Flora Corsica: a New Field Guide to the Corsican Flora

JEANMONOD, Daniel, GAMISANS, Jacques, SCHLÜSSEL, André

Abstract

Flora Corsica (Jeanmonod D. & J. Gamisans 2007), a new comprehensive, and pocket sized field guide to the flora of Corsica is presented. This book includes identification keys, and the description, biology, phenology, ecology, scarcity, and biogeographical type of all the 2858 taxa occurring on the island. About 1200 illustrations are also given at the end of the book. Results are presented in the form of datas dealing with diversity and specificity of the corsican flora.

Reference


Available at:
http://archive-ouverte.unige.ch/unige:17336

Disclaimer: layout of this document may differ from the published version.
Abstract


Flora Corsica (Jeanmonod D. & J. Gamisans 2007), a new comprehensive, and pocket sized field guide to the flora of Corsica is presented. This book includes identification keys, and the description, biology, phenology, ecology, scarcity, and biogeographical type of all the 2858 taxa occurring on the island. About 1200 illustrations are also given at the end of the book. Results are presented in the form of datas dealing with diversity and specificity of the corsican flora.

Introduction

The first ever comprehensive field guide to the flora of Corsica is now available in French (Jeanmonod & Gamisans 2007, with the collaboration of 16 specialists). This book (Fig. 1) is the result of 20 years of intensive study, field work, the observation of thousands of living and herbarium specimens, and the compilation of all known published data on the island’s plants. Much data dealing with the flora of Corsica has been published over the last 20 years (506 publications between 1987 and 2007) including on the discovery of many plants that are new for the island’s flora, and the description of several species new to science (e.g. Orobanche cyrnea Jeanm. & al., Stachys aymericii Gamisans). An up-to-date working summary of the contemporay flora was needed and something long-awaited by nature conservationists and botanists.

This pocket sized work (18.5 × 11.5 × 3.5 cm, 1050 pages printed on Bible paper) treats all vascular plants occurring in the wild on Corsica, i.e. 870 genera including 2858 specific or infraspecific taxa. In the first part of the flora, the authors give an introduction to phytogeography of the island: geography, geology, climate, paleogeography, vegetation belts, but also some taxonomical analyses and informations on the threats affecting the plants as well as on the protection measures put in place for the benefit of the flora and vegetation of the island as a whole.

Presentation

Dichotomous keys (Fig. 2), supplemented with many line drawings of plant features (Fig. 3) permit the identification of all the vascular plants that have been found in the wild on Corsica. Keys are given at four levels:
- Family keys (158 families in a classical conception, but organized with the APGII system).
- Generic keys inside each family (870 genera, most of them are treated based on the modern concept issuing from molecular and phylogenetic studies).
- Species keys inside each genus.
- Infraspecific keys (at subspecific and sometimes variety level) inside each species.

Then, for each taxon, *Flora Corsica* provides additional information such as given in this example:

**Castroviejoa frigida** (Labill.) Galbany & al. (≡ *Helichrysum frigidum* (Labill.) Willd.). I. des frimas, murzella — v- Cham. 5-10 cm. Pl. tomenteuse-grisâtre, cespituse, prostrée, à rameaux arqués-ascendants; flles de 2-5 mm, densément imbriquées; capitule solitaire, de 12-18 mm de diamètre, à bractées d’un blanc pur, rarement rosées; akènes densément pourvus de soies raides, longs de 1,2-1,6 mm, à pappus de soies sétulées, de 3,5-4 mm — 6-8 — MO OR SA AL — Fissures de rochers; silice; du Cintu à Cagna — c — End. Co-Sa d’orig. Méd-Mont.
Fig. 113: *Asteraceae (suite 5)* - a: *Leucanthemum coricum* subsp. *coricum*; b: subsp. *fenalii*; c: *Namanshe perpusilla*; d: *Artemisia absinthium*; e: *A. caerulacens*; f: *A. arboreascens*; g, h & i: akènes ext., intermédiaire et int. de *Calendula arvensis*.

Fig. 3. Example of a plate.
This information includes:
- taxa names (Latin, French and Corsican if available): the taxonomy used is up-to-date, and takes into account the results of the most recent molecular studies, as in the above example;
- most frequently used synonyms (ca 5’000 names);
- biology (Raunkier biological types);
- description (briefly in 2-3 lines);
- phenology (months are indicated to show flowering period);
- ecology (vegetation belts (11 categories), habitat, substrate, and vegetation units);
- scarcity in 7 categories (very common (CC), common (C), localized (LOC), uncommon (PF), rare (less than 11 localities; R), very rare (less than 6 localities: RR), extinct (D);
- biogeographical type and protection status.

Entire plant and morphological details for many taxa are illustrated with line drawings (about 1200) (Fig. 3).

