

LONG-TERM DYNAMICS OF QUANTITY DEER (CERVIDAE) IN MOUNTAIN CRIMEA

Yarysh V. L.

*Federal State Budget Institution of Science «T.I. Vyasemsky Karadag Scientific Station –
Nature reserve of the RAS», Feodosia, Russian Federation
E-mail: galina.yarish65@gmail.com*

Analyzed time segment (1980–2014) is of interest in the historical aspect because it shows a level of hunting economy of the last years of the Soviet time, when the Crimean forests were the special land for hunting for the Communist Party elite, as well as the time of formation of the Ukrainian statehood with permanent political instability and economic confusions when poaching had often contributed to the survival of its impoverished population.

Autochthonous populations of the red deer and the European roe deer in the mountain-forest part of the Crimean Peninsula was developed in isolation for a long time, and it is natural to assume that fluctuations in their populations obtained its own frequency.

Animals whose evolution happened under human influence for a long time in particular economic activities (primarily hunting), have developed a number of protective mechanisms that allow them to resist the influence of anthropogenic pressure. We are talking about so-called ecological reserve, which is inherent in any healthy population and is determined by the possibility of compensation to mortality (natural or caused by human activities) by intensifying the reproduction.

At the time Mac Arthur and Wilson (Mac Arthur, Wilson, 1967) developed so-called *strategy of ecological concepts*; its essence means that successful survival and reproduction of the species is possible by: 1) enhancement the adaptability and competitiveness of organisms, or 2) intensifying the breeding ability which compensates the increased death of animals in critical situations allows restoring their numbers quickly. The first way is more commonly used by large forms with long lifespan; the second one is inherent for small animals with significant mortality and high fertility.

It is known that ungulates, which are characterized by large size, long life, late sexual maturation and low fertility, have so-called stable type of population dynamics (K-strategy), which, in turn, is characterized by small amplitude and long period (10–20 years) of number fluctuations.

In the studied case, periods of population fluctuations of the Crimean mountain populations of the red deer and roe deer, are respectively 7,5 and 4,6 years, which corresponds to the *labile type* of population dynamics (r-strategy), which is typical for

smaller animals with short life time and high fertility. As it is known the labile type mentioned above is characterized by large amplitude, when the number is changed dozens of times. But in our case the maximum range of changes in number of the red deer reaches 47,4 %, and in number of the roe deer – 33,9%.

Thus, “island” populations of the Crimean red deer and the European roe deer have the following peculiarities: the amplitude of oscillation of population number is characterized by their natural stable type of population dynamics; however, to a greater extent the periodicity matches the labile type. The reason for this paradox we see in the incomplete accordance of studied populations of ungulates to the k-strategy because in the "classical" case natural animal populations are not subject of significant influence from the human.

Keywords: population dynamics, european roe deer, red deer, mountain Crimea.

References

1. Macfaldyen A. *Animal ecology*, 375 (Moscow: Mir, 1965)
2. Odum U. *Fundamentals of Ecology*, 740 (Moscow: Mir, 1975).
3. Severtsov S. A. *Population dynamics and adaptive evolution of animals*, 316 (Moscow-Leningrad: Publishing House of the Academy of Sciences of the USSR, 1941).
4. Polyakov I. Y. the Theoretical essence of the doctrine of periodicity of mass reproductions of voles and mice, *Journal of General Biol.*, **10**, **3**, 249 (1949).
5. Maksimov A. A. *long-term fluctuations of animal numbers, their causes and prognosis*, 249 (Novosibirsk, 1984).
6. Kryzhanovsky V. I., The red deer and the European roe deer in Ukraine, their ecology and perspective for economic use. Abstract Diss. Cand. Biol. Sciences: 03.00.08., 18 (Kiev: Institute of Zoology of the National Academy of Sciences of Ukraine, 1965).
7. Dulitskiy A. I. *Biodiversity of Crimea. Mammals*, 208 (Simferopol: SONAT, 2001).
8. Volokh A. M. Large mammals of southern Ukraine in the twentieth century. (habitat dynamics, population, conservation, and management). Abstract Diss. Doctor of Sci. in Biol.: 03.00.08., 35 (Kiev: Institute of Zoology of the National Academy of Sciences of Ukraine, 2004).
9. Dyozhkin V. V. Management of populations of wild ungulates // Results of science and technology. *Vertebrate Zoology*, **13**, 66 (Moscow: Publishing House of the VINITI. – 1985).
10. Polshchikov A. A., Lagoda Yu. F., Rudenko M. I. etc. Crimean natural reserve. 85 years, 95 (Simferopol: LLC Salta Firm of LTD, 2008).
11. Yarysh V. L. Typological characteristic of habitats of the existence of rational mountain-forest Crimea, - Mat. International Science-practice Conf. Assigned 150th anniversary of the origins of the NLTU Forestry Department (September 21-23, 2006, Lviv), 108 (Lviv: RVB NLTU. – 2006).
12. Yanushko P. A. *The way of life of the Crimean reindeer and their influence on natural renewal // Proceedings of the Crimean reserve-hunting economy*, **4**, 107 (Simferopol, 1957).
13. Naumov N. P. *Animal ecology*, 618 (Moscow: Vysshaya Shkola, 1963)
14. Shilov I. A. *Ecology*, 512 (Moscow: Vysshaya Shkola, 1998).
15. Wynne-Edwards V. C. Population control in animals, *Scient. Amer.*, **211**, **2**, 68 (1964)
16. MacArthur R. N., Wilson E. D. *The theory of Island biogeography*, 203 (Princeton Univ. Press, Princeton, N. Y.)
17. Folitarek S. S. Theoretical bases of biotechnics and survey of works of the Karasukskaya Biotechnical Station, Proceedings of the Biol. Institute of the Siberian Branch of the Academy of Sciences of the, **37**, 8 (USSR., 1980).