

## Risk Assessment of Tularemia Occurrence in Shirak Region 1996-2022

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Tularemia is mainly spread in the landscapes of Northern hemisphere's temperature climatic zone. Natural breeding ground of Tularemia is confirmed also in the area of Republic of Armenia /90%/.

To form the areas of epizootic risk according to the prevalence and density of main carrier and distribution areas of the transmitter, for the assessment of the occurrence risk of the special dangerous infections.

We have made current and looking-back epidemiological analysis of the diseases with tularemia during 1996-2022 in Shirak re-

gion. We use /GIS/ geographical information system's Arc View GIS and Quantum GIS computer options.

Shirak region is included in the geography of Transcaucasian highland plague, tularemia and other special dangerous infections' active natural hotbeds. Gyumri's hotbed's geographical location, climatic conditions and the specific landscape type create favourable conditions for rodents – ordinary field mouse's and main transmitter's - ixodid tick's survival and reproduction. From 327 types of rodents existing in the area of Republic of Armenia, more than 17 types meet in the area of Gyumri's hotbed, in connection with these rodents' ecology there are near 20 types of ixodid and more than 40 gamasid ticks.

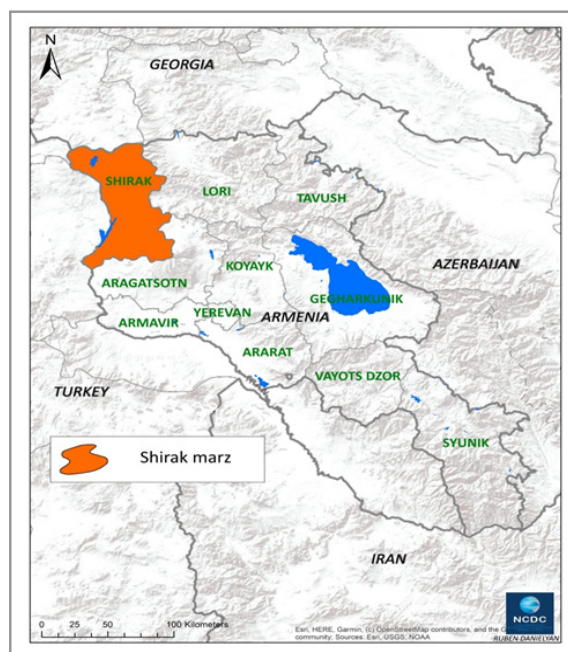
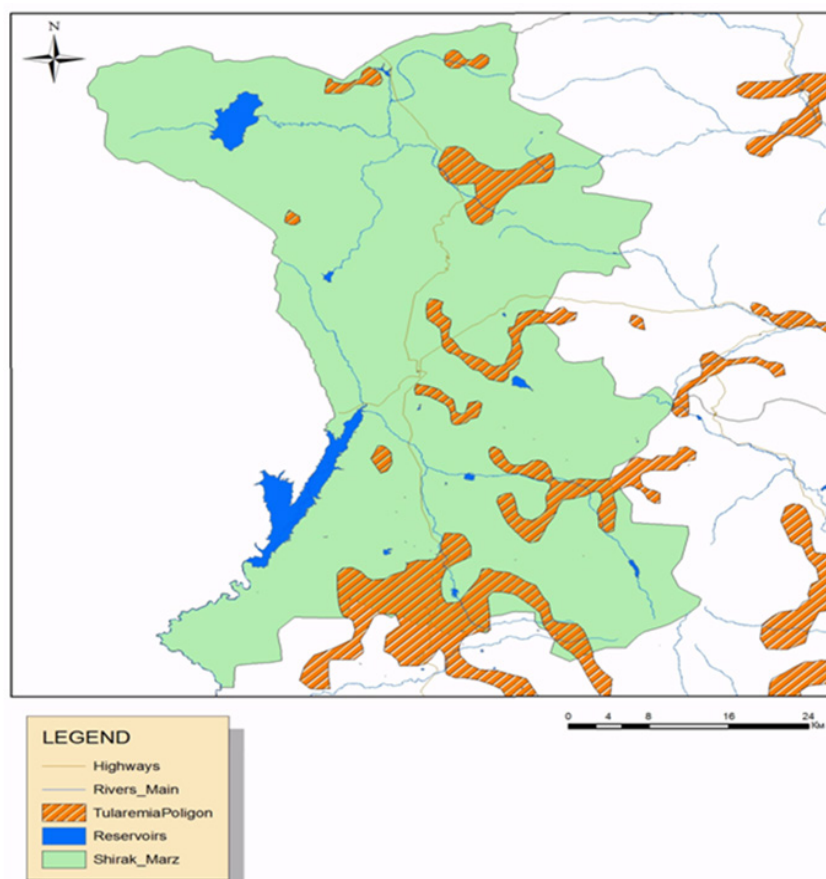


Figure 1: Study region, Shirak marz

Shirak region, in this respect, is considered to be risky area, as epizootia's frequency is high. In the hotbed density of 5 years – during last 5 years the main holder: ordinary field mouse varied 12-317 in 10000m<sup>2</sup> and density of the main transmitter varied 17-130 example bloodsucker arthropoda – in 10000m<sup>2</sup>. Now, from 273580 persons 168500 person living in Shirak Mar's hotbed-the most risky area of the infection, form a high risk rating, which are mostly rural. We have formed areas of epizootic risk taking into account epizootical informational data, to assess the occurrence risk of special dangerous infections according to the prevalence and density of main bearer and distribution of the transmitter.

The epidemiological and epizootic situation in natural breeding ground of Gyumry's mezhobed is under control. Here, last time, epizootia of tularemia was recorded in 1989 in Shirak region's areas of Akhuryan, Amasia, Artik, Ashotsk, and a case of tularemia within people last time was recorded in Amasia's Jradzor village. Tularemia's last and single flash was recorded in 1954 in Gyumry's /Leninakan/ meat plant, 270 workers were infected with tularemia because of the ticks on the cattle brought from Turkey.



**Figure 2:** Epizootic areas of tularemia in Shirak region

Mapping of the geographical prevalence of the data is one of the best expressions of situational analysis. In case of goal-oriented organization of antiepidemic measures, it is possible to avoid epidemic complications. New methods and models refine the system of epidemiological control.

It is necessary to make detailed analysis of epidemic process taking into account etiological characteristics of infectious diseases. One of the most important factors of elimination of the consequences of epidemics is the early prevision of epidemic situation and beforehand organization of preventive measures [1-17].

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