



MILLENNIUM SEED BANK PROJECT - NAMIBIA -

BACKGROUND

The Millennium Seed Bank Project (MSBP) is an international initiative co-ordinated by the Royal Botanic Gardens, Kew in the United Kingdom. It is funded from various sources, including UK lottery money, private sponsors and the UK government.

The project started in 1995, concentrating on the U.K. flora and in 2000 the international component was initiated. At present, partners in 17 countries worldwide contribute to the MSBP, Namibia being one of 9 African nations.

USA Mexico Chile United Kingdom Jordan Lebanon China Australia



Botswana Burkina Faso Kenya Madagascar Malawi Mali Namibia South Africa Tanzania

OVERALL PROJECT AIMS

The global objectives of the MSBP are to:

- ✿ collect seeds, herbarium specimens and data from 10% (about 24 200) of the world's dryland plants with emphasis on threatened, rare and useful species
- ✿ conserve these to international standards at the Millennium Seed Bank and the countries of origin
- ✿ establish and develop partnerships to meet these objectives
- ✿ make seeds available for conservation in the wild and for research
- ✿ carry out research to improve all aspects of seed conservation
- ✿ facilitate access to information and transfer of best practice in seed banking to all project partners and the wider scientific community
- ✿ to increase public awareness of the need for plant conservation



The Millennium Seed Bank at Wakehurst Place, U.K.

MSBP PARTNERSHIP PROJECTS

Partnership projects vary from country to country, depending on national need and relevance. At the core of all partnerships, however, is the collection and conservation of seeds. In Namibia, the partner organisation is the National Botanical Research Institute (NBRI) of the Ministry of Agriculture, Water and Forestry (MAWF). This institute houses the national seed bank and herbarium, where half of all material collected under this project is stored. The partnership is based on an Access and Benefit Sharing Agreement between MAWF and the RBG, Kew. A full-time project co-ordinator, funded by the MSBP, is responsible for seed collection and co-ordination of project activities, while other Namibian institutions and individuals contribute on a part-time and voluntary basis.



Threatened *Gazania thermalis*



Threatened *Plectranthus unguentarius*



Rare *Aloe dewinteri*

SPECIFIC PROJECT AIMS IN NAMIBIA

The Namibian MSBP's objectives are concentrated on the following:

- ✿ collection of seed, herbarium specimens and data of threatened, rare, endemic (species occurring only within the political borders of Namibia) and useful indigenous plants
- ✿ compilation of all available information on target species to assist in collection of their seed
- ✿ contribution by MSBP-Namibia staff to other conservation initiatives in Namibia, particularly red data listing (plants threatened with extinction) and rehabilitation of disturbed areas
- ✿ training and capacity building of Namibian partners
- ✿ involvement of other Namibian partners in seed conservation

WHY CONSERVE SEEDS?

Plants are the primary producers on earth and all other living organisms, including humans, depend on plants. By saving seeds we can save plants and ensure proper functioning of nature's ecosystems.

Storing seeds in seed banks provides an insurance against the extinction of plants in the wild, which may have yet undiscovered properties. Seed conservation complements protection of plants and ecosystems in the wild. It has some advantages over habitat conservation. Many samples of a large number of species, and thus a wide genetic representation, can be conserved at economically viable cost in a relatively small space with low manpower inputs. In addition, seed banks provide material for research, provide skills and knowledge that support wider plant conservation aims, and contribute to education and public awareness about plant conservation.

HOW WE DO IT

- ✿ **Determine target species**
Information was gathered from herbaria in Namibia, South Africa, Germany and United Kingdom as well as from literature to determine target species and localities where these were found in the past. The data and a photo was compiled into a Collecting Guide for Namibia and helps in finding the plants in the field.
- ✿ **Collecting**
Seed has to be collected once it is mature; immature seed will not be viable. Timing of seed collecting is therefore crucial; if a plant is found with immature seed, nothing can be done except return later; if one is too late, mature seed will have already shattered and cannot be collected. As much seed as possible from as many different plants at one site is collected. Removing seed may however never be detrimental to the survival of the plant. As a rule of

thumb we therefore take only 20% or less of the available seed at any place at any time.

- ✿ **Data collection**
At any site where seed is collected, other information is also noted, like for instance the associated vegetation, topography, habitat, number of plants and area occupied by the species collected.



Collecting seed

- ✿ **Other collections**
A herbarium specimen is collected for each seed collection. This will be housed in a herbarium and serve as a way of checking the identity of the seed collected because from seed alone, plants can hardly ever be identified. A small soil sample is also collected and later analysed to determine soil pH and texture. This can be useful once seed has to be grown into plants again. In most cases a photo is taken as well.
- ✿ **Processing and Storage**
Collected seed is kept as dry and cool as possible until it is cleaned by hand. Hand cleaning is essential to obtain good quality,

undamaged seed for storage. Clean seed is then dried to a moisture content of 3-7% and sealed in air tight containers (foil bags in Namibia, glass bottles in the UK) before being frozen at -20°C. Prepared and stored like this, seed should remain viable for a few hundred years.

HOW YOU CAN HELP

Seed collecting is a highly specialised process that requires some knowledge of both the plants and seeds concerned and a lot of patience! Interested persons can, however, after some basic training, assist the MSBP.

Especially people living in rural areas can help us in getting the timing for seed collection right by either collecting the seed themselves or by informing us when seed is mature. You may also know of plants that we are looking for but have not found thus far.

If you are interested in assisting us, please contact us at the address below.

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