

“Flora Italiana Digitale”: an interactive identification tool for the Flora of Italy

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Abstract — The digital facilities of the second edition of Pignatti’s “Flora d’Italia” are presented. A software, called FID (i.e. “Flora Italiana Digitale”) will link together a random-access interactive identification tool, a thesaurus, synoptic tables and one template for each single species, including a distribution map (referred to the Italian regions), “ecograms”, a text-box and up to 24 high-resolution colour images. The FID follows a “shareware philosophy”. All contents and images can be integrated and/or replaced over time, in order to continuously improve the diagnostic and qualitative performance of the provided utilities. Ideally, the community of users should interact on the web, so that every user could easily become content provider.

Index Terms — Flora of Italy, interactive identification tool.

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1 INTRODUCTION

The most recent flora of the vascular plants growing in Italy was published in 1982 [1]. This work consists of 2324 pages in three volumes, where each of 5599 native and invasive species is briefly described and illustrated by a regional distribution map and a drawing, the latter mostly taken from the “Iconographia Florae Italicae” [2].

Since 1982, several changes occurred both in the systematics of vascular plants and in the floristic exploration of the Country: the records for the Italian flora raised up to 6700 species [3] and the bulk of knowledge on a single species includes on one hand more detailed information on ecological and phytosociological preferences, and on the other hand on molecular and phylogenetic data and results. Moreover, the public interest and concern for nature and the biosphere, of which vascular plants are the most visible and perceivable component (at least for most of the terrestrial ecosystems), has

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increased consistently in the last three decades also among non-specialists [4].

For these reasons, a second edition of the Pignatti's "Flora d'Italia" was planned, making use of the new facilities offered by information technology, in order to provide an updated inventory where specialists and non-specialists can easily find the information they search for.

The new work will consist of four volumes with integrated digital utilities and data-sources, that link together interactive polytomous keys, a thesaurus, synoptic tables and one template for each single species, including a distribution map (presence-absence in the Italian regions), "ecograms", a text-box and up to 24 high-resolution colour images.

2 DIGITAL UTILITIES FOR THE ITALIAN FLORA

Our project started in December 2002. A software, called FID (i.e. "Flora Italiana Digitale"), has been written in Visual Basic and developed with the inclusion of client packages for multiplatforms.

The software aims at:

- providing a rich iconography for each of the species of the Italian Flora. Current settings are limited to max. 24 images/species, but there is virtually no limit to this number. Images may include digital photographs, optical and microscopic scannings of diagnostic characters, drawings and any other depiction that turns out to be useful to identify a given species and to represent its morphologic variability;
- helping beginners to identify the observed specimens by means of a random-access interactive identification tool, filtering the species on the basis of the morpho-anatomical characters selected by the user's queries;
- letting the user to personalize the contents of the FID, by adding/replacing texts and/or images, as well as personal data-bases (e.g. own herbarium, the flora observed during a hike...). These additional contents can be kept "private only" or, instead, submitted to the scientific committee to be placed at any other user's disposal.
- providing exhaustive open-ended descriptions on the species belonging to the Italian vascular flora, including phylogenetic, morpho-anatomical, ecological data, conservation issues, as well as information on traditional uses, common and vernacular names, adversities, importance for human economy, etc.

Being the digital flora an open-ended work, all contents and images can be integrated and/or replaced over time, in order to continuously improve the diagnostic and qualitative performance of the provided utilities. Ideally, the community of users should interact via web, so that every user could easily become content-provider, by giving the right to use the provided content in the frame of the FID. A scientific committee will evaluate the contributions prior to publication and ensure the visibility of each single contributor. Official updates will be periodically published online.

Up to now, the digital utilities of the second edition of the "Flora d'Italia" are the result of the liberal cooperation of more than 150 contributors. One relevant point is the direct involvement of secondary schools for testing polytomous keys and

usability of the contents. A second relevant point is the lack of sponsors, so that all contents will not only make more accessible the information on plant species, but also celebrate the praiseworthy synergy of people sharing the same passion for the beauty of floristic research. In this “shareware philosophy”, a mutual aid that has to be particularly mentioned is with the *Dryades* Project, the Italian branch of the European project *KeyToNature* [5]: several contributors collaborate to both projects and the exchange of know-how and visual contents greatly helped in the development of the FID.

3 ...HOW DO THEY WORK?



Fig. 1 – Opening window of the FID: the options under “trova la tua pianta” (= find your plant) can be used to go directly to the information on a plant known by the user. Instead, the option “Cerca la tua pianta” (= search your plant) opens the window of the interactive identification tool.

