

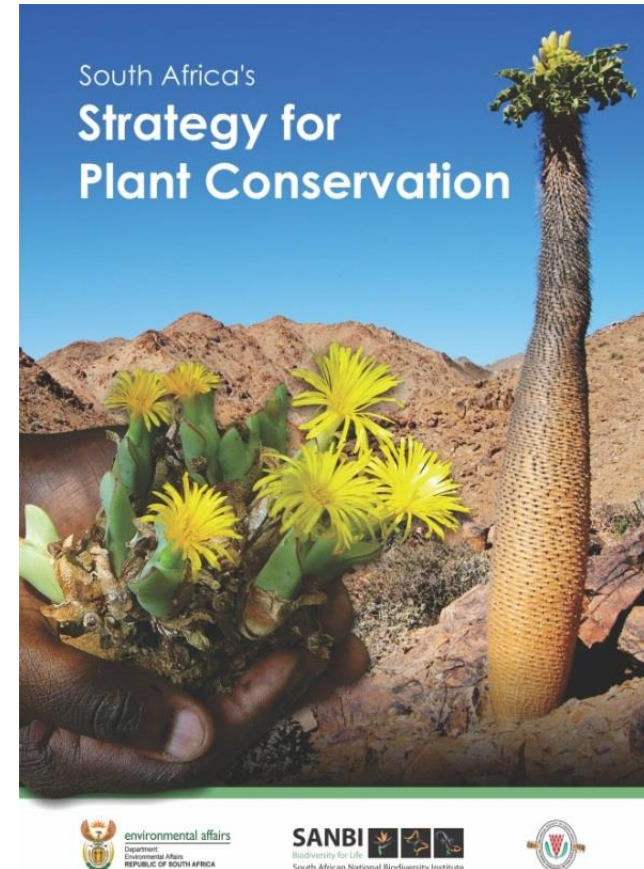


Identifying conservation priorities for Crop Wild Relatives in South Africa

Domitilla Raimondo, Michelle Hamer, Steven Holness, Joana Brehm

Why this work is a priority for South Africa

- The conservation of Crop Wild Relatives is important for food security.
- Forms part of the work on Benefits from Biodiversity that will be communicated to policy makers via South African National Biodiversity Assessment.
- One of the targets of South Africa's Plant Conservation Strategy a CBD linked commitment.



Process followed to identify CWR:

- SANBI Biosystematics division developed a checklist of wild relatives of human food (including beverages) and fodder crops.
- Checklist includes both indigenous and naturalised taxa present in South Africa, that are relatives of cultivated crops, with a focus on major crops, but also including some less established but potentially important crops..
- A total of 1593 taxa (species, subspecies and varieties), (or 7% of the total number of plant taxa in South Africa) form part of this checklist.



