

*Global Strategy of Plant Conservation (GSPC):
Review of Progress in Morocco*

by Global Diversity Foundation

Global Diversity Foundation is committed to supporting the implementation of the Global Strategy for Plant Conservation (GSPC). Through our [Mediterranean Regional Programme](#) and specifically our projects in Morocco, our actions contribute to the implementation of a number of GSPC targets.

Since 2013, GDF and collaborators have carried out projects in two rural communes in the High Atlas region: Imegdale (Al Haouz region) and Ait M'hamed (Azilal region). Here we work directly with the community through community research teams composed of young, dynamic individuals, many of whom have university degrees, and who wish to benefit their communities. We provide training and paid employment in nurseries and field research actions. Through two foundational projects – one on [medicinal plant roots and local livelihoods](#), and one on [integrated water management](#) – in these communes we have developed an integrated approach to plant conservation that combines biodiversity conservation approaches, agroecology and water management. A [project that fully integrates the three elements](#) has recently been launched with a view to scaling up to other communes where such projects are requested.

Our activities in Morocco are carried out with a number of key national and local partners. At the national level, we work with the Institut Scientifique – Rabat and the Moroccan Department for Environment. At the regional level we collaborate with Cadi Ayyad University's MARK Regional Herbarium, the Moroccan Biodiversity and Livelihoods Association (MBLA), Ressources Ingénierie (RESING), and High Atlas Foundation. At the commune level, we partner directly with the communes of Imegdale and Ait M'hamed, the Imdoukal-Znaga Cooperative (Imegdale) and the Aksi Women's Association (Ait M'hamed).

In this document we present the current status of our collective contribution to the implementation of GSPC targets in Morocco. Our goal is to amplify this contribution as our programme grows over the coming years.

Target 1: An online flora of all known plants

Scope

One of the aims of GDF's Mediterranean programme is to achieve a working checklist of known plants and fungi species to improve biodiversity management and conservation programmes in Morocco. The inventory of these resources, combined with complementary data on taxonomy, distribution, population size, ecology and ecosystem function, will provide a powerful tool for setting conservation actions and biodiversity research.

Current situation

The production of plant checklists and floras is facilitated by greater access to botanical literature and to herbarium type specimens. So far, GDF has contributed to working lists of regional biodiversity hotspots, a national list of endemic species and a checklist of medicinal species through bibliographical research and by producing new local herbarium specimens.

Key successes

- Creation of an [online database](#) containing most of the Moroccan plant checklists (endemic and regional hotspots floras).
- Floristic richness and plant collection in both commune hotspots published online (C. 2000 specimens).

- The endemic Moroccan Flora published according to APG III and included in the online database (987 taxa).
- One of our principal collaborators, the Institut Scientifique – Rabat that maintains the Flora of Morocco has completed and published the final of three volumes of the *Flore pratique du Maroc*.

Future commitments

GDF is committed to raising funds and supporting the on-going commitment of the Moroccan government agencies and NGOs to the creation and completion of online floras and checklists for plants and fungi.

Target 2: An assessment of the conservation status of all known plant species, as far as possible, to guide conservation action

Scope

Assessing the conservation status of threatened species permits effective prioritisation of conservation action and the evaluation of threats facing each species. The IUCN has produced agreed criteria and categories for assessing conservation status. Red Lists provide a reliable international system that allows comparisons between global and national assessments, and assessment of changes over time.

Current situation

Despite the significance of this target, currently only a small portion of the Moroccan flora has been evaluated. However, in the past three years, through the Darwin Initiative-funded project entitled *Medicinal root trade, plant conservation and local livelihoods in Morocco*, GDF produced and published the global and national IUCN conservation assessments of:

1. Medicinal roots species (11 species)
2. Endemic monocotyledons species (60 species)

Given that these conservation assessments permit the establishment of action programmes to address the causes of threat, this activity has allowed GDF to participate in setting conservation actions to protect the threatened flora of Morocco.