Results

This work demonstrates the high diversity and specificity of this insular flora: 13.6 % of the native taxa (11 % of the total flora) are endemic. This is the result of a long isolation (ca. 5 millions years) augmented by its strong topographic relief which creates a lot of different microclimates, as well as ecological and geological situations. Over the past twenty years, the number of non-native species found on the island has increased, likely due to the economic development of it. The presence of introduced species has become very significant (Fig. 4): 16 % of all species are non-native and 6 % of these are naturalized species. 31 of these species are considered to be invasive. These invasive alien species are also highlighted out because of the potential danger they may pose for the local flora and habitats. A chapter discusses the threats affecting this exceptional flora, and proposes mesures to ensure its protection.

46 % of the native flora has a strictly mediterranean origin, whereas 19 % show an European origin (Fig. 5). Unlike other mediterranean islands, Corsica consists of a high mountain chain (reaching at 2710 m a.s.l.) that rises from the sea. This explains the presence of a significant element of the temperate european mountain flora. The occurence of several boreal or arctico-alpine species (such as Trichophorum alpinum (L.) Pers., Diphasiastrum alpinum (L.) Holub, Trientalis europaea L. and Corallorhiza trifida Châtel.) is, however, rather surprising. These species often occur in only one locality sometimes only in the form of small populations, representing the last populations left after the past glaciations. This flora also highlights the scarcity of many taxa (Fig. 6): 34 % of the native flora are known only from 1 to 10 localities (RR + R), which means that they must be considered as threatened or even endangered. The intensive exploration of Corsica conducted over the past twenty years have resulted in the discovery of many new localities for plants that used to be considered as rare but which have finally proved to be more common or more widespread. On the other hand, the many species that are now classified as very rare (RR) or rare (R) in Flora Corsica should definitively be considered as such and are evidence of a past that we do not yet fully understand. Most
Fig. 4. Proportion of native and introduced species.

Fig. 5. Biogeographical origin of the native flora of Corsica.
Fig. 6. Degree of scarcity of the native flora.

Fig. 7. Distribution of the number of endemic and non-endemic taxa within the different vegetation belts.
of them are included in the official Red List for the island and these taxa are labelled with a P! in the Flora (191 taxa).

Endemic and subendemic taxa represent 40.5% of the highest vegetation belts (sub-alpine and alpine) flora, but the greatest number of them are located in the montane (164) and supramediterranean (153) vegetation belts (Fig. 7). This is very important in terms of protection management, especially since most corsican villages and their associated traditional economic activities, are located in these two lower belts.

The greatest proportion of the flora (33.11%) consists of therophytes (Fig. 8), which are typical of a mediterranean type of flora. However, this result is lower than that obtained for other mediterranean islands such as for Cyprus where about 48% of the flora consists of therophytes (Alziar, 1995), while hemicryptophytes (about 18%) show a significantly lower proportion than in Corsica (32.7%). It appears that it is not the geographical position of the island, but the strong topographic relief that is likely to play the biggest role (four mountain chains culminating beyond the height of 2000 m a.s.l. in Corsica versus one isolated mountain culminating at 1952 m in Cyprus). Sardinia, which is just adjacent to Corsica, has a less pronounced relief (1835 m a.s.l.) and shows a much greater proportion of mediterranean type vegetation. This is highlighted by the larger amount of therophytes (39.9%) and a lower amount of hemicryptophytes (28.1%) found on this Italian island (Bocchieri 1995).

![Fig. 8. Distribution of endemic and non-endemic biological types.](image)
The endemic taxa show a rather different biological spectrum from the one obtained when looking at the flora of Corsica as a whole: most of them (48.37 %) are hemicryptophytes or chamaephytes (18.29 %) and geophytes (18.7 %) with a very small number of therophytes (8.54 %). On the island of Cyprus endemic taxa show a much higher proportion of therophytes (17.3 %) but only 22.9 % of hemicryptophytes. The endemism on Corsica seems more due to the ecological conditions linked to the presence of high mountains isolated from the continent (mesogean endemism) rather than a typical mediterranean endemism linked to the prevailing conditions in the mediterranean region.

The huge amount of data contained in Flora Corsica will permit, in the near future, a more detailed analysis of the flora. Flora Corsica is not only a must for anyone interested in plants and wishing to visit the Island but it also represents a useful tool for biologists and professionals working in Nature conservation and management.

Acknowledgements

We are very grateful to the following specialists: Jacques Deleuze, Robert Deschâtres, Roger Engel, Matthias Erben, Michel Gruber, Christine Habashi, Philippe Jauzein, Jacques Lambinon, Michel Murracciole, Paul Piquemal, Jean-Pierre Reduron, Eric Schmitt, Marc-André Thiébaud and Jean-Marc Tison who have actively, and substantially contributed to the quality of Flora Corsica. We acknowledge Michele Price for the revision of the english version of this paper.

References


Adresses of the authors:
Daniel Jeanmonod & André Schlüssel: Conservatoire & jardin botaniques de Genève, CP 60, CH-1292 Chambesy, Switzerland. Daniel.Jeanmonod@ville-ge.ch, Andre.Schluessel@ville-ge.ch.
Jacques Gamisans: 11 rue Jean Bouyssou, F-31500 Toulouse, France. jjackaminsans@wanadoo.fr