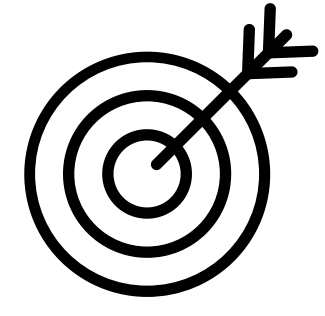


A tale of heavy metals, railways, plants and pollinators: the promise of phytoremediation in urban areas

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1 ZooPlantLab, Department of Biotechnology and Biosciences, University of Milano-Bicocca, Milan, Italy; 2 NBFC, National Biodiversity Future Center, Palermo, Italy; 3 Sezione di Botanica, Natural History Museum of Milan, Italy; 4 Department of Earth and Environmental Sciences, University of Milano-Bicocca, Milan, Italy

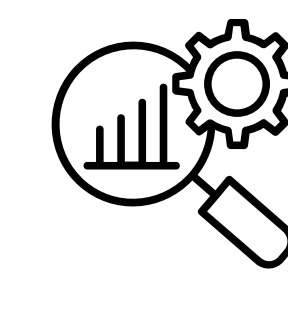
The research is part of Task 6.1 "Urban Bio-Phytoremediation" within National Center for Biodiversity project. The experimentation involves the development of environmental recovery systems based on phytoremediation, selecting native tree and shrub species used for reforestation interventions in the polluted urban areas of northern Italy. The study started in the spring of 2023 with vegetation surveys and entomological samplings to assess the ante-operam biodiversity, aiming to design reforestation interventions effectively.



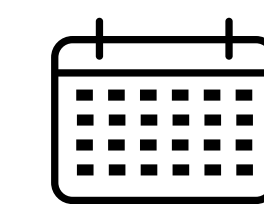
The research aims at addressing the impact of urbanisation on biodiversity by evaluating the effects of highly-degraded landscapes on the ecosystem services quality. These knowledge advancements will constitute a baseline to design optimal restoration strategies.



3 dismissed railway sites contaminated by heavy metals and organic pollutants in Milan (Italy): 1 site in Scalo Farini and 2 in Scalo San Cristoforo.

