Д. А. Бондаренко, Т. Н. Дуйсебаева

Reptile communities of desert landscapes and analysis of the herpetofauna of Southeastern Kazakhstan

D. A. Bondarenko, T. N. Dujsebayeva ✉

Institute of Zoology, Ministry of Science and High Education of the Republic of Kazakhstan
93 al-Farabi Avenue, Almaty 050060, Kazakhstan

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Abstract. We used the route method to carry out quantitative counts of reptiles in nine regions of Southeastern Kazakhstan. The results yielded data on the population density of reptiles in fourteen habitats. We observed the greatest diversity of species and the largest number of reptiles in sandy deserts. Both measures were much smaller in loamy plains and low mountains. In desert habitats, the Central Asian tortoise *Agrionemys horsfieldii* and the rapid racerunner *Eremias velox* were more common than other species. In the desert habitat, agama *Trapelus sanguinolentus* was less common. Despite its wide distribution, the Central Asian tortoise was rare or common in most habitats: its population density values did not exceed four individuals/ha. High numbers (23.2±8.4 ind./ha) were recorded for the species only in the north of the Moyinkum desert. The population density of the tortoise in commercial harvesting areas from 1950 up to the 1980s remained low (3.5±0.9 ind./ha) and failed to recover. Using the population density data, we calculated similarity indices of reptile communities and then grouped communities into several complexes based on similarity indices and the ecological specialization of numerically dominant species. In loamy, sandy loam, and stony deserts, eurytopic species formed the basis of the population. These were *A. horsfieldii*, *E. velox*, and *T. sanguinolentus*. In the sands of Taukum and Saryesik Atyrau, racerunners (*Eremias*) dominated in the reptile communities. These were *E. intermedia*, *E. lineolata*, and *E. velox*, among these stenotopic species dominated. The community of the foothills of the Kyrgyz ridge turned out to be the most isolated from the others. The similarity was revealed between nine desert areas in terms of reptile fauna. The deserts that are similar in landscape features (especially the substrate and vegetation) had high indices of commonality regardless of their remoteness and isolation. This shows that the process of historical dispersal of species and their movement between territories faced no obstacles.
Keywords: deserts of Kazakhstan, reptiles, species diversity, population density, faunal analysis

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✉ *Corresponding author*. Department of Ornithology and Herpetology of Institute of Zoology, Ministry of Science and High Education of the Republic of Kazakhstan, Kazakhstan.

ORCID and e-mail addresses: Dmitry A. Bondarenko: https://orcid.org/0000-0001-6377-6816, dmbonda@list.ru; Tatjana N. Dujsebayeva: tatjana.dujsebayeva@zool.kz.

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