Puszta 2023:
Impacts of grazing on the composition and traits of grasses in the Kiskunság Hungarian Steppe

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Background:

This project explores how grazing influences the composition and structure of grasses in open alkaline and loess grasslands found within the Hungarian Steppe, also referred to as the Puszta or Pannonian steppe. Because these grasslands have experienced grazing for millennia, resulting in the evolution of a grazing-adapted flora, we selected them to study how extensive grazing influences the composition and functional traits of a European grassland.

European grazing ecosystems are largely understudied outside of an agricultural perspective and it is unclear how grazing influences the structure and assembly of temperate grazing ecosystems. Therefore, this project investigates whether grazing alters the composition and structure of loess grasslands and open alkaline grasslands within the Puszta and if changes associated with shifts in the functional traits of grasses.

Main Objectives:

1. Quantified the impacts of grazing on the diversity and species composition of alkali and loess grasslands within the Hungarian Steppe.
2. Assessed differences in composition and soil for adjacent loess and alkaline grasslands
3. Quantify the impacts of grazing on grass functional traits related to growth and resource acquisition within alkaline grasslands.

Data Collection:

Data was collected in May 2023 within Kiskunság National Park (570 km^2) in the Carpathian Basin of central Hungary. We surveyed 17 plots along a grazing gradient for two habitat types, loess and alkaline grasslands (N_{loess}=8, $N_{alkaline}$=9). Composition of all herbaceous flora as well as the functional traits of grassy flora were surveyed to characterized the compositional and structural changes of grasslands with grazing. Preliminary results indicate that grazing increases the diversity of the loess steppe grasslands while minimally effecting diversity of the open alkaline grasslands.

Circular plot utilized in the compositional surveys.

Boundary between open alkali and loess steppe grasslands within Kiskunság National Park

Project lead, Susan Eshelman, after a day of surveying

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All photographs taken by Susan Eshelman