

## Adriano Fiori: an unpublished herbarium collection at the PORUN Herbarium (Portici)

Alessia Cozzolino

Department of Agricultural Sciences, University of Naples Federico II, Piazza Carlo di Borbone 1, 80055 Portici, Naples, Italy; [alessia.cozzolino2@unina.it](mailto:alessia.cozzolino2@unina.it)

---

Cozzolino A. (2026): Adriano Fiori: an unpublished herbarium collection at the PORUN Herbarium (Portici). – Thaiszia – J. Bot. 36: 038–051.

*Abstract:* Herbarium specimens are essential archives of botanical knowledge, whose broad temporal and geographic coverage supports research on plant distribution patterns, the spread of economically or ecologically relevant taxa, and long-term floristic changes, particularly those driven by urbanization. In this context, the rediscovery and documentation of previously unreported herbarium collections represent a valuable opportunity to expand and refine our understanding of historical floristic knowledge, as illustrated by the recovery of an unpublished herbarium collection attributed to Adriano Fiori, former professor at the Forestry Institute of Vallombrosa, preserved at the Herbarium of the Department of Agriculture (PORUN; University of Naples Federico II). The collection consists of approximately 200 specimens, whose provenance and arrival at PORUN had not previously been documented. Most samples were collected in Tuscany, with Vallombrosa representing the most frequently sampled locality (72%). The collection is characterized by a strong predominance of woody phanerophytes, while chamaephytes are only marginally represented. This taxonomic and biological structure closely reflects Fiori's scientific interests and research activity during the early twentieth century. Overall, this study highlights the scientific and historical significance of rediscovered herbarium materials and emphasizes the importance of their documentation for enhancing our understanding of Italy's botanical heritage and the development of floristic research.

*Keywords:* Adriano Fiori, botanical heritage, herbarium specimens, taxonomic documentation, unknown collection.

---

## Introduction

Worldwide, herbaria preserve about 400 million specimens distributed across nearly 3000 institutions, with materials spanning from the 16th century to the present (Heberling 2022; Davis 2023). The potential applications of these collections extend well beyond traditional taxonomy and systematics, encompassing archaeobotany, archaeoecology, climate-change research, and numerous other disciplines (Lang et al. 2019). Historically, herbarium specimens have served many additional purposes. Prior to the 1990s, they were frequently used to reconstruct the spread of invasive plants and to detect environmental changes, such as pollution trends, including atmospheric CO<sub>2</sub> accumulation (Bonal et al. 2011). In addition to these historical uses, herbarium specimens, as natural history collections, provide verifiable records of species occurrence in specific places and at defined moments in time, and therefore represent indispensable repositories of information on past and present biodiversity (Roma-Marzio et al. 2023; Tassenkevich et al. 2024). The primary biodiversity data derived from these specimens are fundamental for assessing how global changes affect human health and ecosystem services. They contribute to studies on the distribution and expansion of disease vectors, organisms of economic relevance, and the dynamics of non-native and invasive species (James et al. 2018). Conservation biologists have also relied on herbarium material to reconstruct population trends of rare or declining plants and to evaluate the conservation status of threatened species (e.g., Rivers et al. 2011). Because of their sheer number and wide geographic coverage, herbarium specimens capture the morphological and molecular variability of plant taxa across environmental gradients, providing an unparalleled resource for evolutionary, ecological, and biogeographical research (McAllister et al. 2019). They also provide reliable information on the habitats colonized by plant invaders and their temporal expansion patterns (Lavoie et al. 2007; Lavoie 2013). Furthermore, collections documenting the flora of a region allow reconstruction of floristic changes through time, particularly in response to urbanization. With their detailed records of species' historical presence, herbarium collections will remain a crucial resource for future research in urban ecology (Dolan et al. 2011). A major strength of these collections lies in the long-term verifiability of taxonomic identifications: specimens can be re-examined at any time, offering a stable and authoritative reference framework into which new evidence obtained through modern analytical methods can be continuously incorporated (Borsch et al. 2020). This long-term scientific value has been further amplified by extensive digitization efforts, which expand open access to specimen images and associated metadata, making biodiversity data more accessible, searchable, interoperable, and durable (Hedrick et al. 2020). Moreover, large-scale digital availability accelerates the discovery of biological resources with potential applications in medicine, pharmacology, agriculture, and other applied fields (Ong et al. 2023).

As part of these efforts, during the restoration of the Museum Center of Agricultural Sciences (MUSA) at the University of Naples Federico II, a previously unreported herbarium collection attributed to Adriano Fiori was rediscovered at the

Herbarium of the Department of Agriculture (PORUN). Fiori (1865–1950), considered one of the founders of Italian forest botany, trained in Medicine and Natural Sciences at the University of Padua under Pier Antonio Saccardo. He is best known for the monumental *Flora Analitica d'Italia* and *Iconografia florae italicae*, produced with Giulio Paoletti (Fiori & Paoletti 1896-1908), and for his contributions to colonial forestry in Eritrea. A long-serving professor at the Forestry Institute of Vallombrosa, Fiori also authored the *Nuova flora analitica d'Italia* (Fiori 1923-29) and held leading roles in the Italian Botanical Society, to which he donated his herbarium in 1929. His work combined rigorous taxonomy with applied forestry, including studies on forage production, plant responses to extreme cold, and the introduction of exotic forest species (Gabbriellini 2004). The collection examined in this study, of approximately 200 herbarium specimens, is of particular interest because it is entirely unpublished and its arrival at the PORUN Herbarium of Portici remains undocumented. The absence of archival information on the origin of this collection enhances its historical value and underscores the importance of documenting and contextualizing such unexpected botanical findings. The aim of this work is to present, for the first time, a systematic account of this previously unknown collection, describe its taxonomic and geographical composition, and assess its relevance in the broader framework of Adriano Fiori's scientific legacy and of historical herbaria in Italy.

## Materials and Methods

The attribution of the collection to Adriano Fiori is supported by the presence of original handwritten labels, whose calligraphy is consistent with that observed on authenticated Fiori specimens preserved at the Herbarium of the Natural History Museum of Florence (FI) (Barone et al. 2022) (Fig. 1).

