

# Conservation of the Wild Relatives of Native European Crops

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Interest in the conservation of wild relatives of cultivated plants has increased considerably in recent years and is recognized as one of the priority activities of the Leipzig Global Plan of Action. Wild relatives have contributed to the improvement of most crop plants and are used mostly as sources of desirable genes as well as in research relating to crop improvement.

Although not often thought of as a major center of crop diversity, the European continent harbors rich wild gene pools of many crop species. These include: cereals, particularly oats (*Avena*) and rye (*Secale*); food legumes such as pea (*Pisum*) and lupins (*Lupinus*); fruit crops, such as apple (*Malus*), pear (*Pyrus*), plums and cherries (*Prunus*), grape vine (*Vitis*), raspberries and blackberries (*Rubus*), olive (*Olea*) and fig (*Ficus*); vegetables—including lettuce (*Lactuca*), carrot (*Daucus*), parsnip (*Pastinaca*), cabbage and other brassicas (*Brassica*), beet (*Beta*), celery, celeriac (*Apium*), leek (*Allium*), asparagus (*Asparagus*), salsify (*Tragopogon*), and artichoke (*Cynara*). The wild inventory is also very rich in the assemblage of pot herbs, condiments, and aromatic plants such as: caper (*Capparis*), mints (*Mentha*), marjoram (*Origanum*), lavender (*Lavandula*), thyme (*Thymus*), sage (*Salvia*), rosemary (*Rosmarinus*), mustards (*Sinapis*, *Brassica*), horseradish (*A Armoracia*), water cress (*Nasturtium*), chives and leek (*Allium*), fennel (*Foeniculum*), caraway (*Carum*), that have their close wild relatives in Europe.

There is also a very large number of ornamentals, many of which have been taken into cultivation in Europe itself and represent a significant part of its cultural heritage. These include: candytuft (*Iberis*), stock (*Matthiola*), wallflower (*Erysimum*), mountain ash (*Sorbus*), sweet william and pinks (*Dianthus*), delphinium (*Delphinium*), larkspur (*Consolida*), columbine (*Aquilegia*), pansy and violets (*Viola*), sweet pea (*Lathyrus*), marigold (*Calendula*), snapdragon (*Antirrhinum*), bluebell (*Hyacinthoides*), snowdrop (*Galanthus*), cyclamen (*Cyclamen*), gladiolus (*Gladiolus*), narcissus, jonquil, daffodil (*Narcissus*), crocus (*Crocus*), lily of the valley (*Convallaria*).

Europe is also rich in forestry resources such as: pine (*Pinus*), fir (*Abies*), spruce (*Picea*), oak (*Quercus*), and poplar (*Populus*) and in fodder plants: rye grass (*Lolium*), cock's foot grass (*Dactylis*), clover (*Trifolium*), alfalfa (*Medicago*), etc. Many of the cultivars of these trees, grasses, and legumes have been derived from wild forms that are native to this continent.

## THE INVENTORY

The Council of Europe organized a Colloquy on the "Conservation of Wild Progenitors of Cultivated Plants" in 1989 in cooperation with the Israel Nature Reserve Authorities and this reported to the Council of Ministers of Member States on the need to convene a Group of Experts to address the problems involved in conserving the wild relatives of native European cultivated plants.

The Group of Experts on Biodiversity and Biosubistence was created in 1990 and one of its outputs was A Catalogue of the Wild Relatives of Cultivated Plants Native to Europe (Heywood and Zohary 1995) that provides an initial survey of the wild genetic resources of European cultivated plants. The area covered is Europe as circumscribed by Flora Europaea with the addition of Cyprus and the Canary Islands. For Turkey only species occurring in European Turkey are included.

The catalogue enumerates species and subspecies belonging to the following main groups of cultivated plants that are grown in Europe and also have their wild relatives on this continent, including Grain crops, Oil plants, Fruits & vegetables, Fibres, Herbs, Condiments, Medicinal plants, Fodder, Timber, Ornamentals, Nuts and Others. The survey of the food crops is more exhaustive than for the other groups and only the principal timber trees, fodder crops, medicinals, and ornamentals have been included. Even so, the total number of wild relatives of cultivated plants of economic importance in Europe is larger than many might suspect: over two hundred taxa are included in the Catalogue.

The Catalogue is only a first step and detailed surveys are now needed on a country-by-country basis. In addition, the Group of Experts organized a series of three workshops whose aim was: "to combine the skills of conservation biologists, crop plant evolutionists, population biologists, biochemists, cytogeneticists, and mo-

lecular biologists, with those of conservationists, managers of protected areas, and gene bank managers and apply it to the surveying, conservation, and management of the genetic diversity of the wild gene pools of the cultivated plants of Europe. The workshops will identify key elements for the elaboration of management and survival strategies for these plants.”

## **WORKSHOP**

The main themes covered by the workshops were: (1) Linking ecological and genetic variation; (2) Variation and demography of populations; (3) Genetic systems; (4) Environmental stress and survival strategies; (5) Conservation and management; (6) Protection of genetic variability in forest tree populations; Case studies. The proceedings of the workshops were combined in a single volume edited by Valdés et al. (1997).

The Group of Experts is now associated with the DIVERSITAS programme of biodiversity science as a European node of the Programme Theme “Conservation of the genetic diversity of wild species, especially those used in human activities” (Convenor V.H. Heywood).

Wild relatives was one of the topics covered by an “ad hoc Inter-agency Consultation on Promoting the Conservation and Sustainable Use of Wild Plants of Importance for Food and Agriculture” that was held at UNESCO, Paris, 11–13 February 1998, convened by DIVERSITAS, in association with UNESCO, FAO, IPGRI, and the Convention on Biodiversity (CBD). The consultation brought together different organizations concerned with the conservation and sustainable use of wild plants of importance for food and agriculture, including forestry, medicine, and other groups of interest to humans, with a view to developing a draft framework for collaboration amongst organizations. The report was been submitted to the Fourth meeting of the Conference of the Parties to the Convention on Biological Diversity held at Bratislava in May 1998 as an Information paper (UNEP/CBD/COP/4/Inf.17). Copies may be obtained from the DIVERSITAS Secretariat, c/o UNESCO-M.AB, 1 rue Miollis, 75015 Paris, France. E-mail: [diversitas@unesco.org](mailto:diversitas@unesco.org)

A second inter-agency Consultation is planned take place at FAO in May 1999 at FAO, Rome, Italy, at which collaborative action will be planned in detail, coordination mechanisms proposed and funding sources identified.

The Wild Relatives Group is planning to (1) build on the existing catalogue by commissioning in-depth studies of the species concerned on a country-by-country basis; (2) extend the catalogue so as to cover the whole of the Mediterranean Region; (3) prepare a set of guidelines for the conservation and sustainable use of European wild relatives.

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