



SADC Crop Wild Relatives Project – Highlights of the project achievements

Ehsan Dulloo, Eve Allen, Prishnee Bissessur, Joana Magos Brehm, Hannes Gaisberger, Michelle Hammer, Yasmina Jaufeerally Fakim, Shelagh Kell, Jermina Matlou, Mpolokeng Mokoena, Nkat Maluleke, Percy Moila, Graybill Munkombwe, Dickson Ng'uni, Livhuwani Nkuna, Domitilla Raimondo, Willem van Rensburg, Imke Thormann, Thabo Tjikana and Nigel Maxted

Final Dissemination Meeting, Pretoria, South Africa, 23-25 November 2016



Agricultural biodiversity nourishes people and sustains the planet



Photo credit: LI-BIRD/A.Subedi



Profile of SADC Crop Wild Relative

In situ Conservation and Use of Crop Wild Relatives in three ACP countries of SADC Region – (Short Name - SADC Crop Wild Relatives)



UNIVERSITY OF
BIRMINGHAM



agriculture,
forestry & fisheries
Department:
Agriculture, Forestry and Fisheries
REPUBLIC OF SOUTH AFRICA

'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 ACP Group of States. Grant agreement no. FED/2013/330-210.

Objectives of SADC CWR project

Overall objective:

Enhance link between conservation and use of CWR in three ACP countries within the SADC region, as a means of underpinning regional food security and mitigating the predicted adverse impact of climate change

Specific objectives:

- **Enhance the scientific capacities** within the partner countries to conserve CWR and identify useful potential traits for use to adapt to climate change.
- **Develop exemplar National Strategic Action Plans** for the conservation and use of CWR in the face of the challenges of climate change across the SADC region

Why crop wild relatives?

- Crop wild relatives (CWR) are wild plant species closely related to crops, including wild ancestors



Solanum lichtensteinii : Photo by Livhuwani Auldrean Nkuna

Are foundation of agriculture

increase crop production and quality; gene donors for crop improvement



Fight pests and diseases

resistance to pests, diseases and environmental stresses - reduce use of pesticides and inputs and land degradation



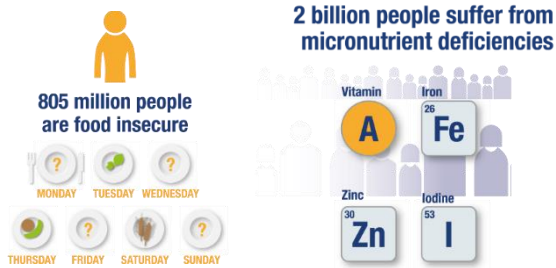
Mitigate climate risks

sustainable agriculture, resilience of agro ecosystem and offer novel genetic diversity required to maintain future food security



Global challenges for agriculture and food & nutrition security

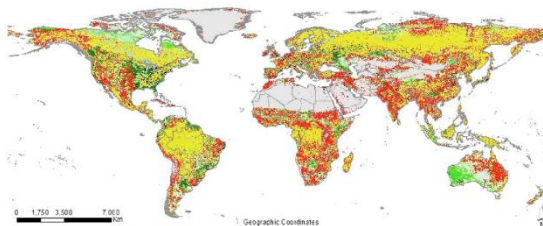
Global malnutrition



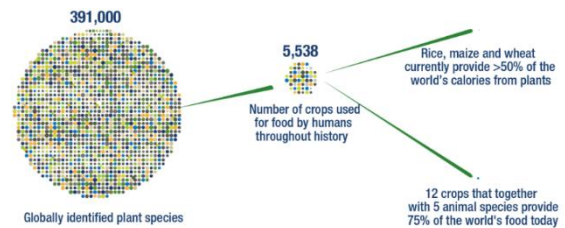
Climate change



Land degradation



Shrinking Biodiversity



CAPACITY BUILDING

To assess and improve capacities on *in situ* conservation and use of CWR in the SADC region

Capacity of SADC member states in *in situ* conservation and use of crop wild relatives in breeding programmes: Baseline report

Per Rudeliger, Imke Thormann, Natalie Feldman, Godfrey Mulla, Yaminia Zauferyali-Fakim, Joana Magos Brehm

