



1. Name of the national network of botanical gardens and its website address:

Gruppo Orti Botanici e Giardini Storici della Società Botanica Italiana

Working group for Botanic and Historical Gardens of the Italian Botanical Society.
<http://www.societabotanicaitaliana.it/laygruppo.asp?IDSezione=20>

2. Name and address (with e-mail and telephone/fax) of the national representatives in EBGC:

Temporary delegates:

Costantino Bonomi, Trento Botanic Gardens, c/o Trento Natural History Museum, Via Calepina 14, I-38100 Trento, Italy. URL www.mtsn.tn.it, tel. +390461 270381, mobile +39348 3044940, fax +390461 270376, e-mail bonomi@mtsn.tn.it, skype: cosbon

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3. Total number of current members of the national network of botanical gardens:

Approx. 70 members on a total of approx. 110 Gardens (the actual number and membership status of all gardens is currently being reviewed and re-assessed. An update will be available shortly).

4. The names of new members of the national network since last meeting:

No new members in the last reporting period.

5. Meetings, workshops and/or conferences organized by the national network or by the members in reported period (title, date and place, organizers, homepage):

16-18.2.2009 - Workshop "Study and determination of critical groups of Vascular Flora from Presila Catanzaresi (Calabria)", organised by Calabria Botanic Garden on the exsiccata from the annual excursion of the floristic group of the Italian Botanical Society.

28-29.5.2009 - Opening of the seed bank of Ancona Selva di Gallignano Botanic Garden and workshop on plant conservation. Organised and hosted by Ancona Botanic Garden.

30.5.2009 - Italian Botanic Gardens in the XXI century: new roles and strategies. Camerino (MC), Organised by the national Botanic Gardens network and the Botanic Garden of Camerino (Michele Aleffi, Roberta Tacchi)
http://www.unicam.it/archivio/eventi/09_ortobotanico.pdf, Marche.

5.6.2009 - congress: The use of native flora for restoration. co-organised by Pavia Botanic Garden, hsted bby Region Lombardy in Milan.

29.5.2009 - day presentation: a new species of orchid: *Ophrys murgiana*. Organised and hosted by Bari Botanic Garden (Puglia).

12.6.2009 - workshop: a new botanic garden in Forte Marghera (Venice). Organised and hosted by University of Venice.

13.6.2009 - congress for the celebration for the 200 years of Urbino Botanic Garden. Organised and hosted by Urbino Botanic Garden.

5-12.7.2009 - workshop Viotte 2009, landscape design for Viotte Alpine Garden. International workshop for young landscape architects. Organised by Viotte Alpine garden (Trento).

6-7.10.2009 Annual meeting A.I.A.R. (Italian Association of Archeometry) co-organised by Palermo Botanic Garden, Sicily.

11-13.10.2009 Congress "*In situ* and *ex situ* conservation and the Count Down 2010" organised by Nuova Gussonea Botanic Garden on Mt. Etna to celebrate the 30 years of its foundation. Venue: Catania-Mt.Etna, Sicily.

2009 Cycles of public lectures organised by Genoa Botanic Garden on the following themes: The historical approach to the ecology of the forest landscape (27.2); Villas and Gardens in Genoa between appreciation for nature and botanical interest (13.3); Jardi Botanic activities of the University of Valencia in the network Ensconet (16.3); 30 years of research in the Venezuelan Guayana (17.4), Importance of plants for Passeriformes during spring migration in the Mediterranean (20.11); The plant reproduction (20.11).

22.1.2010 - workshop "Botanic Gardens and Libraries in Italy", organised by the Eurimediterranean centre for Biophyllia, Library of the Regional council of Puglia in conjunction with the Italian Association of Libraries and the Italian Botanic Gardens network. Venue: Ecotekne centre, Lecce, Puglia.
www.bcr.puglia.it/biofilo/menu_.html

5.3.2010 - Congress: "Botanic Gardens in the Parks of Liguria, a resource for local planning", organised by the Montemarcello - Magra Park; coordinator of the local network of botanic gardens and nurseries in the protected areas of Liguria. Venue: Sarzana city council, La Spezia, Liguria.
<http://parco.parcomagra.it/articoli.php?arid=27572>

13.4.2010 - congress Ecodiversity: research, management and conservation organised by the Physiocritics Accademy and the Botanic Garden of Siena. Venue: Siena, Toscana.

25.3.2010 National workshop: Environmental Systems 2010: the Italian network of Biodiversity. Organised by the Ministry of Environment, with the support of all relevant stakeholders including the botanic garden network (Italian Clearing House Mechanism). Venue: CNR, Rome.

6. Meetings, workshops and/or conferences planned to be organized (title, date and place, organizers, homepage):

28.5.2010 - Annual meeting of the National Botanic Gardens network, with a key focus on *ex situ* conservation and developing a joint national data interface. Organised by Working group for Botanic and Historical Gardens of the Italian Botanical Society, venue Hanbury Botanic Gardens, Ventimiglia, Liguria.

20-22.9.2010 - workshop "Tools for identifying biodiversity: progress and problems" with key contribution from Trieste Botanic Garden, venue: Natural History Museum, Paris, France

7. Activities in ABS/IPEN implementation:

Three new Italian Botanic Gardens joined IPEN in the last reporting period and in particular: Camerino, Parma and Naples Botanic Gardens. The total number of Italian Botanic Gardens currently registered in the IPEN is 7. A privately own Botanic Garden recently made enquiries re. joining IPEN: it is a privately own botanic garden (Giardino Calpez, Milan) but has no commercial activity. The question to the IPEN secretariat is whether this is feasible or not and whether it is advisable or not.

