

INVASION OF ALIEN SPECIES IN HOLARCTIC

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LIFE HISTORY AND MODERN STATUS OF THE INVADER – RACCOON *PROCYON LOTOR* – IN THE CAUCASUS REGION

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We present consolidated information on the history of the formation of local populations, the modern distribution and some aspects of adaptation of the invasive raccoon *Procyon lotor* over a vast territory, which includes the south of the European part of Russia (North Caucasus), Azerbaijan, Georgia (western and eastern parts), Iran (Caspian region) and Armenia (northern regions).

In the Caucasus region, the raccoon (*Procyon lotor*) appeared 80 years ago, after introduction in Azerbaijan. Invader population developed intensively, and after the WWII almost 1,200 animals were exported from Azerbaijan to many regions of the North Caucasus, to Belarus, Kyrgyzstan, Uzbekistan and the Far East of Russian Federation. A stable meta-population was formed only in the Caucasus and adjacent territories. The distribution pattern of the raccoon in the region is changing rapidly. At the initial stage, these were several local populations within Azerbaijan and Dagestan. From Azerbaijan, the raccoon widespread to Iran, Georgia and Armenia.

The modern area is represented by four isolated "spots": the largest area is located along the coast of the Azov and Black Seas and occupies a significant part of the Krasnodar Krai. The second section is located along the coast of the Caspian Sea within Dagestan and north Azerbaijan with a westward extension along the Terek River. The third focus is located narrow along the southern macroslope of the Great Caucasus within Azerbaijan, Georgia and Armenia. The fourth focus located in the extreme south of Azerbaijan and in the adjacent regions of Iran.

Natural dispersion now continues along the coast of the both Black and Caspian Seas, as well as in the northern and southern directions. The development of some local populations occurs through repeated "explosions". The expansion of the aliens is facilitated by ecological corridors – river valleys, glades of power- and gaspipelines, along which the invaders penetrate the mountains to the upper border of the forest, and on the plains – into the zone of the forest-steppe and even the steppe. The most attractive for the invader are riparian habitats and mountain forests. The leading factor in the explosive development of populations is trophic. Local features in the dietary spectrum determine the physical condition of invaders: in the regions adjacent to the Caspian Sea the average body weight of raccoons more than in the Black Sea regions.

The maximum range of habitats' altitude is very wide: the lowest border is at the coast of the Caspian Sea (28 m below sea level). On the southern macroslope of the Caucasus the raccoon does not rise above 1500 m a.s.l., also on the northern side in some localities it is recorded up to 1500 m a.s.l. In east part of Caucasian distribution range (Dagestan), raccoons don't inhabit areas above 600-800 m a.s.l., which, presumably, is associated with severe climatic conditions.

With an increase in the number of population and expansion of the distribution range, the degree of synanthropization of the invader also increases.

In the Russia (six North Caucasian regions) and Azerbaijan, the raccoon officially is a hunting species. In last country now year-round hunting of raccoon was allowed.

We predict that in a few decades the disjunctive distribution range of *Procyon lotor* will transform into a "ring" around the Greater Caucasus ridge. We also expect significant raccoon expansion in both north and south directions. In the ecosystems of the Pan-Caucasus, the invader may become the most numerous carnivore, which has already become a reality in the Sochi vicinity and in the south of Azerbaijan.

For details see: Saveljev A., et al., Raccoon (*Procyon lotor*) in the Pan-Caucasus region (Russia, Azerbaijan, Georgia, Iran, and Armenia) // Beiträge zur Jagd- und Wildforschung, 2021. Vol.46. *in press*