Each specimen was examined individually to evaluate the presence and condition of labels, annotations, handwriting, and additional notes. All label information was transcribed and entered into a database created in Microsoft Excel, including the following fields: collector, family, genus, species, collection site, and date of collection. Taxonomic names were subsequently reviewed and updated according to World Flora Online (WFO) to ensure nomenclatural standardization.

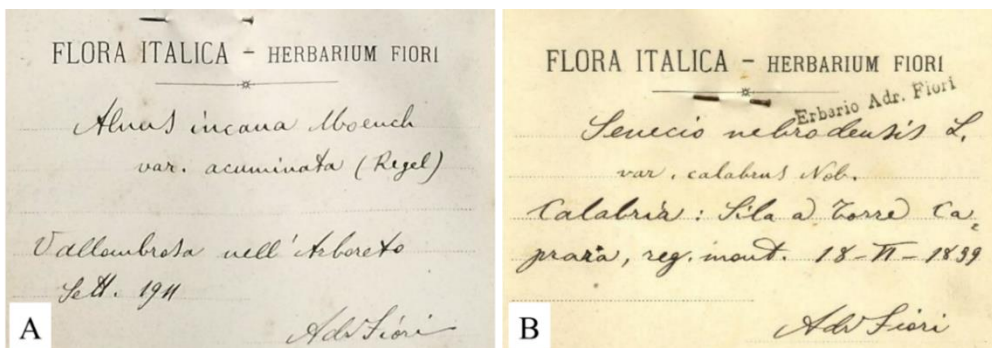


Fig. 1 Comparison between two herbarium labels: (A) label from a specimen belonging to the collection examined in this study; (B) label from an authenticated Adriano Fiori specimen preserved at the Herbarium of the Natural History Museum of Florence (FI), as illustrated in Barone et al. (2022).

## Results

The collection consists of 196 specimens, with 185 species belonging to 44 families and 106 genera (see Supplementary Table S1). Each sheet (40 × 28 cm) retains its original label reporting the scientific name, place and date of collection, and additional notes (Fig. 2). Pinaceae is the most represented family with 30 records, followed by Rosaceae with 24 records, and Fabaceae with 22 records (Fig. 3).



**Fig. 2** Representative herbarium specimens from the Adriano Fiori collection preserved at the PORUN Herbarium).

Specimens were collected by Fiori across multiple localities, predominantly in Tuscany. Vallombrosa represents the most frequently sampled site (72%), followed by Florence (7%) and Follonica (4%). The remaining records derive from a limited number of specimens collected in several other Italian localities, including Rome, Modena and Naples. Dates are variably detailed: in some cases, the exact day is recorded, while in others only the month and year are indicated, spanning a collection period between 1901 and 1912. Regarding the origin of the material, 119 specimens (60,7%) were collected in anthropogenic or managed environments, including the Vallombrosa Arboretum, botanical gardens, gardens and parks, along with specimens explicitly labelled as “cultivated”. The remaining 77 specimens (39,3%) were gathered in natural or semi-natural habitats, such as forests, riverbanks and hedgerows (Fig. 4).

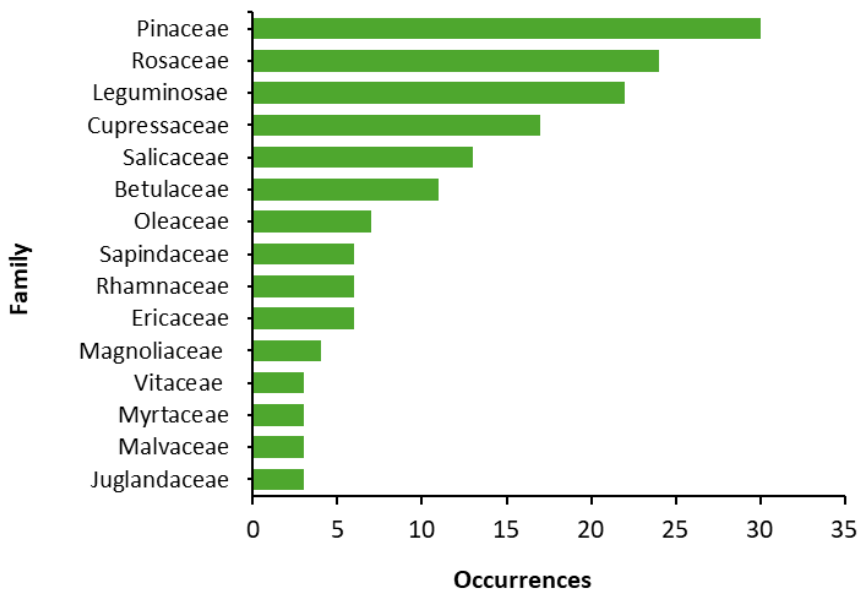


Fig. 3 Occurrence of the 15 most represented families in the collection.

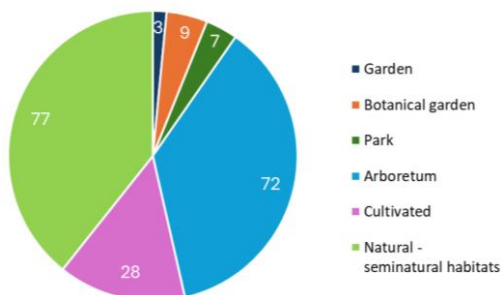


Fig. 4 Number of records from the different environments sampled by Fiori.

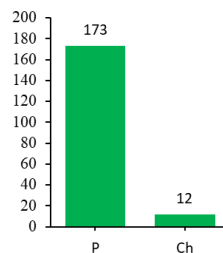


Fig. 5 Life-form composition of the Adriano Fiori herbarium collection (P = Phanerophytes; Ch = Chamaephytes - Raunkiaer).

Moreover, the predominance of phanerophytes reflects the strong representation of woody taxa in the collection, while chamaephytes are only sparsely represented (Fig. 5).

