

National strategic plan for the conservation and use of priority crop wild relatives in South Africa

Project Overview

Crop wild relatives (CWR) are plant species that are related to cultivated crops. They include the ancestors of cultivated crops.

CWR are a critical source of genes for resistance to diseases, pests and stresses such as drought and extreme temperatures that can be used in plant breeding, with the potential to enhance sustainable food security in the face of challenges such as climate change and population growth.

CWR can be found in all types of habitats. They are often vulnerable and require urgent conservation, but are not commonly included in national conservation programmes. The ACP-EU supported SADC CWR Project, implemented in Mauritius, South Africa and Zambia, aims to enhance the *in situ* conservation of CWR by developing capacity in the SADC region to conserve and sustainably utilize CWR for climate change adaptation and to persuade governments to endorse national strategies and implement an action plan for the effective conservation of CWR.



Solanum lichtensteinii
Credit: Livhuwani Auldrean Nkuna

CWR in South Africa

Through the project, South Africa developed a food and fodder CWR checklist of 1593 species. Looking at their potential for crop improvement, the socio-economic value of the crops concerned, their geographic distribution and their conservation status, 258 of the 1593 were categorised as priority CWR (see Figure 1). Of the priority CWR, 70 are of conservation concern.

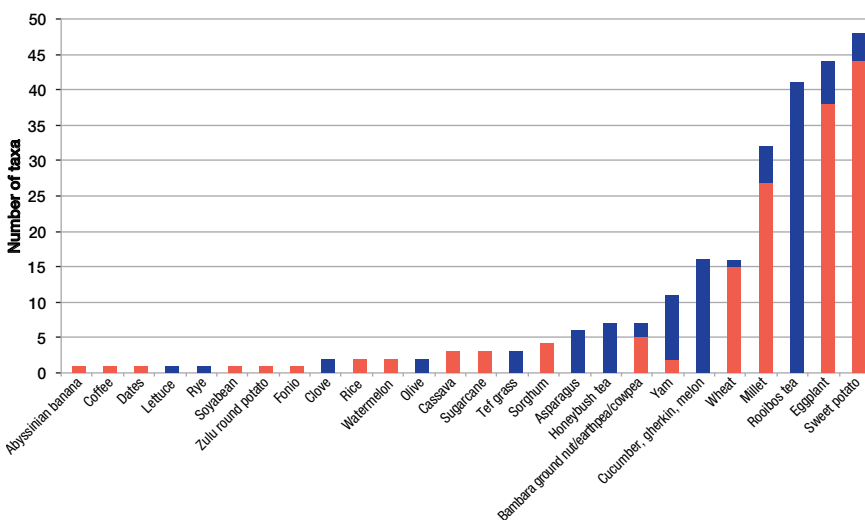


Pressing herbaria specimen
Credit: Mahlatsi Mogale



Asparagus densiflorus
Credit: SANBI

Figure 1. Number of priority CWR in South Africa. Blue shading shows the number of endemic CWRs while red shading shows those CWR that may be indigenous or naturalized but are not endemic to South Africa.



Impacts and Results

Threatened CWR

Thirty-three of the priority CWR do not occur in any protected area and 13 of these (CWR of honeybush tea, asparagus and rye) are threatened according to the IUCN Red List criteria.

Lydenburg and De Hoop Nature Reserves, Bontebok and Au-grabies National Parks and Compassberg Protected Environment are among the 60 or more protected areas that are rich in CWR and so are important to meet the conservation targets for priority CWR.

Far more CWR sites, however, are outside currently protected areas. These 413 sites, covering a total area of more than 25,000 km², are critical for the conservation of priority CWR. The National Strategic Action Plan (NSAP) will ensure that the priority CWR are adequately protected and managed in South Africa.

Improved human capacity

In April 2015, South Africa hosted 23 participants from 9 SADC member states for training on predictive characterization and pre-breeding techniques, to strengthen scientific and technical capacities in the SADC region to contribute to the enhanced use of CWR diversity. The training will help breeders to develop varieties better adapted to drought and high temperatures.

Developed National Strategic Action Plan for conservation and use of priority CWR

South Africa hosted two national stakeholder workshops in November 2015 and September 2016 to raise awareness among various national stakeholders (including farmers, scientists, universities and provincial departments) and to develop the CWR NSAP.

The CWR NSAP will be presented to various policy makers and other government departments for endorsement at national level. This will help to ensure that the priority CWR are adequately protected and managed and the endorsed CWR NSAP will be incorporated into other existing national biodiversity acts and policies.

Engaging with local communities

Breeders have used CWR to improve their commercial crops for centuries. Although local farmers are often not able to use the CWR genes to improve their local cultivated crops, they do know about the CWR that exist in their communities. With the help of local communities, the project team carried out field surveys in three provinces – KwaZulu-Natal, Limpopo and Mpumalanga – to verify the existing CWR localities and to generate new occurrence data. For example, in Limpopo province, four wild relatives of

eggplant were found and specimens for the herbarium and occurrence data were collected to update old records.

Looking forward

CWR should be primarily conserved *in situ* in their natural habitats to allow populations to evolve and adapt to changing conditions, and this forms the core of the CWR NSAP. However, it is also important to conserve CWR *ex situ* for safety backup and South Africa will look into embarking on additional collecting missions to collect priority CWR. Plans are also required for populations not in protected areas, to avoid them being accidentally removed as a result of lack of awareness of their importance as a CWR.

SADC CWR Project Partners

Bioversity International, Rome, Italy
(Coordinating institution)

University of Birmingham, United Kingdom

University of Mauritius, Reduit, Mauritius

Directorate of Genetic Resources, Department of Agriculture, Forestry and Fisheries, South Africa

Zambia Agriculture Research Institute

South African partners include:

The Directorate Genetic Resources of the Department of Agriculture, Forestry and Fisheries (DAFF) is collaborating with the South African National Biodiversity Institute (SANBI) and Agricultural Research Council (ARC) to undertake activities of this project.

A representative each from DAFF, South African Plant Breeders' Association and Southern African Confederation of Agricultural Unions (SACAU) were members of the project Steering Committee to review and monitor progress and activities.



Ipomoea robertsiana
Credit: Percy Moila



UNIVERSITY OF
BIRMINGHAM



University of Mauritius
www.uom.ac.mu | Reduit, Mauritius



Contacts:

Bioversity International
Via dei Tre Denari, 472/a
00054 Maccarese (Fiumicino), Italy
Tel. (+39) 06 61181
Fax. (+39) 06 6118402
bioversity@cgiar.org

www.bioversityinternational.org

'In situ conservation and use of crop wild relatives in three ACP countries of the SADC region' (short name - SADC Crop Wild Relatives) is a three-year project (2014-2016) co-funded by the European Union and implemented through the ACP-EU Co-operation Programme in Science and Technology (S&T II) by the African, Caribbean and Pacific (ACP) Group of States. Grant agreement no. FED/2013/330-210.