8. Current activities and the national state on the implementation of CBD, GSPC and EPCS targets (especially Target 8 of GSPC and target 2.5 of EPCS):

Thirteen botanic gardens (Pavia, Hanbury, Trento, Padua, Pisa, Livorno, Ancona, Viterbo, Roma, Majella, Catania, Palermo, Cagliari) belong to the RIBES network (the Italian seed bank network) and are actively engaged in seed collection and their long term safe storage for conservation purposes. They operate in an integrated way on a national basis and currently hold accessions belonging to 371 nationally threatened species out of the 1020 species listed in the latest official atlas of threatened species. These gardens plan to target additional 290 species of this list for the near future. Some gardens are currently undertaking plant propagation and reintroduction activities on case studies as detailed below. Each garden has many specific local activities and projects, among the others, Cagliari Botanic Garden now stores 1300 accessions belonging to 600 species being 80% of the locally threatened flora of Sardinia. Reintroduction projects are in progress for 20 species. Catania Botanic Garden now stores, 533 species 97 of which are local endemics, in the native flora section of the garden *Zelkova sicula* Pasquale, Garfi & Quezel is in cultivation

Some gardens are contributing to the conservation effort of the 13 RIBES members supplying seeds for seed bank conservation via bilateral agreements (Nuova Gussonea on Etna with Catania Botanic Gardens, all Botanic Gardens in Tuscany with Pisa Botanic Garden)

Hanbury Gardens are partners of the project “*Ex situ* and *in situ* conservation of *Leucojum nicaeense* and *Campanula sabatia* in the province of Imperia, Liguria funded by Regione Liguria and on similar projects on *Campanula sabatia* funded by the province of Savona and the city of Ceriale (SV).

Rome Botanic Garden is developing specific projects for the conservation of the following species *Bidens cernua* L., *Malcolmia littorea* (L.) R.Br., *Centaurea cineraria* L. subsp. *circae* (Sommier) Cela Renzoni & Viegi, *Carex paniculata* L. subsp. *paniculata*, *Rhamnus persicifolia* Moris, *Brassica rupestris* subsp. *hispidula* Raimondo & P.Mazzola e *Brassica rupestris* Raf. subsp. *rupestris*. Data are collected on their distribution, population biology, phenology. Specific germination trials, propagation and adaptation to climate have been carried out for *Malcolmia littorea* (L.) R.Br (VU Lazio; EN Italy) and *Bidens cernua* L. (CR Lazio) both *in situ* and *ex situ*. A reintroduction project has been concluded for *Bidens cernua* in the nature reserve of Posta Fibreno Lake (FR).

Siena Botanic Garden has been officially appointed as a local centre for *ex situ* conservation (CESFL) by the Region Tuscany and has developed:

- a project for the reintroduction of *Ninphaea alba* in the nature reserve of Montepulciano Lake (reintroduction completed, monitoring ongoing) funded by the Province of Siena
- a specific visitor interpretation and education centre on wet areas has been created by the nature reserve of Montepulciano Lake (Southern Tuscany) funded by ASTRA.

Ferrara Botanic Garden has flower beds dedicated to the native flora of conservation interest, including 20 species listed in the national and/or local red lists.

Calabria Botanic Gardens pays special attention to the cultivation endangered species at global level, among the others *Woodwardia radicans*, *Primula palinuri*, *Dianthus guliae*, *Silene oenotrie*.

Palermo Botanic Gardens carries out an internal project for germplasm conservation funded up to 2010.

Naples Botanical Garden developed a seed bank and is part of a national project for the conservation of rare species, maintaining an *ex situ* collection of seeds from *Celtis australis*, *Betula pendula* and *Abies alba* for forestation.

9. Other activities in plant diversity conservation / seed banking (participation in national and international projects – give title and member name):

Five Italian botanic gardens (Palermo, Cagliari, Pisa, Genova-Hanbury, Roma), are currently contributing to the national project PRIN 2007/JNJ7MX_003 “*Ex situ* conservation and taxonomic, genetic and eco-physiological characterisation of threatened species belonging to the Italian Flora” 2008-2010. This project is funded by the Ministry of Research and is co-ordinated by Palermo Botanical Garden.

Hanbury Gardens are partners of the Interreg project ALCOTRA Natura 2000 "Alpi del Mare".

Genoa Botanic Gardens are partners of the Interreg project ALCOTRA Natura 2000 "Foresta demaniale Testa d'Alpe".

Rome Botanic Garden is investigating germination ecology of species of local conservation interest such as *Cornucopiae cucullatum* L., *Crypsis aculeata* (L.) Aiton, *Vicia sativa* L. subsp. *incisa* (M. Bieb.) Arcang., *Centaurea cineraria* L. subsp. *circae* (Sommier) Cela Renzoni et Viegi, *Periploca graeca* L., *Sarcopoterium spinosum* (L.) Spach).

Viotte Botanic Garden (Trento) is currently carrying out detailed investigation on the population biology and germination ecology of the following narrow endemics *Callianthemum kernerianum*, *Aquilegia thalictrifolia* and *Erysimum aurantiacum* (all of them with IUCN global status CR)

Calabria Botanic Garden has recently reassessed the conservation status of the most threatened species occurring locally, applying the new IUCN criteria. Relevant species include *Limonium calabrum*, *Ptilostemon gnaphaloides*, *Retama raetam* ssp. *gussonei*. *Woodwardia radicans*, *Primula palinuri*, *Sarcopoterium spinosum*.

