Department for Environment Food & Rural Affairs

DARWIN INITIATIVE

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Darwin Initiative Main and Post Project Annual Report

To be completed with reference to the "Writing a Darwin Report" guidance: (http://www.darwininitiative.org.uk/resources-for-projects/reporting-forms). It is expected that this report will be a **maximum** of 20 pages in length, excluding annexes)

Submission Deadline: 30th April 2019

Darwin Project Information

Project reference	24-010
Project title	Mobilising useful plant conservation to enhance Atlas mountain community livelihoods
Host country/ies	Morocco
Lead organisation	Global Diversity Foundation (GDF)
Partner institution(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 (IAV); Ressources Ingénierie (RESING); International Center for Agricultural Research in the Dry Areas (ICARDA) and Agropolis Resource Center for Crop Conservation, Adaptation and Diversity (ARCAD); Association des Amis du Centre Hospitalier Universitaire (CHU) and Radiant Design.
Darwin grant value	£ 312,660
Start/end dates of project	1st April 2017 - 31st March 2020
Reporting period (e.g., Apr 2018 – Mar 2019) and number (e.g., Annual Report 1, 2, 3)	1st April 2018 - 31st March 2019, Annual report 2
Project Leader name	Gary Martin
Project website/blog/Twitter	www.global-diversity.org A general description of the project is available on GDF's UK website and regular updates are posted on the GDF news page; and see blog post links in this report.
Report author(s) and date	Emily Caruso (GDF Director) and Pommelien da Silva Cosme (GDF Mediterranean Programme and Communications Coordinator), 30th April 2019, with the support of Dr. Hassan Rankou (GDF Mediterranean Conservation Programme Director & MBLA Director), Dr. Ugo D'Ambrosio (GDF Mediterranean Ethnobiology Programme Director), Gary Martin (Lead Consultant for the Mediterranean Programme) and the MBLA team.

1. Project rationale

As detailed in our project proposal, GDF addresses interconnected issues of plant conservation and poverty in the High Atlas biodiversity hotspot of Morocco. We seek to answer the question: how can Amazigh people remain the custodians of Important Plant Areas and useful plant species while improving their livelihoods in a changing socio-economic context and under new national biodiversity laws?

In our previous Darwin Initiative project (2013-2016), we documented how smallholder farming and grazing traditionally contributed to livelihoods and biodiversity conservation, while the collection of wild species provided additional sources of food, fodder, fuelwood and medicines that enhance local wellbeing. We gathered evidence of contemporary changes in practice including decreased cultivation of local crop varieties, overgrazing and unsustainable harvest of wild plants. Accentuated by climate change, these drivers threaten High Atlas biocultural landscapes, local livelihoods and unique biodiversity.

Socio-economic transitions bring affluence to some families, but provide limited benefits to most households, putting the most vulnerable at a disadvantage. This is exacerbated by limited access to education, diminishing agricultural production, and health problems related to poor hygiene and nutrition, resulting in high levels of out migration which local informants affirm is a primary obstacle to community wellbeing.

To counter this trend, Amazigh communities seek to enhance their livelihoods by increasing access to rapidly expanding national retail, wholesale and export markets for plant products; adding value to traded products; and strengthening cooperatives to increase competitiveness. They strive to maintain the ecological integrity of Important Plant Areas where they harvest wild edible, medicinal and other useful plants that provide non-monetary benefits.

Our project strengthens these positive conservation and livelihood trends through participatory research and practical action, including conservation assessment and monitoring of flagship species, agroecological cultivation and enrichment planting of threatened plants, capacity building on adding value and marketing plant products, and improving access to irrigation, schooling, adequate nutrition and healthcare, with a special focus on marginalized and vulnerable households.

Where we work

As part of our wider High Atlas Cultural Landscapes Programme, GDF works in the communities of Aït M'hamed, Imegdal, and Ourika. In early 2019, we launched our integrated programme of work in the commune of Oukaïmeden.

2. Project partnerships

During Year 2 of this project, GDF has continued an excellent partnership with lead project partner Moroccan Biodiversity and Livelihoods Association (MBLA), which was created with sponsorship from GDF during our previous Darwin project. Throughout this reporting year, GDF and MBLA have collaborated closely to deliver the activities reported on below. We ensured effective internal communications through weekly online meetings and through regular face-to-face meetings and workshops in Morocco and the UK.

