

Darwin Initiative Main/Post/D+ Project Half Year Report (due 31st October 2017)

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| Project reference | 24-010 |
| Project title | Mobilising useful plant conservation to enhance Atlas mountain community livelihoods |
| Country(ies)/territory(ies) | Morocco |
| Lead organisation | Global Diversity Foundation (GDF) |
| Partner(s) | Moroccan Biodiversity and Livelihoods Association (MBLA); High Commissariat for Water and Forests and Desertification; Faculté des Sciences Semlalia Marrakech, Université Cadi Ayyad; Institut Agronomique et Vétérinaire Hassan II, Rabat; Ressources Ingénierie (RESING); Beya Capital; International Center for Agricultural Research in the Dry Areas and Agropolis Resource Center for Crop Conservation, Adaptation and Diversity (ARCAD). |
| Project leader | Gary Martin |
| Report date and number (e.g., HYR3) | 31 October 2017, HYR1 |
| Project website/blog/social media etc. | A general description of the project is available on GDF's UK website and periodic updates are posted on the news page . |

1. Outline progress over the last 6 months (April – Sept) against the agreed baseline timetable for the project (if your project has started less than 6 months ago, please report on the period since start up to end September).

GDF is pleased to report significant progress during the first six months of project implementation.

Concerning Output 1, which focuses on developing conservation action plans for 12 regionally threatened and culturally important species, excellent progress has been made in collecting baseline data through floristic and ecological studies and completing conservation assessments (the initial step in the process). So far, five species assessments have been uploaded to the IUCN Red List of Threatened Species. According to IUCN criteria, these have been categorised as follows:

| Family | Genus | Species | Common name | Uses | IUCN Global Category | IUCN Regional Category |
|---------------|------------------|------------------|-------------------------------|---|----------------------|------------------------|
| Anacardiaceae | <i>Pistacia</i> | <i>atlantica</i> | <i>Mt. Atlas mastic tree</i> | Traditional medicine | Near Threatened (NT) | Vulnerable (VU) |
| Asteraceae | <i>Anacyclus</i> | <i>pyrethrum</i> | <i>Pellitory</i> | Traditional medicine | Vulnerable (VU) | Endangered (EN) |
| Fabaceae | <i>Ceratonia</i> | <i>siliqua</i> | <i>Carob tree</i> | Traditional medicine, human nutrition, animal feeding | Least concern (LC) | Near Threatened (NT) |
| Fagaceae | <i>Quercus</i> | <i>illex</i> | <i>Evergreen oak</i> | Traditional medicine, animal feeding, wood | Least concern (LC) | Near Threatened (NT) |
| Oleaceae | <i>Fraxinus</i> | <i>dimorpha</i> | <i>North African ash tree</i> | Traditional medicine, animal feeding | Endangered (EN) | Endangered (EN) |

Desk assessments have also been completed for the remaining 7 species which are on course to be finalised and submitted to the IUCN Red List by the end of year 1. These assessments will inform our participatory conservation action plans, to be developed in years 2 and 3.

As detailed in the project proposal, we will cultivate these and other species in community nurseries and distribute plants to local communities who will plant them in designated areas, thus enhancing community incomes as well as wild plant populations. With Darwin support, GDF has successfully expanded and redesigned its community nursery in Imegdale where 1,610 plants of 9 target species are now being cultivated. Extensive planting, including the remaining three species, will be conducted between December and February when environmental conditions favour their cultivation. We will cultivate at least 3000 plants of all species every year - 2000 will be distributed to the community (targeting marginalised and vulnerable households), 500 planted in the wild and 500 retained in the nursery to ensure continued cultivation of all species during subsequent years. GDF has also begun the construction of a community seedbank in Imegdale where seeds of these, and other species, will be stored to secure their availability for future use. All permits required for seed collection have now been obtained and a High Atlas seed protocol has been developed with key stakeholders. To date, seeds of 50 species have been collected and documented. Finally, the construction of new community nursery in the second site of Ait M'hamed is in process where, once completed, cultivation and seedbank construction will begin.

