AMS-VegBank: A Useful Tool For Studying Plant Diversity Patterns

Bruzzaniti Vanessa[1,2], Chiarucci Alessandro[1]

[1] BIOME Lab, Department of Biological, Geological & Environmental Sciences, Alma Mater Studiorum – University of Bologna, Bologna, Italy

[2] LifeWatch ERIC Research Infrastructure, Lecce, Italy

Introduction

In the last 100 years, vegetation scientists collected and published impressive amounts of plant co-occurrence data by sampling vegetation plots or relevés (Chytrý et al. 2016; Bruelheide et al. 2019). Various continental or global initiatives are presently active in coordinating the aggregation of vegetation databases, such as:

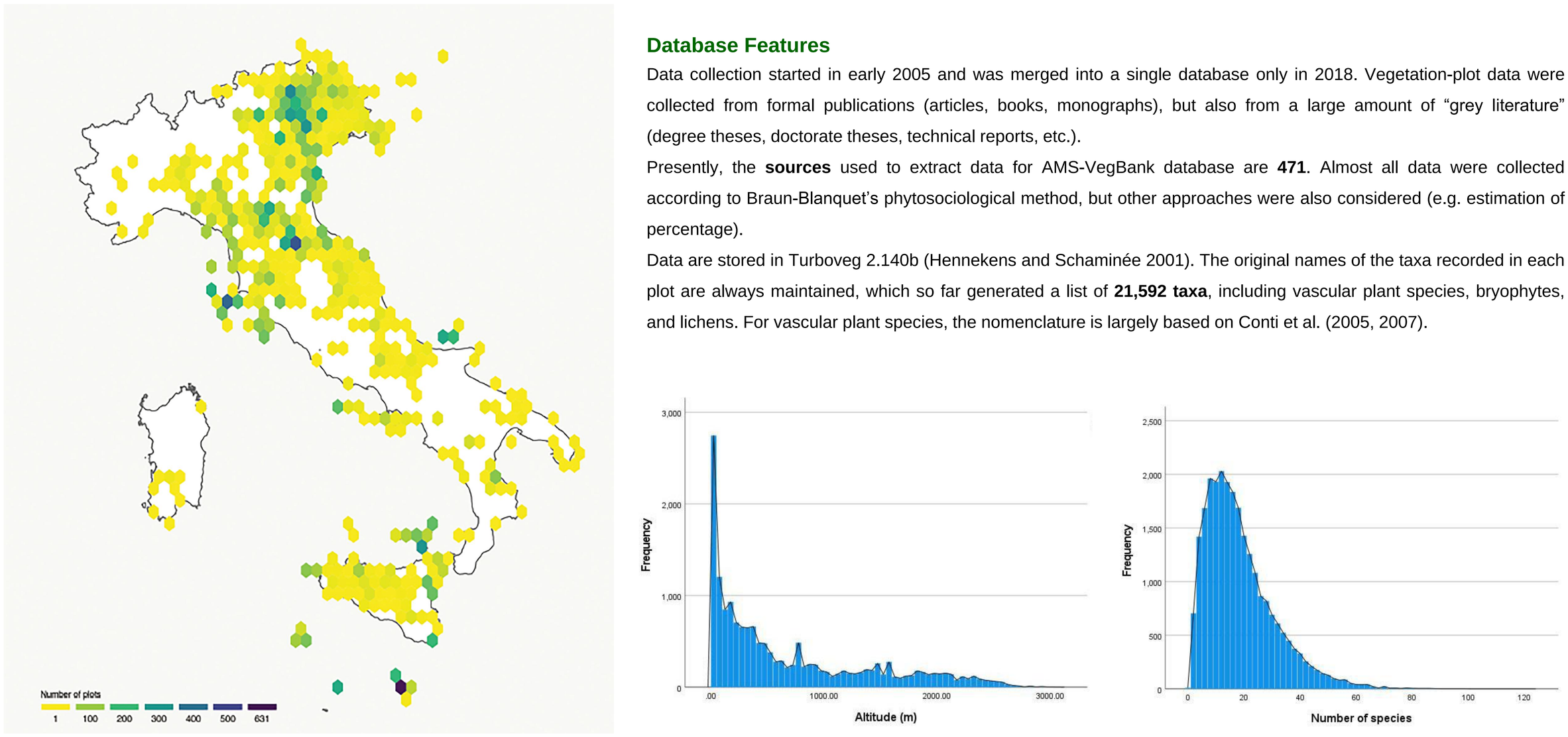
i) the Global Index of Vegetation-Plot Databases (GIVD; see Dengler et al. 2011), that contains metadata of many vegetation databases worldwide;

ii) the European Vegetation Archive (EVA), a centralised database of European vegetation (Chytrý et al. 2016);

iii) the sPlot Consortium, which is developing a global vegetation-plot database (Bruelheide et al. 2019; Sabatini et al. 2021).