Cagliari Botanic Garden (Sardinia) is actively committed to plant conservation, Currently active projects include:

- Life+ Providune (2008-2012): conservation of dune systems in Sardinian SCI.
- Conservation of threatened endemic Sardinian taxa (2007-2011) funded by Region Sardinia
- Study and conservation of endemic trees of forest interest (2008-2013), funded by the Sardinian forest service.
- Restoration of dune vegetation of Chia (2007-2009): funded by POR Sardinia, using native plants collected locally and propagated.
- Plant conservation in Capo Carbonara, Islands of Cavoli and Serpentara (2008-2009): Funded by the Ministry of the Environment, seed collection, and plant monitoring.
- Restoration of mining areas with contaminated soils (2007-2009): funded by ARPAS part of the pilot project fighting desertification in 5 Italian Regions. Species selection and relative soil and fertiliser.

Catania Botanic Garden is currently actively involved in:

- detailed investigations on the germination behaviour of the Sicilian populations of *Dianthus rupicola* Biv. and *Retama raetam* (Forssk.) Webb subsp. *gussonei* (Webb) Greuter;
- characterisation by means of image analysis of su 22 taxa, belonging to the genus *Limonium* Miller.

Palermo Botanic Garden coordinates the following conservation projects:

- "Madonie" funded by the EU regional development fund (FESR) POR 2000-2006, Misura 3.15 - Azione C, PIT 31
- conservation of crops and crop wild relatives

Naples Botanic Garden is actively collecting landraces and ancient varieties of Mediterranean fruits.

10. Activities in CITES implementation

No notable activities in the last reporting period.

Rome Botanic Garden is a registered CITES recovery centre that host confiscated plants. Catania Botanic Garden provides advice to the Forestry officials in charge of Cites implementation at Catania airport.

11. Activities related to databases and plant record keeping

The next Annual meeting of the National Botanic Gardens network (Hanbury Botanic Gardens, 28.5.2010), will discuss in detail the development and implementation of a joint national data interface for the collections of all Italian Botanic Gardens.

Hanbury gardens are adding to their plant database (approx. 4000 taxa) a GIS application.

The Cryptogamic herbarium of Camerino Botanic Garden is now accessible on line; the Garden database is now operational.

Naples Botanic Garden made available on line a digital version Flora Napolitana made by Michele Tenore (18011/1838) as a special issue of the periodical Delpinoa, check it out at www.ortobotaniconapoli.it/paginadimenu.htm

Bergamo Botanic Garden (Lombardy) in 2009 made available on-line www.ortobotanicodibergamo.it/index.php?it/139/bibliografia-botanica-bergamasca

12. Important publications published or prepared for publishing (books, journals, bulletins, newsletters, etc. – give title, publisher, volume, year):

AA.VV. 2009 - Piante e cambiamenti ambientali. Lombardy Botanic Gardens network.

Aghababyan M., Greuter W., Mazzola P., Raimondo, F.M. 2009 - On the Taxonomy and nomenclature of *Gnaphalium angustifolium* Lam. and *Helichrysum litoreum* Guss. (*Compositae*) *Bocconea*, 23: 157-163.

Bacchetta G., Brullo S., Casti M. & Giusso del Galdo G.P., 2010 - Taxonomic revision of the *Dianthus sylvestris* group (*Caryophyllaceae*) in central-southern Italy, Sicily and Sardinia *Nordic Journal of Botany*, 28: 137-173.

Bacchetta G., Dettori C.A., Mascia F., Meloni F. & L. Podda, 2009 - Assessing the potential invasiveness of *Cortaderia selloana* in Sardinian wetlands through seed germination study. *Plant Biosystems* 144.

Bacchetta G., Fenu G., Mattana E. & C. Pontecorvo, 2010 - Ecological remarks on *Astragalus maritimus* and *A. verrucosus*, two threatened exclusive endemic species to Sardinia. *Acta Botanica Gallica* (in print).

- Bargagli R., Favilli L., 2010 - Biodiversità del Territorio senese: collezioni, didattica e ricerca. Dip. di Scienze Ambientali "G. Sarfatti", Museo di storia naturale dell'Accademia dei Fisiocritici e Museo Botanico.
- Branca F., 2010 - Il litorale di Manfria (Gela): natura e storia da proteggere. Catania : Dipartimento di Botanica, Università di Catania.
- Brullo C., Brullo S., Giusso Del Galdo G., Guarino R., Minissale P., Scuderi L., Siracusa G., Sciandrello S., Spampinato G. 2009 - The *Lygeo-Stipetea* class in Sicily. - *Annali di Botanica* (in press)
- Brullo S., Giusso Del Galdo G., Guarino R., Minissale P., Siracusa G., Scuderi, Domina G., Mazzola P., 2009 - Notes on the genus *Orobanche* in Italy: 2. Taxa described by Gussone. - *Boccone* 23: 177-185.
- Camoletto R., Verza Ballesio P., Quaranta L., 2009 - Le iris tra botanica e storia. Museo Regionale di Scienze Naturali, Torino.
- Campodonico P.G., Zappa E., Mariotti M.G., Suffia G.I., Zappa E., 2009 - Rivisitazione critica della "Florula Mortolensis". Atti 104° Congresso della Società Botanica Italiana Campobasso 16-19 settembre 2009. poster.
- Caruso G., C. Gangale, S. Sciandrello e D. Uzunov, 2010. *Retama raetam* (Forssk.) Webb & Berthel. subsp. *gussonei* (Webb) Greuter. *Inf. Bot. Ital.*, in print.
- Cristaudo A., 2010 - Ein Betrag über *Ophrys sphegodes* - Population am Ätna und zwei neue Bastarde der Gattung *Ophrys* In Sizilien.
- Domina G., Raimondo F.M., 2009 - A new species in the *Portulaca oleracea* aggregate (*Portulacaceae*) from the Island of Soqotra (Yemen). - *Webbia* 64 (1): 9-12.
- Domina G., Stepanek J., 2009 - Typification of the name *Orobanche canescens* C. Presl (*Orobanchaceae*) with taxonomic notes. - *Candollea* 64 (1): 31-37.
- ENSCONET, 2009 - Curation protocols and recommendations. 32pp. ISBN 978-84-692-5964-1.
- ENSCONET, 2009 - Manuale per la raccolta dei semi delle piante spontanee. 36pp. ISBN 978-84-692-6453-9. Traduzione a cura di Bonomi, Rossi, Bolognesi, Bortoluzzi e Vicentini.
- ENSCONET, 2009 - Seed collecting manual for wild species. 32pp. ISBN 978-84-692-3926-1.
- Galesi R., Lorenz R., 2010 - Le Orchidaceae della Riserva naturale orientate / Oasi faunistica di Vendicari" (Sicilia sud-orientale).
- Gangale C., Caruso G., Uzunov D., 2010. *Ptilostemon gnaphaloides* (Cirillo) Soják subsp. *gnaphaloides*. *Inf. Bot. Ital.*, in print.