Prioritisation of CWRS

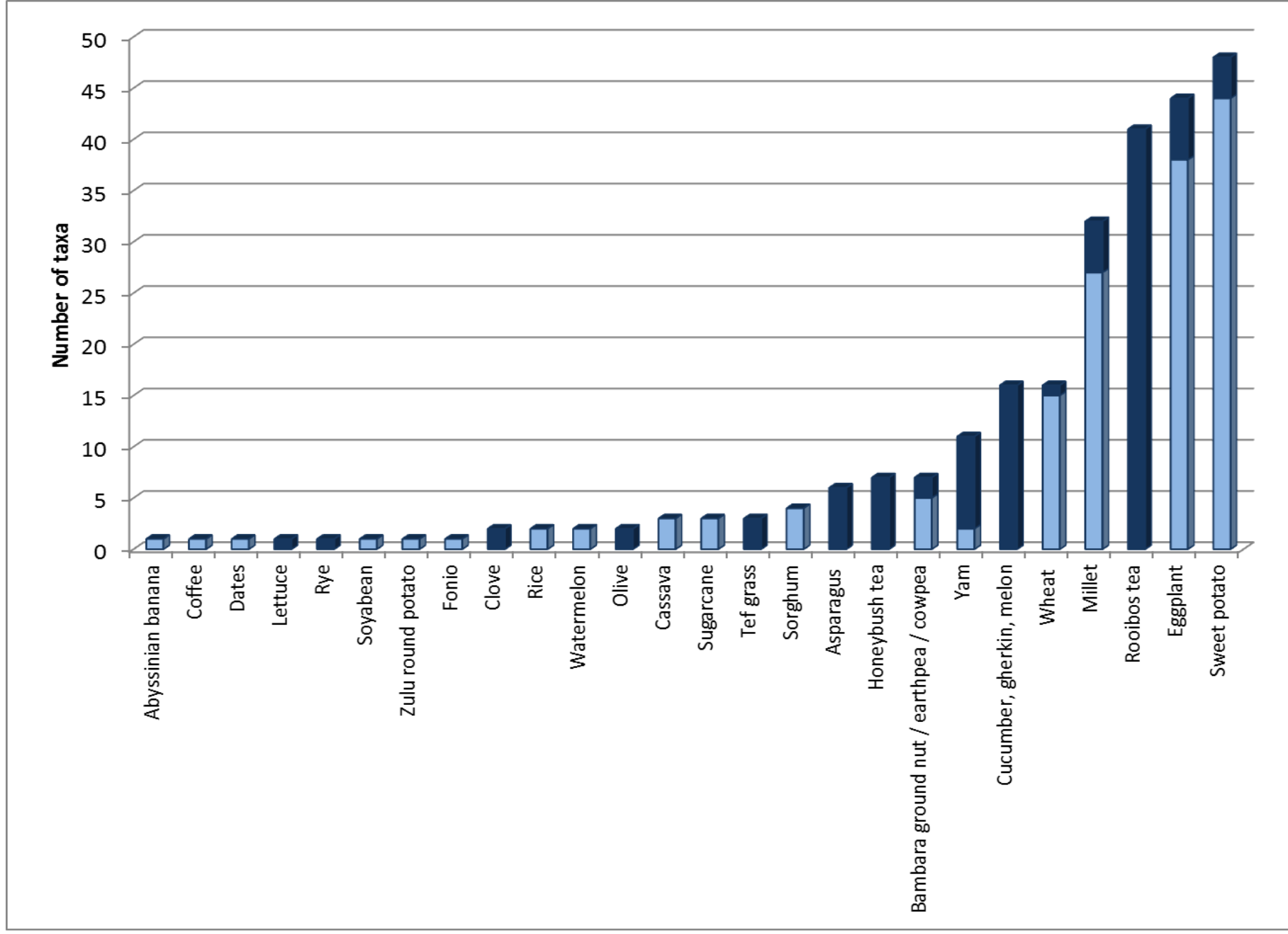
The South African CWR checklist has been prioritized. Four criteria were used:

- socio-economic value of the related crop (at a global, continental and regional scale)
- potential for use of the wild relative in crop improvement
- threat status and distribution (whether indigenous or naturalized and if indigenous)
- whether it is restricted to South Africa, ie. endemic

