



**Universiteit
Leiden**
The Netherlands

Plant-soil interactions determine ecosystem aboveground and belowground processes in primary dune ecosystems

Gao, C.

Citation

Gao, C. (2023, March 2). *Plant-soil interactions determine ecosystem aboveground and belowground processes in primary dune ecosystems*.

Version: Publisher's Version

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from:

Note: To cite this publication please use the final published version (if applicable).

List of Publications

Publications in peer-reviewed Journals (English):

Gao CG*, van Bodegom PM, Bezemer TM, Veldhuis MP, Mancinelli R, Soudzilovskaia NA. Soil biota adversely affects the resistance and recovery of plant communities subjected to drought. *Ecosystems*, 2022, 25(5). <https://doi.org/10.1007/s10021-022-00785-2>.

Qiao XG, ... , **Gao CG**. Assessing the collapse risk of *Stipa bungeana* grassland in China based on its distribution changes. *Journal of Arid land*, 2020, 12(2):303-317.

Zhao HW, ... , **Gao CG**. *Stipa* Steppes in Scantily Explored Regions of the Tibetan Plateau: Classification, Community Characteristics and Climatic Distribution Patterns. *Journal of Plant Ecology*, 2017, 11(4): 585-594.

Under review/ in revision:

Gao CG*, Bezemer TM, van Bodegom PM, Kohout P, Mancinelli R, van der Hagen H, Soudzilovskaia NA. Shifts in soil community influence the establishment of arbuscular mycorrhizal fungi.

Gao CG*, Bezemer TM, van Bodegom PM, Cornelissen HC, van Logtestijn R, Liu XY, Mancinelli R, van der Hagen H, Zhou M, Soudzilovskaia NA. Plant community responses to alternation in soil conditions are decoupled for above- and belowground traits.

Gao CG*, Bezemer TM, van Bodegom PM, Baldrian P, Kohout P, Mancinelli R, van der Hagen H, Soudzilovskaia NA. Soil microbes are passengers in the community development of early successional dune ecosystems

Liu XY, He D, Vrieling K, Lommen STE, **Gao CG**, Bezemer TM. Plant-soil feedback effects in the field: Testing Janzen-Connell effects in natural grasslands.

Publications in peer-reviewed Journals (Chinese):

Lu SZ, ..., **Gao CG**, et al. Basic characteristics of *Stipa sareptana* var. *krylovii* communities in China. *Chinese Journal of Plant Ecology*, 2020, 44(10): 1087-1094.

Gao CG, Guo K, Qiao XG, et al. Methods of observing typical steppe plant communities: Applications cases of two typical formations. *Biodiversity Science*, 2018 26(3):266-273.

Gao CG, Qiao XG, Wang Z, et al. Distribution, community characteristics and classification of *Thymus mongolicus* steppe in China. *Chinese Journal of Plant Ecology*, 2018,42(9):971-976.

Qiao XG, ... , **Gao CG**. Distribution, community characteristics and classification of *Stipa tianschanica* var. *klemenzi* steppe in China. *Chinese Journal of Plant Ecology*, 2017, 41(2):231-237.

Xiao J, **Gao CG**, Wang N, et al. A measuring method for seed shape of common wheat

(*Tritium aestivum*) Based on SmartGrain software. *Journal of Triticeae Crops*, 2014, 34(11):1572-1576.

Conference Abstract:

Gao CG, Bezemer TM, van Bodegom PM, Cornelissen HC, van Logtestijn R, Liu XY, Mancinelli R, van der Hagen H, Zhou M, Soudzilovskaia NA. Plant community responses to alternation in soil conditions are decoupled for above- and belowground traits. Ecology of soil microorganisms 2022: microbes as important drivers of soil processes, Prague, Czech Republic (Oral presentation)

Acknowledgements

To begin with, I would like to express my sincere gratitude to my Promotors - Prof. Nadia Soudzilovskaia and Prof. Peter van Bodegom. Thank you for giving me the chance to pursue my PhD at CML. Dear Nadia, thank you for teaching me how to contact an ecological study, starting from a design of an experiment, and following by analyses to writing. I am always grateful for your continuous encouragement with every achievement I made during the four-year journey. Also, I would like to express my thankfulness to Prof. Peter van Bodegom for your guidance, support and advice all the time. Thanks for encouraging me to think more and explore more. I learned a lot from the discussions with you. I could not have completed this thesis without the input from both of you. Thank you both for everything you taught me.