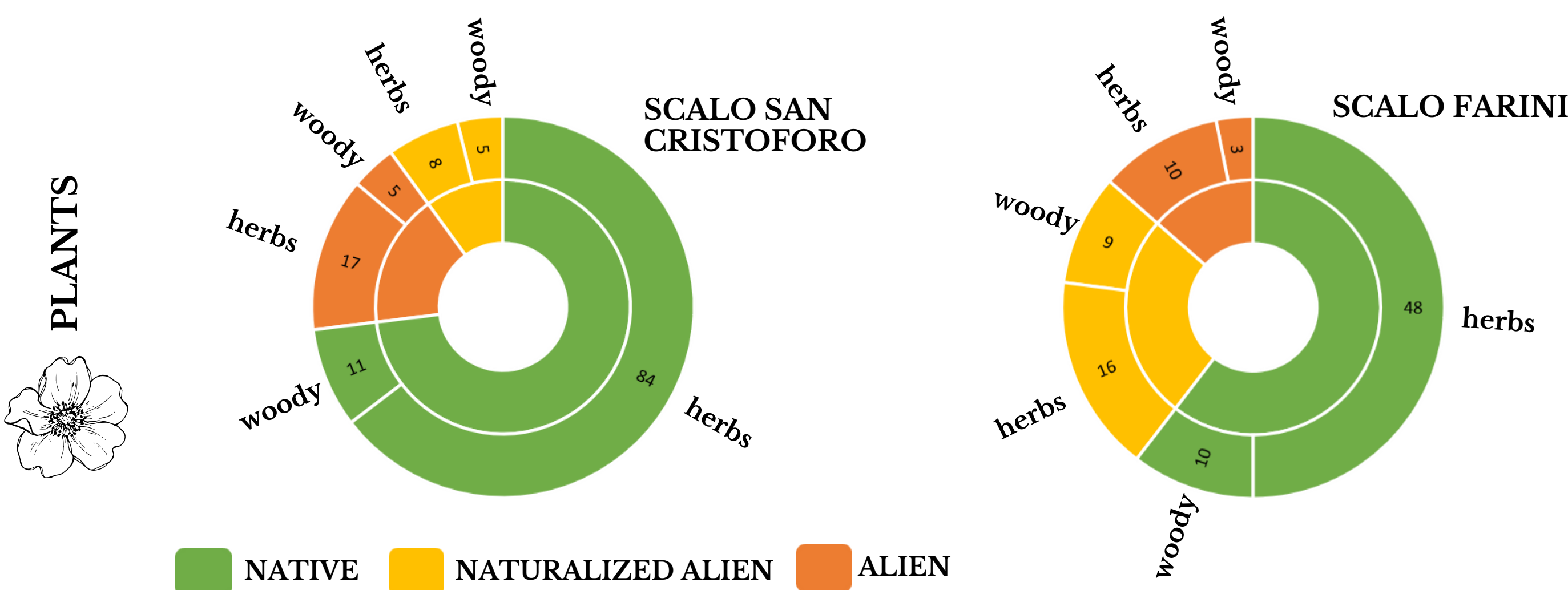


Floristic surveys and active entomological samplings were carried out, targeting wild bees, wasps and hoverflies