The Priority list

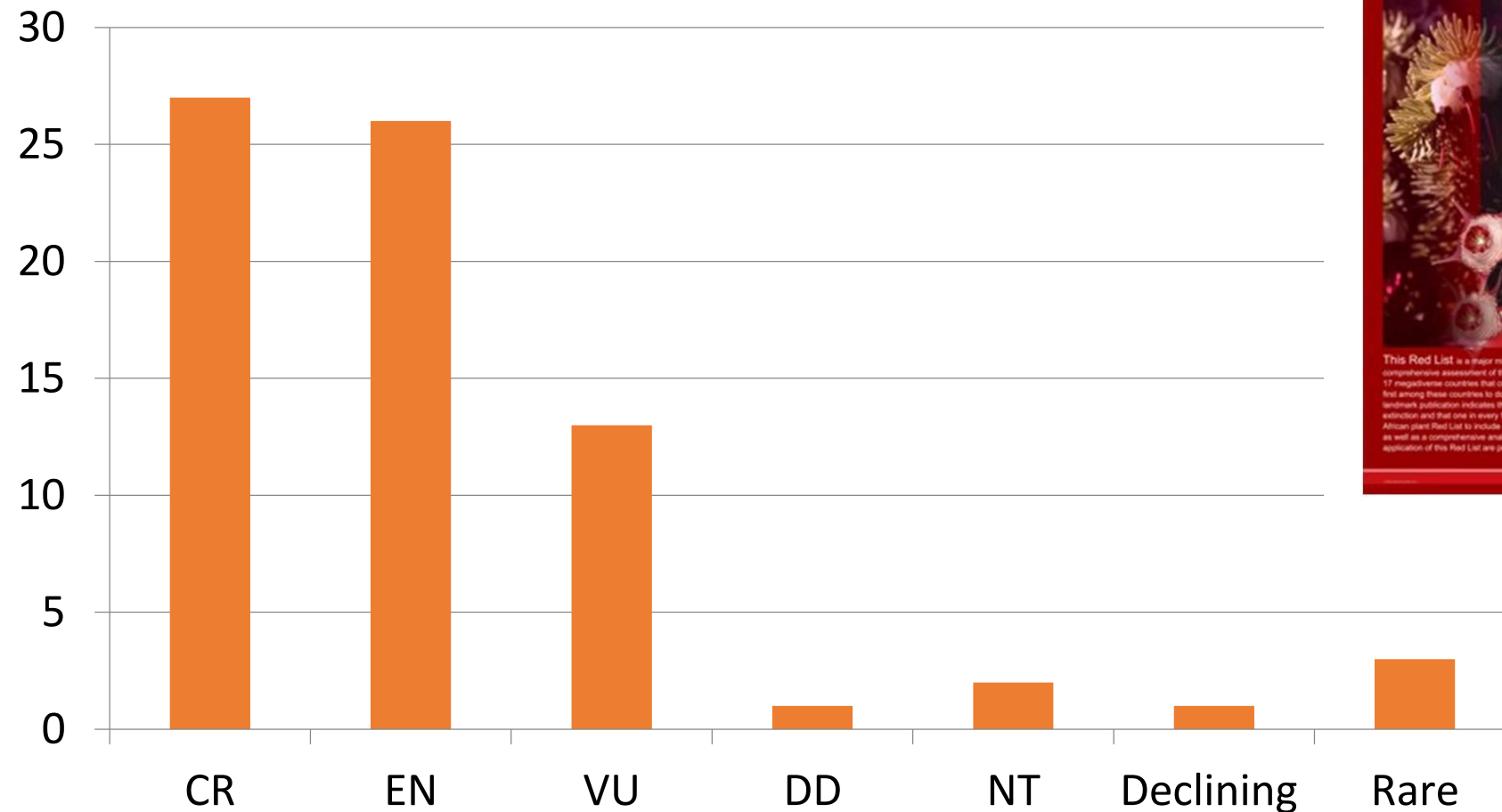
- 15 families, 33 genera and 258 taxa.
- The predominant families in the list are the Poaceae, Fabaceae and Solanaceae
- 258 taxa of which 93 are endemic to South Africa
- Nine species on the priority list are included in the National List of Alien and Invasive Species (*Ipomoea alba*, *I. purpurea*, *Solanum chrysotrichum*, *S. elaeagnifolium*, *S. mauritianum*, *S. pseudocapsicum*, *S. seaforthianum*, *S. sisymbriifolium* and *Sorghum halepense*).





The priority list: threat status

Number of taxa in each category



Example of a threatened Crop Wild Relative - Wild Rye a Critically Endangered Species.

Secale strictum subsp. africanum

SANBI Biodiversity for Life South African National Biodiversity Institute

Red List of South African Plants

Search the Red List Search

Sutherland, Voëlfontein Farm. Sutherland. (See PRE 25921).