March 2015

University of Birmingham

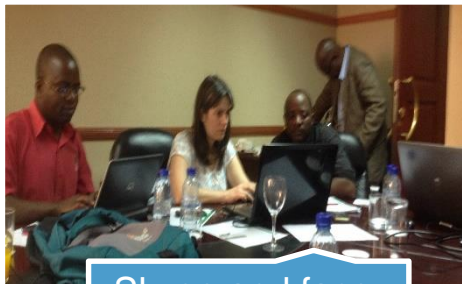
ZARI

University of Zimbabwe

Training needs assessment



Training workshops



Skype and face-to-face meetings



TEMPLATE FOR THE PREPARATION OF A NATIONAL STRATEGIC ACTION PLAN FOR THE CONSERVATION AND SUSTAINABLE USE OF CROP WILD RELATIVES

Ehsan Dulloo, Joana Magos Brehm, Shelagh Kell, Imke Thormann and Nigel Maxted

Templates

INTERACTIVE TOOLKIT FOR *IN SITU* WILD RELATIVE CONSERVATION

THE TOOLKIT | CROP WILD RELATIVES | NATIONAL STRATEGIC ACTION PLANS | CAPACITY | ACHIEVING EVIDENCE-BASED

ABOUT THE TOOLKIT FOR CWR: This Online Conservation Management Toolkit provides a set of information and a set of practical guidance for the conservation and use of CWR in the SADC region. The Toolkit is designed to be used by a range of stakeholders, including government, academia, and the private sector. It is intended to be used as a guide to help countries develop and implement a National Strategic Action Plan for the Conservation and Sustainable Use of CWR. The Toolkit is designed to be used as a guide to help countries develop and implement a National Strategic Action Plan for the Conservation and Sustainable Use of CWR. The Toolkit is designed to be used as a guide to help countries develop and implement a National Strategic Action Plan for the Conservation and Sustainable Use of CWR.

CONSERVATION TOOLS

USERS OF THE TOOLKIT

Online toolkit

CAPACITY BUILDING

INTERACTIVE TOOLKIT FOR CWR CONSERVATION

Support CWR conservation planning

INTERACTIVE TOOLKIT FOR CROP WILD RELATIVE CONSERVATION

EXPORT

HOME THE TOOLKIT CROP WILD RELATIVES NATIONAL STRATEGIC ACTION PLANS CITATION ACKNOWLEDGEMENTS

Home / The Toolkit Share: f t e p

The Toolkit

- NATIONAL CWR CONSERVATION PLANNING
- GENERATION OF A CWR CHECKLIST
- PRIORITIZING THE CWR CHECKLIST
- COMPILATION OF THE CWR INVENTORY
- GENETIC DATA ANALYSIS OF PRIORITY CWR
- DIVERSITY DATA ANALYSES OF PRIORITY CWR
- NOVEL THREAT ASSESSMENT OF PRIORITY CWR
- GAP ANALYSIS OF PRIORITY CWR
- CLIMATE CHANGE ANALYSIS
- ESTABLISHMENT OF IN SITU CONSERVATION GOALS
- IMPLEMENTATION OF IN SITU CONSERVATION PRIORITIES
- ESTABLISHMENT AND IMPLEMENTATION OF EX SITU CONSERVATION
- MONITORING CWR DIVERSITY

NATIONAL CWR CONSERVATION PLANNING

Involves the planning for systematic *in situ* and *ex situ* conservation of CWR diversity at national level. It results in the systematic representation of the nation's CWR diversity in an *in situ* network of genetic reserves (within existing protected areas or by establishing novel conservation areas) with back-up *ex situ* collections of genetically representative population samples in national gene banks (i.e. seeds, tissue, DNA, living plants). The conservation recommendations that result from this national CWR conservation planning process can and should be used to feed the National Strategic Action Plan for the conservation and utilization of CWR.

+ READ MORE

Prioritisation of CWR – 3 countries

PRIORITIZATION CRITERIA

Economic Value
Use potential
Relative Distribution
Occurrence status
IUCN Red list Categories

SOUTH AFRICA

Socio-Economic Value
Use potential
Relative Distribution
Occurrence status
IUCN Red list Categories
+Nationalcategories

ZAMBIA

Economic Value
Use potential
Relative Distribution
Occurrence status
IUCN Red list Categories

PRIORITY CWR

13 in Mauritius
10 in Rodrigues

258 taxa

30 taxa

PRIORITY CWR RELATED CROPS

MAURITIUS: coffee (*Coffea*), olive (*Olea*), fig (*Ficus*), Indian olive (*Elaeocarpus*), fonio (*Digitaria*)
RODRIGUES: Aloe, millets (*Digitaria*, *Panicum*), *Asparagus*, sweet potato (*Ipomoea*), olive (*Olea*), fig (*Ficus*)