## Conclusions

The historical reconstruction of botanical collections is frequently limited by the absence of detailed archival documentation. Within this framework, the acquisition history of the collection examined in this study cannot be fully reconstructed. A comparable situation has been reported for the *Xylotomotheca Italica*, a unique collection consisting of several hundred thin wood sections, produced between 1905 and 1927 in multiple sets by Adriano Fiori and distributed to various Italian botanical institutions, including PORUN (Allevato et al. 2009). Similarly, neither the date nor the circumstances under which the *Xylotomotheca* replica was acquired by the Institute of Botany in Portici could be ascertained. Despite these limitations, the present study documents for the first time an unpublished herbarium collection attributed to Adriano Fiori, providing new information on its taxonomic composition, geographical distribution of sampling sites, and life-form spectrum. The strong representation of Vallombrosa and the predominance of woody phanerophytes closely reflect Fiori's academic activity and research interests during the early twentieth century. Overall, this contribution highlights the scientific and historical relevance of rediscovered herbarium materials, emphasizing the importance of their documentation and study for improving our understanding of botanical research practices and floristic knowledge within Italy's scientific heritage.

## References

- Allevato E., Di Pasquale G., & Ricciardi M. (2009): La collezione "Xylotomotheca Italica" di Adriano Fiori nell'"Herbarium Porticense"(PORUN). – *Museol.scientifica* 3(1-2): 35–38.
- Barone G., Domina G., Bartolucci F., Galasso G. & Peruzzi L. (2022): A nomenclatural and taxonomic revision of the *Senecio squalidus* group (Asteraceae). – *Plants* 11(19): 2597. doi: <https://doi.org/10.3390/plants11192597>
- Bonal D., Ponton S., Le Thiec D., Richard B., Ningre N., Hérault B., Ogée J., Gonzalez S., Pignal M., Sabatier D. & Guehl J.-M. (2011): Leaf functional response to increasing atmospheric CO<sub>2</sub> concentrations over the last century in two northern Amazonian tree species: a historical  $\delta^{13}\text{C}$  and  $\delta^{18}\text{O}$  approach using herbarium samples. – *Plant Cell Environ.* 34(8): 1332–1344. <https://doi.org/10.1111/j.1365-3040.2011.02333.x>
- Borsch T., Stevens A. D., Häffner E., Güntsch A., Berendsohn W. G., Appelhans M. S., et al. & Zizka G. (2020): A complete digitization of German herbaria is possible, sensible and should be started now. – *Res. Ideas Outcomes*. <https://doi.org/10.3897/rio.6.e50675>
- Davis C. C. (2023): The herbarium of the future. – *Trends Ecol. Evol.* 38(5): 412–423. <https://doi.org/10.1016/j.tree.2022.11.015>
- Dolan R. W., Moore M. E. & Stephens J. D. (2011): Documenting effects of urbanization on flora using herbarium records. – *J. Ecol.* 99(4): 1055–1062. <https://doi.org/10.1111/j.1365-2745.2011.01820.x>

- Fiori A. & Paoletti G. (1896): Flora analitica d'Italia ossia descrizione delle piante vascolari indigene inselvatichite e largamente coltivate in Italia disposte per quadri analitici, 4, 1896-1908. – Tipografia del seminario.
- Fiori A. (1929): Nuova flora analitica d'Italia: contenente la descrizione delle piante vascolari indigene inselvatichite e largamente coltivate in Italia. Vol. 2. – Firenze: Tipografia di M. Ricci.
- Gabbrielli A. (2004): Adriano Fiori (1865-1950). – Ital. Forest. Mont. 59(3): 230–231.
- Heberling J. M. (2022): Herbaria as big data sources of plant traits. – Int. J. Plant Sci. 183(2): 87–118.
- Hedrick B. P., Heberling J. M., Meineke E. K., Turner K. G., Grassa C. J., Park D. S., et al. & Davis C. C. (2020): Digitization and the future of natural history collections. – BioSci. 70(3): 243–251. <https://doi.org/10.1093/biosci/biz163>
- James S. A., Soltis P. S., Belbin L., Chapman A. D., Nelson G., Paul D. L. & Collins M. (2018): Herbarium data: Global biodiversity and societal botanical needs for novel research. – Appl. Plant Sci. 6(2): e1024. <https://doi.org/10.1002/aps3.1024>
- Lang P. L., Willems F. M., Scheepens J. F., Burbano H. A. & Bossdorf O. (2019): Using herbaria to study global environmental change. – New Phytologist 221(1): 110–122. <https://doi.org/10.1111/nph.15401>
- Lavoie C. (2013): Biological collections in an ever changing world: Herbaria as tools for biogeographical and environmental studies. – Perspect. Plant Ecol. Evol. Syst. 15(1): 68–76. <https://doi.org/10.1016/j.ppees.2012.10.002>
- Lavoie C., Jodoin Y. & De Merlis A. G. (2007): How did common ragweed (*Ambrosia artemisiifolia* L.) spread in Quebec? A historical analysis using herbarium records. – J. Biogeogr. 34(10): 1751–1761. <https://doi.org/10.1111/j.1365-2699.2007.01730.x>
- McAllister C. A., McKain M. R., Li M., Bookout B. & Kellogg E. A. (2019): Specimen-based analysis of morphology and the environment in ecologically dominant grasses: the power of the herbarium. – Philos. Trans. R. Soc. B. 374(1763): 20170403. <https://doi.org/10.1098/rstb.2017.0403>
- Ong S. Q., Mat Jalaluddin N. S., Yong K. T., Ong S. P., Lim K. F. & Azhar S. (2023): Digitization of natural history collections: A guideline and nationwide capacity building workshop in Malaysia. – Ecol. Evol. 13(6): e10212. <https://doi.org/10.1002/ece3.10212>
- Rivers M. C., Taylor L., Brummitt N. A., Meagher T. R., Roberts D. L. & Nic Lughadha E. (2011): How many herbarium specimens are needed to detect threatened species? – Biol. Conserv. 144(10): 2541–2547. <https://doi.org/10.1016/j.biocon.2011.07.014> Get rights and content
- Roma-Marzio F., Maccioni S., Dolci D., Astuti G., Magrini N., Pierotti F., Vangelisti R., Amadei L. & Peruzzi L. (2023): Digitization of the historical Herbarium of Michele Guadagno at Pisa (PI-GUAD). – PhytoKeys 234: 107. doi: 10.3897/phytokeys.234.109464
- Tasenkevich L., Skrypets K., Seniv M. & Khmil T. (2024): Digitization of the oldest botanical collection in Ukraine (LW Herbarium): a case study. – Biodiv. Res. Conserv. 75: 1–8. <https://doi.org/10.14746/biorc.2024.75.2>
- World Flora Online: Available online: <http://www.worldfloraonline.org> [accessed on 10 January 2026]