© 2015 AfrGIS (Pty) Ltd.
Image © 2015 DigitalGlobe

6.44 km

Population trend: Stable

Assessment History

le earth

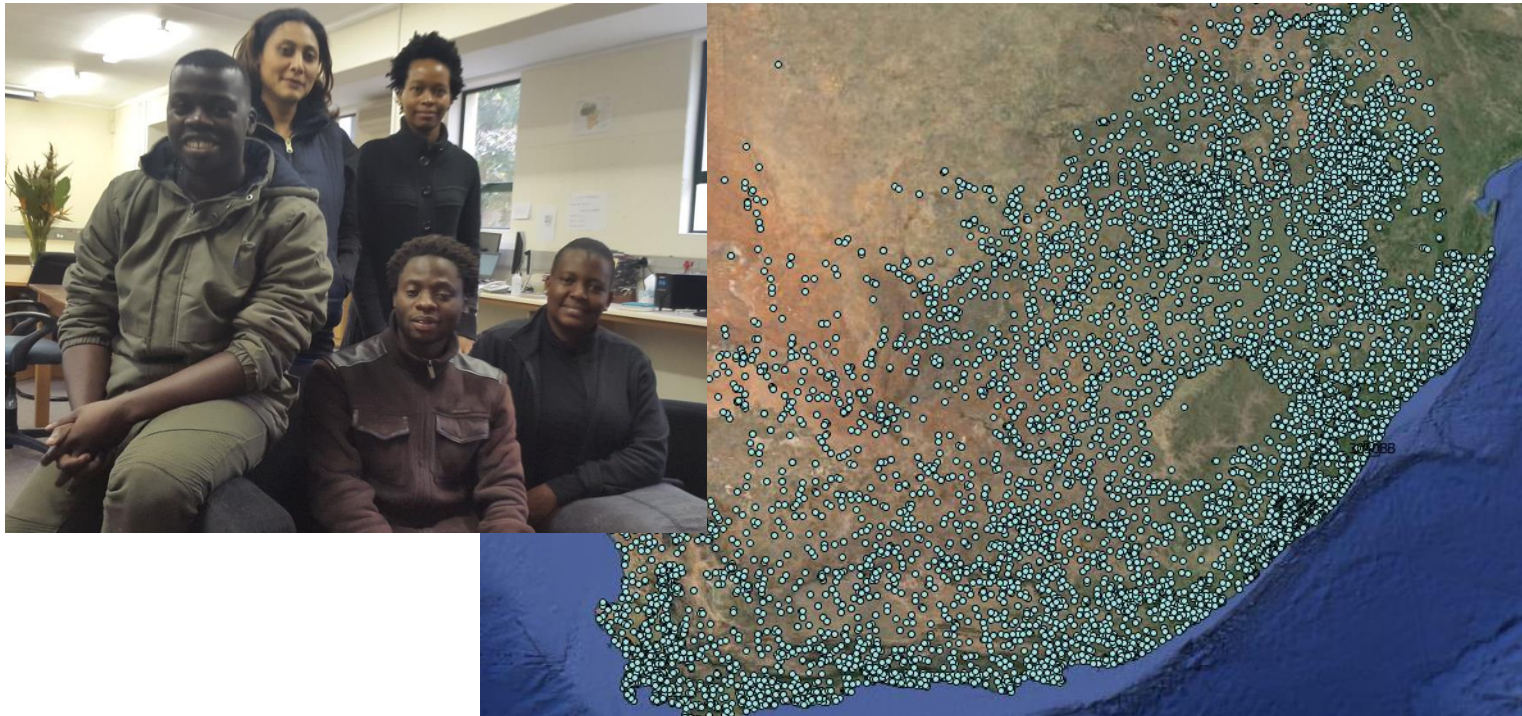
Conducting fieldwork

- Conservation and Gardens Directorate led the fieldwork component.
- Fieldwork was conducted on 30 of the priority CWR.
- Fieldwork identified which CWR were common weedy species and which needed pristine habitat.
- Fieldwork provided an opportunity for DAFF staff to be trained by SANBI staff.



