Summary

The alternative forms of use of *Nardus* grasslands to preserve and restore their floral biodiversity and the area occupied

All types of *Nardus* swards occurring in Poland are gradually degrading and losing their unique natural values. This thesis presents the advantages and disadvantages of the currently used measures to prevent the disappearance of *Nardion* grasslands in the environment. Most of all, it presents a new, alternative and not requiring money, way of using swards by mowing and creating gaps of various sizes in the turf.

For the purpose of the study, three experiments were prepared on *Nardus* swards. The selected areas differed from each other in the way they were used for years. One has been mown once a year for over a decade. On another one, grazing was carried out. On the third one, many years ago, the care was stopped. The experience on the swards was carried out for 4 years from 2014 to 2017. On selected habitats, different types of use were introduced. Mowing combined with harrowing was one of they. The influence of particular methods of use on the *Nardus* grasslands was assessed by observing changes in the frequency of: plants of all species, plants of characteristic species and plants of undesirable species on grasslands. Changes in the thickness of the dead organic matter layer were measured. The colonization of plants in places with uncovered soil was followed. The abundance and distribution of fertilizer components in the soil of the *Nardus* swards was studied. The possibility of habitat restoration was evaluated by activating the soil seed bank.

The results of the research showed that the proposed method of use combining mowing and harrowing influences the condition of *Nardus stricta* grasslands much better than only mowing, grazing or lack of use. It reduces the occurrence of undesirable plants in the habitat, increases the frequency of characteristic species and has a positive effect on the biodiversity of grasslands. Mowing combined with harrowing is very effective in reducing the layer thickness of the dead organic matter, whose increased amount increases the nitrogen in the soil. It has been shown that the content of fertilizer components in the soil of *Nardus* swards is the highest at the soil surface and decreases with the depth of the soil. The species

characteristic for *Nardus stricta* grasslands settle on soils poor in fertilizer components more often than species of other habitats. The soil seed bank has a limited impact on the restoration of habitat.

Keywords

Nardus stricta; restoration of habitat; mowing; harrowing; biodiversity; fertilisers