Gargano D., Gullo T., Bernardo L., in stampa. Fitness drivers in the threatened *Dianthus guliae* Janka (*Caryophyllaceae*): disentangling effect of growth context, maternal influence and inbreeding depression. *Plant Biology*, in print.

Gargano D., Vecchio G., Bernardo L., 2010. Plant-soil relationships in fragments of Mediterranean snow-beds: ecological and conservation implications. *Plant Ecology*, 207: 175-189.

Gratani L., Bonito A., Varone L., Crescente M.F., 2010. Monitoring plant species response to climate change. 4th Botanic Gardens Congress, Dublino, 13-18 Giugno 2010.

Gratani L., Bonito A., Varone L., Crescente M.F., 2010. Phenotypic plasticity for physiological and life-history traits of *Quercus ilex* L. 4th Botanic Gardens Congress, Dublino, 13-18 Giugno 2010.

Gratani L., M.F. Crescente, G. Fabrini, A. Bonito & L. Varone L., 2009 - Growth analysis of reestablished population versus natural population of *Bidens cernua* L. *Plant Biosyst.*, 143: S63–68.

Gratani L., Varone L., Crescente M.F., Bonito A., Catoni R., 2010. Growth efficiency of italian threatened species in response to climatic factors. Atti del 46° Congresso SISV "Countdown 2010 Save Biodiversity, il Contributo della Scienza della Vegetazione". Pavia, 17-19 Febbraio 2010.

Guarino R., 2009 - *Una visita botanica alla Villa di Tigellio* - In: C. Pontecorvo "Guida dell'Orto Botanico di Cagliari": 177-179. Coedisar, Cagliari.

Guarino R., Addamiano S., La Rosa M., Pignatti S., 2009 - *The impact of Information Technology on the identification of species and archivation of taxonomic and floristic data.* - *Bocconea* 23:19-23.

Guarino R., Manachini B., Schicchi R. 2009 - *Il punteruolo delle palme.* - *Natura e Montagna* (in press).

Landi M., Frignani F., Lazzeri C., Angiolini C., 2009 - Abundance of Orchids on Calcareous Grasslands in Relation to Community Species, Environmental, and Vegetational Conditions. *Russian Journal of Ecology*, 40(7): 486–49.

Lantieri A., Pfister D.H., 2010 - A new species of *Marcelleina* from Italy

Maniscalco M. & Raimondo F.M., 2009 - Studio fitosociologico dei querceti caducifogli acidofili con *Ilex aquifolium* della Sicilia. *Fitosociologia* (in press).

Mariotti M.G., 2009 - La banca delle piante. In AA.VV. - Rapporto sullo stato delle Foreste in Liguria 2008. Compagnia delle Foreste. Arezzo. pp. 25

Mattana E., Daws M.I. & G. Bacchetta, (2009) - Effects of temperature, light and pre-chilling on germination of *Rhamnus persicifolia*, an endemic tree species of Sardinia (Italy). *Seed Sci. Techn.*, 37(3): 758-764.

- Mattana E., Daws M.I. & G. Bacchetta, (2009) - Seed dormancy and germination ecology of *Lamyropsis microcephala*: a mountain endemic species of Sardinia (Italy). *Seed Sci. Techn.*, 37(2): 491-497.
- Mattana E., Daws M.I. & G. Bacchetta, 2010 - Comparative germination ecology of the endemic *Centranthus amazonum* (*Valerianaceae*) and its widespread congener *C. ruber*. *Plant Species Biol.* (in print).
- Mattana E., Daws M.I., Fenu G. & G. Bacchetta, 2010 - Ecological and morphological seed traits of *Polygala sardoa* and *P. sinisica*: a comparative study on two endemic species of Sardinia. *Flora*, (in print).
- Milanesi C., Vignani R., Ciacci A., Nardini A., Valenti M., Cantini F., Ciampolini F., Faleri C., Cresti M., 2009 - Ultrastructural study of archaeological *Vitis vinifera* L. seeds using rapid-freezefixation and substitution. *Tissue and Cell* 41(6):381-456
- Nimis P.L., Martellos S., Tacchi R., 2009 - Orto botanico di Camerino. Laboratorio all'aperto di identificazione delle piante.
http://dbiodbs.units.it/carso/chiavi_pub21?sc=179
- Palermo A.M., De Vita A., Peruzzi L., Gargano D., Bernardo L., Musacchio A., in stampa. Does *Plantago brutia* Ten. (*Plantaginaceae*) merit specific rank? Insights from nrDNA and cpDNA data. *Plant Biosystems*, in print.
- Passalacqua N.G., 2010 - Guida alla visita dell'Orto Botanico dell'Università della Calabria. in print.
- Pedrotti F., 2009 - L'Orto botanico "Carmela Cortini" dell'Università di Camerino. Temi Editore.
- Peruzzi L., Aquaro G., Caparelli K. F., Raimondo F. M., 2009 - The genus *Taraxacum* (*Asteraceae*) in Italy. III. A new species of *T.* sect. *Erythrocarpa* (*Asteraceae*) from Sicily. - *Fl. Medit.* 19: 73-79.
- Peruzzi, L., Scuderi L., Raimondo F.M., 2009 - Distribution of the genus *Gagea* (*Liliaceae*) in Sicily. - *Fl. Medit.* 19: 25-47.
- Pfeifer M., Passalacqua N.G., Bartram S., Schatz B., Croce A., Carey P.D., Kraudelt H., Jeltsch F., 2010 - Conservation priorities differ at opposing species borders of a European orchid. *Biological Conservation*, in print.
- Pfeifer M., Schatz B., Picó F.X., Passalacqua N.G., Fay M.F., Carey P.D., Jeltsch F., 2009 - Phylogeography and genetic structure of the orchid *Himantoglossum hircinum* (L.) Spreng. across its European central-marginal gradient. *Journal of Biogeography* 36(12): 2353-2365.
- Raimondo F.M. 2009 - *Etnobotanica in Sicilia: l'uso tradizionale di alcune piante della flora nativa*. In A.A., *Biodiversità facciamo il punto: Strategie per l'educazione la Gestione e la Conservazione*. - ARPA Sicilia, Palermo. Pp. 203-218.