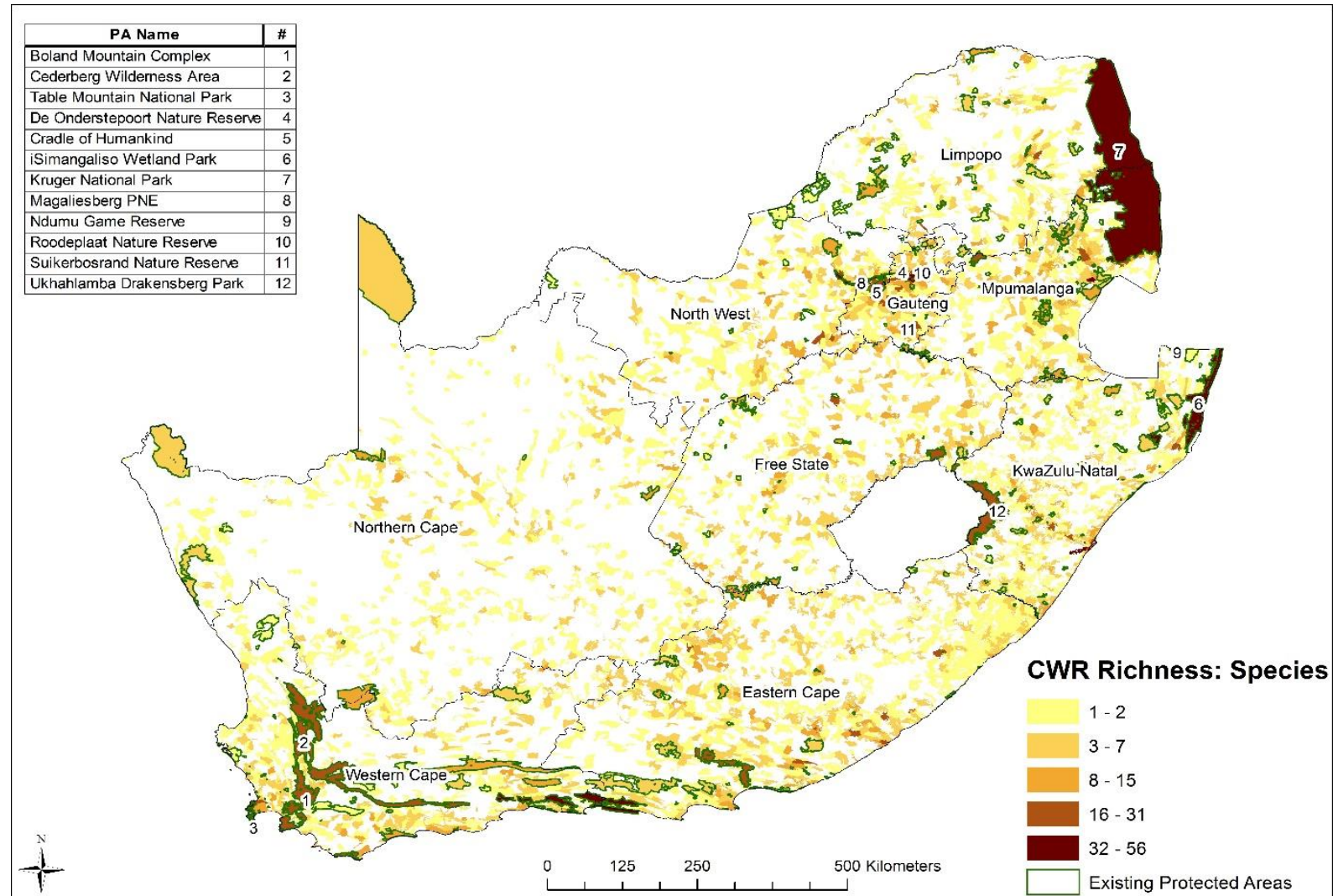
Producing accurate occurrence records of CWR

- 23 527 records obtained from 6 different herbaria and citizen science virtual museums for the 258 priority CWR.
- Records accurately georeferenced by team from BIM.
- Data were provided to BAM for quality checking and then fed through to Spatial Biodiversity Planner – Stephen Holness.



The priority areas of the country with the highest numbers of CWR were identified.

Analyses conducted to determine which CWR are already protected and which species are in each PA.