We continued to successfully collaborate with RESING to secure efficient water infrastructure in all project sites and design irrigation interventions, including the delivery of capacity building on water management issues for local community members in Aït M'hamed and Imegdal (see Output 3 for details). We continued to build our long term partnership with Cadi Ayyad University Marrakech, in particular the MARK Regional Herbarium where the regional seed bank was created with the support of Darwin funds and through collaborations with Prof. Ahmed Ouhammou and his students for ecological monitoring.

Our ongoing partnership with the Association des Amis du CHU allowed us to deliver a follow-up Health Caravan in Aït M'hamed in June 2018 and our first annual Health Caravan in Imegdal in January 2019 (see Output 2 for details).

We collaborated closely with permaculture design and capacity-building consultancy Radiant Design and the management of Dar Taliba itself to successfully deliver 54 garden trainings at the Dar Taliba boarding house. The weekly training sessions delivered by our colleagues Cécile Michiardi and Laila Khabouz from Radiant Design have been extremely well received by the Dar Taliba students and director Jamila Boussata, who says "*The time we spend in the garden is creating more awareness amongst the girls about traditional plant knowledge such as the cultivation of aromatic and medicinal plants, and their different uses*".

Finally, GDF signed an MoU (Annex 1) with local associations, cooperatives and local authorities in the Commune of Oukaïmeden on 15th January 2019, allowing us to officially launch and expand our project activities to a fourth site. We have already initiated fieldwork through floristic and ecological surveys.

3. Project progress

NB: Please note the means of verification for all activities are provided in the Annex folder on Dropbox.

3.1 Progress in carrying out project Activities

Output 1. Conservation action plans for threatened useful plants implemented

This output focuses on developing conservation action plans for 12 regionally threatened and culturally important species (see Annex 2 for the list of species). During this reporting year, we completed our floristic and ecological studies to finalise the remaining 7 assessments, which have been submitted to IUCN for review and publication. These assessments will complement the five already published on the IUCN Red List of Threatened Species. Please refer to Annex 3 for all 12 conservation assessments mentioned above.

Having secured permits for seed collection and the High Atlas seed protocol produced in Year 1 (Annex 4), this reporting period we collected seeds of the final 5 of 12 target species for storage in the MARK regional seed bank in Marrakech and both community seed banks in the High Atlas. In addition to the 12 selected species, we collected, identified, tested, mounted and stored almost 200 additional seed vouchers to conserve important local agrobiodiversity in the community and regional seed banks to ensure the quality and future availability of these local varieties. Please see Annex 5 for community seed bank accession records. Our new community plant nursery in Aït M'hamed, which was constructed in Year 1, has made significant progress in Year 2, as demonstrated in this photo essay. We are currently cultivating 2,000 plants of all 12 target species in both our partner community nurseries in Imegdal (Annex 6) and Aït M'hamed (Annex 7).

This reporting year, Abdellah Aghraz, who joined GDF in early 2018 as GDF's Plant Quality and Laboratory Scientist, has continued laboratory-based plant quality testing as part of our sustainable plant commercialisation project activities. This process involves conducting two comparative analyses of the composition of essential oils for all 12 species to better understand 1) the difference between wild and plant nursery cultivated plants and 2) the difference in quality between plants grown in the two community nurseries. Initial results which are provided in Annex 8 show only small differences between the quality of wild and nursery cultivated plants. Abdellah has completed analyses of 9 species with the remaining due to be completed by the end of Year 3. We recently published a short video featuring Abdellah and his work on plant quality testing in the laboratory.

In addition to the above, we have completed our second annual cycle of participatory ecological monitoring and remote sensing of species habitat and enrichment planting areas, as described in our project implementation plan. We calculated the biodiversity indices (to determine the floristic composition and richness), the frequency of the species distribution, the structure of plant populations and how individuals are distributed among various species using two methods; 1) the method of Line Intercept Transect (LIT) is used in all the sites (Imegdal, Aït M'hamed and Oukaïmeden) and 2) Remote sensing via satellite imagery analysis, vegetation index NDVI (Normalized Difference Vegetation Index). Our results and assessment provide strong evidence that the traditional pasture management system of the agdal generates greater floristic diversity and stability of the floristic richness which we suggest is the result of their cultural management, allowing species to complete a development cycle before the grazing season. Please refer to Annex 9 for the Ecological monitoring studies results for Year 2.