Raimondo F.M., 2009 - *L'Orto botanico di Palermo. Due secoli di storia, tra natura e bellezza architettonica*. Natural 1, 80 (marzo): 58-62.

Raimondo F.M., 2009 - *Origine e valori del patrimonio vegetazionale e floristico della Sicilia*. - In A.A., *Biodiversità facciamo il punto: Strategie per l'Educazione la Gestione e la Conservazione*. - ARPA Sicilia, Palermo. Pp.177- 202.

Raimondo F.M., Domina G., 2009 - A new species of *Limonium* (*Plumbaginaceae*) from Socotra (Yemen). *Plant Biosyst.* 144.:

Raimondo F.M., Ilardi V., 2009 - *Indagini fitosociologiche sulla vegetazione a Bupleurum fruticosum (Umbelliferae) del versante tirrenico della Sicilia orientale*. *Naturalista sicil.*, s. 4, 33(3-4): 129-140.

Raimondo F.M., Mazzola P., Di Martino A., 2009 - *The Botanic Garden of Palermo University*. Pp. 135, Edizioni Arbor, Palermo.

Raimondo F.M., Scicchi R., Bazan G., 2009 - *Studio fitosociologico dei cerreti con agrifoglio della Sicilia*. - *Naturalista sicil.*, S. 4, 33(3-4), 2009, pp. 141-154.

Raimondo F.M., Spadaro V., 2009 - *Addenda et emendanda to the "A catalogue of the plants growing in Sicily"*. - *Fl. Medit.* 19:

Raimondo F.M., Spadaro V., 2009 - *Brassica carinata (Cruciferae) spontaneizzata in Sicilia*. - *Naturalista Sicil.*, S. IV, 33 (3-4):123-127.

Raimondo, F.M., Ilardi, V., Mazzola, P. 2009 - *Nuove prospettive per l'arboricoltura da legno in Sicilia: la coltivazione del noce Pecan*. *Atti Terzo Congresso Nazionale di Selvicoltura per il miglioramento e la conservazione dei boschi italiani 3*: 1535-1538.

Rinaldi G., 2009 - *La Botanica della Musica. Piante d'origine e strumenti musicali ad arco e a pizzico*. Bergamo Botanic Garden.

Rinaldi G., 2009 - *La Rete degli Orti Botanici della Lombardia: esperienze condivise, progetti, prospettive e connessione con i parchi storici*. In: *Giardini storici. A 25 anni dalle Carte di Firenze: esperienze e prospettive*, vol. II°, Editrice Leo S. Olschki, pagg. 707-714.

Rinaldi G., 2009 - *Lorenzo Rota 150 anni dopo. Tracce ed eredità scientifiche del medico e botanico che per primo descrisse la flora della provincia di Bergamo*. Bergamo Botanic Garden.

Rinaldi G., Zonca F., 2009.- *Gli Orti e i Giardini Botanici della Lombardia, proposte didattiche educative per le scuole*. Lombardy Botanic Gardens network.

Rosselli S., Maggio A., Bruno M., Spadaro V., Formisano C., Irace C., Maffettone C., Mascolo N., 2009- *Furostanol Saponins and Ecdysones with Cytotoxic Activity from Helleborus bocconeii ssp. intermedius*. *Phytoterapy Research*.

Schicchi R., Geraci A., Marino P. 2009 - *Genetic diversity on Pyrus L. (Rosaceae) in Sicily*.- *Bocconeia* 23: 207-

Tacchi R., 2009 - Le scuole alla scoperta dei muschi dell'Orto botanico di Camerino.
http://www.keytonature.eu/wiki/Le_scuole_alla_scoperta_dei_muschi_nell%E2%80%99Orto_Botanico_di_Camerino.

Tacchi R., 2009 - Un itinerario didattico-naturalistico nell'orto botanico finalizzato alla conoscenza di Alghe e Muschi. In. Pedrotti F. (Ed.), 2009 – L'Orto botanico "Carmela Cortini" dell'Università di Camerino. Temi Editore: 250

Tacchi R., Nimis P.L., Martellos S., 2009 - I muschi dell'Orto botanico dell'Università di Camerino. http://dbiodbs.units.it/carso/chiavi_pub21?sc=245.

