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Introduction: One Hundred Years of Natural History in Turkmenistan

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Victor Fet and Khabibulla I. Atamuradov (Eds.)

Biogeography and Ecology of Turkmenistan

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1. Introduction: One Hundred Years of Natural History in Turkmenistan

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Brotherhood is our custom,
Friendship is our law.

Makhtumkuli,
Turkmen national poet (18th century)

As part of the famous "Great Game" between the Russian and British Empires in Central Asia, Turkmenistan was the last colonial prize of the Russian tsars; its delineation from Afghanistan was completed only in the 1890s. The Russian Empire's Transcaspian Region (*Zakaspiiskaya Oblast*) was roughly what Turkmenistan is today; its neighbors were the semi-independent emirate of Bokhara to the east and khanate of Khiva to the north, both remnants of medieval Muslim empires.

A stunning rate of technological, educational, and cultural progress in this desert land of nomads was achieved in less than 30 years of imperial Russian rule (Pahlen 1963). The famous Transcaspian railroad ran from Krasnovodsk to Tashkent. Scientific research, which had never touched this remote corner of Asia before, went in pace with advances in road building, industry, and irrigation. Traditional interests of nineteenth century Russian naturalists in Central and Middle Asia, so lively portrayed in *The Gift* by Vladimir Nabokov (1952), naturally extended to the newly colonized territories of Transcaspia. Since the 1880s, naturalists have attempted to describe the rich and peculiar flora and fauna of the magnificent sand deserts of Turkmenistan.

Early notes described the rich natural resources in deserts and mountains as well as the severe deforestation. Logging of juniper in the mountains, pistachio trees in the foothills, and saksaul shrubs in sand desert began as early as in the Neolithic Age, when early farming settlements emerged in the foothills of Kopetdagh (Shishkin 1981). It continued through the era of the ancient Parthian Empire, whose capital, Nisa, now lies in ruins a few miles from Ashkhabad, the capital of Turkmenistan. Timber was used in construction, as firewood, and also as a charcoal supply for smelting of metals. Green and populous oases, with such centers of culture and education as Khwarazm (Khiva), thrived in the Transcaspia in the times of the magnificent empires of Alexander the Great and his followers, only to be destroyed in the next millenium by Genghis Khan, Tamerlane, and other warriors. Human-influenced desertification expanded in these times; extensive grazing of sheep and camels by Huns and, later, Turkic tribes, contributed to soil deflation and erosion by desert winds and rare, but intensive rains.

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An early naturalist of the 1900s, coming by ferry across the Caspian Sea from well-established Russian settlements in the Caucasus, was able to see herds of large game animals such as gazelles, onagers, and wild sheep. Hyenas, leopards, cheetahs, and even Turanian tigers preyed on a variety of wild game. The Transcaspian Region was immediately recognized as an important area for scientific studies. The world-famous Repetek Sand Desert Station was established in 1912 to study the geology of the Karakum sand desert. Biological stations and museums followed; the first extensive collections were made from the 1890s through the first decade of the twentieth century for major Russian natural history museums in Moscow, St. Petersburg, and Tiflis.

With the establishment of the Soviet regime after 1917, Russian science was artficially severed from European scientific thought. Original, mandatorily isolated Russian schools of theory in ecology and biogeography developed in the 1920s and 1930s. Primary data for this development flowed from many geographical areas of the Soviet Union, including Middle Asia; the deserts and mountains of Turkmenistan continued to be an important site of basic field research (Laptev 1934; Pavlovsky 1934; Kryzhanovsky 1965).