We continued to expand our community plant nurseries in Year 2. In Imegdal, a further 15,326 seedlings of 32 target species were planted this year (see Annex 14 for the full nursery species list). Having addressed the water mismanagement issues in Aït M'hamed nursery last year, the new community nursery continues to flourish as demonstrated in the photo essay. This year 11,180 new seedlings were planted and are showing a 75% growth success rate (see Annex 15 for the full nursery species list). In addition, 2000 roots of Anacyclus pyrethrum have been planted in designated parcels of land belonging to our community researchers. Given their high

commercial value and current degree of over-harvesting, they are at risk from theft in the community nursery.

Our work on local product commercialisation faced surmountable challenges and exciting opportunities that have led us to modify our approach and refine our focus in the final year of the project. After some difficulties in recruiting someone to lead this part of our programme, we engaged Sifeddine Ouahdani to assess the current status of commercialisation of local products and assist Hajar Selamat in conducting socio-economic surveys. In addition, we recruited Youssef Yakoubi for a 8 month consultancy to conduct research on production and sale of honey, specifically by the Wabzaza Honey Cooperative in Aït M'hamed.

In November 2018, we carried out a successful community exchange on plant commercialisation with 15 Amazigh community members (10 men and 5 women) from partner communities Imegdal, Aït M'hamed and Oukaïmeden. Participants were divided in different groups based on the focus of their economic activities (medicinal and aromatic plants, animal products and agricultural products), to identify the potential of commercialising different products. This activity was an excellent opportunity for community and cooperative members to share experiences and discuss processes for adding value and marketing their produce. Please refer to Annex 10 for a summary on the event and Annex 11 for a detailed report.

After this event, we consolidated our panel of advisors. Instead of a conventional and static committee, which would have been poorly adapted to the rapidly moving world of social entrepreneurship, we established a looser network of mentors from Morocco and abroad who can flexibly advise, convene, guide and share opportunistically on topics such as market chain analysis, community-driven business plans and the general context of commercialisation nationally, regionally and internationally. The continually expanding web of advisors currently includes:

- Nicola Bradbear, Director, Bees for Development, which promotes sustainable beekeeping to combat poverty and to build sustainable, resilient livelihoods;
- Dena Freeman, Senior Visiting Fellow, Department of Anthropology, London School of Economics and Political Science, who has worked as a consultant on local product commercialisation and an adviser in forest enterprise and trade in Ethiopia for the Huddersfield Business School under another Darwin Initiative project;
- Jalal Charaf, CEO of Atlassence, a Casablanca-based company that sources high-quality Moroccan and African natural products for the the fragrance & flavors, cosmetics and aromatherapy trade in a sustainable and socially responsible way;
- Kamal El Baroudi, entrepreneur and owner of Ayaso, a high-end local product boutique in Marrakech;
- Rachid Jaafari, naturopath and creator of Terre d'Eveil a holistic well-being center that hosts a natural foods store, events space and a weekly farmers' market;
- Jalil Belkamel, creator of Nectarome, established in 1997 as a small enterprise based in the Ourika Organic Aromatic Garden which produces cosmetic products made from locally-sourced essential oils;
- Youssef Benaissa, director of Atlas Outdoor, a family-owned destination management company based in Marrakech which is dedicated to community development through rural tourism, with a focus on commercialisation of local products from the High Atlas;
- Dan Driscoll, Founder, Anou, a national service cooperative based in Ait Bouguemez (near our partner community Ait Mhamed) fully owned and operated by a community of artisans who directly market their goods to buyers through internet.
- Touria Benlafqih, who created ACCED, a business incubator and accelerator that supports entrepreneurs in remote and rural areas of Morocco to create innovations in agriculture, eco-tourism and industry;
- Dana Elemara, founder of Arganic, which supplies fully traceable, fairly traded culinary and cosmetic products directly from North Africa and The Middle East to M&S, Ocado, Whole Foods, Selfridges, Harrods, and luxury hotels.

