**Harmonization of morpho-functional and ecological traits to study response patterns of plants to global changes**

**Rationale**: National research in plant taxonomy, plant ecology and plant geography, is producing a wealth of biodiversity data. While part of these data is available online, sometimes also in the form of searchable online aggregators, we are still far from an ideal situation, in which fragmentation of the resources is absent, or limited, and digitization of existing data is (almost) complete. Italy still lacks of a common infrastructure for data aggregation and management, which could also provide web services to researchers.

Thanks to the PON project LifeWatch Plus, the University of Bologna is becoming the botanic digital biodiversity center in the country. However, this center must be populated with data, resources, and services, in order to become useful to the scientific community.

**Objective**: Analyses of available data sources and typologies at national level on digital checklists, online *herbaria*, morpho-anatomic databases of floristic data. Many of these data are partially organized in several online sources thanks to the Dryades project of the Department of Life Sciences of University of Trieste, and they will be transferred in the national Hub for biodiversity and ecosystem research. Yet, these resources have a limited degree of integration and they are often available as separated entities. This makes difficult both data interoperability and the integrated use of the different data typologies to analyse the complexity of plant communities in the country with a multidimensional and cross-taxonomic apporoach. The aim of this research position is to use the opportunity provided by the development of the LifeWatch infrastructure for plant biodiversity in the Hub of Bologna to aggregate and analyse morpho-anatomic and floristic data providing also a support in the development of the infrastructure in the thematic hub of Bologna.

**Work plan**: the researcher in charge of the work will work in the field of biodiversity informatics, developing the digital infrastructure, and, when necessary, standards, protocols, and novel strategies.

The project is based on a two years perspective, and the work plan is explained below:

1. Analyse the different typologies of available data, highlighting lacks of protocols for data standardization, vocabularies and ontologies.
2. Develop monitored vocabularies and ontological tools for morpho-functional traits.
3. Analyse the multidimensional and cross-taxonomical complexity of the Italian flora.