

EGU22-3485, updated on 20 Aug 2022

<https://doi.org/10.5194/egusphere-egu22-3485>

EGU General Assembly 2022

© Author(s) 2022. This work is distributed under the Creative Commons Attribution 4.0 License.



## **Proper grazing is nature-based solutions to restore soil nematodes and ecosystem multifunctionality in degraded grasslands**

**Jingjing Yang**, Donghui Wu, and Deli Wang

Northeast Normal University

Grassland ecosystems worldwide are facing habitat degraded due to human activities. Although it is commonly proposed that livestock can have negative repercussions for multiple ecosystem functions in degraded grasslands, this question has yet to receive explicit scientific attention. We used a 3-year field-manipulated grazing experiment, including livestock grazing by sheep across three grasslands with different levels of degradation to evaluate the role of large herbivore in regulating soil nematodes and ecosystem multifunctionality. Our findings reveal the context dependency of this role in grassland degradation. We show that livestock show higher levels of soil nematode biomass and ecosystem multifunctionality than lightly degraded grassland with enclosure, and facilitate soil nematode diversity and maintain ecosystem multifunctionality in moderately and severely degraded grasslands. We propose that moderate herbivore grazing should be considered as nature-based solutions to improve and maintain both soil nematodes and ecosystem multifunctionality in degraded grasslands. The information is fundamental for improving nature's benefits to people and considering conservation efforts of grassland restoration.