The level of engagement of the advisors is variable: some provide advice and insights occasionally and opportunistically whereas others are invited as resource people for training workshop or are contracted as consultants to deliver a specific output, see Annex 38. For example, both Nicola Broadbear and Dena Freeman participated in the community exchange on plant commercialisation as part of a Mediterranean Environments Regional Academy, and we later contracted Dena as a consultant to advise GDF on the commercialisation of specific products, including an analysis of local cooperatives, examining their capacities and main constraints (see Annex 12). Rachid Jaafari has given several workshops for community members on producing natural cosmetics and has advised on their eventual marketing and sale.

Interaction with these diverse advisors has allowed us to evolve our approach to focus on local high-end niche market chain evaluation, because of the untapped potential of selling rural products in hotels, restaurants and shops that cater to international tourists and emerging middle-class Moroccan consumers in Marrakech and its environs. The level of demand from these local businesses matches the limited production capacity of rural communities and cooperatives, which are currently unable to supply sufficient quantities for export-oriented trade serving European, Middle Eastern and US markets.

We would like to foreshadow here – and discuss in more detail in our final project report in 2020 – several opportunities that are enriching and expanding our approach to analysing local product commercialisation. First, the IUCN – as a partner in a MAVA Foundation funded project on cultural landscapes – has invited us to incorporate our High Atlas local product commercialisation research in a study of niche markets and their potential role as an economic option to add value to cultural practices in the Mediterranean. The project will include research on the wider policy and market contexts shaping economic opportunities and highlight options for further development of niche products. Second, MAVA Foundation has asked us to engage with their efforts to run an accelerator in the Mediterranean region that supports innovative solutions and enterprises related to traditional land uses practices that lead to landscape and biodiversity conservation and sustainable development. In the context of a regional project to identify successful models of for-profit, non-profit and individual-led entrepreneurship in Lebanon, Morocco and Spain, MAVA Foundation has requested that GDF assist in selection of High Atlas rural entrepreneurs involved in supplying high-end niche markets and accompany them as they participate in the accelerator. Third, we are participating in the creation of EthnoBotanica, a social enterprise that seeks proof of concept that local products can penetrate high-end niche market in a way that rewards small-scale producers. All of these emerging experiences are deepening our embodied involvement in local product commercialisation, enhancing and contextualising our ability to develop market analyses and initial business plans for the derivative products of target plant species and to deliver capacity-building on adding value and marketing local products.

Output 2. Livelihood improvements for Amazigh villages, households and residents achieved

This reporting year, we have successfully carried out the Year 2 cycle of plant distributions of commercially valuable plants across Amazigh villages in the community of Imegdal. During the month of February, which is an optimal planting season, GDF distributed 16,102 valuable plants to local community members in Imegdal, benefiting 472 household spread across 19 different villages, exceeding our annual target of 400 households in 5 different villages. These species, which are all of high commercial value, are planted out in agricultural terraces to reduce harvesting pressure and enhance rural incomes. The species distributed to community members include, amongst others, common sage (*Salvia officinalis*), almond (*Prunis dulcis*), and lavender (*Lavandula dentata*). Please see the attached plant distribution records for further details (Annex 13). Our next annual plant distribution is planned for January 2020 in Aït M'hamed.

In addition, we are in the second year of planting out nursery-grown saplings of *Lavandula maroccana* and *Thymus saturejoides* in Boumagour, in the commune of Imegdal, a 5ha parcel of forest land that had been significantly overharvested for those two species. The parcel was entrusted to us for this purpose by the High Department for Water and Forests through an MoU

(Annex 14). It is set up to provide a control area where no planting is carried out in order to engage in ecological monitoring and assess the impact of our species restoration activities. The community of Imegdal manage the resources in this parcel, in particular by prohibiting grazing on it and establishing a management plan for harvesting the lavender and thyme, which sets out harvesting dates and methods. This enrichment planting process both contributes to local livelihoods and to enhancing ecosystem health.

