



# Conserving crop wild relatives

A large, multi-faceted project launched in 2004 brings together five countries to manage and make use of the wild relatives of vitally important crops



Armenia



Bolivia



Madagascar



Sri Lanka



Uzbekistan

'*In situ* conservation of crop wild relatives through enhanced information management and field application' is a UNEP/GEF co-financed project that addresses national and global needs to improve global food security through effective conservation and use of crop wild relatives. These wild relatives include the ancestors of modern crops and varieties and species related to them. The project is a five-year initiative and will run until 2009.

What is so special about crop wild relatives and why should we be concerned about their conservation and use? Primarily, crop wild relatives are critical for increasing and improving agricultural production and thus alleviating hunger and improving sustainable livelihoods. Wild relatives have contributed many useful genes to crop plants and almost all modern varieties contain some genes that are derived from a wild relative. Valuable genes obtained from crop wild relatives have provided resistance against specific pests and diseases (such as virus resistance in potato and grassy stunt disease resistance in rice), improved abiotic stress tolerance (wild *Aegilops tauschii* is providing wheat with tolerance to drought, heat, salinity and waterlogging) and improved nutritional qualities (increased protein content in durum wheat from *Triticum dococoides*). Genes from a wild relative of tomato

have contributed to a 2.4% increase in solids content in commercial tomato cultivars – worth approximately US\$ 250 million per year in California alone.

These new qualities, for example resistance to pests and disease and to abiotic stress, can reduce reliance on expensive and potentially harmful chemicals and also reduce the need for irrigation. Genes from wild relatives can enhance agricultural sustainability by protecting vital ecosystem services, such as pollination, nutrient cycling and managing water flows. The conservation and wise use of crop wild relatives is thus essential to increase food security, to reduce poverty and to maintain the sustainability of agricultural ecosystems.

The natural populations of many crop wild relatives are

increasingly at risk. They are threatened primarily by habitat loss, degradation and fragmentation. Moreover, the increasing industrialization of agriculture is reducing populations of crop wild relatives in and around farms.

Crop wild relatives are poorly conserved at present, for a variety of reasons. There are technical problems in conserving such a diverse range of species with different biological, ecological, endangerment and use characteristics. There are also political, administrative and infrastructural problems that limit effective *in situ* conservation. In many cases, collaboration between different ministries, agencies or institutions is required but there may be no tradition of collaboration or even a history of competition. Undoubtedly, however, a major limitation



Wild wheat, Armenia.



# Conserving crop wild relatives

is in the capacity to bring together and use information that does exist. A number of studies have shown that often very substantial amounts of information exist but are dispersed among different institutions and agencies in different countries and international organizations.

## A global initiative

This project brings together five countries—Armenia, Bolivia, Madagascar, Sri Lanka and Uzbekistan—, IPGRI and five other international conservation agencies—the Food and Agriculture Organization of the United Nations (FAO), Botanic Gardens Conservation International (BGCI), the United Nations Environment Programme's World Conservation Monitoring Centre (UNEP-WCMC), the World Conservation Union (IUCN) and the German Centre for Documentation and Information in Agriculture (ZADI)—to enhance the conservation status of selected crop wild relatives in each country. Each of the countries has significant numbers of important and threatened crop wild relatives. Each is also among the world's biodiversity hotspots—places that have the highest concentrations of unique biodiversity on the planet. They are also the places at greatest risk of loss of diversity.

## Key elements

Many countries already have conservation initiatives in place, for example genebanks and protected areas, but these do not usually target crop wild relatives. To address this major constraint the project will:



International Steering Committee Meeting, Sri Lanka July 2004. Wild rice in foreground.

- Develop national information systems for crop wild relatives, drawing together information from national sources and including aspects of species biology, ecology, conservation status, distribution, crop production potential, local community uses and existing conservation actions.
- Bring together information from national and international sources on the identity, status, distribution and potential use of crop wild relatives in the five participating countries.
- Create an International Information System accessible through the World Wide Web to link global and national information resources and to allow determination of conservation status and needs for specific crop wild relatives.
- Explore and optimize procedures to link information on species distribution, spatial data and information from ecogeographic surveys so as to make better conservation decisions for these species.
- Identify conservation actions for species and populations identified as having highest priority for interventions and develop national plans for conserving crop wild relatives.
- Develop action plans for *in situ* conservation of crop wild relatives involving local communities so as to combine security for the crop relatives with improved use and benefits for local people.
- Raise awareness within the countries of the importance of crop wild relatives and their value for improving agricultural production.

The outcomes of the project will be widely disseminated nationally and globally and successful strategies (best practices) will be readily transferable to other countries with significant populations of crop wild relatives. In this way, global efforts to conserve biological diversity in general, and crop wild relatives in particular, will be accelerated and improved for the benefit of both the global community and local users.