Tundis R., Loizzo M.R., Bonesi M., Menichini F., Dodaro D., Passalacqua N.G., Statti G., Menichini F., 2009 - In vitro cytotoxic effects of *Senecio stabianus* Lacaita (Asteraceae) on human cancer cell lines. Natural Product Research 23(18): 1707-1718.

Uzunov D., Caruso G., Gangale C., 2010 - *Limonium calabrum* Brullo. Inf. Bot. Ital., in print.

13. Special activities of botanical gardens in education and dissemination:

Most gardens offer guided tours to visitors and schools throughout the year. Many have permanent visitor and interpretation centres, exhibitions and conference cycles. Most gardens join the national week of scientific culture, usually held at the end of March, offering free entrance and special events.

The Trieste Botanic garden coordinates the EU project Key to Nature that aims to develop multiple access, interactive identification tools for plant, both standalone using PDA and Pocket PC and web based via internet browsers. Approx. 10 Italian Botanic Garden became associate members to this project. Personalised identification keys for a small number of species have been prepared and distributed to associate members to be used in education activities with schools to introduce taxonomy and facilitate plant identification (Among the others: Catania, Camerino, Hanbury, Rome).

Rome Botanic Garden, among other activities, offers courses of botanical painting and gardening.

At the Hanbury Gardens the education activities currently in place are: plant identification, herbarium preparation, flower analysis, aromatic plants and their use in food preparation. Darwin trail (evolution and adaptation to the environment); the Hesperidi Garden. Special events for the 50 years: new exhibitions (Mimosa mimosae; trees; Hibernae rosae; stones tales; Rosa di Ponente; plants and linguistics; traces of the past; native flora of Capo Mortola). www.giardinihanbury.com

Camerino Botanic Garden has a special activity dedicated to vegetable garden plants, and a new trail dedicated to algae and mosses, that are frequently neglected in Botanic Gardens. A new addition includes dyeing plants and a lab for natural dyes.

A new website for Siena Botanic Garden is on-line @
www.museobotanico.unisi.it.

Other events:

October 2008 - May 2009 - exhibition: all about trees. Organised and hosted by Bergamo Botanic Garden.

4.2.2009 - open debate on Palms and the new disease *Rhynchophorus ferrugineus*. Organised by Rome Botanic Garden.

4-6.2. 2009 at Cascina Rosa Botanic garden (Milan University) the Lombardy network of Botanic Gardens organised the "Lombardy Botanic Gardens Training Course" for educators in botanic gardens. International guest Julia Willison from BGCI

27.2.2009 - Evolution workshop to celebrate the Darwin year organised by Catania Botanic Garden. A cross cutting workshop on evolution, Astronomy, Biology, Palaeontology, Sociology. Organised by Catania botanic Garden

14.2-13.3.2009 - exhibition: Orchids in evolution, co-organised by the Lombardy network of Botanic Gardens

4.4.2009 - workshop: Managing trees in cities. Organised and hosted by Messina Botanic Garden

20-24.4.2009 - exhibition: Project ideas for the Botanical Garden of the University of Genoa. Organised and hosted by Genoa Botanic Garden.

1.5.2009 - Cormor Botanic Garden organised a temporary trail for edible native plants in the lowland grasslands.

30.4-3.5.2009 - 2nd Course of naturalistic photography organised and hosted by Capracotta Botanic Garden (Isernia, Molise).

9-10.5.2009 Exhibition: Spring and environmental education at Rome Botanic Garden. XV Bonsai exhibition. Special activities for kids, introducing plants and their origin. Organised by Rome Botanic Garden.

16.5.2009 - Catania Botanic gardens joined the museums' night festival and stayed open till 2am. with two events: "Queen Marina in the first world war"; "Mater Matris - Homage to the mother figure". Organised by Catania botanic Garden

17.5.2009 - Cormor Botanic Garden celebrates Plant conservation day May 18th special tours of the garden and special focus on edible plants.

23.5.2009 - Photographer competition for students: take the picture of to describe a native species, its environment and human uses. Organised by Catania botanic Garden.

30.5.2009 - Photographer competition for students: promote environmental protection towards the wider public. Organised by Catania botanic Garden

11.6.2009 - DVD presentation: Hortus Botanicus Taurinensis. Organised and hosted by Turin Botanic Garden.

17.6-31.8.2009 - exhibition: Tris between botany and history. Organised and hosted by Turin Botanic Garden.

18.6.2009 - book presentation: Sourcing, evaluating and collecting germplasm of fruit trees in traditional agroecosystem (Individuazione, valutazione e raccolta del germoplasma delle specie arboree da frutto di prevalente interesse negli agrosistemi tradizionali della Sicilia). Organised by Palermo Botanic Garden,

30.6.2009 - book presentation: hugging trees (Abbracciare gli alberi) by Giuseppe Barbera. Organised by Palermo Botanic Garden,

20.6-20.8.2009 - exhibition: the plants of Claudio Longo. Organised and hosted by Bergamo Botanic Garden.

20.6-29.8.2009 - Night opening every summer Saturday at Bergamo Botanic Garden. Lombardy.

25-26-27.9. 2009 - Exhibition on herbs "Urbe et erbe". A special exhibition on herbs and medicinal plants, their production and use.

spring 2009 events at Messina Botanic Garden 16-17.5 herbs on display and their use in food; 23-24.5 succulents on display - how to grow them ; 6-7.6 carnivorous plants: adaptation.

5-13.06.2009 - Training course for the collection of seeds of threatened and protected plants for the Regional Seedbank. Organised and hosted by Genoa and Hanbury Botanic Garden and the Ligurian branch of the Italian Botanical Society together with the Ligurian network of Botanic Gardens.

