Vole space use is highly influenced by its food preferences: a large-scale study

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Résumé

Like many rodents, the water vole tends to a cyclical dynamic, with regular population variations over several years. However, these fluctuations reach impressive levels with outbreaks in mid-mountain grasslands, impacting fodder and farming. The vole is known to be a generalist herbivore, but a previous study demonstrates that dandelion plays a primordial role in its diet. As dandelions are particularly common in mid-mountain grasslands, our aim was to estimate the influence of this preference on vole demography. We focused on the effect of dandelion density on colony settlement and the evolution of dandelion density after the colony establishment.
We used a drone, to monitor during two years, both dandelion and vole densities on 26 ha in both Massif central and Jura mountains. We then analyzed each picture with an automatic remote sensing algorithm.
On the one hand, we found that dandelion-rich plots were more likely to have new colonies. Furthermore, in plots with a low dandelion density, areas denser than the plot average were preferentially colonized. On the other hand, after the colony settlement, we found a decrease in the number of dandelions, reflecting the depletion on dandelions by voles. These results open up perspectives on the influence of the floristic composition of meadows in the cyclical dynamics of the water voles and on their vulnerability to the risk of outbreaks.

Mots-Clés: dandelion, drone, meadows, remote sensing, water vole

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