Key successes

- The first official Red List for a taxonomic group (endemic monocotyledons) has been published Rankou, H., Culham, A., Taleb, M.S., Ouhammou, A., Martin, G. & Jury, S.L. (2015) Conservation assessments and Red Listing of the endemic Moroccan flora (monocotyledons). *Botanical Journal of the Linnean Society*, 177, 504-575., covering the 60 taxa. The assessment found that 94% of species are threatened [20% Critically Endangered (CR), 49% Endangered (EN), 25% Vulnerable (VU)] and only four species (6%) are not in a category of threat [3% Near Threatened (NT) and 3% Least Concern (LC)].
- The second official Red List for a taxonomic group (Medicinal plants) has been started by the publication of the IUCN Red list of the Medicinal roots species covering 11 taxa



Figure 1: *Dactylorhiza munbyana* (Boiss. & Reut.) Aver., known locally in the Moroccan High Atlas as *Lhayya Imeyeta* or *Hussa Lkleb*

e.g: Rankou, H., Ouhammou, A., Taleb, M., Manzanilla, V. & Martin, G. 2015. *Anacyclus pyrethrum*. The IUCN Red List of Threatened Species 2015: e.T202924A53798702. <http://dx.doi.org/10.2305/IUCN.UK.2015-4.RLTS.T202924A53798702.en>]

Future commitments

GDF is committed to carrying out further conservation assessments and to securing governmental and non-governmental commitment to a Red Listing programme and the creation of a Moroccan Red Book, both prioritising endemic Moroccan flora and useful plants. One of our goals is to assess the conservation status of Important Plant Areas of the High Atlas.

Target 3: Information, research and associated outputs, and methods necessary to implement the Strategy developed and shared

The objective of this target is to improve the development of tools and protocols relevant to all aspects of plant conservation, with a focus on procedures that have been tested, and are based on research and experience. This target acknowledges that ‘best practice’ methodologies, which draw on all available research and practical experience of management, are needed for the conservation of plants and fungi. Target 3 is cross-cutting, underlying the implementation of many of the other targets.

Current situation

Although numerous technologies, tools and approaches have been developed to reach the GSPC targets nationally, major gaps exist especially in term of access to information and dissemination of existing protocols and approaches.

GDF embraces an innovative approach to achieve these targets and develops tools for dissemination in its integrated approach to plant conservation in the Moroccan High Atlas.

Key successes

- Development of an integrated agroecology-biodiversity-hydrology approach to plant conservation that provides communities with livelihoods benefits whilst ensuring plant conservation, more efficient water management and protection of cultural practices of plant and landscape management.
- Development of collaborative methods for implementing the integrated approach through the training of community researchers.

Future commitments

GDF is committed to scaling up and disseminating its integrated biodiversity-agroecology-hydrology approach to plant conservation at the national level for other communes that may request it.

Target 4: At least 15% of each ecological region or vegetation type secured through effective management and/or restoration

Scope

This target is particularly important as it treats plant conservation within the context of the protection of communities, rather than individual habitats, sites or species. Target 4 is closely related to Target 5 that aims to protect 50% of the most important areas of plant diversity.

Current situation

Ongoing and upcoming GDF projects prioritise research on Important Plant Areas (IPAs) in the Moroccan High Atlas, a regional hotspot, and work to implement conservation actions in these areas.



Figure 2: Community-conserved pasture lands in the High Atlas have a great floristic diversity

Key successes

- GDF projects aim to improve species richness in IPAs, enhance habitat connectivity and conserve threatened species, enabling them to adapt successfully to environmental change through *ex situ* conservation measures implemented in community nurseries, which in turn allow us to implement enrichment planting of wild plant populations in IPAs in collaboration with local communities.

Future commitments

GDF is committed to supporting Morocco to ensure that all IPAs and

ecological regions are represented within protected sites, including Indigenous Peoples' and Community Conserved Territories and Areas (ICCAs). This will require further research, monitoring, adequate resources and modelling to overcome resource limitations and potential conflicts.

Target 7: At least 75% of known threatened plant species conserved *in situ*

Scope

This target is founded on conservation status assessment carried out under Target 2. Target 7 aims to protect the species that are considered the most likely to become extinct, and hence achieving this target would be a major step forward in stopping the loss of plant diversity. Target 7 obliges action to ensure that threatened plants and fungi are protected where they live in the wild.

Current situation

GDF has published a *Red Data List* for medicinal roots species and endemic plants, which identifies species in needs of urgent action. We have also identified the actions necessary to protect these plants, particularly through the management of protected sites or IPAs.

Key successes

- GDF activities work towards conservation of threatened taxa *in situ* via a range of methods and practices. We have adopted a range of practices such as research to assess the ecological needs of the species, management protocols, monitoring and survey of existing populations, application of management protocols and further monitoring to assess population response to management.
- GDF is monitoring the effects of overgrazing on IPAs through ecological studies of enclosures, and disseminating the management protocols and actions to local communities and partner organisations to encourage them to undertake similar management measures.