20-21.6.2009 - event: Midsummer night in a botanic garden in Lombardy - organised by the Lombardy network of Botanic Gardens
www.reteortibotanicilombardia.it

20.06.2009 - exhibition: Happy Birthday Darwin. Celebration of 200 years since the birth of Charles Darwin. Organised and hosted by Genoa Botanic Garden.

3-4.10.2009 - vegetable garden show - exhibition of vegetables. Organised by the Lombardy Botanic Garden network.

8.10.2009 - book presentation: The archives of Edoardo Beccari. Organised and hosted by Firenze Botanic garden.

10.10.2009 - day lecture: Patriarchal trees: the sacred trees. Organised and hosted by Catania Botanic Garden.

10.10.2009 - workshop: gardens and libraries. Organised and hosted by Lecce Botanic Garden.

23.10-1.11.2009 - exhibition: Watch that fiber! Natural fibers between past and future Under the auspices of the International Year of Natural Fibres (FAO), Part of the Genoa Science Festival. Organised by Genoa Botanic Garden and the Ligurian branch of the Italian Botanical Society
www.festivalscienza.it/site/Home/Programma/articolo5512.html

25.10-1-8-15.11.2009 - thematic day excursions in Carso on plants and edible plants organised and hosted by Carsiana Botanic Garden.

30.10-16.12.2009 - Exhibition: Science and Arts at the foot of the Volcano. Catania botanic Garden, organised by Catania botanic Garden, part of the exhibition at the Monastery of San Nicolò l'Arena in Catania.

17.12.2009 - book presentation: The illustrated flora of Mt. Baldo. Organised by Rovereto Museum, venue: Mart, Rovereto, Trentino.

8.10.2009-17.1.2010 - Abord the Beagle, en route with Darwin, disclosing evolution theory. Co-organised by Camerino Botanic Garden.
www.unicam.it/mostradarwin/

3.10.2009-31.5.2010 exhibition: Otzi - The man that came from Ice. Organised and hosted by Bergamo Botanic Garden.

10-12.2.2010 at Cascina Rosa Botanic Garden (Milan University) the Lombardy network of Botanic Gardens organised the 2010 "Lombardy Botanic Gardens Training Course" for educators in botanic gardens. International guests Susan Allan e Astrid Krumins from Kew Gardens.

25.3.2010 - book presentation: The herbarium of Carlo Allioni. Organised and hosted by Turin Botanic Garden, Piedmont.

13.4-15.6.2010 exhibition: Ferrara Botanic Gardens: yesterday, today and tomorrow, Venue: Palazzo Turchi, Ferrara, Emilia Romagna. A new guidebook for the botanic garden (both in Italian and English) has been prepared for this special occasion.

16.4.2010 - public lecture - The international year of biodiversity, between nature and humankind, co-organised by Salerno Minerva Botanic Garden. Venue: Salerno, Villa Comunale, Campania.

17-18.4.2010 - Minerva flower show, co-organised by Salerno Minerva Botanic Garden, venue: Salerno, Villa Comunale, Campania.

23-24-25.4.2010 - Iris flower show, co-organised by the botanic garden of Parma, venue: Colorno, Parco della Reggia, Parma, Emilia-Romagna.

25.4.2010 - Camerino gardens in flower - day lecture on Vanilla. Organised and hosted by Camerino Botanic Garden.

3.4-2.5. 2010 - event: Spring at Siena museums, includes Siena Botanic Garden, Siena, Tuscany.

16.5.2010 Beyond the garden with the re-opening of Parma Botanic garden. co-organised and hosted by Parma Botanic Garden
<http://eventi.parma.it/page.asp?IDCategoria=26&IDSezione=94&ID=360927>

19-23.5.2010 - event: Bioweek 2010 - A week dedicated to confeneces, guided tours and participative biodiversity monitoring in Trentino, organised by Trento Natural History Museum. Venue: Viotte Alpine Botanic Garden, Trentino.

21-23.5.2010 - Flower show of rare and unusual plants and natural wellbeing "7a Mediterraneo e dintorni" co-organised by Naples Agronomic Botanic Garden, Venue: Naples agronomy Botanic Garden.
www.mediterraneoedintorni.com/default.asp

14. Information about planning and organization of new botanical gardens in the country or new sections or displays under design or forthcoming events in network botanical gardens:

Two new botanic garden has been opened 2009

- 1 - Forte Marghera Botanic Garden near Venice opened the 12th of June 2009
- 2 - Cormor Botanic Garden near Udine.

The following new areas/development are in progress in the following gardens:

Hanbury Gardens (Mortola, Ventimiglia, Liguria):

- restoration of rural pathways within the Gardens
- reclamation of Rio Sorba valley within SCI IT 1316118 - Capo Mortola
- Hanbury for everyone: improving accessibility to the gardens for elderly and disabled people
- restoring the scent gardens
- restoring garden areas for special projects: Mimosa, Citrus, Rosa (MUIR projects)

Nuova Gussonea Botanic Garden on Mt. Etna, is planning

- a new Arboretum to host all woody species of Mt. Etna (more than 100)
- a new herb garden with Etnean species.
- new greenhouses

Viotte Alpine Botanic Garden (Trento) recently cleared an area of 2 hectares occupied by biodiversity poor Norway Spruce reforested grounds. New development are in preparation to showcase high diversity of alpine plants. Stay tuned for news in the next reports. The new pond was completed last autumn and will be opened to the public next summer.

Rome Botanic Garden is progressing with the refurbishment of the old glasshouses

Cagliari Botanic Garden (Sardinia) has recently developed a vegetable garden to illustrate the different part of the plants eaten, a new flower bed has been dedicated to plants mentioned in the Bible (including the relative quotation), cereals and is planning a new Roman Garden.