The storage and reuse of these data are now a fundamental source of information to address ecological and biogeographical questions, such as vegetation and habitat classification, ecological modeling, plant species invasions, understanding biodiversity patterns from a macroecological perspective, or testing island biogeography theory (Chytrý et al. 2020; Biurrun et al. 2021; Chiarucci et al. 2021; Wagner et al. 2021).

In Italy, 15 vegetation databases are currently registered in the GIVD. We present the principal features of the new AMS-VegBank database, the vegetation-plot database of the Alma Mater Studiorum – University of Bologna (EU-IT-021), one of the largest national databases.



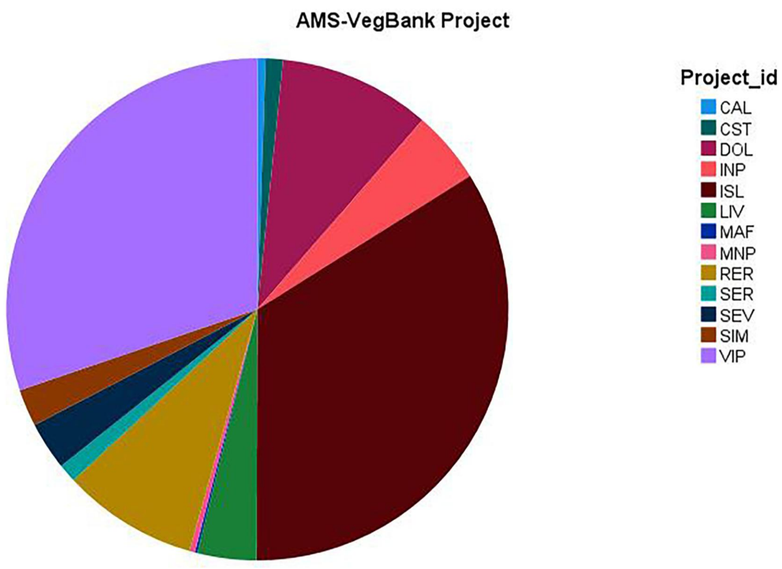
Distribution of the Italian vegetation plots stored in AMS-VegBank database showing a) geographic density of plots, b) altitudinal density of plots, c) species richness density of plots.

Database Features

Data collection started in early 2005 and was merged into a single database only in 2018. Vegetation-plot data were collected from formal publications (articles, books, monographs), but also from a large amount of "grey literature" (degree theses, doctorate theses, technical reports, etc.).

Presently, the **sources** used to extract data for AMS-VegBank database are **471**. Almost all data were collected according to Braun-Blanquet's phytosociological method, but other approaches were also considered (e.g. estimation of percentage).

Data are stored in Turboveg 2.140b (Hennekens and Schaminée 2001). The original names of the taxa recorded in each plot are always maintained, which so far generated a list of **21,592 taxa**, including vascular plant species, bryophytes, and lichens. For vascular plant species, the nomenclature is largely based on Conti et al. (2005, 2007).



AMS-VegBank Projects: CAL Caltha project, CST Castanea, DOL Dolomites, INP Italian National Park, ISL Islands, LIV Ligurian vegetation, MAF Mangrove forests, MNP Maremma Natural Park, RER Reserves ER, SER Serpentine outcrop vegetation, SEV Segetal vegetation, SIM Siena Monitoring, VIP Various Italian Plots

Database Content

AMS-VegBank is presently storing species compositional data from 3**0,123 vegetation plots**.

These plots come from specific research projects on plant communities performed by researchers connected with the owning and other institutions in Italy.

The database contains accurate information on vegetation composition and structure as well as the physical environment, collected within projects coordinated by leading vegetation scientists.

This database includes **578,432 occurrence data** of vascular plant species, belonging to many different habitat types.

The historical relevance of the presented database is highlighted by the presence of some of the most ancient vegetation-plot observations in Europe (years **1930–1938)**.

The geographic coverage of the database is mostly for Italian territory but also includes data from other countries, such as islands of the Mediterranean basin, Canary Islands or Iran.

The most relevant thematic projects covered by AMS-VegBank are those focused on:

-the **Mediterranean islands**

-the **Dolomite Mountains**

-the **Italian National Parks**.

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