

Spotlight on Agriculture

Ministry of Agriculture, Water and Forestry, Directorate of Agricultural Research and Training, Private Bag 13184, Windhoek

No 102 April 2006

SAVING OUR SUCCULENT PLANT DIVERSITY

A national survey of *Adenia pechuelii* and *Lithops ruschiorum*

What's this all about and why are we doing it?

Rössing Uranium Limited (RUL), as part of its Biodiversity Strategy, needed to determine which species of succulent plants occurring within its licence area are of conservation concern. The near-endemic *Adenia pechuelii* (Engl.) Harms (elephant's foot) and *Lithops ruschiorum* (Dinter & Schwantes) N.E. Brown (stone plants/'beeskloutjies') were identified, as they are both highly sought-after by succulent collectors.

Rössing also wanted to know what proportion of the national populations of these two species occurs within its licence area. The higher the proportion, the more important Rössing's responsibility will be to protect these plants. Undertaking field assessments of populations of species that are of conservation importance provides invaluable information that contributes to their management and future survival.

The project is a partnership composed of the National Botanical Research Institute (NBRI), Rössing, Rio Tinto (a major Australian mining group), and the Royal Botanic Gardens, Kew, in the United Kingdom, and runs from January 2006 to December 2008. It is a component of the broader Red List/*in situ* conservation project of the NBRI.



A typical *Adenia* plant

Why is this work of national importance?

The work contributes to meeting four of the sixteen targets of the Global Strategy for Plant Conservation (GSPC) under the Convention on Biological Diversity (CBD), of which Namibia is a signatory. Each of the following GSPC targets will be partially met by this initiative:

- A preliminary assessment of the conservation status of all known plant species at national, regional and international levels;
- Development of models with protocols for plant conservation and sustainable use, based on research and practical experience;
- 60 % of the world's threatened species conserved *in situ*;
- Networks for plant conservation activities established or strengthened at national, regional and international levels.



A mature *Lithops* plant in budding stage

How is the survey being done?

Records of the target species are extracted from the Specimen Database of the National Herbarium. Locality data are scrutinised and located on maps. For both *Adenia* and *Lithops* populations, GPS coordinates and altitude are recorded, as well as habitat data including aspect, gradient, lithology, soil type and associated vegetation. A site description is also given and threats are recorded. Where a large *Adenia* population is encountered, 100 plants are marked with metal tags to allow future monitoring. Where a

large *Lithops* population is found, a 10 m x 10 m monitoring square is erected around a part of the population for long-term monitoring purposes.

What are the results so far?

The results obtained in Figure 1 indicate that the population at Leeukop in the Namib Naukluft Park contains the largest number of individuals of *A. pechuelii* found to date. As it occurs within a national park, this population is already passively conserved. Currently, the most serious threat to *Adenia* populations seems to be the establishment of uranium mines. Curiously, *Adenia* plants appear to have an affinity to granites with a uranium deposit.

Figure 2 shows that the *Lithops* population surveyed in the Rössing licence area is by far the largest encountered to date. This population is threatened by mining activities, especially those that result in habitat destruction. Drastic measures need to be taken to protect it from further decline.



Adenia plant tagged for long-term monitoring



Part of a monitoring square in the Rössing Uranium licence area

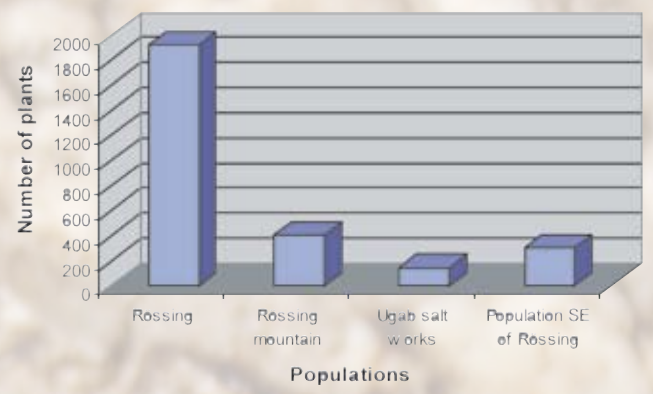


Figure 1. Population sizes of the four largest *Adenia pechuelii* populations encountered to date.

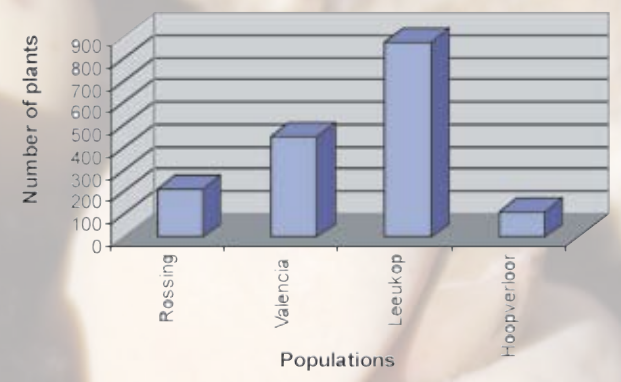


Figure 2. Population sizes of the four largest *Lithops* populations encountered to date.

How can this work be applied to other species?

The method of erecting a monitoring square of 10 m x 10 m can be applied to most species of dwarf succulents. The delimitation of the square can be permanently fixed to allow scientists to monitor changes in populations of small succulents over time. This in turn will enable managers and policy-makers to make informed decisions regarding the protection and management of species that are of conservation concern. There are plans to erect such squares for all dwarf succulents requiring protection.

Such 'smart partnerships' between Government and Private Sector, in which each partner contributes in a unique way to conduct the work, have proved to be invaluable in the search for answers to conserving threatened species. Finally, it is not the responsibility of conservation scientists alone to ensure the survival of our threatened species, but rather that of every person who resides in Namibia.

- References:** Conference of the Parties to the Convention on Biological Diversity. Sixth Meeting. 2002. Global Strategy for Plant Conservation of the Convention on Biological Diversity. The Hague, 14 pp.
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