



# National strategic plan for the conservation and use of priority crop wild relatives in Zambia

## 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 are 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.

## CWR in Zambia

The project has documented 459 CWR species of 29 priority crops in Zambia. In a prioritization exercise carried with the project, local partners drew up a list of 30 priority CWR species of cowpea (*Vigna*), cucumber (*Cucumis*), African eggplant (*Solanum*), millets (*Eleusine*, *Pennisetum*), rice (*Oryza*), sorghum (*Sorghum*), sweet potato (*Ipomoea*) and yam (*Dioscorea*).

## Impacts and Results

### Improved human capacity

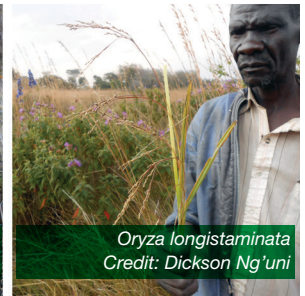
Staff at the Zambia Agriculture Research Institute (ZARI) were trained in techniques of *in situ* conservation. These included how to prioritize CWR for conservation and how to identify the most promising areas for their conservation. Additional training focused on how to identify desirable traits in wild populations and make use of them in breeding.



*Eleusine indica*  
Credit: Graybill Munkombwe



*Oryza longistaminata*  
Credit: Dickson Ng'uni



*Oryza longistaminata*  
Credit: Dickson Ng'uni



*Solanum* sp.  
Credit: Graybill Munkombwe



*Vigna* sp.  
Credit: Dickson Ng'uni



*Sorghum* sp.  
Credit: Dickson Ng'uni

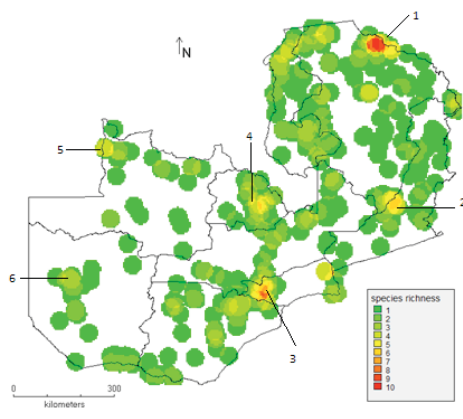
CWR	Related crops
<i>Cucumis africanus</i> L.f.	Cucumber
<i>Cucumis ficifolius</i> A. Rich	Cucumber
<i>Cucumis humifructus</i> Stent	Cucumber
<i>Cucumis myriocarpus</i> Naudin	Cucumber
<i>Cucumis zeyheri</i> Sond.	Cucumber
<i>Dioscorea bulbifera</i> L.	Yam
<i>Dioscorea dumetorum</i> (Kunth) Pax	Yam
<i>Dioscorea praeheensis</i> Benth.	Yam
<i>Dioscorea schimperiana</i> Hochst. ex Kunth	Yam
<i>Eleusine coracana</i> (L.) Gaertn. subsp. <i>africana</i>	Finger millet
<i>Eleusine indica</i> (L.) Gaertn.	Finger millet
<i>Ipomoea richardsiae</i> Verdc	Sweet potato
<i>Oryza barthii</i> A. Chev.	Rice
<i>Oryza brachyantha</i> Chev. & Roehr.	Rice
<i>Oryza longistaminata</i> A. Chev. & Roehr.	Rice
<i>Oryza punctata</i> Steud	Rice
<i>Pennisetum purpureum</i> Schumach.	Pearl millet
<i>Solanum aureitomentosum</i> Bitter	Egg plant
<i>Solanum incanum</i> L.	Egg plant
<i>Sorghum arundinaceum</i> (Desv.) Stapf	Sorghum
<i>Sorghum verticilliflorum</i> (Steud.) Stapf	Sorghum
<i>Vigna haumaniana</i> R. Wilczek	Cowpea
<i>Vigna juncea</i> Milne-Redh	Cowpea
<i>Vigna multinervis</i> Hutch. & Dalziel	Cowpea
<i>Vigna phoenix</i> Brummitt	Cowpea
<i>Vigna radiata</i> (L.) Wilczek. var. <i>sublobata</i>	Mung bean
<i>Vigna unguiculata</i> (L.) Walp. subsp. <i>dekindtiana</i> (Harms) Verdc.	Cowpea
<i>Vigna unguiculata</i> (L.) Walp. subsp. <i>pawekiae</i> Pasquet	Cowpea
<i>Vigna unguiculata</i> (L.) Walp. subsp. <i>tenuis</i> (E.Mey.) Marechal <i>et al.</i>	Cowpea
<i>Vigna unguiculata</i> (L.) Walp. var. <i>spontanea</i> (Schweinf.) Pasquet	Cowpea

## Highlight – Identification of national sites for active *in situ* conservation of priority CWR taxa

Lack of capacity, awareness and information has largely limited conservation of CWR in Zambia. Based on detailed analysis, the project identified three priority CWR species – one of cucumber and two of cowpea – that do not occur within any of the existing protected areas of Zambia.

A map of species-richness data for the priority CWR species was generated and reveals six possible areas with the greatest number of species (Figure 1). These areas numbered 1-4 – in Northern, Eastern, Lusaka and Copperbelt Provinces respectively – have the highest species richness. Area 5 (in Northwestern Province) and Area 6 (in Western Province), while not as rich overall, can still make a significant contribution to *in situ* conservation of CWR.

**Figure 1. Identification of proposed sites for genetic reserves for *in situ* conservation of priority CWR taxa in Zambia**



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

The National Strategic Action Plan (NSAP) contains a set of 7 strategic actions and 16 concrete actions that need to be implemented by various stakeholders to ensure the safe conservation and use of CWR in Zambia.

## Increased awareness of national stakeholders of the value of CWR

As local communities are going to be important in carrying out conservation, it is important that their management practices and anticipated interventions are taken into consideration. Local communities participated in the process through focus group discussions and economic surveys. These activities gave the project a clear understanding of how communities perceive and recognize CWR.

In addition, national stakeholder institutions (see list below) representing policymakers, researchers, breeders and civil society participated in consultations to agree priorities for CWR and to develop the NSAP.

Together, these actions involving local and national stakeholders have led to increased awareness of the value of CWR and the importance of its conservation. Thanks to this enhanced understanding and awareness of the value of crop wild relatives, the NSAP for the conservation and use of CWR has been mainstreamed into the revised National Biodiversity Strategic Action Plan.

## Looking forward

As a country, Zambia is looking forward to mainstreaming the conservation and sustainable use of priority CWR taxa in the National Development Plan. In order to achieve this, we expect to disseminate the results generated by the project through meetings and conferences to national stakeholders at policy, technical and local community levels. The key documents to be used in these disseminations will include the NSAP and policy briefs on specific areas.

## SADC CWR Project Partners

### 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

### Zambian partners

Zambia Agriculture Research Institute  
(National Project partner)

Zambia Wildlife Authority (ZAWA)

University of Zambia (UNZA)

Agriculture Consultative Forum

National Agricultural Information Services (NAIS)

Department of Policy and Planning

Community Technology Development Trust-Zambia (CTDT)

Biodiversity Community Network (BCN)

Ministry of Lands, Environmental Protection and Natural Resources

WorldFish



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