After a successful first annual health caravan in Aït M'hamed in Year 1, we organised a follow-up caravan on 28 and 29 July 2018 (Annex 15). The principal goal of this event was to carry out follow up consultations and test for almost 100 patients with chronic conditions (e.g. diabetes) identified during the first caravan as requiring further support. The community took the opportunity to form a local committee for awareness-raising about chronic diseases (principally diabetes and hypertension). In January 2019, we carried out a second annual health caravan in the commune of Imegdal in partnership with MBLA and l'Association des Amis du CHU Mohammed VI (a Moroccan organisation providing improved access to health services in mountainous areas). We established a temporary medical centre and pharmacy at the Imegdal community centre where a medical team of 40 people (including paediatricians, gynaecologists and general practitioners, amongst others) carried out more than 400 free medical exams for men, women and children and provided over 1000 free medicine. This medical intervention has cemented trust with community members in Imegdal, lending our programme greater legitimacy and visibility amongst our local beneficiaries. Please see Annex 16 for the list of the health caravan beneficiaries and a detailed report (in French) by l'Association des Amis du CHU Mohammed VI.

As part of our commitment to support local livelihoods, in addition to the health caravans described above, we delivered annual food packages to the 75 most vulnerable households (far exceeding our yearly target of 25 households) across 26 different villages in Imegdal during the cold 'famine period' in February 2019. Please see Annex 17 for the full recipient list, which was prepared in full consultation with Imegdal village authorities to ensure its legitimacy. The food packages included necessities such as flour, cooking oil, tea, sugar, lentils, laundry powder, washing soap and milk.

Table 1: Food package distribution in Imegdal

Item	**Quantity**
Flour sack (25kg)	75
Cooking oil (5L)	75
Tea (200 g)	150
Sugar (2Kg)	150
Laundry powder (0.5 Kg)	225
Soap package	150
Lentils (1 kg)	75
Milk (3L)	75

With co-funding from the Replenish Africa Initiative (RAIN), secured by our partner the Moroccan Biodiversity and Livelihoods Association (MBLA), we have continued our work with our partner RESING, a Marrakech based hydrology engineering firm. This year we repaired 160 metres of seguias (traditional water canals) in partner community Imegdal, providing irrigation to 10 ha of land and directly benefiting 40 smallholders and 232 inhabitants. Please see Annex 18 for the technical specifications of the reconstruction project. Similarly, drip irrigation systems in Dar Taliba (Annex 19) and Ait M'hamed nurseries were completed. Seguia repair and reconstruction work in Aït M'hamed remains ongoing and is due for completion in 2019.

Finally, GDF has continued its support to Dar Taliba, an all girls' boarding house that provides Amazigh girls (ages 13 – 18) from remote villages of surrounding High Atlas communes an opportunity to continue their education beyond primary school. Through Darwin co-funding, GDF

has been able to support Dar Taliba staff salaries, the maintenance of the 6,000 m^2 of ethnobotanical, vegetable and demonstration gardens as well as a community nursery, the installation of a new drip irrigation system, and delivering training and capacity building sessions for the students (as detailed below in Output 3). This support has ensured the continued operation of Dar Taliba boarding house for its 143 students, including 52 new students from 19 different villages located in the communes of Ourika, Setti Fadma and Asni. Since the beginning of this project we have granted access to secondary education to a total of 117 girls (65 in Year 1 and 52 girls in Year 2), far exceeding our three-year target of 75 girls. Please see Annex 20 for the full Dar Taliba residency records detailing the new students who joined in September 2018.

Output 3. Capacity-building for Amazigh associations, community members, community researchers and institutional representatives delivered

