EGU22-4559
https://doi.org/10.5194/egusphere-egu22-4559
EGU General Assembly 2022

Assessing the effects of climate and land use changes on the distribution and growth of important plants species for pollinators

Benjamin Lanssens[1], Louis François[1], Alain Hambuckers[2], Merijn Moen[3], Tim Anders[4], Merja Tölle[5], Arpita Verma[1], and Laura Remy[1]

[1]Astrophysics Geophysics and Oceanography, University of Liege, Belgium (benjamin.lanssens@uliege.be)
[2]Behavioral Biology, University Of Liege, Belgium
[3]Naturalis Biodiversity Center, Leiden, Netherland
[4]Biodiversity and Climate Research Centre, Senckenberg, Germany
[5]Center for Environmental Systems Research, University of Kassel, Germany

Pollination is a key ecosystem service vital to the preservation of wild plant communities and good agricultural behaviour. However, pollinators are rapidly declining in Europe, primarily as a result of human activity and climate change. Therefore, there is growing concern that observed declines in insect pollinators may impact on production and revenues from pollinator-dependent crops. In the forest, the presence of pollinators depends strongly on the openness of the canopy and the presence of wild plants that attract pollinators. The distribution of such plants is, therefore, crucial for estimating the pollinators presence. In general, however, there is incomplete knowledge of where those wild plants occur and how well they grow. To overcome this issue, we developed a species distribution model to predict the potential presence of important plant species for pollinators under present and future climatic conditions. The result of the distribution model is then refined using the dynamic vegetation model CARAIB. By combining the results of the distribution model and CARAIB, we can determine where the plants are located and calculate their net primary productivities.