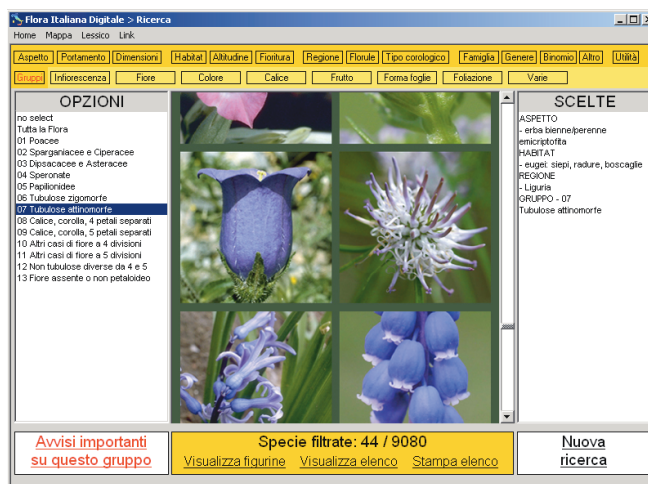


Fig. 2 – To identify a specimen, users can select a set of non-hierarchized fields and options. User’s choices are listed in the left. The filtered species appear by clicking on “Visualizza figurine” (images) or “Visualizza elenco” (names, printable with “Stampa elenco”). The centre hosts a table with texts and images (1496 in total).

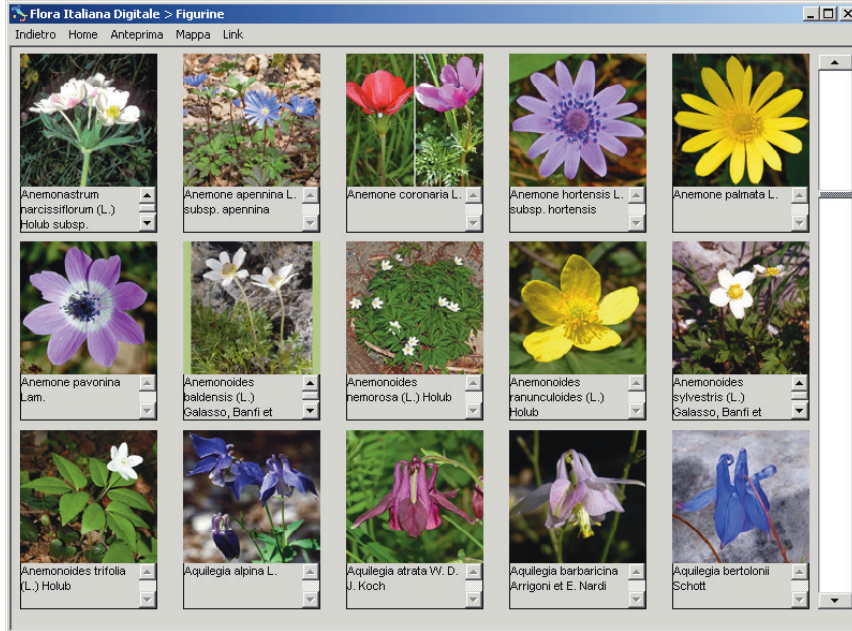


Fig. 3 – The visual identification of a specimen is possible through the comparison of thumbnails. A single click will magnify the image. A double-click will open the informative window of each single species.