Ongoing floristic studies in both communities have enhanced our knowledge of High Atlas flora. In this reporting period we have added 300 accessions to both the community herbaria, which are actively managed by the community researchers (see below), as well as to the MARK regional herbarium. These 300 accessions have also been uploaded to the BRAHMS database and published online. We also concluded the first draft of floristic checklists, maps and analyses for each site. Two papers on this topic are currently being developed: (1) *Floristic Diversity, Composition and Richness of a Key Biodiversity Area (Imegdale) in the Mediterranean Biodiversity Hotspot, High Atlas* and (2) *Floristic diversity and composition of an ICCA in the High Atlas, Morocco. (Case study: Agdal-Igourdane)*. We complement our floristic studies with longitudinal studies of the impact of conservation actions and community-based management practices on biodiversity and ecosystem composition. Using scientific procedures established during our previous Darwin Initiative project, we continued to monitor changes in biodiversity in different types of enclosures (artificial in Imegdale, community-conserved area in Ait M'hamed). Having concluded two annual cycles of monitoring, we are in the process of drafting two papers that analyse our results: (1) *What is the relationship between cultural landscape management practices and plant conservation in the High Atlas?* and (2) *The impacts of overgrazing in plant conservation (case study- High Atlas)*.

Significant progress has also been made towards livelihoods improvement (Output 2) and activities are on track for timely delivery. Through Darwin co-funding, GDF has continued its support to Dar Taliba, an all girls' boarding house that provides Amazigh girls (ages 13 – 18) from remote villages of the Ourika Valley an opportunity to continue their education beyond primary school. This support includes supplementing staff salaries, building 6,000 m² of ethnobotanical, vegetable and demonstration gardens as well as a community nursery and more efficient water management infrastructure, and delivering training and capacity building sessions (as detailed below). This helps ensure the continued operation of Dar Taliba school for its 130 students, which includes 65 new students from September 2017.

A further priority under Output 2 has been the construction of efficient irrigation systems for community nurseries in Imegdale and Ait M'hamed. With co-funding from a Replenish Africa Initiative project secured by our local partners Moroccan Biodiversity and Livelihoods Association (MBLA), we have been collaborating with local partner RESING, a Marrakech-based hydrology engineering firm, to successfully install irrigation to Imegdale nursery to support the cultivation of all plant species. Design consultations for irrigation infrastructure to serve arable lands in partner communities have also begun. This will provide irrigation of large tracts of land currently with insufficient water for cultivation – 25 hectares each in Imegdale and Ait M'hamed – and is due for completion by year 2.

Capacity building (Output 3) at all scales is a central component of our project. During this reporting period, six Community Researchers (three women and three men) have received continuous on-the-job training in nursery management and new skills – such as permaculture design, drip irrigation, seed saving and cultivation of wild species – that complement their traditional agroecological knowledge and practices. They have also participated in specific training sessions, along with 22 Masters and Undergraduate students from Marrakech University, on conservation and ethnobiology techniques including: conservation assessment and Red listing of plant species according to IUCN criteria and categories; herbarium techniques; plant and seed collection; floristic monitoring and ethnobotanical research methods.

In addition to team training, we are collaborating with local partners to deliver a series of training courses and workshops for local communities and are pleased to report that we are currently exceeding our capacity building targets for Dar Taliba students. Working with permaculture specialists Radiant Design, we are conducting weekly training sessions on topics ranging from permaculture cultivation methods to seed saving and water management. These will take place throughout the academic year and be complemented by quarterly workshops (starting in November) on plant transformation, processing and value-adding, to be delivered by GDF partner Rachid Jaafari, Founder-Director of the holistic training center Terre d'Eveil. Both capacity-building cycles will ensure that all 130 students have access to training to help diversify post-graduation opportunities by providing them transferable skills that benefit their families and communities. Over the next quarter, we will expand our capacity building reach by delivering four workshops to Imegdale communities on value-adding skills and processes, and conduct a further session in November 2017 in collaboration with RESING to local associations and cooperatives (both men and women) on sustainable water harvesting.

Efforts to identify and document additional species of useful plants are proceeding well and we are on target to deliver Output 5 according to our proposed schedule. During the last six months, our team has conducted 20 ethnobotanical interviews in Imegdale and 30 in Ait M'hamed. Collectively, these gather information on an additional 26 plant species (half the year 2 target of 50 species) and includes detailed information on how each is used. This research will support the submission of a journal article identifying species of most cultural significance in the Imegdale and Ait M'hamed communities (Activity 5.6). Excellent progress has also been made towards delivering conservation assessments of additional species: desk assessments for 50 species have been completed, 30 of which have already been validated through fieldwork.

