



Abandoned seasonal livestock migration reflected by plant functional traits: A case study in Kyrgyz rangelands

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At least 30% of Kyrgyz pasture areas are considered to be subject to vegetation and soil degradation. Since animal husbandry is the economic basis to sustain people's livelihoods, rangeland degradation presents a threat for the majority of the population. Recently, the usage of plant functional traits as a powerful tool for the characterization of vegetation dynamics in response to anthropogenic and natural disturbances has been put forward. Grazing is one of the most severe disturbances on vegetation, which concerns equally the loss of area and biomass. Because grazing is both depending on and affecting plant functional traits, important insights can be generated, based on this codependency. We hypothesized that the contrasting grazing intensity of summer and winter pastures is reflected by the chosen traits. We used traits such as plant height, flowering start, growth form as well as SLA (Specific Leaf Area) and LMA (Leaf Mass per Area). Based on former phytosociological classification of the main pasture types (summer and winter pastures), community structure and the traits of dominant plant species were analyzed. Our results showed that on winter pastures grazing decreased plant height and SLA and favored plants with an earlier flowering start as well as rosette plants and ascending plants. We conclude that the study of trait composition in relation to anthropogenic disturbances can provide important insights into the mechanism of plant response to grazing in high-altitude rangelands.