Received: January 22<sup>nd</sup> 2026  
 Revised: March 30<sup>th</sup> 2026  
 Accepted: April 7<sup>th</sup> 2026

**Table S1: Inventory of historical samples collected by Fiori, including original species names and localities as reported on herbarium labels, updated according to current accepted nomenclature, with corresponding collection dates and associated phenological information (fl. = flowers; fr. = fruits; lf. = leaves).**

Original name	Updated name	Gathering place	Date
<i>Abies alba</i> Mill.	<i>Abies alba</i> Mill.	Vallombrosa	2 Sept. 1910
<i>Abies cephalonica</i> Loud.	<i>Abies cephalonica</i> Loudon	Vallombrosa, nell'arboreto	Oct. 1911
<i>Abies lasiocarpa</i> Hook.	<i>Abies lasiocarpa</i> (Hook.) Nutt.	Vallombrosa, nell'arboreto	Oct. 1911
<i>Acer monspessulanum</i> L.	<i>Acer monspessulanum</i> L.	Vallombrosa al Masso del Diavolo	Aug. 1910
<i>Acer negundo</i> L.	<i>Acer negundo</i> L.	S. Ellero (Valdarno)	April–May 1911
<i>Acer negundo</i> L. var. <i>foliis variegatis</i>	<i>Acer negundo</i> L.	Vallombrosa nell'arboreto	Oct. 1911
<i>Acer opalus</i> Mill. var. <i>intermedium</i> Fiori	<i>Acer opalus</i> Mill.	Vallombrosa nei boschi	23 May 1908
<i>Acer pseudo-platanus</i> L.	<i>Acer pseudoplatanus</i> L.	Vallombrosa	June (fl.) – July (fr.) 1908
<i>Aesculus hippocastanum</i> L.	<i>Aesculus hippocastanum</i> L.	Vallombrosa nell'arboreto	Sept. 1911
<i>Alnus cordata</i> Desf.	<i>Alnus cordata</i> (Loisel.) Duby	Vallombrosa, colt. nell'arboreto	Aug. 1911
<i>Alnus glutinosa</i> Gaertn.	<i>Alnus glutinosa</i> (L.) Gaertn.	S. Ellero, lungo l'Arno	Oct. 1911
<i>Alnus glutinosa</i> Saerkn form. <i>imperialis</i>	<i>Alnus glutinosa</i> var. <i>imperialis</i> G. Kirchn.	Vallombrosa nell'arboreto	Sept. 1911
<i>Alnus incana</i> Moench var. <i>acuminata</i>	<i>Alnus incana</i> subsp. <i>incana</i> (L.) Moench	Vallombrosa nell'arboreto	Sept. 1911
<i>Alnus incana</i> W.	<i>Alnus incana</i> (L.) Moench	Vallombrosa nell'arboreto	13 July 1908
<i>Alnus viridis</i> DC.	<i>Alnus alnobetula</i> subsp. <i>alnobetula</i> (Ehrh.) K.Koch	Vallombrosa nell'arboreto	Apr. 1911
<i>Amorpha fruticosa</i> L.	<i>Amorpha fruticosa</i> L.	Vallombrosa nell'arboreto	Sept. 1911
<i>Androsaemum officinale</i> All.	<i>Hypericum androsaemum</i> L.	Sotto Vallombrosa a Tosi	26 Aug. 1908
<i>Araucaria excelsa</i> R. Br.	<i>Araucaria columnaris</i> (G.Forst.) Hook.	Orto botanico di Padova	Mar. 1907
<i>Araucaria imbricata</i> Pav.	<i>Araucaria araucana</i> (Molina) K.Koch	Coltivata a Napoli	Mar. 1906
<i>Arbutus unedo</i> L.	<i>Arbutus unedo</i> L.	S.Mezzano nel Valdarno	Sept. 1908
<i>Bambusa vulgaris</i> Schrad.	<i>Bambusa vulgaris</i> Schrad. ex J.C.Wendl.	Vallombrosa nell'arboreto	Oct. 1911
<i>Berberis vulgaris</i> L.	<i>Berberis vulgaris</i> L.	Vallombrosa, coltivato	15 May 1908
<i>Betula alba</i> L.	<i>Betula pubescens</i> var. <i>pubescens</i> Ehrh.	Vallombrosa nell'arboreto	May 1911
<i>Bupleurum fruticosum</i> L.	<i>Bupleurum fruticosum</i> L.	Parco di S. Mezzano (Valdarno)	Sept. 1908
<i>Buxus sempervirens</i> L.	<i>Buxus sempervirens</i> L.	Vallombrosa (coltivata)	May 1910
<i>Carpinus orientalis</i> Mill.	<i>Carpinus orientalis</i> Mill.	Firenze, Orto de' Semplici	Apr. 1908