During this reporting period, our project activities have had a clear focus on capacity building for Amazigh associations, community members, community researchers and institutional representatives, as well as our local team in Morocco. We continued our weekly training programme in the Dar Taliba boarding house for girls in collaboration with our partner Radiant Design. During the months of April and May 2018 (as part of the 2017-2018 school year), we delivered 16 trainings to 126 Dar Taliba students on enrichment planting, composting and making anti-parasite treatments. Due to summer vacation and a delay in the start of the 2018-2019 school year, there were no garden trainings at Dar Taliba from the beginning of June until September 2018. From October 2018 throughout March 2019, we delivered 38 trainings to 143 students that are currently in residency on various topics including: seed collection, making plant cuttings, composting, organic fertiliser, planting and sustainable harvesting techniques. For further details on the delivered activities and number of girls participated in the various trainings please see Annex 21 in addition to the following online blogs on seed collection and composting trainings. In the beginning of 2019, Dar Taliba director and ex-student Jamila Boussata, took on a greater role as facilitator and trainer, given her active involvement in delivering the garden trainings with our partner Radiant Design. Under the supervision of Cécile Michiardi (Radiant Design), GDF is supporting Jamila to build her capacity as a trainer and educator.

As part of our community capacity-building programme, we held a series of workshops over three days in the rural communes of Imegdal (September 2018) and Aït M'hamed (December 2018); We were joined by our long standing local partners RESING, Radiant Design, and MBLA who delivered interactive workshops and field visits to local community members on the following topics:

1) Sustainable water management and water harvesting techniques: 22 community members from 8 different villages (16 men + 6 women) received training in Imegdal.
2) Value-adding and marketing of aromatic and medicinal plants: 21 community members from 7 different villages (14 men + 7 women) received training in Imegdal and 37 community members from 13 different villages (9 men + 28 women) in Aït M'hamed.
3) Sustainable harvesting practices and seed collection: 22 community members from 8 different villages (16 men + 6 women) received training in Imegdal.
4) Permaculture, agroecology and sustainable agricultural practices: 16 community members from 7 different villages (12 men + 4 women) in Imegdal, 27 community members (7 men + 20 women) from 10 different villages in Aït M'hamed.
5) Beekeeping and bee products: 31 community members (15 men + 16 women) from 9 different villages received training in Aït M'hamed.

In total, 57 men and 55 women received training. As is clear from the above figures, the cultural context in each community is quite distinct: in Imegdal, a much more conservative community, it is more challenging to ensure an equal participation of women; in Ait M'hamed, women far outnumber men in these workshops. We will continue to provide separate trainings for women and men in both villages, and continue to advocate for greater female participation in Imegdal. Nevertheless, these figures show that we have responded to Darwin's comments on our Year 1 project report to ensure a 50% participation rate for women leaders in our capacity-building

workshops. The detailed reports of these workshops are provided in Annex 22 and 23, including a complete participants list. Among the workshop participants were community leaders from diverse douars (villages) in the communes of Imegdal and Aït M'hamed who are now trained as focal points on the above topics. This approach enables us to target the wider community, including those living in remote villages who are unable to travel the distances to attend workshops (a significant challenge when working in the High Atlas). Please see Annexes 24 and 25 for the contact lists of the above mentioned community leaders.

The final element of our Year 2 capacity building activities involves the delivery of a Community Exchange on wild plant species conservation, community seed banks and nurseries. As indicated in our Year 1 and Year 2 half-year reports, and given the fact that GDF hosted a European Community Exchange on Seed Diversity and Sovereignty in Barcelona in September 2017 with funding from other sources, we directed Darwin funds for the exchange to another Global Environments Network event, the Mediterranean Environments Regional Academy (MERA 2018), which took place from 2-11 November 2018 in the Moroccan High Atlas. Under the theme of "Community-based management in the Mediterranean: innovations in socio-environmental research and action", MERA gathered around 30 participants and experts in cultural landscape management from different Mediterranean countries including Turkey, Algeria, Greece, Tunisia, Spain and Morocco. A full narrative report of the academy can be found in Annex 26, in addition to an online blog post and a video on the event. Topics of focus included local product commercialisation, agrobiodiversity, gender and agricultural research, communal territorial governance and environmental policy-making in the Mediterranean region.

Finally, our team of six community researchers (3 men and 3 women) working in Imegdal and Aït M'hamed have continued to receive on-the-job training in nursery management, social science research and ecological monitoring, as well as new skills such as permaculture design, drip irrigation, seed saving and cultivation of wild species. In addition to the above, we recruited one new community researcher in Aït M'hamed (Hassan Ouchacha), who will replace CR Hafida Mouhdach who resigned from her role in Year 2. Two additional community researchers (Youssef Rochdi and Rachid Ait Elhadj) have been recruited to support the scaling up of our integrated programme in the new partner commune of Oukaïmeden. We will continue our search for a third female community research in Oukaïmeden to ensure gender balance.

