

Urban algae

Ecological Status and the Perception of Ecosystem Services of Urban Ponds



2nd Collaborative European Freshwater Science Project for Young Researchers "FreshProject 2.0" (EFFS, EFYR & FBFW)

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Introduction

Urban ponds provide **ecosystem services** (ES) to urban citizens.

Despite the growing body of literature on the ES that they provide, the linkage between their ecological potential and the social valuation of urban ponds by the citizens is still not very clear.

The community of **primary producers** directly affects both ecosystem functioning and ES. Even though in general citizens lack the scientific knowledge to distinguish between trophic states of aquatic ecosystems, citizen perception/valuation of urban ponds can be used as an indicator of the **trophic status** of urban ponds (e.g. highly eutrophied algae-dominated ponds may not be as well appreciated as clear water macrophyte-dominated ponds).

The **citizen's perception of urban ponds** varies for different ES, which are often dependent on and affected by the ecosystem functioning of the ponds. Primary producers are key players in aquatic ecosystem functioning (nutrient recycling, carbon sequestration), but in urban environments they are influenced by multiple stressors, and as a consequence the structure and biodiversity of the primary producers varies drastically.

Sampling areas

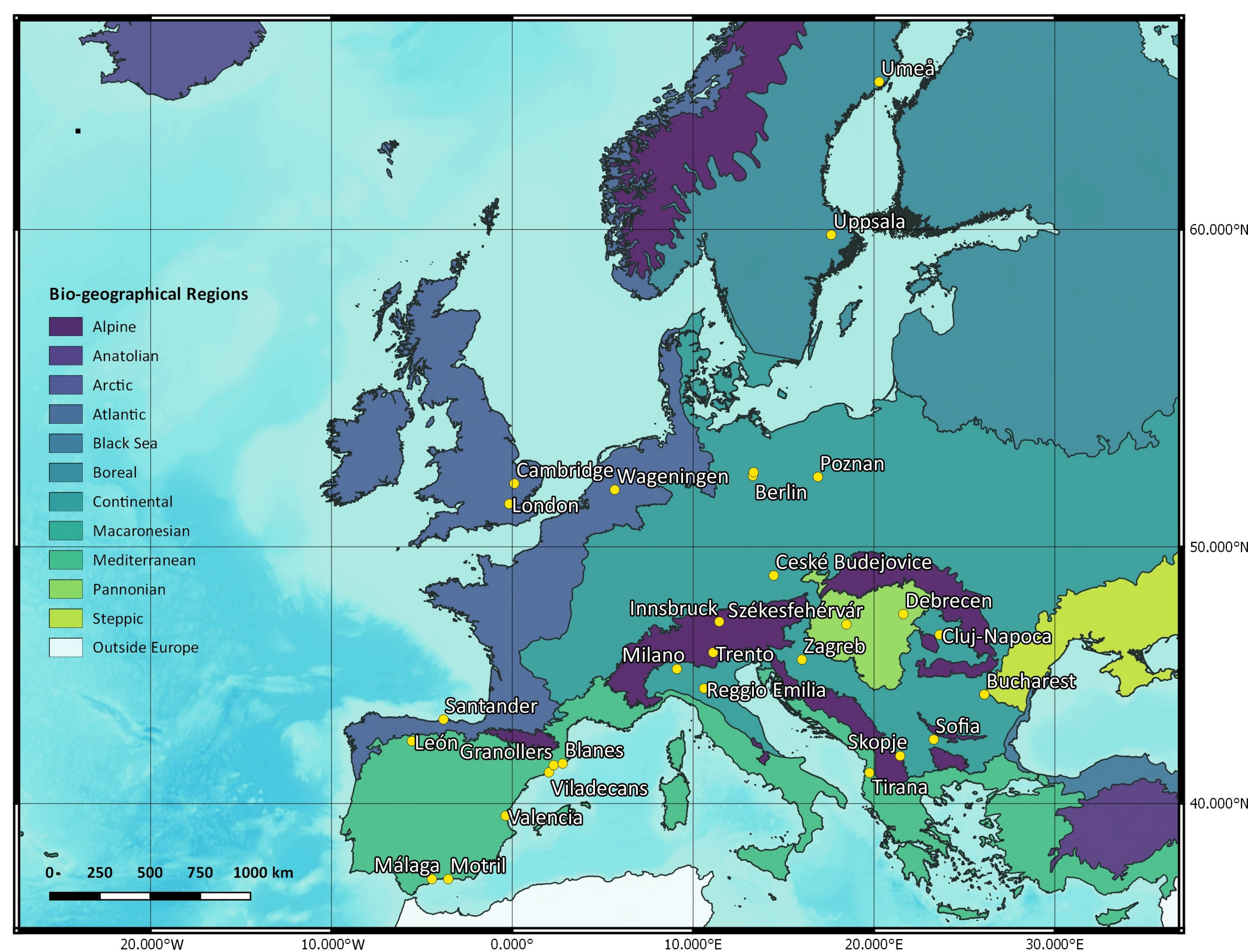


Figure 1. Distribution of the 30 participant teams that will sample 28 urban nuclei, with a range of population from 0.03 - 10 M inhabitants/km². The urban nuclei cover 6 bioregions and a latitudinal gradient from Málaga up to Umeå.

The perception of different ES generally matches with the ecological potential of pond

Composition, abundance and biomass of phytoplankton and macrophytes are linked to the perception of the society on ES provided by ponds.