Original name	Updated name	Gathering place	Date
<i>Carya amara</i> Nutt.	<i>Carya cordiformis</i> (Wangenh.) K.Koch	Vallombrosa, nell'arboreto	Sept. 1911
<i>Castanea sativa</i> Mill.	<i>Castanea sativa</i> Mill.	Vallombrosa	July 1911
<i>Cedrus atlantica</i> Manetti	<i>Cedrus atlantica</i> (Endl.) Manetti ex Carrière	Parco di S. Mezzano (Valdarno)	Sept. 1911
<i>Cedrus deodara</i> Laws.	<i>Cedrus deodara</i> (Roxb. ex D.Don) G.Don	Vallombrosa, nell'arboreto	Oct. 1911
<i>Cephalotaxus drupacea</i> Sieb. et Zucc.	<i>Cephalotaxus harringtonii</i> (Knight ex J.Forbes) K.Koch	Vallombrosa, nell'arboreto	Apr. 1908
<i>Ceratonia siliqua</i> L.	<i>Ceratonia siliqua</i> L.	Sora (Caserta), coltivata	Nov. 1911
<i>Cercis siliquastrum</i> L.	<i>Cercis siliquastrum</i> L.	Follonica (Maremma toscana) colt.	May 1911
<i>Chamaecyparis lawsoniana</i> Parl.	<i>Chamaecyparis lawsoniana</i> (A.Murray bis) Parl.	Vallombrosa, nell'arboreto	Sept. 1911
<i>Clematis vitalba</i> L.	<i>Clematis vitalba</i> L.	Vallombrosa nei boschi	Aug. 1911
<i>Colutea arborescens</i> L.	<i>Colutea arborescens</i> L.	Vallombrosa nell'arboreto	July–Sept. 1908
<i>Coronilla emerus</i> L.	<i>Hippocrepis emerus</i> (L.) Lassen	Vallombrosa nei boschi	July 1911 – Sept. (fr.)
<i>Corylus avellana</i> var. <i>laciniata</i> Petz. et Kirchu.	<i>Corylus avellana</i> L.	Firenze: Orto de' Semplici	21 Jan. 1908
<i>Corylus avellana</i> var. <i>laciniata</i> Petz. et Kirchu.	<i>Corylus avellana</i> var. <i>laciniata</i> L.	Vallombrosa, nell'arboreto	Oct. 1911
<i>Corylus colurna</i> L.	<i>Corylus colurna</i> L.	Firenze, Orto de' Semplici	29 Jan. 1905
<i>Cotoneaster integerrima</i> Medic.	<i>Cotoneaster integerrimus</i> Medik.	Vallombrosa, nell'arboreto	Sept. 1911
<i>Cotoneaster pyracantha</i> Spach	<i>Pyracantha coccinea</i> M.Roem.	S. Ellero (Valdarno)	Oct. 1911
<i>Crataegus oxyacantha</i> L.	<i>Crataegus rhipidophylla</i> var. <i>rhipidophylla</i> Gand.	Vallombrosa nei boschi	20 May 1908
<i>Cryptomeria japonica</i> Don	<i>Cryptomeria japonica</i> (Thunb. ex L.) D.Don	Vallombrosa, nell'arboreto	Oct. 1911
<i>Cupressus lusitanica</i> Lindl.	<i>Hesperocyparis lusitanica</i> (Mill.) Bartel	Parco di S. Mezzano (Valdarno)	Sept. 1911
<i>Cupressus sempervirens</i> L.	<i>Cupressus sempervirens</i> L.	Sotto Vallombrosa a Todi	20 May 1908
<i>Cupressus torulosa</i> D.Don	<i>Cupressus torulosa</i> D.Don ex Lamb.	Vallombrosa, nell'arboreto	July 1909
<i>Cytisus alpinus</i> Mill.	<i>Laburnum alpinum</i> (Mill.) Bercht. & J.Presl	Vallombrosa, coltivato	June (fl.) – August (fr.) 1908
<i>Cytisus hirsutus</i> L.	<i>Chamaecytisus hirsutus</i> (L.) Link	Vallombrosa nell'arboreto	July 1908
<i>Cytisus laburnum</i> L.	<i>Laburnum anagyroides</i> Medik.	Vallombrosa nell'arboreto	7 June 1908
<i>Cytisus nigricans</i> L.	<i>Cytisus nigricans</i> L.	Vallombrosa nell'arboreto	14 July 1908
<i>Cytisus scoparius</i> Link	<i>Cytisus scoparius</i> (L.) Link	Vallombrosa nei boschi	June 1908
<i>Cytisus sessilifolius</i> L.	<i>Cytisophyllum sessilifolium</i> (L.) O.Lang	Vallombrosa nell'arboreto	4 June 1907
<i>Daphne mezereum</i> L.	<i>Daphne mezereum</i> L.	Vallombrosa nei boschi	April–May 1908
<i>Diospyros kaki</i> L.f.	<i>Diospyros kaki</i> L.f.	Vallombrosa, nell'arboreto	Oct. 1911
<i>Erica arborea</i> L.	<i>Erica arborea</i> L.	Vallombrosa nei boschi	May 1911
<i>Erica carnea</i> L.	<i>Erica carnea</i> L.	Vallombrosa, nell'arboreto	June 1910

Original name	Updated name	Gathering place	Date
<i>Erica scoparia</i> L.	<i>Erica scoparia</i> L.	Vallombrosa, nel bosco	June 1911
<i>Erica vagans</i> L.	<i>Erica vagans</i> L.	Vallombrosa, nell'arboreto	July 1911
<i>Eucalyptus globulus</i> Labill.	<i>Eucalyptus globulus</i> Labill.	Firenze nei giardini	Nov. 1911
<i>Eucalyptus rostrata</i> Schlecht	<i>Eucalyptus camaldulensis</i> Dehnh.	Roma, alle Catacombe di S. Sisto	Oct. 1911
<i>Fraxinus excelsior</i> L.	<i>Fraxinus excelsior</i> L.	Vallombrosa all'Alpe (coltivato)	Aug. 1911
<i>Fraxinus ornus</i> L.	<i>Fraxinus ornus</i> L.	Vallombrosa nei boschi	May 1911
<i>Genista aetnensis</i> DC.	<i>Genista aetnensis</i> (Biv.) DC.	Firenze: Orto de' Semplici	May 1911
<i>Genista germanica</i> L.	<i>Genista germanica</i> L.	Vallombrosa nei boschi	June 1908
<i>Genista pilosa</i> L.	<i>Genista pilosa</i> L.	Vallombrosa nel castagneto	May 1911
<i>Genista tinctoria</i> L.	<i>Genista tinctoria</i> L.	Vallombrosa, M. Secchieta	July 1908
<i>Gleditsia sinensis</i> Lam.	<i>Gleditsia sinensis</i> Lam.	Firenze: colt. nell'Orto Bot.	Nov. 1903
<i>Gleditsia triacanthos</i> L.	<i>Gleditsia triacanthos</i> L.	Firenze, coltivata per siepi	Oct. 1911
<i>Hedera helix</i> L.	<i>Hedera helix</i> L.	Vallombrosa	Oct. 1911
<i>Hibiscus syriacus</i> L.	<i>Hibiscus syriacus</i> L.	Vallombrosa nell'arboreto	Oct. 1911
<i>Hippophae rhamnoides</i> L.	<i>Hippophae rhamnoides</i> L.	Colli modenesi	Aug. 1908
<i>Hovenia dulcis</i> Thunb.	<i>Hovenia dulcis</i> Thunb.	Firenze: nell'Orto de' Semplici	Dec. 1908
<i>Hypericum calycinum</i> L.	<i>Hypericum calycinum</i> L.	Vallombrosa nell'arboreto	Sept. 1911
<i>Ilex aquifolium</i> L.	<i>Ilex aquifolium</i> L.	Vallombrosa nei boschi	15 May 1908
<i>Juglans nigra</i> L.	<i>Juglans nigra</i> L.	Vallombrosa, nell'arboreto	Oct. 1911
<i>Juglans regia</i> L.	<i>Juglans regia</i> L.	Vallombrosa	20 May 1908
<i>Juniperus communis</i> L.	<i>Juniperus communis</i> L.	Vallombrosa nei boschi	Oct. 1911
<i>Juniperus macrocarpa</i> S. et S.	<i>Juniperus macrocarpa</i> Sm.	Follonica nei tomboli (Toscana)	May 1911
<i>Juniperus oxycedrus</i> L.	<i>Juniperus oxycedrus</i> L.	All'Impruneta sotto Firenze	May 1911
<i>Juniperus sabina</i> L.	<i>Juniperus sabina</i> L.	Vallombrosa, nell'arboreto	Oct. 1911
<i>Juniperus virginiana</i> L.	<i>Juniperus virginiana</i> L.	Parco di S. Mezzano (Valdarno)	8 July 1908
<i>Larix decidua</i> Mill.	<i>Larix decidua</i> (L.) Mill.	Vallombrosa, coltivato	15 May 1907
<i>Larix leptolepis</i> Gord.	<i>Larix kaempferi</i> (Lamb.) Carrière	Vallombrosa, coltivato	May 1911
<i>Laurus camphora</i> L.	<i>Cinnamomum camphora</i> (L.) J.Presl	Firenze: giardino orticoltura	May 1911
<i>Laurus nobilis</i> L.	<i>Laurus nobilis</i> L.	Dintorni di Firenze	June 1908
<i>Libocedrus decurrens</i> Torr.	<i>Calocedrus decurrens</i> (Torr.) Florin	Parco di S. Mezzano (Valdarno)	Sept. 1911
<i>Ligustrum vulgare</i> L.	<i>Ligustrum vulgare</i> L.	Sotto Vallombrosa a Filiberti	July 1911