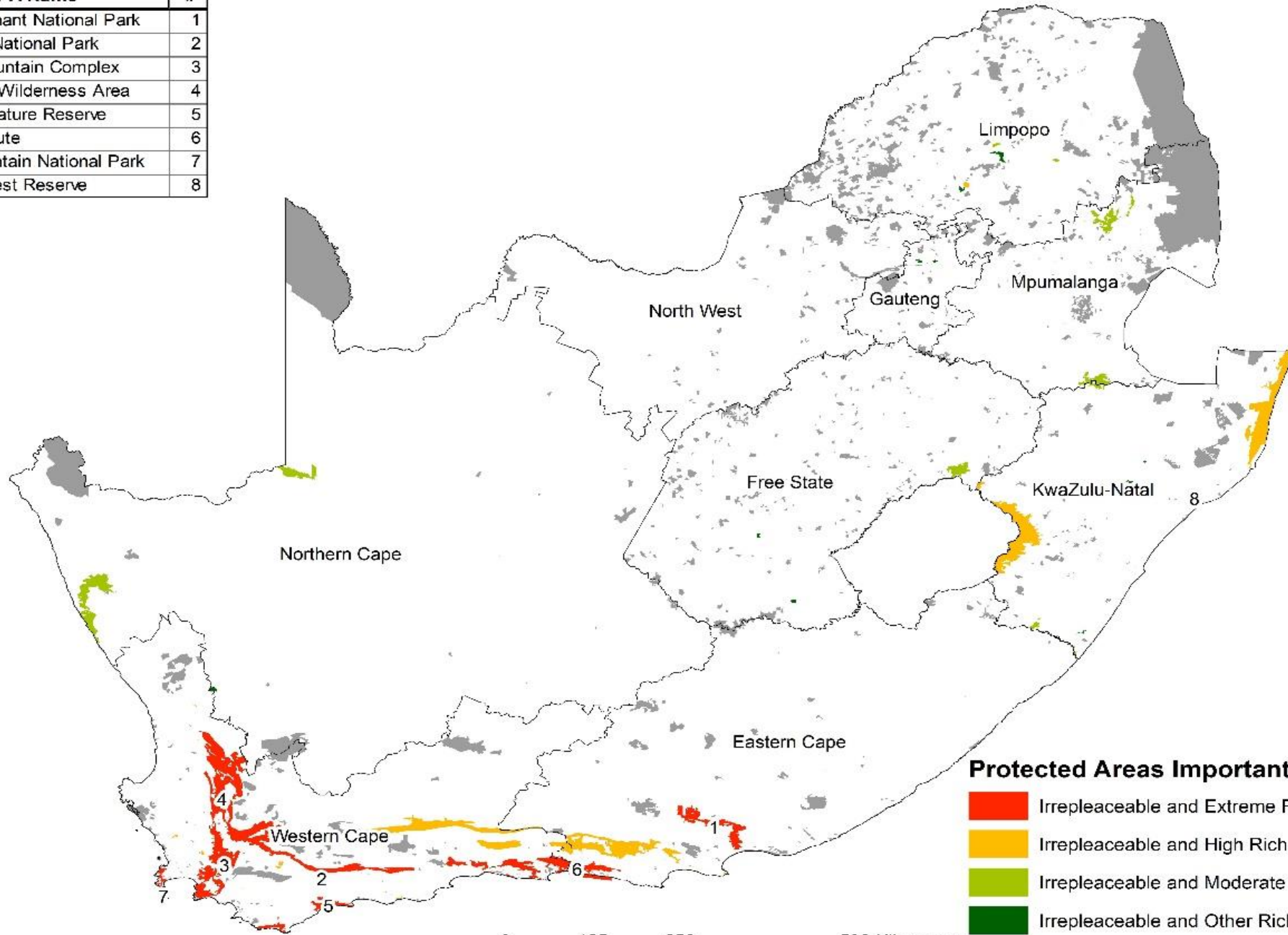


Identifying additional sites for in situ conservation

- Used systematic conservation planning methodology to identify the best sites to conserve priority CWR.
- Separated from the list of 258 priority species those that are endemic or near endemic to South Africa, 110 species. In situ targets set only for these.

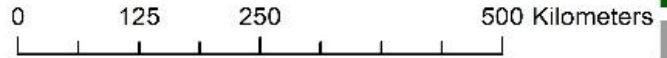
Category	Target for <i>in situ</i> conservation	Number of CWR in each category
1. South African endemics, that are both threatened (CR, EN or VU) and have a restricted distribution (EOO <2 000km ²) or Rare (habitat specialists with very restricted EOO (<500km ²))	All planning units where species is represented targeted for protection	56
2. South African endemics; Threatened (CR, EN or VU) or NT but relatively widespread (EOO 2 000-10 0 000km ²)	5 planning units where species represented targeted, ensuring geographic and ecogeographic diversity and a measure of intactness of the sites (ie. with natural vegetation still remaining)	7
3. South African endemics, Least Concern and widespread Or non-endemics where the South African population is highly disjunct from the rest of the global population	5 planning units where species represented targeted, ensuring geographic and ecogeographic spread and intactness of the site (ie. with natural vegetation still remaining)	22
4. Regionally distributed and indigenous to southern Africa, and can be relatively common in the region, but few records in South Africa	0 planning units targeted because likely to be very common in the region, genetic conservation targeted through <i>ex situ</i> collection	34
5. Very widespread in South Africa and in the southern African region	0 planning units targeted because likely to be inside and outside of protected areas and resilient to various disturbances and change, genetic conservation targeted through <i>ex situ</i> collection	118
6. Naturalised exotics (introduced taxa that are reproducing, but are not included on the NEMBA list of alien invasive species) i. Widespread ii. Limited distribution	0 planning units targeted, not targeted for protection as exotics conflict with strategies and policies of protected areas, genetic conservation targeted through <i>ex situ</i> collection	29

PA Name	#
Addo-Elephant National Park	1
Bontebok National Park	2
Boland Mountain Complex	3
Cederberg Wilderness Area	4
De Hoop Nature Reserve	5
Garden Route	6
Table Mountain National Park	7
Ngoya Forest Reserve	8