Sweet potato (*Ipomoea*), eggplant (*Solanum*), rooibos tea (*Aspalathus*), millets (*Digitaria*, *Echinochloa*, *Eleusine*, *Panicum*, *Paspalum*, *Setaria*), cucumber/gherkin and melon (*Cucumis*), yam (*Dioscorea*), etc

Cowpea (*Vigna*), yam (*Dioscorea*), rice (*Oryza*), Sorghum, cucumber/melon (*Cucumis*), millet (*Eleusine*), sweet potato (*Ipomoea*), Pearl millet (*Pennisetum*), eggplant (*Solanum*)

Some Priority CWR in 3 countries



3 CWR Coffee



2 CWR of Fig



49 CWR
Sweet potato



48 CWR of
eggplant



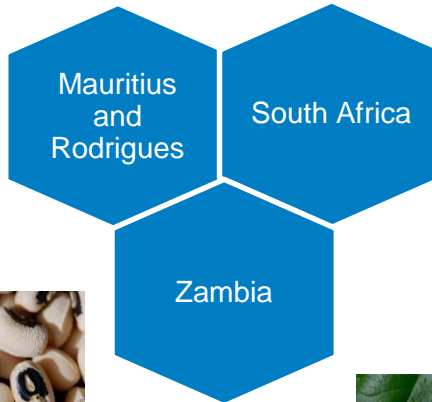
41 CWR of
rooibos tea



2 CWR of
Indian olive



2 CWR of Fonio



32 CWR of
millets



9 CWR of
Cowpea



5 CWR of
Rice

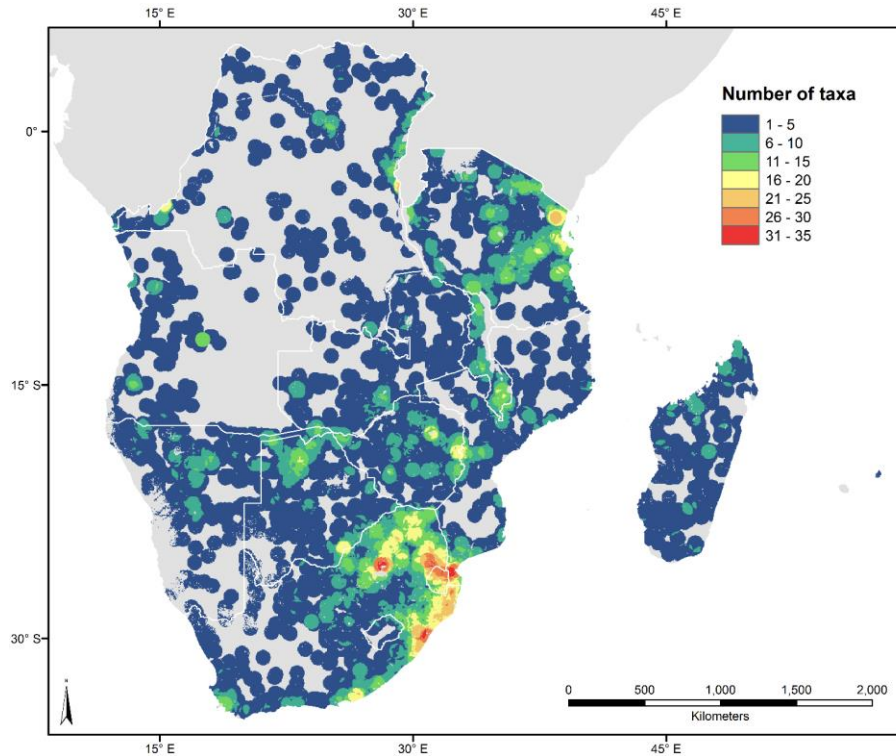


5 CWR of
Yam

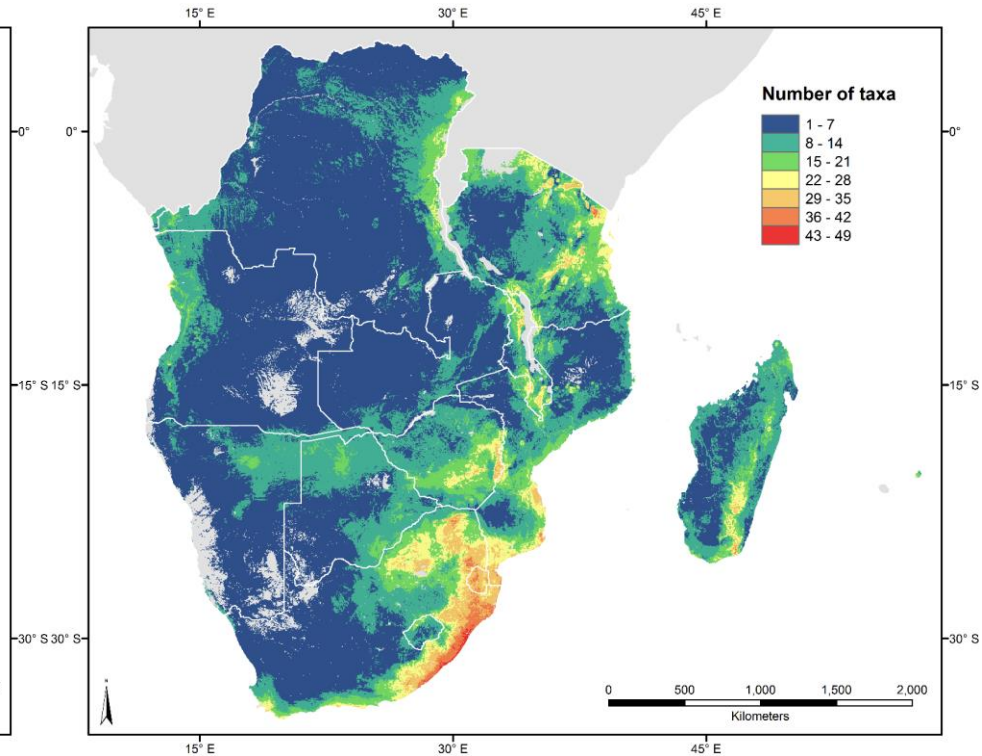


7 CWR of
Cucumber/
Melons

CWR DIVERSITY ANALYSIS IN THE SADC REGION



Observed taxon richness [circular buffer of 50 km (CA50) around each occurrence point for all priority CWR]



Predicted taxon richness [estimated by potential distribution models (for 77 taxa) combined with CA50 (for 36 taxa)]

NATIONAL STRATEGIC ACTION PLANS FOR CWR CONSERVATION AND SUSTAINABLE USE

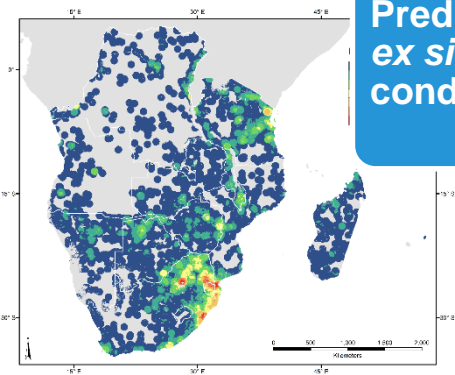
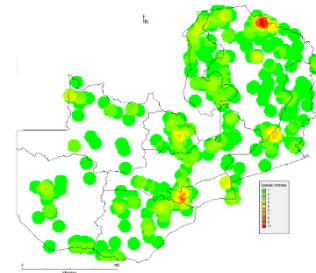
Compile baseline information on CWR diversity of CWR in the 3 countries (checklist, prioritization, ecogeographic survey)

Identify CWR hotspots and priority sites for *in situ* conservation and *ex situ* collection (diversity analysis)

