studied using long-term live-catching and tagging data. Vectors and range of movements of beavers of different taxonomic groups (*Castor fiber ssp and C.canadensis*) after translocations in many regions of the Eurasian continent (eastern Tyva, northern Mongolia, European northeast, Western Siberia, Sikhote-Alin', and Lower Amur) were analysed. The distance, direction and timing of the migrations, as a rule, depend on the characteristics of waterbodies, food resources, and age of the animals.



## LANDSCAPE USE OF SMALL PREDATORS AND ALTERNATIVE PREY IN FLUCTUATING VOLE DENSITIES

S. Savola <sup>(1)</sup>, A. Nikula <sup>(2)</sup>, P. Helle <sup>(3)</sup>, H. Henttonen <sup>(1)</sup> & H. Lindén <sup>(4)</sup>

(1) Finnish Forest Research Institute, Helsinki, Finland
(2) Finnish Forest Research Institute, Rovaniemi, Finland
(3) Finnish Game and Fisheries Research Institute, Oulu, Finland
(4) Finnish Game and Fisheries Research Institute, Helsinki, Finland

The drastic population fluctuations of prey and predators are important characteristics of the North European fauna. For example voles which form one of the main prey groups in Fennoscandia follow 3- to 5-year population cycle. The synchronous population fluctuations of voles, predators and small game have been explained by the alternative prey hypothesis. Voles from genus *Microtus* are the main prey to many predators because of the high population densities they can reach. Forestry has increased open areas that are suitable for *Microtus* voles. The bank vole (*Myodes glareolus*), an alternative prey for many predators, uses large variety of habitats especially in the increase phase of the vole cycle but in the low phase it inhabits mainly older forests. The populations of *Microtus* voles are also fluctuating more strongly than those of bank voles. The stage of the population cycle appears to affect the distribution of voles in the landscape. On the basis of alternative prey hypothesis we hypothesize that the habitat use of predators changes according to alternative prey after the crash of vole peak.

We studied (1) the habitat use of four small predator species: the red fox (*Vulpes vulpes*), the pine marten (*Martes martes*), the stoat (*Mustela erminea*) and the least weasel (*Mustela nivalis*), and an alternative prey, the mountain hare (*Lepus timidus*), at several scales, and (2) how the phase of the vole cycle affects this. The habitat use of study species was analysed by using the Finnish wildlife triangle snow tracking data in western Finland from the years 1990–1995 and multi-source National Forest Inventory data as a landscape data. Vole surveys by Finnish Forest Research Institute provided vole population data.



## SUBSTANTIATION OF THE NEED TO WORK OUT REGIONAL SCHEMES OF HUNTING LAND TYPES

## **R.A. Shadrin**

## Institute of Biology, Karelian Research Centre of RAS, Petrozavodsk, Russia

"...hunting management activities carried out by many institutions lack coordination and methodological continuity. There is pressing need ... to harmonize existing guidelines and instructions, to unify hunting management notions and terms, to adopt work standards and norms, to deal with the problem of staff training, to make the work on hunting management issues science-based" (D.N. Danilov, 1966).

It feels the utterance was made not more than forty years ago but today! The tasks formulated for hunting management by Danilov et al. in 1966 have not been fulfilled. This is true also for the development of regional schemes of hunting land types. We understand hunting land