

## **Integrating local scale livestock statistics with land cover data to improve the sustainability of European grassland management**

Authors:

Žiga Malek<sup>\*a,b</sup>, Zoriana Romanchuk<sup>b</sup>, Orysia Yashchun<sup>b</sup>, Linda See<sup>b</sup>

a Biotechnical faculty, University of Ljubljana, Slovenia

b International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria

\*lead and corresponding author, [ziga.malek@bf.uni-lj.si](mailto:ziga.malek@bf.uni-lj.si)

Harmonized, recent and spatially detailed data on ruminant livestock are necessary to supporting a transition towards a more sustainable European livestock sector and reduce our impacts on grassland ecosystems, soils and water. So far, European data on livestock numbers were only available at rather coarse, NUTS2 level, and were not spatially allocated to specific locations. We collected and harmonized local scale livestock data from all EU and neighboring countries from national statistical offices and other sources. We then subsequently allocated livestock numbers on pan-European land cover data (CORINE land cover). We did this by first modeling the spatial probability of grazing with in-situ land use data and a set of geographic data on soil terrain and climate. We then used the probability maps to allocate grazing and reported livestock statistics on a more detailed spatial scale. The resulting data enables identifying livestock densities with more detail, and enables separating between grazing and non-grazing ruminants, thereby enabling research on the intensity of use of European grasslands, impacts on biodiversity, soil compaction, and many other sustainability dimensions.