Output 4. Case study on implementation of new national law #29-05 and its relationship to law #22-07 submitted

This reporting year, we established a Memorandum of Understanding with the national office of the High Commissariat for Water and Forests and Desertification (Annex 14). With this in place, Mohamed El Haouzi, GDF field coordinator, who is leading the revision of the database of fauna and flora commercialised in the markets (souks) of Marrakech and its rural hinterland, will repatriate data to the Regional Directorate - Haut Atlas-Marrakech of the High Commissariat of Water and Forests in Year 3. During Year 2, Mohamed has gathered additional information from local herbalists in the Marrakech souks on plants, including ones that were not yet identified to a species level, or that are of special interest, such as endemic species of oregano and thyme.

Under the guidance of Project Leader Gary Martin – who became GDF Mediterranean Programme Lead Consultant after stepping down as GDF Director in January 2018 – we are compiling ethnobotanical monographs, which are detailed summaries of all information we have on the target species and additional plant genetic resources, including sections on the botanical description, distribution, ecology, conservation status, cultivation status, local names and uses, phytochemical profile, plant product profile, market analysis and other relevant data. Information will be extracted from these ethnobotanical profiles for multiple purposes in year 3, including repatriation of a fleshed-out and illustrated database to High Commissariat of Water and Forests, preparation of initial business plans (with market analysis data) for selected plant products that highlight opportunities for expanded sustainable commercialisation and plant booklets to provide gatherers, producers and users with accessible information. A long-range goal, outside the scope of the current project, is to produce a manual and app to inform consumers about the safety,

sustainability and usefulness of commercialised plant products, with the dual goal of reducing pressure on threatened species while promoting those that are sustainably harvested and have demonstrated cosmetic and culinary properties.

In November 2018, we recruited Ahmed Bendella as GDF's Legal and Policy advisor who is primarily tasked to carry out a case study on the implementation of law #29-05. This activity is planned to be completed in Year 3. We also expect to produce a participatory action plan on natural resource management around Toubkal National Park in year 3.

The implementation of law #29-05 has been relatively slow due to the complexity of developing implementation regulations. However, we obtained all the necessary permits for collection, multiplication and distribution of seeds from local authorities at various levels, from the moqadems to the Provincial governors, and from national agencies such as the Water and Forests Department. For the sale permits, we are currently basing our actions on our existing partnerships and MOUs with local community cooperatives and associations, whilst we wait for the implementation regulations for law #29-05 to be published.

Output 5. Identification and characterization of additional plant genetic resources completed

We made good progress towards identifying and documenting additional species of useful plants in Year 2. We completed ethnobotanical surveys on over 50 species (100% of Year 2 target, see Annex 27) and conservation assessments for an additional 13 species, bringing our current total to 43 assessments (see Annex 28). The ethnobotanical database, which contains over 300 interviews, more than 200 species and 4972 use reports, has been completed and is currently under advanced final data analysis. Based on this database, we will conclude a scientific article entitled "*Amazigh ethnobotany in the High Atlas: potential for plant biodiversity and cultural conservatio*n" by the end of April 2019; a draft of this manuscript is provided in Annex 29. We will submit the article to the Journal of Ethnobiology and Ethnomedicine and expect it to be published before the end of 2019. In addition to the article mentioned above, we will also conclude an article combining the data gathered through both floristic and ethnobotanical surveys on 50 cultural keystone species of the High Atlas by the end of 2019.

In addition to these activities, we carried out eight workshops with primary and high school students in Aït M'hamed (5), Imegdal (2) and Ourika (1) of which four had the main objective to identify useful plants of the local "household basket". Please see Annex 30a for the list of identified plant products and a GDF blog on one of the workshops in Imegdal. During these workshops, students made creative drawings of useful plants such as mint, which will be featured in the popular manual. An initial table of contents of the manual including examples of drawings is provided in Annex 30b. We expect to publish and disseminate the popular manual by the end of 2019.

