

Crop Wild Relatives – A manual of *in situ* conservation ©

Crop Wild Relatives in the UNEP/GEF CWR Project Countries

An overview of the situation of crop wild relatives in the partner countries of the CWR Project: Armenia, Bolivia, Madagascar, Sri Lanka and Uzbekistan.

BOLIVIA

Bolivia is home to roughly 20,000 species of plants and more than 2600 species of vertebrates; it is a country rich in biological diversity and lies within one of the world's centres of crop domestication for potato, sweet potato, maize, peanut, cassava, cotton, tobacco, cocoa and peppers. The country recently published the 'Red Book of the Crop Wild Relatives of Bolivia' *'Libro Rojo de Parientes Silvestres de Cultivos de Bolivia'*, as well as an atlas on existing CWR. The biodiversity of Bolivia is under threat from;

- increased substitution of crops and native varieties by introduced crops and varieties of more market value;
- insufficient land for livelihoods production;
- weak traditional knowledge regarding marketing of genetic quality seeds; and
- climate change and its effects on ecosystems and habitats, as well as rural economies.

Protected Areas

The **National Protected Area System (NPAS)** was established in 1997 with the objective to 'maintain representative samples of biogeographic provinces, through the implementation of policies, strategies, plans, programmes and rules to generate sustainable processes within the protected areas and to achieve the objectives of biodiversity conservation by incorporating the participation of the local population and benefits for actual and future generations.' The NPAS contains more than 66 protected areas of national, departmental, municipal or private interest and accounts for more than 15% of the national territory.

In 2002, Bolivia adopted a **National Strategy for Conservation and Sustainable Use of Biodiversity**, for a period of ten years. It recognizes the importance of CWR, but lacks a set of specific actions for their conservation. In 2009, Bolivia approved a new policy which outlines the obligations of the State with regard to genetic resources, confirming the State's responsibility to establish necessary measures to protect and conserve species of national heritage. The policy also notes that a registration system for collection and conservation of genetic resources will be established.

National Project Websites

- Armenia: www.cwr.am
- Bolivia: www.cwrbolivia.gob.bo/inicio.php
- Madagascar: www.pnae.mg/cwr/index.php
- Sri Lanka: www.agridept.gov.lk/other_pages.php?heading=CWR
- Uzbekistan: www.cwr.uz/en

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ARMENIA

Armenia is home to approximately 3600 vascular plant species, which cover more than half of the flora of the Caucasus (about 7200 species). The country is a significant centre of biodiversity, particularly as it only occupies 6.7% of the Caucis region. More than 125 species are endemic to Armenia.

Armenia possesses many CWR species of domestic crops, including wheat, rye and barley. Wild apple and pear species, as well as fruit and nuts also grow in the country's forests. During the course of the CWR Project, 2518 species (out of 3600 or 70%) of vascular plants reported for Armenia's flora were identified as CWR.

Protected Areas:

In 1958, a network of protected areas was established to protect ecosystems and rare and threatened species. Today, the network includes five state reserves, 22 state reservations and one national park. These registered areas cover 311,000 hectares or 10% of the country's total surface area.

Of particular interest to CWR conservation is the Erebuni State Reserve, which was established in 1981 to specifically protect the CWR of grain crops. The reserve is located near Yerevan City and covers about 89 hectares of land, housing populations of *Triticum araraticum*, *T. boeoticum*, *T. uratu*, *Secale vavilovii* and *Hordeum spontaneum*.

MADAGASCAR

Protected Areas

Prior to 2003, the network of protected areas in Madagascar covered two million hectares, managed entirely by Madagascar National Parks. In 2003, the government pledged to triple the area of coverage to six million hectares (10% of the country's surface area). This total area is now part of the System of Protected Areas of Madagascar (SAPM).

Madagascar is characterized by the richness of its flora (12,000 species of vascular plants) and an immense diversity of ecosystems. 85% of the flora of Madagascar is endemic. The country houses more than 5300 species of medicinal plants (50% of Malagasy flora). Timber species and ornamental plants are also well represented in the country's flora.

More than 150 CWR covering 30 genera are present in Madagascar. Some CWR are related to food plants, including rice and sorghum. Notably, Madagascar includes over 50 caffeine-free or low-caffeine species of *Coffea*. CWR are distributed throughout the country, but the majority are found in forest ecosystems.

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SRI LANKA

Sri Lanka is an important centre of agrobiodiversity central to the livelihoods of small-scale farmers, rural communities and indigenous peoples. Approximately 75% of the country's labour force depends on the diversity of agricultural ecosystems, which include 237 fruit species, 82 vegetable species, 16 cereal and legume species, 20 species of spices and 1550 medicinal species. In 2003, an inventory of food CWR species was compiled. The list includes 410 species of food CWR from Sri Lanka, covering 47 families and 122 genera. Of these, 366 are native species and 77 are endemic relatives of food crops, while 44 are naturalized exotics.

Protected Areas

At the current time, Sri Lanka includes 501 protected areas which cover nearly 26.5% of the total land area of the country. These protected areas are under the authority of either the Department of Wildlife Conservation or the Forest Department. The most notable protected areas include: Hurulu and Sinharaja Biosphere Reserves, Knuckles and Kanneliya-Dediyagala-Nakiyadeniya (KDN) Forest Reserves.

Despite the existence of protected areas, CWR are under threat as a result of two main factors:

- The heavy rate of deforestation due to development projects, village expansion and settlement schemes.
- Selective felling of trees for timber and removal of plant species, particularly those with medicinal value.

UZBEKISTAN

Uzbekistan contains some of the closest wild relatives of cultivated onion, as well as many wild fruit and nut species. The country's flora contains roughly 4800 species and 70 species belonging to 48 genera of CWR are present, include nutritional, technical and ornamental plants. All five prioritized wild relatives identified during the UNEP/GEF CWR Project grow in the mountain belt.

Protected Areas

The system of protected areas in Uzbekistan consists of nine state reserves (Zapovedniks), two national parks, nine special state reserves (Zakazniks) and one captive breeding centre for rare animals. The total protected area in Uzbekistan is 20,520km² or 4.6% of the country's territory.

FURTHER INFORMATION

- The CWR Global Portal: www.cropwildrelatives.org
- State of the World PGR Country and Progress Reports: www.fao.org/agriculture/crops/core-themes/theme/seeds-pgr/sow/en/
- National Biodiversity Strategies and Action Plans: www.cbd.int/reports/search/