Limited in their abilities to travel abroad, Soviet scientists traveled to exotic, "colonial" domestic places. The deserts and mountains of Turkmenistan were a favorite "spring vacation" site for many Russian entomologists, herpetologists, and bird watchers. As a result, the rich faunas of this republic are extremely well-known as compared to many other areas in Middle East or Central Asia (Kryzhanovsky and Atamuradov this volume; Shcherbak this volume; Rustamov this volume). The well-known volumes of the "Fauna of the USSR" and even the more comprehensive "Flora of the USSR," published since the 1930s, were important landmarks in the scientific development for Middle Asia, similar to the work of British naturalists in India. And, as was true of English for the former subjects of the British Empire, Russian become the only scientific and educational language for all Middle Asian republics. Scientific works were published almost exclusively in Russian. This, on the one hand, prevented the Turkmen language from becoming the tongue of learned people, as Arabic or Farsi had been in the past; on the other hand, it allowed free communication among scientists. (I remember being amused many times by listening to lively conversations in Russian between local Turkmen ornithologists and visiting bird-watchers from Estonia or Lithuania. There, the Russian language performed a communication role among subjects of the Empire, with conversation otherwise hardly possible.)

Study of the natural resourses of Turkmenistan accompanied attempts to preserve its biodiversity, even under the strongest political pressure of the epoch. The famous Russian geneticist Nikolai Vavilov, who perished in 1940 under Stalin's terror, established the first plant breeding station in Kara-Kala (Southwest Kopetdagh) to study the tremendous biodiversity of wild ancestors of domestic plants in the mountains of Turkmenistan. Collection and selection work on hundreds of strains of wild grape, apple, pear, pomegranate, almond, walnut, pistachio, barley, and oat allowed future geneticists to explore the last

remnants of gene pools of these species. Badghyz Natural Reserve, established in 1941, became a refuge for the last existing population of the Turkmen onager (*Equus hemionus onager*) and a unique pistachio woodland.

A new generation of local Turkmen scientists, many of whom were trained by the Russian researchers in the graduate schools of Moscow and Leningrad arose from the 1930s through the 1950s. The Turkmen Academy of Sciences and its journal, *Proceedings* (including the monthly biological series), served to record the results of diverse biological studies in the republic.

While basic science in the Middle Asian republics rather gained from the Russian "colonial" influence, natural resources, in contrast, were severely damaged by the Soviet way of handling the economy and social issues. Severe environmental problems have been inherited by the now independent Turkmenistan, including overgrazed desert pastures, deforested mountains, depleted water resources, accumulated pesticides in cotton fields, declining populations of endangered species of animals and plants, and – worst of all – progressing, human-caused desertification (Kharin this volume). In order to approach a solution to these problems, scientists and officials in the republic will need the close attention and help of the international scientific community.

A so-called ecotourism, currently practiced in countries rich in biodiversity (e.g., Costa Rica and Belize), might be one way for Turkmenistan to finance the conservation of its natural protected areas, so vulnerable under the continuing aridization. There is enough to see in Turkmenistan: herds of bighorns and onagers in the wilderness of pistachio forests of Badghyz; a breathtaking view of ancient basaltic volcanoes in the midst of the pink-salt Lake Yeroyulanduz; the magnificent sand dunes of the Karakum Desert; flocks of flamingoes on the Caspian seashore; and the Kopetdagh Mountain valleys in early spring, blooming with almonds and hyacinths. Ecotourist facilities, as well as joint scientific environmental projects, could be based in the eight existing Natural Reserves (Krasnovodsk, Kaplankyr, Syunt-Khasardagh, Kopetdagh, Badghyz, Repetek, Amudarya, and Kugitang) which represent all major landscapes of the republic. Although, in the past, these reserves have never achieved the tourist attendance level or financial security of Western national parks, they have traditionally played the role of biological field stations, housing each year dozens of field researchers and university students.

The newly independent republics of Middle Asia are economically likely to stay under the strong influence of Russia. Culturally and linguistically, however, Turkmenistan belongs to the Turkic-speaking part of the Islamic world. Today, it is important that the positive legacy of the last hundred years of Russian and Soviet influence, as well as the gained momentum in the scientific development of Turkmenistan, not be lost. Critical for the scientific community of the republic is its openness to international cooperation; combined with the solid level of existing research, such cooperation is bound to yield progress.