Original name	Updated name	Gathering place	Date
<i>Liquidambar orientalis</i> Mill.	<i>Liquidambar orientalis</i> Mill.	Roma presso terme di Caracalla	Oct. 1911
<i>Liriodendron tulipifera</i> L.	<i>Liriodendron tulipifera</i> L.	Vallombrosa, coltivato	Aug. 1911
<i>Magnolia acuminata</i> L.	<i>Magnolia acuminata</i> (L.) L.	Vallombrosa nell'arboreto	July 1911
<i>Magnolia macrophylla</i> Michx.	<i>Magnolia macrophylla</i> Michx.	Vallombrosa nell'arboreto	May 1908
<i>Magnolia yulan</i> Desf.	<i>Magnolia denudata</i> Desr.	Vallombrosa nell'arboreto	Oct. 1911
<i>Mahonia aquifolium</i> Nutt.	<i>Berberis aquifolium</i> Pursh	Vallombrosa nell'arboreto	Oct. 1911
<i>Mespilus germanica</i> L.	<i>Crataegus germanica</i> (L.) Kuntze	Vallombrosa, nell'arboreto	Sept. 1911
<i>Morus alba</i> L.	<i>Morus alba</i> L.	Sant'Ellero, Valdarno	May 1911
<i>Myrtus communis</i> L.	<i>Myrtus communis</i> L.	Firenze: nei colli di Fiesole	Jan. 1910 (fr.) – July 1911 (fl.)
<i>Olea europaea</i> L. var. <i>sativa</i> Hoffgg. Et Lk.	<i>Olea europaea</i> subsp. <i>europaea</i> L.	Sotto Vallombrosa a Filiberti	July (fl.) – October (fr.) 1911
<i>Ononis spinosa</i> L.	<i>Ononis spinosa</i> L.	Vallombrosa	Aug. 1911
<i>Paliurus spina-christi</i> Mill.	<i>Paliurus spina-christi</i> Mill.	Prato di Toscana nelle siepi	June 1911
<i>Periploca graeca</i> L.	<i>Periploca graeca</i> L.	Presso Livorno nelle siepi	May 1911
<i>Philadelphus coronarius</i> L.	<i>Philadelphus coronarius</i> L.	Vallombrosa nell'arboreto	Sept. 1911
<i>Phillyrea latifolia</i> L.	<i>Phillyrea latifolia</i> L.	Campiglia marittima (Maremma)	May 1911
<i>Phillyrea media</i> L.	<i>Phillyrea latifolia</i> L.	Follonica nel Tombolo (Maremma)	May 1911
<i>Picea excelsa</i> Link.	<i>Picea abies</i> (L.) H.Karst.	Vallombrosa, coltivato	Oct. 1911
<i>Picea excelsa</i> Link.	<i>Picea abies</i> (L.) H.Karst.	Vallombrosa, coltivato	June 1905
<i>Picea morinda</i> Link	<i>Picea smithiana</i> (Wall.) Boiss.	Vallombrosa, coltivato	May 1905
<i>Picea morinda</i> Lk.	<i>Picea smithiana</i> (Wall.) Boiss.	Vallombrosa all'Alpe	Aug. 1901
<i>Pinus brutia</i> Ten.	<i>Pinus brutia</i> Ten.	Firenze nell'Orto de' Semplici	Apr. 1905
<i>Pinus cembra</i> L.	<i>Pinus cembra</i> L.	Cadore (Alpi Venete)	Apr. 1904
<i>Pinus cembra</i> L.	<i>Pinus cembra</i> L.	Vallombrosa, nell'arboreto	19 Aug. 1911
<i>Pinus excelsa</i> Wall.	<i>Pinus wallichiana</i> (Wall. ex D.Don) A.B.Jacks.	Vallombrosa, nell'arboreto	Sept. 1911
<i>Pinus halepensis</i> Mill.	<i>Pinus halepensis</i> Mill.	Roma a Villa Borghese	Oct. 1911
<i>Pinus laricio</i> Poir.	<i>Pinus nigra</i> subsp. <i>laricio</i> (Poir.) Maire	Vallombrosa, nell'arboreto	Oct. 1911
<i>Pinus montana</i> Mill.	<i>Pinus mugo</i> Turra	Vallombrosa, colt. nell'arboreto	Oct. 1911
<i>Pinus nigra</i> Arnold	<i>Pinus nigra</i> J.F.Arnold	Vallombrosa, nell'arboreto	May 1911
<i>Pinus nigra</i> Arnold	<i>Pinus nigra</i> J.F.Arnold	Gorizia	24 June 1908
<i>Pinus nigra</i> Arnold	<i>Pinus nigra</i> J.F.Arnold	Vallombrosa, coltivato	2 May 1908
<i>Pinus Pinaster</i> Sol.	<i>Pinus pinaster</i> Aiton	Vallombrosa a Filiberti	May (fl.) – Sept. (fr.) 1911

