

Trap-tubs as a means of vole-damage reduction in afforestations

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DOI: 10.5073/jka.2011.432.042

Trap-tubs are unbaited plastic buckets with one-way doors that allow voles to enter the tub and predators to consume the voles. Trap-tubs have been suggested as a means of vole control by Niemeyer et al. (1996; 1999). They reported a considerable amount of voles caught throughout the year. However, there was no proof that constant trapping positively affected the survival rates of trees in the forest-plantation.

At different sites in Lower Saxony, in 2003 three newly planted and fenced afforestation areas were chosen as trial plots. Each plot was divided into two halves, each ≥ 1 ha. In each pair, one of these halves was equipped with trap-tubs on a 30 x 30 m grid, resulting in a promedium of 11 tubs per ha and the other halves were untreated controls.

Trap-tubs were installed adjacent to a resting-perch for birds of prey, thus fixing the tubs to the ground and to facilitate removal of caught voles by those birds as well as inspection and maintenance by the investigators.

Twice a year the tubs were cleaned from debris and the entrances were checked for functionality. In autumn, fresh cuttings of apple twigs were placed in the plots to estimate the abundance of epigeous voles according to bite marks (Krüger 1996). In spring, a sample of 100 forest plants was checked for vole damage. In the last inspection (2011) all remaining trees were counted to establish survival rates.

The trap-tubs had a measurable effect on trees' survival rates in general. Yet more importantly: the disappearance of those tree-species considered highly preferred by voles, and generally present only as rare admixtures, was reduced a great deal in the treated areas (survival rate treatments: 55-90%; survival rate untreated control: 17-61%). Economically, the investment paid off at 5% interest rate or just with a small positive result at 3% interest rate already after a period of 8 years. In the case of a necessary replanting of the damaged trees the investment in this management system is even more justified.

Keywords: afforestation, *Microtinae*, *Microtus*, *Myodes*, permanent trapping, trap-tub, vole damage

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