

## SUMMARY

Ecology of beetle (Coleoptera) community inhabiting cattle dung on pasture near Ława (Ława Lakeland)

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The aim of this study was to investigate the quantitative and qualitative structure of beetle and fly larvae community inhabiting cattle dung on pasture located in the Ława Lakeland. The impact of dropping moisture, time elapsed, temperature and precipitation on insect density was investigated. Seasonality and preferences to age and humidity of the dung for most abundant beetle species was determined.

The study area was a large cattle pasture situated in the Ławice village near Ława (53° 35' E, 19° 37' N). Field work was carried out from the beginning of July to the end of September 2012 and from the beginning of June to end of September 2013. At the beginning of each month fresh portions of medium sized dung were typed and marked. Those portions were used to take samples in the following time intervals: 1, 3, 5, 10, 15, 20, 25 and 30 days after typing (two portions were used in each term). Moisture was measured for all dung pats. Additionally temperature and precipitation was recorded from nearest weather station.

Whole material was collected from 7 months during which 112 portions of dung were used for obtaining 560 samples. Those samples were equal to 96.88 dm<sup>2</sup> excrement surface. There were 6728 specimens of adult beetles collected which belongs to 110 species grouped in 10 families. Additionally, a total of 1972 beetle larvae were collected belonging to 9 families and 2911 fly larvae belonging to 12 families.

Coprophagous beetles were a dominant group when dry weight was analyzed. Both coprophages and saprophages were collected in a similar number of individuals. This study shows a significant effect of both dung humidity and time elapsed on the density of adult beetles in the discussed microhabitat. In six out of seven cases, the factor that was the most influential was the

moisture content, and in only one case time elapsed. In all months the influence of dung humidity on beetle larvae density was weaker than the time elapsed. Both the time elapsed and the dung humidity were explaining changes in the density of the flies larvae on the examined pasture very poorly. There was no apparent effect of temperature and precipitation at the initial stages of succession on density of adult beetle community in dung. There was positive influence of minimal and mean temperature at the initial stages of succession on beetle larvae density and amount of precipitation on flies larvae density. Succession of flies larva community in aging droppings run differently than succession of beetle community. The experiment did not shown clear competition between these groups. We were able to distinguish several species groups which were related with different stages of degradation and humidity of this specific habitat.

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