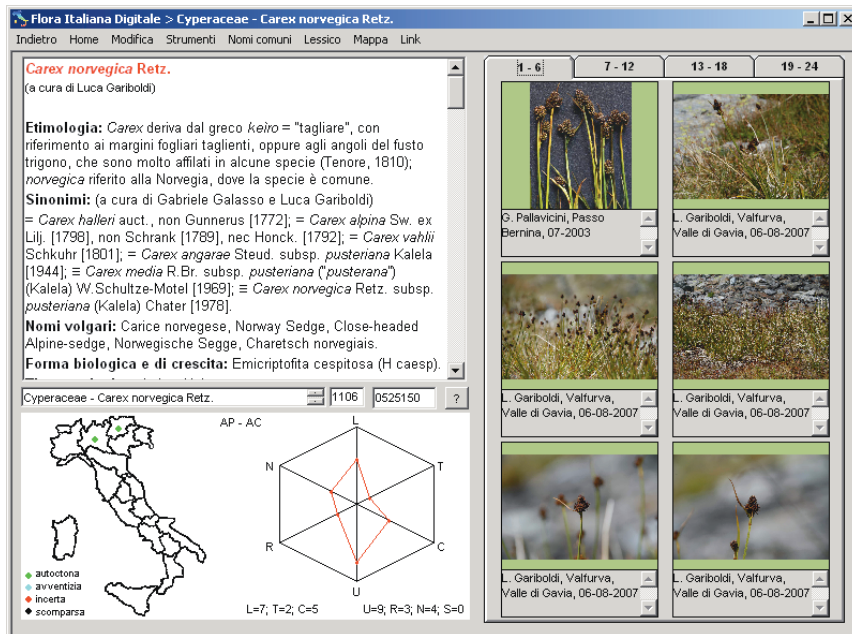


Fig. 4 – The informative window includes: a standard text (that can be modified/personalized by the user); a distribution map; an “ecogram” [6] displaying the ecological preferences and pollination/dissemination strategies; the thumbs of up to 24 high resolution images.

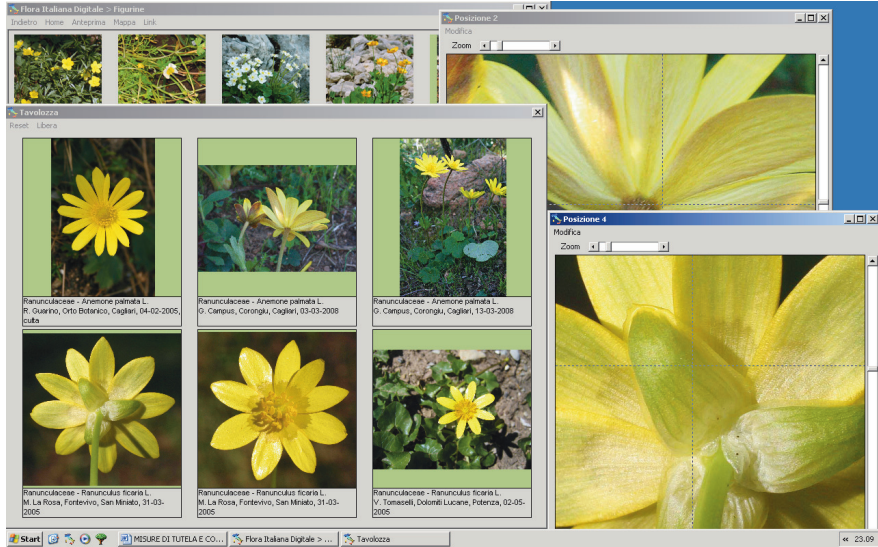


Fig. 5 – It is possible to collect up to six selected images in a synoptic table, in order to compare different features of one or more species. Each image can be zoomed; colours, contrast and light can be temporarily modified by the user, in order to better observe diagnostic characters.

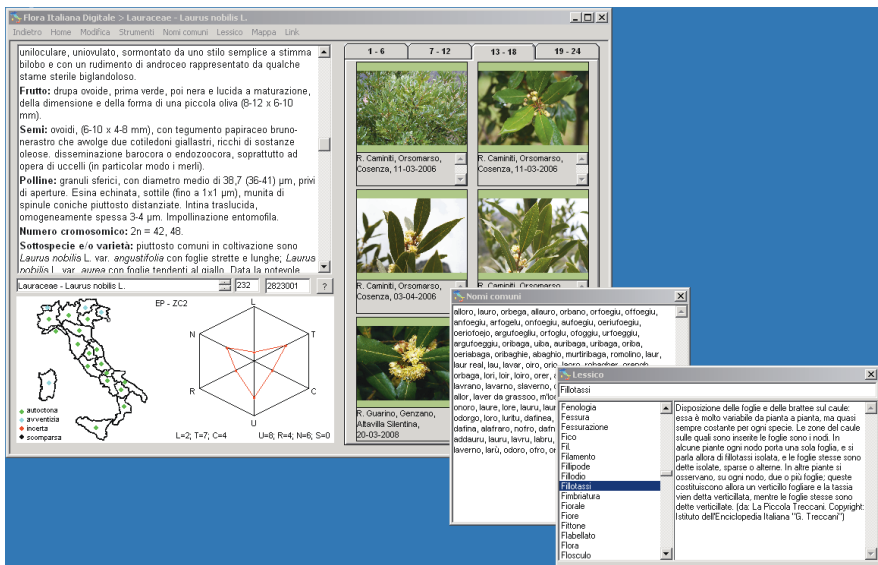


Fig. 6 – Some facilities, such as a conceptual map, a thesaurus, the list of common names can be recalled by the user at any time, in order to make browsing more friendly.

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