I would also like to give a special thanks to Prof. Martijn Bezember for your contributions to my Ph.D. projects. I profit a lot from your valuable comments and constructive suggestions.

I am very grateful to the collaborators in my research projects. Thanks to Prof. Hans Cornelissen and to Richard van Logtestijn for your friendly help with my lab work and guidance with my research projects. It was a real pleasure to work at VU Amsterdam. Thanks to Petr Kohout and Prof. Petr Baldrian for your help with the molecular analysis of our soil samples and guidance with my writing work. Thanks to Harrie van der Hagen for teaching me plant taxonomy and kind support with my fieldwork in Terra-Dunes. Thanks to Michiel Veldhuis for your help with my first manuscript. I also wish to thank Zhou Meng for your assistance with my plant root sample analysis.

I also extend my sincere gratitude to my office roommates, Weilin, Riccardo, Mili and Sofia. Thank you for your help in the field work, fruitful discussions and suggestions on my study and living in Leiden. A special thanks to my friend Xiangyu for the fruitful discussions in the field, lab and office. I also wish to thank our “Soil process” group, Dirk, Emilia, Ruiqi, Andreea. Thank you for the interesting discussions and helpful suggestions. I also appreciate Emilie Didaskalou for your kind support with my lab work. I would also like to thank the supporting staff in CML for all your help.

A big thank you to my Chinese friends, Beilun, Kaixuan, Chen Tang, Jianhong, Juan, Qi Chen, Qi Yu, Yingji, Yujia, Yusheng, Xiaoyang, and Xining for organizing activities and parties. It was a pleasure to spend time and share so many nice moments with you. Also I would like to thank the members from Leiden Science China for your kind suggestions at the beginning of my PhD.

Sport has been a big part of my life in The Netherlands. Thank to my tennis teammates and friends, Mengjie, Ye, Yuchen, Xuequan, Yu Wei. I enjoyed games we played together. Thanks also to the outdoor group, Diyu, Mingquan, Shengxiang. Exploring the field and the

funny chats with all of you make my weekends wonderful.

I gratefully acknowledge the fund support from Chinese Scholarship Council that made my Ph.D. work possible.

Last but not least, I want to thank my parents and my sister for your support and understanding of all the choices I made. And I want to thank my partner Deyi for continuous support.

Curriculum Vitae



Chenguang Gao was born in Luoyang, China in May 1994. He grew up in the Yi-Luo River area which is one of the origins of Chinese culture. He obtained his bachelor degree from the College of Agronomy of Northwest A&F University in 2015. There he has developed a strong interest in the science of ecology through excursions and fieldwork in the Qinling area. After graduation, he started his ecology study at the Institute of Botany, of the Chinese Academy of Sciences, specializing in vegetation ecology. He joined a project on “the distribution, community characteristics, and vegetation classification of Chinese grassland” in northwest China. Chenguang completed his MSc thesis entitled “Community characteristics of semi-shrub and dwarf semi-shrub in Loess Plateau” under the supervision of Prof. Ke Guo. In September 2018, he received a scholarship fund from the China Scholarship Council for his PhD study at the Institute of Environmental Sciences, Leiden University, the Netherlands. His work focuses on plant-soil interactions and their influences on the aboveground and belowground ecological processes supervised by Prof. Nadia Soudzilovskaia and Prof. Peter van Bodegom. After completing his PhD, Chenguang will start a postdoc at CML to study the role of soil biodiversity in agroecosystems.