This book combines the results of basic scientific research in biogeography and ecology; its purpose is to give a fairly comprehensive account of the nature

of Turkmenistan. It is also the authors' common desire to see its human population living in balance with this diverse nature, and the state of Turkmenistan being peaceful and prosperous.

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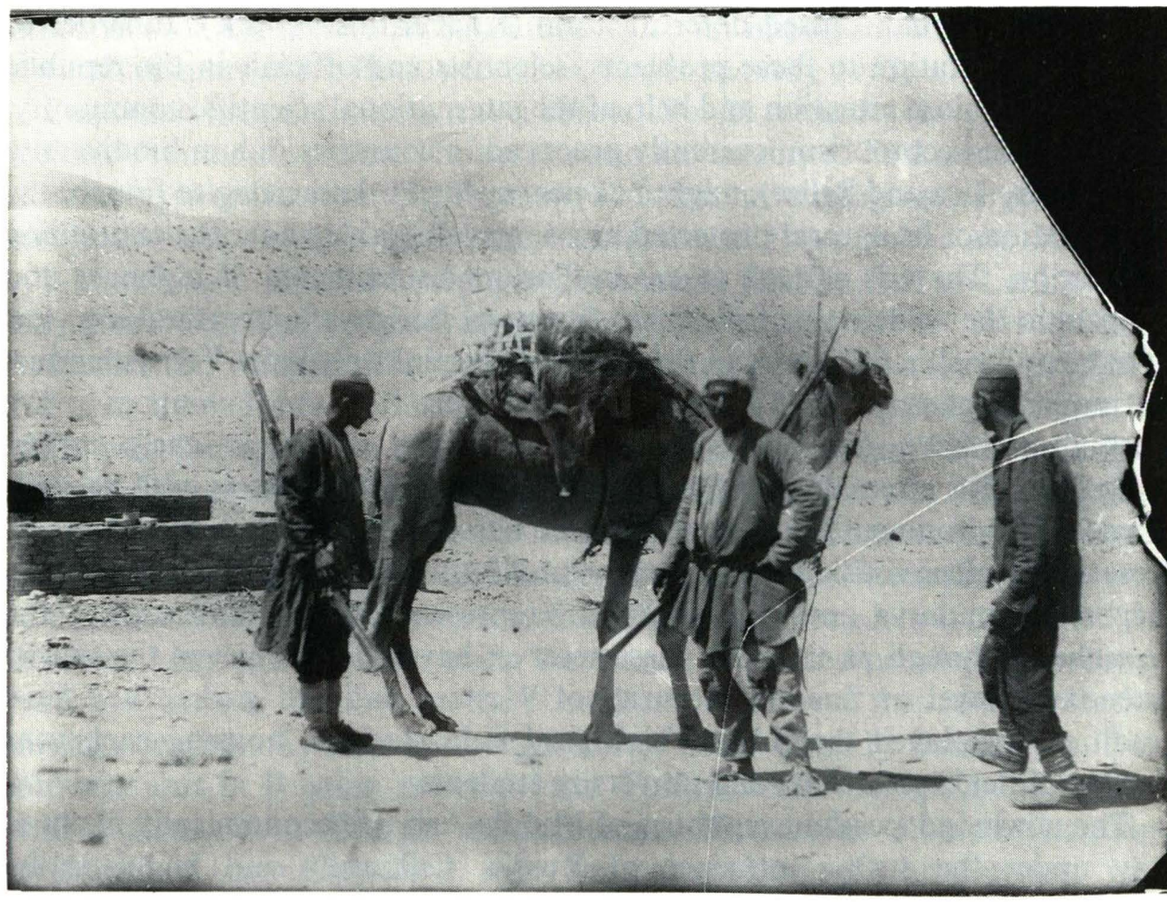

One of the first expeditions to Badghyz, ca. 1935. Photo by Mikhail P. Rozanov. Restored by Vladimir M. Potapov, 1976.