperatures were found in the steppe-runner, while the maximum voluntary temperatures are higher in the spotted toadhead agama. These features are associated with the biotopic confinement of species. Representatives of both species, even in the spring, have a lower body temperature compared to the environment, which is achieved due to behavioral thermoregulation.

Keywords: *Eremias arguta*, *Phrynocephalus guttatus*, body temperature, substrate temperature, Northern Pre-Caspian

This is an open access article distributed under the terms of Creative Commons Attribution 4.0 International License (CC-BY 4.0)

For citation: Chetanov N. A., Litvinov N. A., Ganschuk S. V., Yugov M. V. Some features of thermobiology of steppe-runner *Eremias arguta* (Gmelin, 1789) and spotted toadhead agama *Phrynocephalus guttatus* (Gmelin, 1789) (Squamata, Reptilia) in cohabitation in the Northern Pre-Caspian. *Current Studies in Herpetology*, 2023, vol. 23, iss. 3–4, pp. 164–168 (in Russian). <https://doi.org/10.18500/1814-6090-2023-23-3-4-164-168>, EDN: OWNGAZ

REFERENCES

Dunayev E. A., Orlova V. F. *The Amphibians and Reptiles of Russia: Atlas-determiner*. Moscow, Phytion+. 2012. 319 p. (in Russian).

Korosov A., Ganyushina N. Methods for estimating the parameters of thermoregulation in reptiles (by the example of the common viper, *Vipera berus* L.). *Principy ekologii*, 2020, vol. 9, no. 4, pp. 88–103 (in Russian).

Lakin G. F. *Biometriya* [Biometrics]. Moscow, Vyshaya Shkola, 1980. 293 p.

Litvinov N. A. The body temperature and microclimatic conditions of habitat for reptiles in the Volga river basin. *Zoologicheskii zhurnal*, 2008, vol. 87, no. 1, pp. 62–74 (in Russian).

Litvinov N. A., Bakiev A. G., Ganschuk S. V., Shurshina I. V. Comparative thermobiology of steppe-runner and east steppe viper at syntopy. *Current Studies in Herpetology*, 2011, vol. 11, iss. 1–2, pp. 80–82 (in Russian).

Litvinov N. A., Yugov M. V. Body temperature and microclimatic habitat conditions of two species of toad-head agamas in Northern Caspian region. *Vestnik Permskogo gosudarst-*

vennogo gumanitarno-pedagogicheskogo universiteta, Seriya 2. Fiziko-matematicheskie i estestvennye nauki, 2013, no. 1, pp. 19–24 (in Russian).

Okshtein I. L. The thermal biology of the *Phrynocephalus guttatus* (Gmelin, 1789) in the Astrakhan region. *Vestnik of Saint Petersburg University. Series 3. Biology*, 2016, iss. 3, pp. 107–112 (in Russian).

Polynova G. V., Mishustin S. S., Polynova O. E. Reptiles' community dynamics in sandy semi-deserts of Astrakhan region. *University Proceedings. Volga Region. Natural Sciences*, 2019, no. 2 (26), pp. 150–163 (in Russian).

Cherlin V. A. The Thermal Biology of Reptiles. *General Information and Research Methods (Management)*. Saint Petersburg, Russian-Baltic Information Center "BLITZ", 2010. 124 p. (in Russian).

Yugov M. V., Litvinov N. A., Galiulin M. D., Okulov G. A. The thermobiology of the spotted toadhead agama (*Phrynocephalus guttatus*, Gmelin, 1789) in the Caspian lowlands. *Izvestia of Samara Scientific Center of the Russian Academy of Sciences*, 2014, vol. 16, no. 5-1, pp. 448–450 (in Russian).

✉ *Corresponding author.* Department of Biology and Geography of Faculty of Natural Sciences, Perm State Humanitarian-Pedagogical University, Russia.

ORCID and e-mail addresses: Nikolai A. Chetanov: <https://orcid.org/0000-0001-8512-0244>, chetanov@yandex.ru; Nikolai A. Litvinov: <https://orcid.org/0000-0003-2676-0764>, litvinov@pspu.ru; Svetlana V. Ganschuk: <https://orcid.org/0009-0008-5924-1059>, ganschuk@pspu.ru; Maxim V. Yugov: yugov_mv@pspu.ru.