Original name	Updated name	Gathering place	Date
<i>Pinus pinea</i> L.	<i>Pinus pinea</i> L.	Follonica (Toscana)	May 1911
<i>Pinus silvestris</i> L.	<i>Pinus sylvestris</i> L.	Vallombrosa, coltivato	Sept. 1911
<i>Pinus silvestris</i> L.	<i>Pinus sylvestris</i> L.	Vallombrosa, coltivato	June 1908
<i>Pinus Strobilus</i> L.	<i>Pinus strobus</i> L.	Vallombrosa all'Acquabella	Oct. 1911
<i>Pinus Strobilus</i> L.	<i>Pinus strobus</i> L.	Vallombrosa, coltivato	27 May 1907
<i>Pirus aria</i> Ehrh.	<i>Aria edulis</i> (Willd.) M.Roem.	Vallombrosa, a S. Caterina	16 June 1908
<i>Pirus aucuparia</i> Ehrh.	<i>Sorbus aucuparia</i> L.	Vallombrosa, nei viali	2 June 1908
<i>Pirus communis</i> L.	<i>Pyrus communis</i> L.	Vallombrosa all'Alpe	May (fl.) – July (fr.) 1908
<i>Pirus cydonia</i> L.	<i>Cydonia oblonga</i> Mill.	Vallombrosa nell'arboreto	5 June 1908
<i>Pirus domestica</i> Ehrh.	<i>Cormus domestica</i> (L.) Spach	Sotto Vallombrosa a Filiberti	Sept. 1911
<i>Pirus domestica</i> Ehrh.	<i>Cormus domestica</i> (L.) Spach	Vallombrosa nell'Alpe	Sept. 1911
<i>Pirus malus</i> L.	<i>Pyrus malus</i> L.	Vallombrosa nell'arboreto	Oct. 1911
<i>Pirus torminalis</i> Ehrh.	<i>Torminalis glaberrima</i> (Gand.) Sennikov & Kurtto	Sotto Vallombrosa a Tosi	May 1908
<i>Pistacia lentiscus</i> L.	<i>Pistacia lentiscus</i> L.	Follonica (Maremma toscana)	May 1911
<i>Platanus occidentalis</i> L.	<i>Platanus occidentalis</i> L.	Livorno (coltivato)	May 1911
<i>Plumbago europaea</i> L.	<i>Plumbago europaea</i> L.	Roma al Testaccio	Oct. 1911
<i>Populus alba</i> L.	<i>Populus alba</i> L.	Vallombrosa	Sept. 1911
<i>Populus canadensis</i> Michx	<i>Populus × canadensis</i> Moench	Vallombrosa: coltivato	Aug. 1911
<i>Populus nigra</i> L.	<i>Populus nigra</i> L.	Vallombrosa	May (fl.) – August (lf.) 1911
<i>Populus tremula</i> L.	<i>Populus tremula</i> L.	Vallombrosa nei boschi	Oct. 1911
<i>Populus trichocarpa</i> Torr. et Gray	<i>Populus trichocarpa</i> Torr. & A.Gray ex Hook.	Vallombrosa nell'arboreto	Oct. 1911
<i>Prunus avium</i> L.	<i>Prunus avium</i> (L.) L.	Vallombrosa nei boschi	May 1911
<i>Prunus cerasus</i> L.	<i>Prunus cerasus</i> L.	Vallombrosa nell'arboreto	Oct. 1911
<i>Prunus mahaleb</i> L.	<i>Prunus mahaleb</i> L.	Vallombrosa nell'arboreto	Oct. 1912
<i>Prunus padus</i> L.	<i>Prunus padus</i> L.	Vallombrosa nell'arboreto	8 June 1908
<i>Prunus spinosa</i> L.	<i>Prunus spinosa</i> L.	Vallombrosa nei boschi	May (fl.) – August (fr.) 1911
<i>Pseudolarix kaempferi</i> Gord.	<i>Larix kaempferi</i> (Lamb.) Carrière	Vallombrosa, nell'arboreto	Oct. 1911
<i>Pseudotsuga douglasii</i> Carr.	<i>Pseudotsuga menziesii</i> (Mirb.) Franco	Vallombrosa, coltivato	Aug. 1911
<i>Rhamnus alaternus</i> L.	<i>Rhamnus alaternus</i> L.	Fucecchio (Toscana)	13 Sept. 1903
<i>Rhamnus cathartica</i> L.	<i>Rhamnus cathartica</i> L.	Vallombrosa nell'arboreto	Sept. 1911
<i>Rhamnus frangula</i> L.	<i>Frangula alnus</i> Mill.	Vallombrosa, nell'arboreto	4 June 1908

