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## **Afforesting with microbes: disentangling the effects of soil biotic and abiotic characteristics on trees using soil inoculation**

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## Curriculum Vitae



Konstantinos Georgopoulos was born on July 5, 1994, in Athens, the capital of Greece. Growing up, he witnessed the devastating impact of frequent forest wildfires—a formative experience that would later inspire his passion for ecosystem restoration. In 2012, he enrolled at the Agricultural University of Athens to study natural resource management through an integrated MSc program. There, he developed a deep interest in soil science and became fascinated by the complex and dynamic world beneath our

feet. After graduating and completing his military service, he was encouraged by his former internship supervisor, Dr. Ioannis Baziotis, to continue his academic journey abroad. In 2018, Konstantinos moved to the Netherlands to pursue a second master's degree in soil biology at Wageningen University. Under the guidance of Prof. Dr. ir. Jan-Willem van Groenigen and Prof. Dr. ir. Gerlinde de Deyn, he investigated how the fear of predation in soil fauna influences greenhouse gas emissions. During an internship at the Netherlands Institute of Ecology (NIOO-KNAW), he expanded his focus to terrestrial ecology, studying the effects of large herbivore grazing on soil greenhouse gas emissions under the supervision of Dr. Ciska Veen. Fueled by his growing passion for ecology and backed by his background in soil science, Konstantinos joined the Above- and Belowground Interactions Group at the Institute of Biology in Leiden in May 2021. His PhD research, conducted under the supervision of Prof. Dr. ir. T. Martijn Bezemer and Dr. Sofia I.F. Gomes, focused on how changing soil biotic and abiotic characteristics influence trees and their root symbionts during afforestation. The findings of this research are presented in this dissertation. Having now completed his PhD, Konstantinos is eager to continue his journey in academia and beyond—communicating research to broader audiences and restoring forest ecosystems one tree at a time.

# List of publications

## *Publications during PhD*

**Georgopoulos, K.**, Bezemer, T.M., Vesterdal, L., Li, K., de Nobel, L., Kasal, N., Gomes, S.I., 2025. Soil microbes and nutrient inputs influence nodulation and tree performance in *Alnus glutinosa*. *Applied Soil Ecology*, (accepted with minor revisions).

**Georgopoulos, K.**, Bezemer, T.M., Vesterdal, L., Li, K., de Nobel, L., Gomes, S.I., 2025. Non-destructive detection of *Frankia* in *Alnus glutinosa* with NIR spectroscopy. *Plant-Environment Interactions*, (accepted for publication).

Gomes, S.I., Gundersen, P., Bezemer, T.M., Barsotti, D., D’Imperio, L., **Georgopoulos, K.**, Justesen, M.J., Rheault, K., Rosas, Y.M., Schmidt, I.K., Tedersoo, L., Vesterdal, L., Yu, M., Anslan, S., Aslani, F., Byriel, D.B., Christiansen, J., Hansen, S.H., Kasal, N., Kosawang, C., Larsen, H., Larsen, K.S., Lees, J., van Dijke, A.C.P., Kepfer-Rojas, S., 2025. Soil Microbiome Inoculation for Resilient and Multifunctional New Forests in Post-Agricultural Landscapes. *Global Change Biology* 31, p.e70031. <https://doi.org/10.1111/gcb.70031>

**Georgopoulos, K.**, Bezemer, T.M., Christiansen, J.R., Larsen, K.S., Moerman, G., Vermeulen, R., Anslan, S., Tedersoo, L., Gomes, S.I., 2025. Reduction of forest soil biota impacts tree performance but not greenhouse gas fluxes. *Soil Biology and Biochemistry* 200, p.109643. <https://doi.org/10.1016/j.soilbio.2024.109643>

**Georgopoulos, K.**, Bezemer, T.M., Neeft, L., Camargo, A.M., Anslan, S., Tedersoo, L., Gomes, S.I., 2024. Effects of soil biotic and abiotic characteristics on tree growth and aboveground herbivory during early afforestation. *Applied Soil Ecology* 202, p.105579. <https://doi.org/10.1016/j.apsoil.2024.105579>

# Acknowledgements

I cannot believe it has already been four years since I walked into Leiden University. From getting lost trying to find the Sylvius building on my first day to saying goodbye to my colleagues on the last, I will treasure every moment of this chapter in my life. I want to express my gratitude to all those who supported me along the way.

Firstly, I would like to express my sincere gratitude to my two supervisors, Prof. Dr. T. Martijn Bezemer and Dr. Sofia I.F. Gomes. Martijn, you have truly been a newfound mentor, opening the doors to the complex and wondrous field of ecology and giving me an opportunity my younger self could only dream of. Though you live up to your reputation as a tough supervisor, you kept your word when you said your students finish on time. Working under your supervision has made me an independent scientist, and I thank you for unlocking parts of my potential I didn't know existed.

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