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Digital supplementary material

Digital supplementary material to

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The content of this digital supplementary material was subject to the same scientific editorial processing as the article it accompanies. However, the authors are responsible for copyediting and layout.

Tab. S1: The meta-analysis published in 2017 by Farjí-Brener & Werenkraut brought light to the effects of ant engineering to soil physical and chemical properties, as well as the effects on plant growth and fitness (FARJÍ-BRENER & WERENKRAUT 2017). The appendix S1 of FARJÍ-BRENER & WERENKRAUT (2017) list the studies included. Here we categorize these studies in function of the biomes in which they were conducted. Since the publication of FARJÍ-BRENER & WERENKRAUT (2017), additional studies have been published on this topic. Thus, following their search criteria and inclusion guidelines, we conducted a non-exhaustive search on Google Scholar and Web of Science to provide an updated version of this topic. The new published studies can be used to update the results of the 2017 meta-analysis (from 2016 onwards) and are here categorized by biomes in parenthesis with full references provided in this Supplementary Material. The studies investigated the relationship between ant nests and soil fertility, soil nutrient content, or effects on plants.

Biome	**Number of studies**
Boreal Forests/Taiga	4
Deserts & Xeric Shrublands	19 (2)
Flooded Grasslands & Savannas	2
Mediterranean Forests, Woodlands & Scrub	6 (1)
Montane Grasslands & Shrublands	0
Temperate Broadleaf & Mixed Forests	19 (6)
Temperate Conifer Forests	3
Temperate Grasslands, Savannas & Shrublands	15 (2)
Tropical & Subtropical Dry Broadleaf Forests	14
Tropical & Subtropical Grasslands, Savannas & Shrublands	4
Tropical & Subtropical Moist Broadleaf Forests	13 (5)
Total	**96 (16)**

- Deserts & Xeric Shrublands (2): Sharafatmandrad & Khosravi Mashizi 2021, Feng & al. 2022.
- Mediterranean Forests, Woodlands & Scrub (1): De Almeida & al. 2020.
- Temperate Broadleaf & Mixed Forests (6): Zhang & al. 2018, Fernandez & al. 2019, Lindström & al. 2019, Pirk & al. 2020, Klimek & al. 2022, Zhang & al. 2022.
- Temperate Grasslands, Savannas & Shrublands (2): Farji-Brener & Tadey 2017, Alberto & al. 2018.
- Tropical & Subtropical Moist Broadleaf Forests (5): Santos & al. 2019, García-Cárdenas & al. 2022, Santos & Sousa-Souto 2023, Baena & al. 2024, Wang & al. 2024.

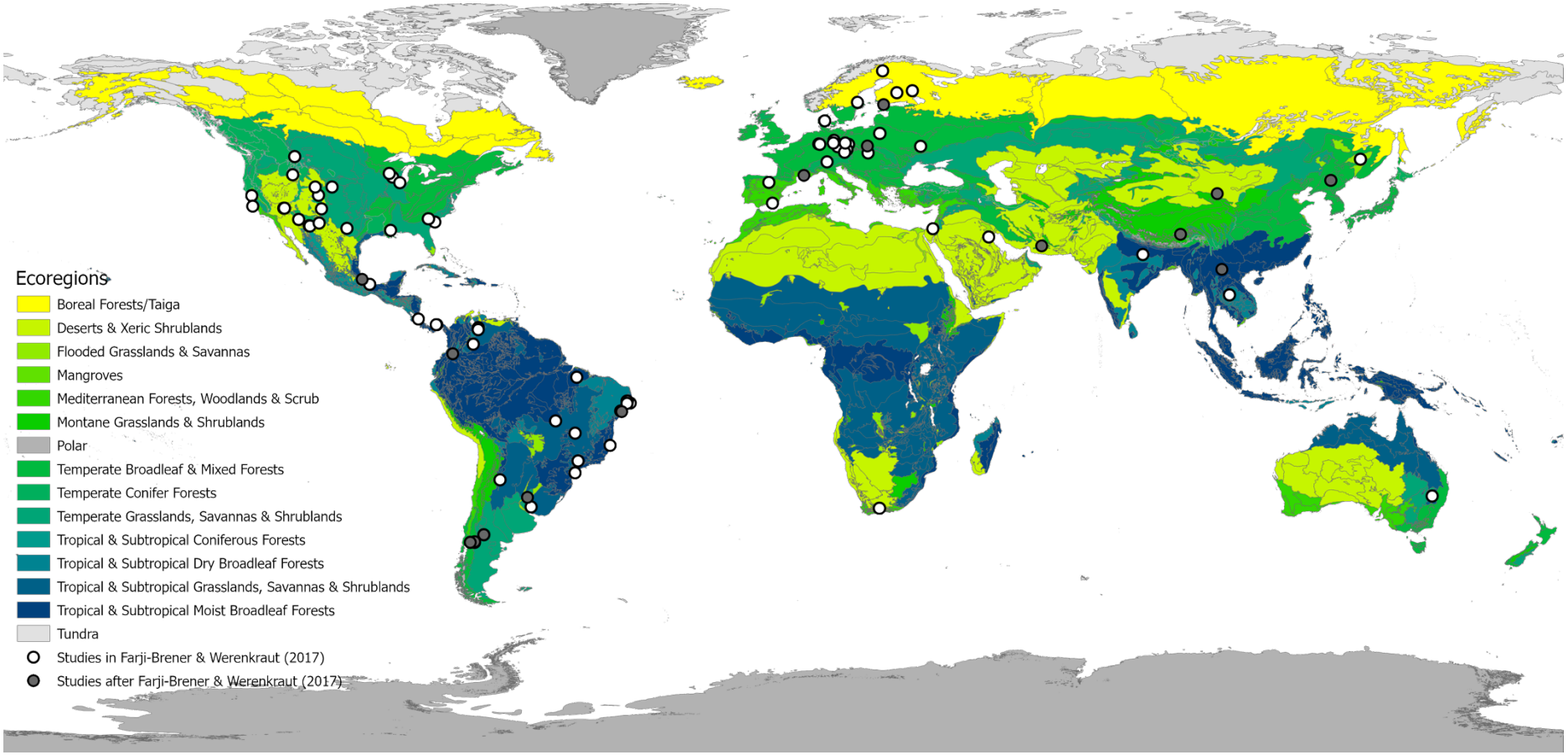

Fig. S1: Map of studies from FARJÍ-BRENER & WERENKRAUT (2017) with updates from new studies published in 2016 onwards. Biomes were classified according to Ecoregions app (DINERSTEIN & al. 2017; https://ecoregions.appspot.com). The map and assigned points were built on GIS. Clear biogeographic and ecological biases can be perceived with the majority of studies concentrated to the New World and Western Europe.

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