Predict which CWR *in situ* populations and materials from *ex situ* collections have traits adapted to extreme climate conditions (predictive characterization)

Develop exemplar National Strategic Action Plans (NSAP) for the conservation and sustainable use of priority CWR in the 3 countries

Mauritius
South Africa
Zambia



Sustainability and Involvement of Stakeholders

- Strong advocacy at policy level
- Endorsement of the National Strategic Action Plans at Government levels
- Strong national stakeholder involvement in NSAP development in all three countries
- Visibility at international conferences and meetings
- Engagement with farmers- the ultimate beneficiaries -



Conclusion- Key Outputs

- Capacity of over 50 participants from SADC Member States in *in situ* conservation and use of CWR has been strengthened by project
- An interactive toolkit for conservation of CWR published and shared
- Detailed checklist and inventory of CWR in each of the three partner countries have been developed;
- Hotspots of priority CWR sites have been identified in each country AND SADC region for in situ conservation intervention including protected area establishment, based on diversity and hotspot analysis
- Three National Strategic Actions plans (NSAP) for CWR conservation and use
- A Regional Network of CWR Important sites within SADC region
- Contribute to the attainment of Target 13 of Biodiversity Strategic plan and GSPC target 9.



Thank you

SADC CROP
WILD
RELATIVES



www.biodiversityinternational.org

