

Earthworm fauna of Kazakh upland

(Oligochaeta: Lumbricidae)

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Abstract The species composition of earthworms of different ecosystems in Kazakh upland (Kazakhstan) representing different soil types was assessed for the first time. This eco-region encompasses a large dry steppe area. It is considerably higher than the surrounding Western Siberian plains and Turgay plains. It features elevated plains, melkosopohniki (the local name for highly eroded plateaus), and low mountains. Habitat types characteristic to this area include petrophitic steppes with shrubs and brushwoods, granite rock pinewoods in the low mountains, and microphyllous woods associated with lakes and wetlands. Well represented intrazonal communities include wetlands and associated forests. Pine, birch, and aspen woods are found. Earthworms from Kazakh upland belong to seven genera, nine species, and three subspecies. These earthworms are widespread, a majority of which have an antropochoric dispersion however there are several native Asian species and subspecies as well. Development of a hydrological network promotes preservation of some forest species from the past, e.g., *Dendrobaena octaedra* and *Eisenia nordenskioldi pallida*. Moreover the boreal species of soil fauna specify the connection of area of research with the West-Siberian plain, Altai and southern Urals Mountains in the past. The epigeic *D. octaedra* and *Dendrodrilus rubidus tenuis* play a key role in the structure and function of the earthworm assemblages in the biotopes studied. The earthworm fauna is more diverse in forests of the northern and the southern parts of Kazakh upland than elsewhere in this arid zone of the country.

Key words. Dry steppe region, earthworms, epigeic and endogeic species, Kazakh Upland.

Introduction

Information on the earthworm fauna of Central Asia region has been very limited. For example, only 10 earthworm species were identified by 1945. Later studies focused on mountain areas of Central Asia and Southern Kazakhstan (Talysh Alatau, Dzungarian Alatau, Karatay) where more than 30 species were recorded (MALEVICH 1959, PEREL 1977). However, many species appeared having no characteristic representation for this zone and were rare or restricted to certain regions. The earthworm fauna of many other regions of Kazakhstan has not been investigated in detail yet.

According to SVETLOV (1926), SOKOLOV (1956), and PEREL (1977) lumbricids were not recorded in Kazakh virgin motley grass-feather grass and dry fescue grass-feather grass steppes. Earthworms were also absent in agricultural soils here. In the center of the steppe zone in Kazakh upland, distant from places of constant distribution, we found numerous populations of earthworms. We aimed to obtain quantitative and qualitative data on earthworms and to survey them in relation to environmental variables and distribution in ecosystems.