

Contact:
Nele Breitzkreutz (she/her)
nbreitzkreutz@ecology.uni-kiel.de
+49 431 880 4013
www.landscape-ecology.uni-kiel.de



On the role of anthelmintics in insect decline and biodiversity loss

Background

In recent decades, a massive decline in insect numbers and diversity in many ecosystems, including agricultural landscapes, has been observed. This is an issue, as insects are an essential part of many ecosystems and provide ecosystem services crucial for humans, such as pollination, pest control or nutrient cycling. The main drivers of insect decline are habitat loss, climate change and the use of chemicals in agriculture.

Similar to other insect groups, dung-living insects face multiple challenges. One is the decline of pasture-based livestock farming, which reduces both their habitat and food resources. Another is the widespread use of chemicals, such as anthelmintics, in the remaining pasture systems. Anthelmintics are used to control endoparasites in grazing animals. Excreted via manure and urine after treatment, they enter the pasture environment in large quantities. Previous studies have shown that the use of anthelmintics in grazing animals has negative impacts on the fauna and flora in pastures including dung beetles.



Our research project

In our research project we focus on the effects of anthelmintics in cattle farming on dung beetles. We study the development and survival of dung beetles in dung of treated and untreated animals and the potential attraction of dung beetles to anthelmintics. Also, we investigate how anthelmintics affect seed germination in grassland plants.

During your RISE-stipend you will participate in the research described with your own project. The work will mostly be field-based in the countryside of Schleswig-Holstein, but there will be some lab work and the opportunity to improve your insect identifying skills too. Due to the practical character of the project, it will not be possible to conduct it virtually.



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Our research group

We are the Landscape Ecology group at the Institute for Natural Resource Conservation at the Faculty of Agricultural and Nutritional Sciences at Kiel University. We study how land use and landscape structure influence biodiversity of plants and animals as well as their associated ecosystem services in agroecosystems. In case of interest, you may also get an insight into one of the various other projects within the working group. Our team consists of around 12 scientists including PhD students, technical and administrative staff plus several student research assistants and students writing their BSc- or MSc-thesis within the group. We have weekly working group meetings and occasionally engage in social activities as a group.

About Kiel

‘Studieren, wo andere Urlaub machen’ (engl. ‘study where others go on holiday’) is the slogan of Kiel University! This is because Kiel is situated at the Baltic Sea. It is the capital of the northernmost German federal state, Schleswig-Holstein, with around 250,000 inhabitants of which 26,000 are students. As Kiel is located at a bay (the Kieler Förde) you can reach one of the many beaches by bus or ferry or simply take a dip in the harbor. The surrounding area offers many possibilities for outdoor activities and the center has plenty of cafes, bars and restaurants. Kiel is known for the *Kieler Woche*, a big sailing event with many festivities, concerts and events, which happens annually in June.