Catania Botanic Garden (Sicily) is constantly developing *Hortus siculus*, an area dedicated to native flora of conservation interest. From October 2009 to April 2010, 25 out of the 34 endemic species planted successfully established (*Alisma plantago-aquatica*; *Bellevalia dubia*; *Carduncellus coeruleus*; *Carex distans*; *Convolvulus cantabrica*; *Festuca sp.*; *Gladiolus byzantinus*; *Gladiolus italicus*; *Mercurialis perennis*; *Bellevalia dubia*; *Micromeria microphylla*; *Muscari atlanticum*; *Ophrys apifera*; *Ophrys explanata*, *Ornithogalum narbonense*; *Ornithogalum umbellatum*; *Plantago crassifolia*; *Primula acaulis*; *Ranunculus ophioglossifolius*; *Romulea cfr. columnae*, *Schoenus nigricans*; *Solenanthus apenninus*; *Spiranthes spiralis*; *Theligonum cynocrambe*; *Typha angustifolia*). A new display with native species has been realised in the Mt. Etna natural park.

Camerino Botanic Garden created two raised beds for growing carinivorous plants and Sphagnum. An additional flower bed has been added for the dyeing plants.

Calabria Botanic Garden is developing a new arboretum attached to the garden that will host the regional woody species, new beds have been completed: the dune beds and the rock beds. The visitor interpretation facilities are being improved with an ecological trail focusing on plant adaptation to the environment and a evolution trail from algae to angiosperms.

Naples Botanic Garden opened a new museum area especially dedicated to blind people, rich in scented plants with tactile stimuli.

15. Information on invasive species risks / management

Hanbury gardens are currently working on a project to convert a thick swamp vegetation dominated by *Arundo donax* into a species rich swamp area: some practical problems are being solved.

Most garden fight back invasive weeds in the garden with mechanical weeding or selective killing using fire or low impact herbicides or germination blockers.

16. Important research achievements:

Three Botanic Gardens (Trento, Pisa and Pavia) contributed to the Issue of Ensconet seed collecting and curation protocols and edited the respective Italian versions.

Hanbury Gardens are currently active on an alien species monitoring project

Camerino Botanic Garden completed a research on local dyeing plants used in the Region Marche.

Calabria Botanic Garden focus its research attention on biosystematics, reproduction biology and conservation in the genus *Dianthus*. Extensive experimentation is being carried out on more than 700 plants, investigating autogamy, inbreeding depression, a special interest focus on *D. balbisii* Ser.

Cagliari Botanic Garden (Sardania) investigates germination ecology, morphometric and colorimetric characterisation of germoplasm via image analysis, taxonomy of critical groups, impact of climate change, reproductive

biology of invasive species, phytoremediation using metal-tolerant native species, agrobiodiversity of *Vitis vinifera* L. subsp. *vinifera* in Sardinia.

17. Information about activities in plant collecting (important domestic or foreign expeditions):

Most gardens do collect seeds in the wild on a local scale.

The 13 botanic gardens (Pavia, Hanbury, Trento, Padua, Pisa, Livorno, Ancona, Viterbo, Roma, Majella, Catania, Palermo, Cagliari) belonging to the RIBES network (the Italian seed bank network) do carry out regular well targeted seed collecting expeditions, especially designed for conservation purposes, in an integrated way on a national basis aiming to cover most of the national territory.

Trento museum is planning a seed collecting campaign in Tanzania in preparation of the development of the new Tanzanian tropical glasshouse that will open in 2013 in Trento.

Cagliari Botanic Garden has recently conducted seed collecting campaigns in France, Greece, Morocco, Spain and Tunisia as part of its international project involvement.

Naples Botanic Garden in 2009 organised a seed and plant collecting expedition in Central America to source plants for the new tropical greenhouse. Parallel expeditions were organised in the Mediterranean aiming to collect seed, plants and the related ethno botanical information and local indigenous knowledge.

Genoa Botanic Garden carried out seed collecting expeditions in Corsica (France) and in Peru (South America).

18. Participation in the international or national efforts in legislation on nature or biological diversity conservation:

Italy is finally preparing a National Biodiversity Strategy. The national focal point (Minister for the Environment) started a consultation process for a participative approach to draft a National Strategy. The Botanic Gardens network will also contribute to this process, in particular the following key workshop was held in Rome:

25.3.2010 National workshop: Environmental Systems 2010: the Italian network of Biodiversity. Organised by the Ministry of Environment, with the support of all relevant stakeholders including the botanic garden network (Italian Clearing House Mechanism). Venue: CNR, Rome.

The Botanic Garden of Pavia contributed to a new regional legislation in Lombardy to regulate plant protection and plant translocation activities, including seed banking, reintroduction and reinforcement

Hanbury gardens proposed to the local government the creation of a marine reserve in the area in front of the garden. The proposal is currently under evaluation.

The Genoa University botanical garden has collaborated in the drafting of the Regional Law (R.L.) of Liguria for the conservation of biodiversity (R.L. n.28/2009)

The 3 Botanical Gardens of Tuscany (Pisa, Firenze and Siena) are defined from Tuscany Region as CESFL: Centres for the *ex situ* conservation of the native flora (LR56/2000).

Cagliari Botanic Garden contributed to develop a local regulation for the conservation of native plant diversity and agricultural biodiversity in Sardinia. The regulation is currently being discussed by the Regional Government.

Calabria Botanic Garden contributes to the management of protected areas, a recent contribution was given to the management plan of Sila National Park, the garden is currently working on the definition of the conservation actions for the SCI included in the national park. A representative of the garden sits in the technical committee of Region Calabria for the management of the microflora.

19. Any other (not listed above) activities:

From February 2009 the Lombardy Botanic Gardens network is a formally legally registered association.

Trento, Italy, May the 12th, 2010

The authorised representative
Costantino Bonomi