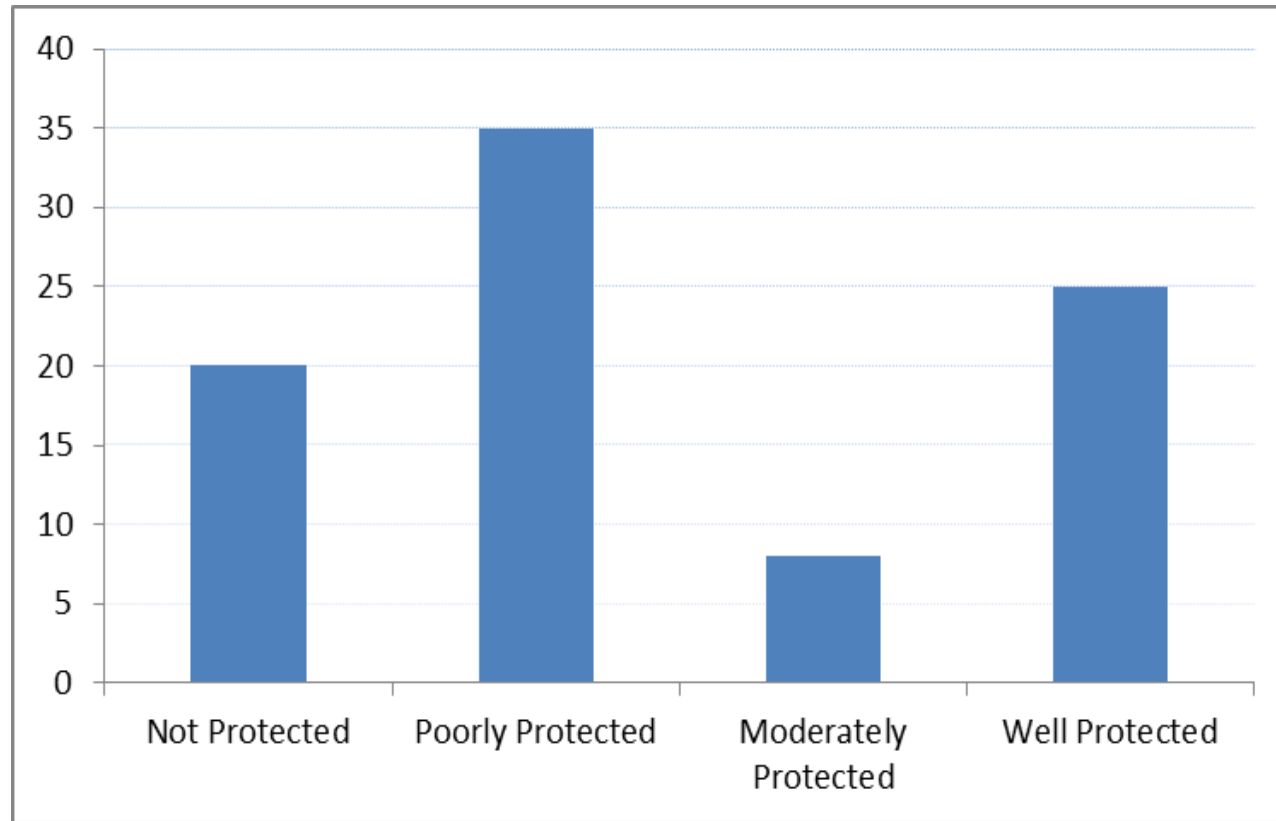


Protected Areas Important for CWRs

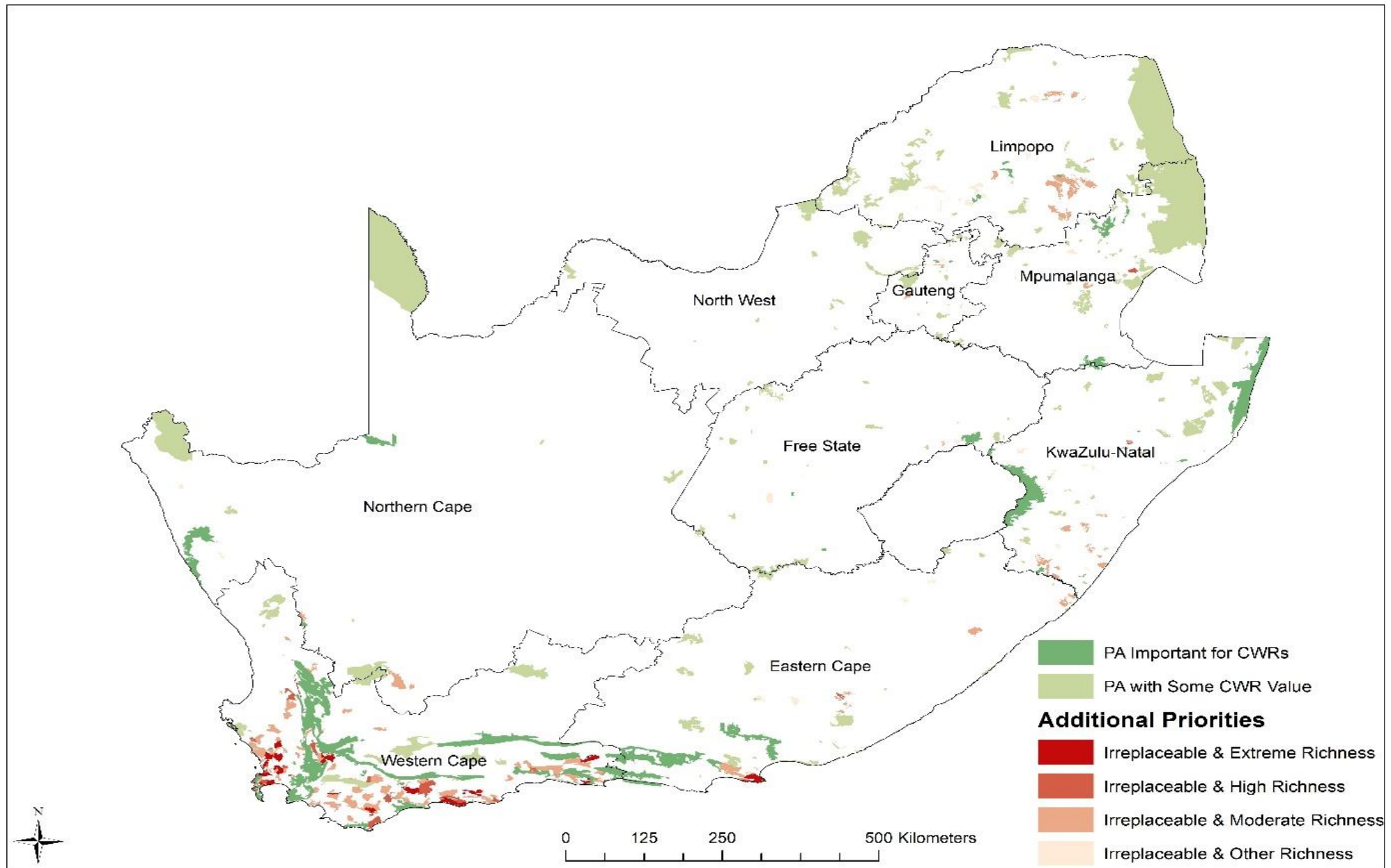
- Irreplaceable and Extreme Richness
- Irreplaceable and High Richness
- Irreplaceable and Moderate Richness
- Irreplaceable and Other Richness
- Other Protected Areas



In Situ conservation requirements for non protected Crop Wild Relatives



The majority (63%) of endemic CWR are poorly protected.



In Situ Conservation actions required

- There are 56 irreplaceable sites with extreme and high richness that require *in situ* conservation. The 2016 National Protected Areas Expansion Strategy (NPAES) includes 10 of these, these will be prioritised. The remaining 46 will be included in the next iteration of the NPAES in 2024.

Targets	Time Line*	Indicators (how to measure progress)	Management responsibilities (who?)**
Ensure that all the category 1 CWR taxa are in a protected area	2017-2027	Number of new protected areas that include priority CWR	Department of Environmental Affairs, Provincial conservation authorities & SANBI
Ensure that CWR are included in Protected Area Management Plans Monitoring of all 56 category 1 taxa, with an assessment of each population once	2017-2023	Number of Protected Area Management Plans that include CWR Number of taxa assessed at population level	SANParks and Provincial conservation authorities; CREW (SANBI and BotSoc), including provincial conservation area botanists

National Strategy and Action Plan (NSAP) for CWR

- At least half of the actions in the NSAP are linked with the expansion of the Protected Area network to ensure the long term conservation of CWR and are thus fall under the DEA mandate.
- The results of this work has been presented to provincial conservation planners and they have been asked to include priority sites in future iterations of provincial protected area expansion strategy (October 2016).
- For over one year we have been trying to get Department of Environmental Affairs to endorse NSAP but it needs to pass through Working Group 1.
- Additional support required to ensure both in situ and ex situ conservation takes place.