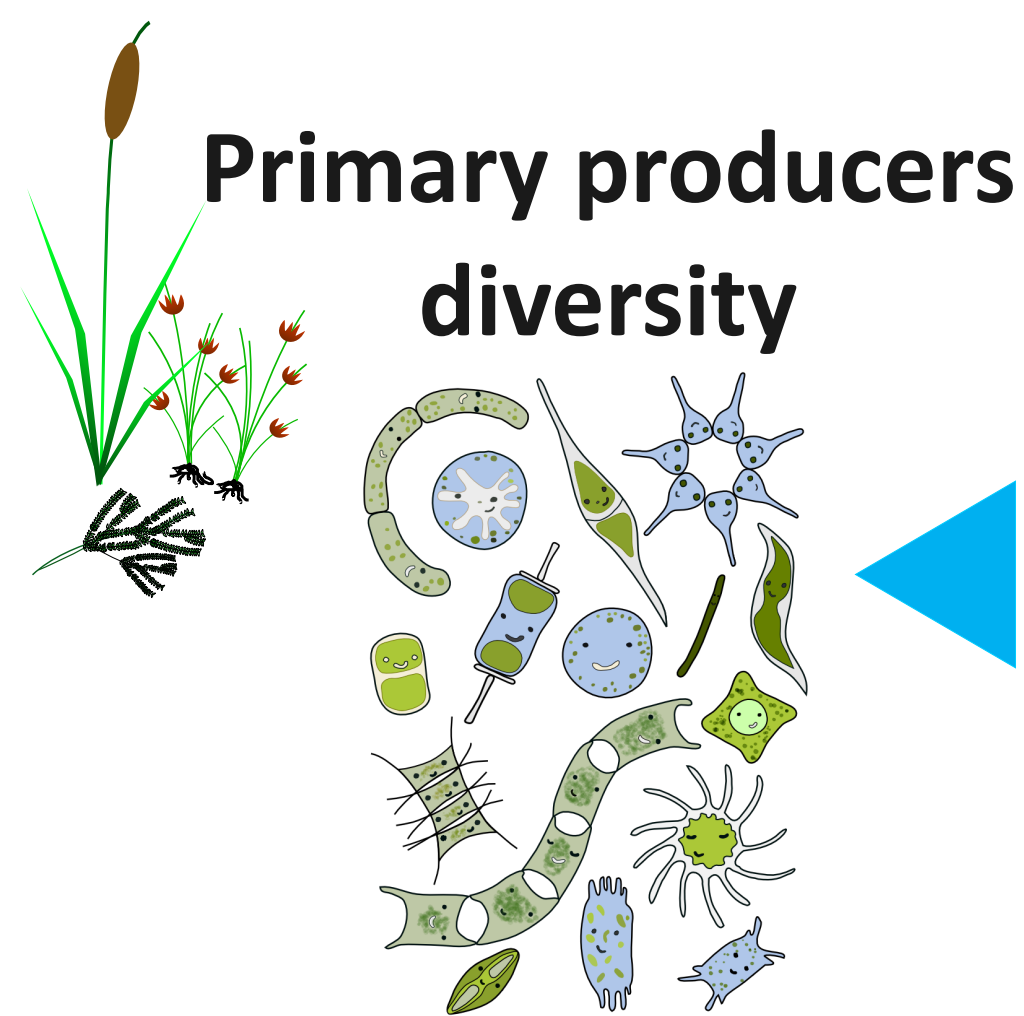
We further expect that due to a lack of knowledge some ES (such as storm water retention) may not be recognized by the citizens at all.

Cultural differences will affect the ES perceptions and the latter will vary among urban densities and geographically across Europe.

Aim and Hypotheses

The **ecological potential of ponds** in urban environments is often poor according to established standards.

Cyanobacteria will be a dominant group in eutrophied ponds. **Does society recognize this?**



Research pillars

Ecological potential

Perception of Ecosystem Services

Approaches and methods

Pond categories



¿?

Water quality



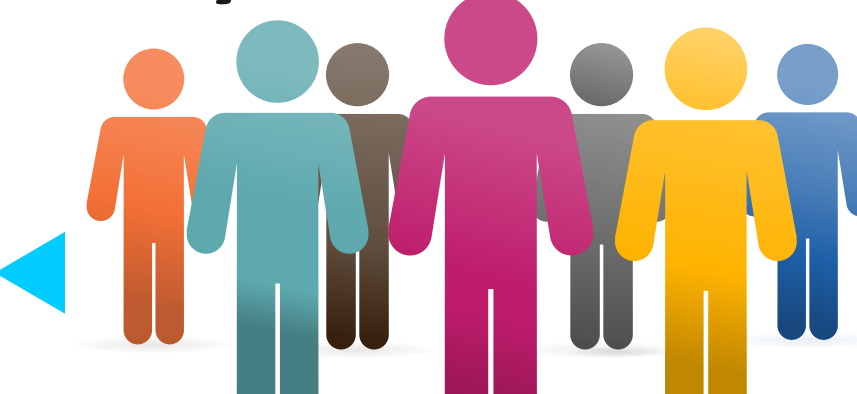
Physical and chemical parameters

(pH, conductivity, dissolved oxygen, nutrients)

Biological variables

(Macrophyte & phytoplankton biomass, taxonomic composition)

Valuation of ecosystem services



Citizens

Acknowledgments:



European Federation for Freshwater Societies (EFFS)
European Fresh and Young Researchers (EFYR)
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