Spring and summer 2023

BIODIVERSITY ANTE OPERAM

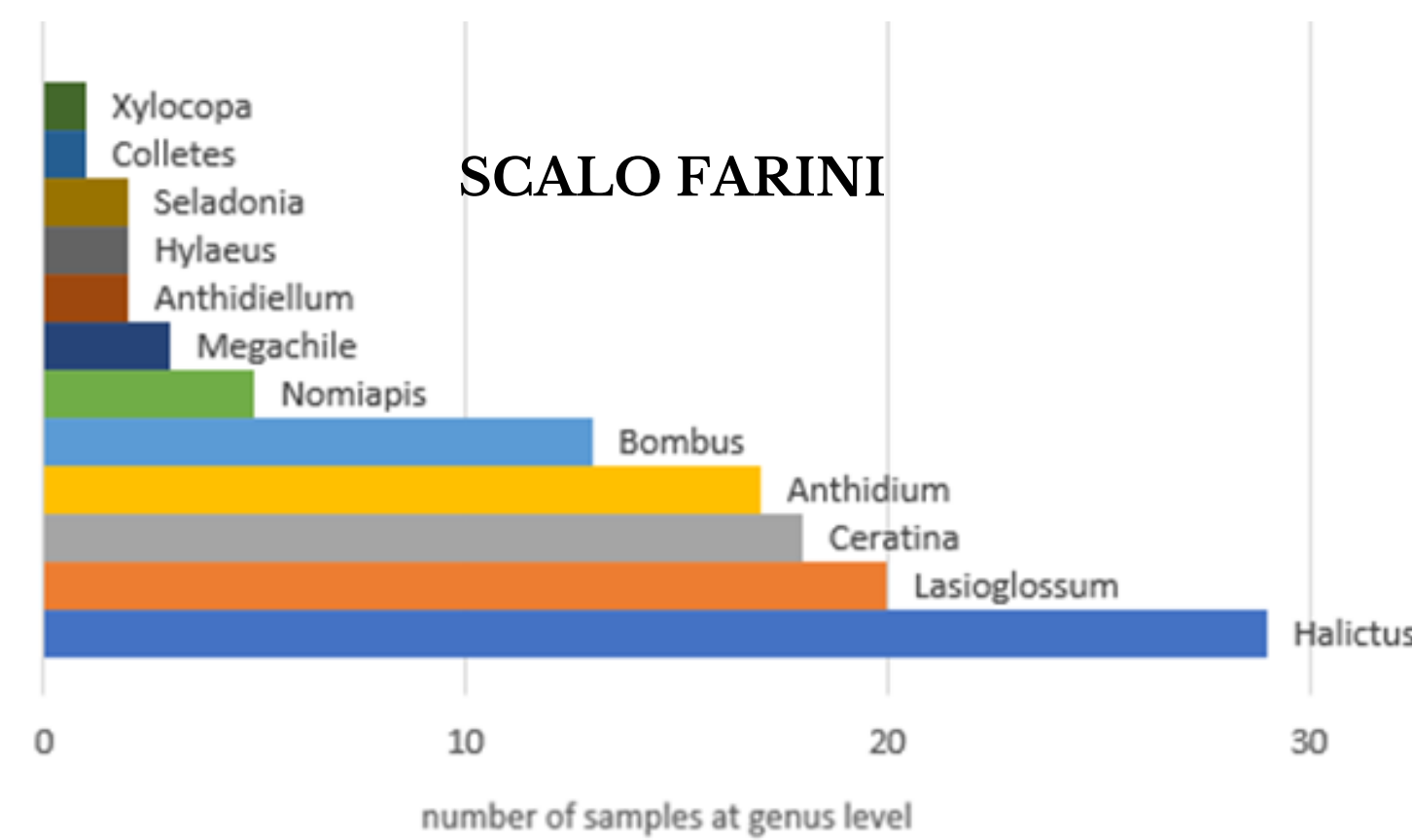
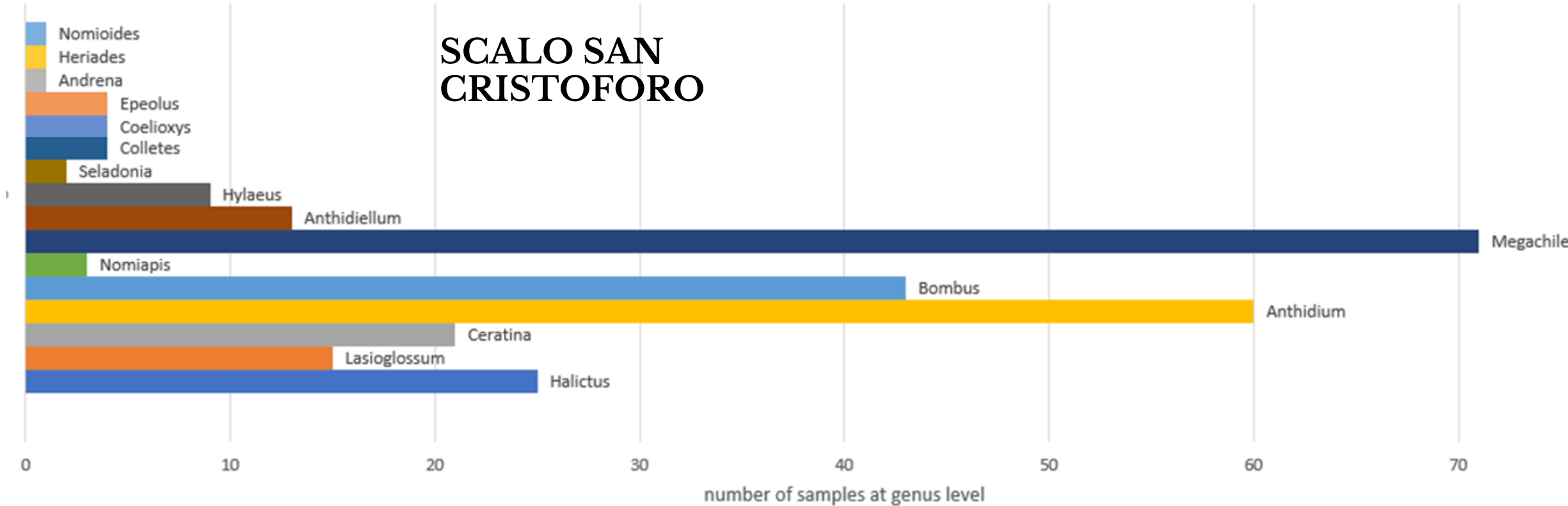
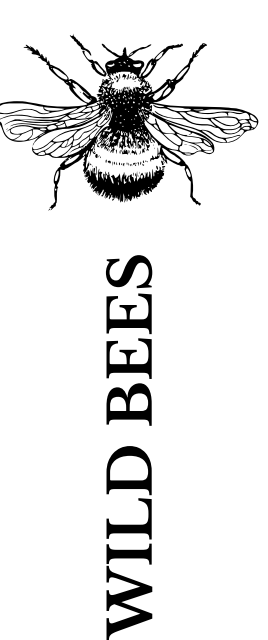


PLANTS:

Scalo Farini: 96 species, 81 genera, 42 families
 Scalo San Cristoforo: 133 species, 105 genera, 42 families

POLLINATORS:

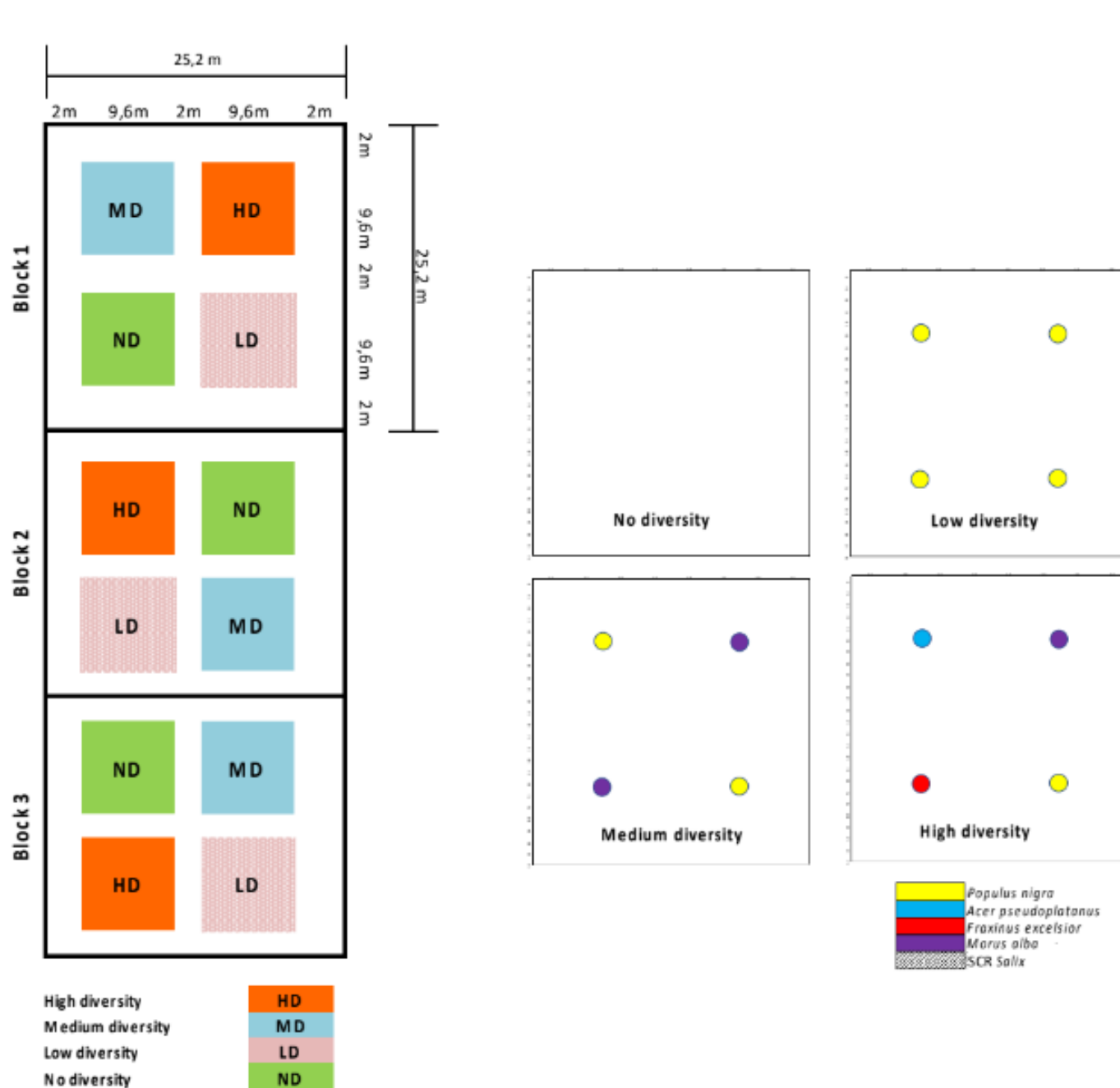
Wild bees: 390 specimens, 14 genera
 Hoverflies and wasps: 134 specimens



PHYTOREMEDIATION PLAN



SCALO FARINI
SCALO SAN CRISTOFORO



In the two maps highlighted in yellow the areas where phytoremediation interventions will be carried out as indicated in the diagram above

WORK IN PROGRESS



The first vegetation and entomological monitoring activities conducted at the current state of the polluted areas of the railway yards demonstrate high biodiversity for all taxa.

The challenge is to restore a natural environment using phytoremediation techniques and aiming to increase biodiversity for all taxa, promoting native species and enhancing the existing biodiversity without causing harm but rather qualifying it

GOALS