Original name	Updated name	Gathering place	Date
<i>Rhus cotinus</i> L.	<i>Cotinus coggygia</i> Scop.	Vallombrosa, nell'arboreto	13 July 1908
<i>Robinia pseudo-acacia</i> L.	<i>Robinia pseudoacacia</i> L.	Vallombrosa (coltivata)	July (fl.) – August (fr.) 1908
<i>Rosa canina</i> L.	<i>Rosa canina</i> L.	Vallombrosa nei boschi	Oct. 1911
<i>Rosa sempervirens</i> L.	<i>Rosa sempervirens</i> L.	Prato di Toscana nelle siepi	June 1911
<i>Rosa tomentosa</i> Sm.	<i>Rosa tomentosa</i> Sm.	Vallombrosa nei boschi	July 1911
<i>Rubus glandulosus</i> Bell.	<i>Rubus hirtus</i> Waldst. & Kit.	Vallombrosa nelle selve	July 1911
<i>Rubus idaeus</i> L.	<i>Rubus idaeus</i> L.	Vallombrosa (FI)	July 1911
<i>Rubus tementosus</i> Borkh.	<i>Rubus occidentalis</i> L.	Vallombrosa nelle selve	July 1911
<i>Ruscus aculeatus</i> L.	<i>Ruscus aculeatus</i> L.	Sotto Vallombrosa a Domini	Apr. 1908
<i>Salix babylonica</i> L.	<i>Salix babylonica</i> L.	Vallombrosa, coltivato	June 1910
<i>Salix caprea</i> L.	<i>Salix caprea</i> L.	Vallombrosa, nei boschi	21 Apr. 1908
<i>Salix cinerea</i> L.	<i>Salix cinerea</i> L.	Vallombrosa nell'arboreto	Oct. 1911
<i>Salix daphnoides</i> Vill.	<i>Salix daphnoides</i> Vill.	Vallombrosa, coltivato	May 1910
<i>Salix incana</i> Schrank	<i>Salix eleagnos</i> Scop.	Lungo il Vigano a Fontisterni	27 Mar. 1905
<i>Salix lucida</i> Muhl.	<i>Salix lucida</i> Muhl.	Vallombrosa nell'arboreto	Oct. 1911
<i>Salix purpurea</i> L.	<i>Salix purpurea</i> L.	Sotto Vallombrosa a Fontisterni	27 Mar. 1908
<i>Salix viminalis</i> L.	<i>Salix viminalis</i> L.	Vallombrosa nell'arboreto	Oct. 1911
<i>Schinus molle</i> L.	<i>Schinus molle</i> L.	Roma, nei giardini	Oct. 1911
<i>Sciadopitys verticillata</i> Sieb. et Zucc.	<i>Sciadopitys verticillata</i> (Thunb.) Siebold & Zucc.	Vallombrosa, nell'arboreto	Apr. 1908
<i>Sequoia gigantea</i> Endl.	<i>Abies bracteata</i> (D.Don) Poit.	Parco di S. Mezzano (Valdarno)	Sept. 1911
<i>Solanum dulcamara</i> L.	<i>Solanum dulcamara</i> L.	Vallombrosa	27 June 1908
<i>Sophora japonica</i> L.	<i>Styphnolobium japonicum</i> (L.) Schott	Roma, a S. Paolo (coltivata)	Oct. 1911
<i>Spartium junceum</i> L.	<i>Spartium junceum</i> L.	Vallombrosa strada del lago	July (fl.) – Sept. (fr.) 1908
<i>Spiraea opulifolia</i> L.	<i>Physocarpus opulifolius</i> (L.) Maxim.	Vallombrosa nell'arboreto	Aug. 1911
<i>Syringa vulgaris</i> L.	<i>Syringa vulgaris</i> L.	Vallombrosa nell'arboreto	27 May 1908
<i>Tamarix africana</i> Poir.	<i>Tamarix africana</i> Poir.	Follonica (Maremma toscana)	May 1911
<i>Tamarix gallica</i> L.	<i>Tamarix gallica</i> L.	Firenze, in un parco	May 1910
<i>Taxodium distichum</i> Rich.	<i>Taxodium distichum</i> (L.) Rich.	Colt. nel padule di Fucecchio (Tosc.)	13 Sept. 1903
<i>Taxus baccata</i> L.	<i>Taxus baccata</i> L.	Vallombrosa	Apr. 1911
<i>Taxus baccata</i> L. var. <i>fastigiata</i> Loud.	<i>Taxus baccata</i> L.	Vallombrosa, nell'arboreto	Oct. 1911
<i>Thuja dolabrata</i> L.f.	<i>Thujopsis dolabrata</i> (L.f.) Siebold & Zucc.	Vallombrosa, nell'arboreto	Sept. 1911

Original name	Updated name	Gathering place	Date
<i>Thuja occidentalis</i> L.	<i>Thuja occidentalis</i> L.	Vallombrosa, nell'arboreto	Oct. 1911
<i>Thuja occidentalis</i> L.	<i>Thuja occidentalis</i> L.	Vallombrosa, nell'arboreto	24 June 1908
<i>Thuja occidentalis</i> L.	<i>Thuja occidentalis</i> L.	Vallombrosa, nell'arboreto	18 May 1908
<i>Thuja occidentalis</i> L.	<i>Thuja occidentalis</i> L.	Vallombrosa, nell'arboreto	Sept. 1911
<i>Tilia alba</i> Ait.	<i>Tilia tomentosa</i> Moench	Vallombrosa nell'arboreto	Sept. 1908
<i>Tilia platyphyllos</i> Scop.	<i>Tilia platyphyllos</i> subsp. <i>platyphyllos</i> Scop.	Vallombrosa (coltivata)	July 1911
<i>Ulex europaeus</i> L.	<i>Ulex europaeus</i> L.	Vallombrosa nell'arboreto	June 1911
<i>Ulmus campestris</i> L.	<i>Ulmus glabra</i> Huds.	S. Ellero (Valdarno)	Apr. 1911
<i>Ulmus montana</i> With.	<i>Ulmus glabra</i> Huds.	Vallombrosa, coltivato o spontaneo	Oct. 1911
<i>Vaccinium myrtillus</i> L.	<i>Vaccinium myrtillus</i> L.	Vallombrosa, nell'arboreto	Aug. 1911
<i>Viscum album</i> L.	<i>Viscum album</i> L.	S. Ellero (Valdarno), sui meli	Mar. 1905
<i>Vitis labrusca</i> L.	<i>Vitis labrusca</i> L.	Vallombrosa, nell'arboreto	Oct. 1911
<i>Vitis riparia</i> Michx.	<i>Vitis riparia</i> Michx.	Vallombrosa, nell'arboreto	Oct. 1911
<i>Vitis vinifera</i> var. <i>silvestris</i> K.	<i>Vitis vinifera</i> L.	Follonica, nel Tombolo spontanea	May 1911
<i>Ziziphus sativa</i> Gaertn.	<i>Ziziphus jujuba</i> Mill.	S. Ellero (Valdarno)	July 1908