All ethnobotanical, floristic and ecological data collected under our programme will be stored in a centralised GDF database which is currently in development. This comprehensive database will include detailed information on species, habitat, location, uses and conservation status. So far, the database includes 222 interviews, 1086 use reports, approximately 215 ethnobotanical identified species, 1500 herbarium specimen entries and 50 seed accessions.

This Darwin funded project is a core component of our broader *High Atlas Cultural Landscapes Programme*, aimed at strengthening traditional practices of conservation and enhancing sustainable land-based economies and wellbeing. As part of this programme, we have recently published a comprehensive internal report documenting cultural practices of conservation (CPCs) and their recent changes in Ait M'hamed and Imegdale with the identification of possible drivers of this change. The report presents a year and a half of research funded by the MAVA Foundation and will inform, with additional activities, appropriate strategies to strengthen CPCs which contribute to the conservation of biological and cultural diversity in the High Atlas. The report is available upon request.

Finally, during the last six months we have established and agreed MoUs and Partnership Agreements with all partner organisations to support effective collaboration and the successful delivery of our programme. We also obtained all the necessary permits from local authorities to carry out field research in the community conserved areas (*agda/s*) and with community members.

2a. Give details of any notable problems or unexpected developments/lessons learnt that the project has encountered over the last 6 months. Explain what impact these could have on the project and whether the changes will affect the budget and timetable of project activities.

The last six months went relatively smoothly, even with the predictable slow-down of activities during the hot dry summer, the fasting month of Ramadan and the festivities that follow it.

A handful of activities however did not commence during the reporting period, as detailed in the project implementation plan, in part due to the delay in the Q1 advance payment which was received in August 2017.

The repatriation of the GDF data on local commercialisation of fauna and flora to the Marrakech Delegation of Water and Forests has been delayed until the second half of year 1. The team has now begun work on reformatting the data and have been in communication with the Delegation to notify them of this short delay.

Given that the agronomic project activities (in particular the field testing of selected species) are dependent on the season, and are best begun in the spring, the delayed payment has meant that these activities will be launched in year 2. This has no significant impact on project progress and, considering it is an annual activity, we will simply double up the number of species tested in year 2.

Regarding the central goal to enhance local livelihoods through sustainable commercialisation of plant resources, we propose to deliver this element using a slightly modified process. We concluded that it is more logical to identify species (and their products) for commercialisation once we have compiled comprehensive data on their use, current conservation status, harvesting impact, cultivation potential and commercial value. Therefore, we have been actively developing this research (as illustrated by the progress achieved under Output 5) with a view to identifying species that we know have commercial value, are available in community territories in sufficient quantity for sustainable harvest, have a cultural relevance and have a solid potential for cultivation in community nurseries. Implementing actions in this revised order provides us with much more evidence for the feasibility of commercialization and the development of robust business plans (Activity 1.3), enabling us to guarantee the livelihoods impacts we have committed to by end-of-project.

2b. Have any of these issues been discussed with LTS International and if so, have changes been made to the original agreement?

Discussed with LTS: No

Formal change request submitted: No

Received confirmation of change acceptance No

3a. Do you currently expect to have any significant (e.g., more than £5,000) underspend in your budget for this year?

Yes No Estimated underspend: £ NA

3b. If yes, then you need to consider your project budget needs carefully. Please remember that any funds agreed for this financial year are only available to the project in this financial year.

If you anticipate a significant underspend because of justifiable changes within the project, please submit a rebudget Change Request as soon as possible. There is no guarantee that Defra will agree a rebudget so please ensure you have enough time to make appropriate changes if necessary.

4. Are there any other issues you wish to raise relating to the project or to Darwin's management, monitoring, or financial procedures?

None

If you were asked to provide a response to this year's annual report review with your next half year report, please attach your response to this document. Additionally, if you were funded under R23 and asked to provide further information by your first half year report, please attach your response as a separate document.

Please note: Any planned modifications to your project schedule/workplan can be discussed in this report but **should also be raised with LTS International through a Change Request.**

Please send your **completed report by email** to Eilidh Young at Darwin-Projects@ltsi.co.uk . The report should be between 2-3 pages maximum. **Please state your project reference number in the header of your email message e.g. Subject: 22-035 Darwin Half Year Report**