Future commitments

GDF is committed to:

- Supporting the production of a national priority species list and habitats to be effectively conserved through appropriate management and protected from multiple threats.
- Working in partnership with academic, governmental and non-profit organisations in Morocco to ensure at least 75% of threatened species are safeguarded within IPAs and are supported by appropriate *in situ* land management practices.
- Securing government commitment to implementing a national management protocol and a monitoring programme of priority taxa as part of their statutory obligations.

Target 13: Indigenous and local knowledge innovations and practices associated with plant resources maintained or increased, as appropriate, to support customary use, sustainable livelihoods, local food security and health care

Scope

This target focuses on the status of knowledge and practices that support the use of plants by local people. Plant products are used for food, medicine, firewood, ecological services, and other aesthetic, cultural or spiritual reasons. The target recognises the intricate relationship between biodiversity conservation, sustainable use and local cultures.



Figure 3: Documentation and protection of the cultural practices of conservation and the vast traditional knowledge of Amazigh indigenous communities in the Moroccan High Atlas has only just begun.

Current situation

Promoting and maintaining traditional skills and indigenous conservation practices is the focus of the GDF Darwin Initiative-funded project and a new project funded by the MAVA Foundation. We work with indigenous community members to promote their endogenous knowledge and practices, and to support them as they seek to adapt and modify these to ensure sustainable use.

Key successes

GDF's Darwin Initiative-funded project examined the current conservation status of medicinal roots species to identify the possible economic value of plant-based sustainable livelihoods to local people and economies.

GDF supported an ethnobotanical survey in Imegdale to record local names and uses of plants.

Future commitments

GDF is committed to supporting:

- Local initiatives for the collection and sharing of traditional knowledge and practises, using community-community exchanges as well as modern tools and media.
- Community members as they adapt their traditional farming and gathering methods to a changing environment, by providing access to innovation and training.
- Documentation of cultural practices of conservation as part of its new project on integrated plant conservation supported by the MAVA Foundation

Target 14: The importance of plant diversity and the need for its conservation incorporated into communication, education and public awareness programmes

Scope

Plants are often under-represented in the conservation debate and neglected in efforts to engage the public in environmental action. Target 14 seeks to influence communication, awareness and education programmes to help deliver the Global Strategy.

Key successes

GDF efforts have focused on:

- Training of community members, students, and local researchers in developing botanical knowledge, collecting voucher specimens and building identification skills.
- The creation of a [website](#) designed to inform the public about Moroccan flora. The website also collates activities and information about plant conservation efforts.



Figure 4: Students from Morocco and further afield receive ethnobotanical training from GDF in a High Atlas community.

- The organisation of workshops on plant diversity and conservation practices for a broader audience.

Future commitments

GDF is committed to:

- Assisting the Moroccan government and state agencies to provide support and opportunities that allow individuals to improve their field botanical skills
- Providing accessible learning and recreational activities about plants
- Encouraging Moroccan society to engage with nature via the media, education and recreational opportunities

Target 16: Institutions, networks and partnerships for plant conservation established or strengthened at national, regional and international levels to achieve the targets of this Strategy

Scope

Networks between government agencies, universities and NGO supporting plant conservation activities provide the tools to share information and management protocols, and build capacity of the plant conservation community, communities and the broader public. Target 16 embraces this cooperation and encourages the development of networks to deliver plant conservation actions.

Key successes

GDF has initiated two new networks that focus on plant conservation in Morocco: (1) the IUCN specialist group Moroccan Plant and Livelihoods Specialist Group, which is composed of Moroccan and foreign practitioners, scientists and professionals with an interest in Moroccan plants and livelihoods and (2) the Moroccan Biodiversity and Livelihoods Association, which is a non-profit that gathers Moroccan specialists and emerging professionals who work at the intersection of plant conservation and sustainable livelihoods.

These networks allow partnerships to be strengthened between collaborators, facilitating the flow of information between organisations and individuals involved in delivering plant conservation actions and encouraging joint initiatives to influence conservation policy and legislation.



Figure 5: Founding members of the Moroccan Plant and Livelihoods Specialist Group, May 2013

Future commitments

GDF is committed to supporting:

- More effective and active networks that work with government agencies to deliver national and international targets for biodiversity and livelihoods.
- The establishment of a national platform to coordinate environmental, conservation, social and educational programmes to achieve the GSPC targets.