

THE FATE OF TICK POPULATIONS (ACARI: IXODIDAE) AFTER INTRUSION OF AN URBAN SETTLEMENT INTO WILD NATURE (A CASE STUDY)

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Abstract The construction of a hydroelectric power station on Zeya River near the town of Zeya (Amur Region, Russian Far East) in the early 1970s spurred the development of a new urban settlement in the town for construction workers. Natural conditions of this area supported the persistence of populations of 3 species of ixodid ticks: the taiga tick *Ixodes persulcatus* (*I.p.*), the main vector of a number of tick-borne pathogens, as well as *Haemaphysalis concinna* and *Dermacentor silvarum*. The preferred host species for adult ticks in the area were Siberian roe deer, wild boar and numerous mountain hares. The abundance of *I.p.* adults in the peak of their activity reached 12.0 specimens per 1 km of dragging at the initial stage of construction of the settlement. Numerous cases of tick attacks and bites (mainly by *I.p.* adults) were registered in this and adjacent areas at that time. The prevalence of the tick-borne encephalitis virus in *I.p.* females was found to be up to 1.0%. Aerial treatment of the area by DDT dust was performed in 1970, which resulted in the disappearance of adult ticks of all 3 species. The effect on the larval and nymphal stages was weaker, 40-60% reduction according to the data of tick collection from small mammals. In the following 4 years, no adult ticks were detected in the area, while the preadult occurrence decreased every year; tick attacks were rarely documented, and then only near the border of the treated territory. These results are in contrast to the data obtained in a number of studies, in which a gradual recovery of tick populations was observed in the years following a single acaricidal treatment. The unexpected results of our study may be explained by the strong anthropogenic pressure over the territory of the settlement and its surroundings. Each year following the acaricidal treatment, the size of the settlement and its human population increased significantly, which resulted in intensive trampling of the grass, uncontrolled fires, destruction of vegetation as well as displacement of wild animals from the territories contiguous to the settlement. As a consequence, the territory was transformed into a very unfriendly environment for tick development and feeding.