

PROJECT INFORMATION

Project title: iTRY-Europe - Integrating trait observations and macroecological data across Europe

Project ID: 42

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PROJECT DESCRIPTION

Upscaling traits in Europe:

TRY data are of particular accuracy within Europe where we are also equipped with relatively accurate species distribution data, e.g. the "Atlas Flora Europea" (AFE) and the ICP Forest Plots. The intersection of both kind of data bases - traits and tree distribution - will be used as baseline for estimating trait maps ("upscaling") using machine learning approaches. One innovation is that our methods can directly ingest remote sensing, pedological, and possibly climatological observations in the prediction of trait distributions. The goal is to estimate the biogeographical distribution of traits over Europe considering both within-species trait variability as well as multivariate trait constellations.

Understanding multidimensional trait constellations:

Based on 1. we explore the multivariate constellations of traits weighted by geographical relevance. Exploring these high dimensional data will be used to understand features such as the intrinsic dimensionality of the trait space (its "complexity"), and how these patterns change with geographical space. We expect an accurate picture of how traits within and across species are mutually (possibly nonlinearly) interlinked. Thus we can infer and hypothesize spatially varying trade-off between different traits, depending on environmental constraints.