We are making good progress on the initial analyses of market potential of local products and expect to exceed our goal of conducting market value chain evaluations for at least 20 species. We plan to expand this line of work with financial and technical support from the IUCN, which has offered to co-fund our local plant commercialisation officer and guide his work as part of a regional study of niche markets supported by MAVA Foundation that focuses on adding value to cultural practices in the Mediterranean,

3.2 Progress towards project Outputs

Overall progress towards projects outputs has proceeded as planned.

We have made progress towards achieving Indicator 1.1 of Output 1 *'conservation action plans for threatened useful plants*' through the publication of 5 conservation assessments for the 12 target species and by completing the remaining 7, which have been submitted for publication in Year 2. This is from a baseline of no or incomplete existing species assessments. Please see

the example publication in the IUCN Red List of Threatened species for *Fraxinus dimorpha* (Annex 32) as evidence. In addition to the 12 selected species, we collected, identified, tested, mounted and stored almost 200 additional seed vouchers to conserve important local agrobiodiversity in the community and regional seed banks to ensure the quality and future availability of these local varieties. We have also carried out in-depth plant characterisation for 6 commercially important species (*Quercus ilex, Fraxinus dimorpha, Ceratonia siliqua, Thymus saturejoides, Mentha sauveolens* and *Hordeum vulgare*) as a first step towards their commercialisation (see Indicator 1.3 and Annex 31). Having addressed the water mismanagement issues in the Aït M'hamed nursery last year, we cultivated 2000 plants of useful, threatened and endangered species, including the 12 target species of this project in both community nurseries (Indicator 1.4). We continue to expand our longitudinal data collection on wild plant populations in Imegdal and Aït M'hamed, and the impacts of our conservation actions, through the ecological monitoring process described in Annex 9 (Indicator 1.5).

Progress towards '*livelihood improvements for Amazigh villages, households and residents*' is advancing well and we have exceeded many of our Year 2 targets under this output. In January 2019, we distributed 16,102 valuable plants in Imegdal to help enhance rural incomes, benefiting 472 household spread across 19 different village and exceeded our annual target of 400 households in 5 villages (Indicator 2.1). We completed laboratory-based plant quality testing and analyses of 9 species compared to a baseline of no phytochemical analyses of these populations available with the remaining 3 to be completed by the end of Year 3 (Indicator 2.2). Please see section 3.1 for further details and Annex 8 for initial results. In Imegdal, we provided free medical consultation and medicine to more than 400 residents and delivered food packages of key necessities to the 75 most vulnerable households, compared to a yearly target of 25 households and a baseline of no medical caravans and no food distribution (Indicators 2.5 and 2.7). Through our continued support of Dar Taliba boarding house, 52 new students joined at the start of this academic year. With a total of 117 students that obtained access to secondary school through Dar Taliba (65 girls in Year 1), we have met Indicator 2.6 ahead of schedule. See section 3.1 for further details and Annex 33 for the list of students. With this project we repaired 160 metres of seguias (traditional water canals) in partner community Imegdal, providing irrigation to 10 ha of land and directly benefiting 40 smallholders and 232 inhabitants. We also completed drip irrigation systems in Dar Taliba (Annex 19) and Aït M'hamed nurseries (Indicator 2.3). Please refer to Annex 5 and Annexes 10 to 16 as evidence of our continued support to improve local livelihoods in the communities where we work.

Concerning Output 3 '*capacity-building for Amazigh associations, community members, community researchers and institutional representatives*' we progressed well in Year 2. We delivered training to all 143 Dar Taliba boarding house residents through a comprehensive educational programme designed to build new skills and knowledge in plant conservation, plant uses, agroecology techniques and indigenous practices (exceeding our indicator 3.4). Furthermore, we have delivered training on sustainable water and plant harvesting, seed collection, plant commercialisation and permaculture to 112 community members in Imegdal and Aït M'hamed (contributing towards the implementation of Indicator 3.1) and provided continuous on-the-job training for six (men and women) Community Researchers from the communities where we work (Indicator 3.3). We are on target to achieve all other indicators as planned by Year 3.

We are well advanced in gathering essential information for achieving Output 4 regarding the "*Case study on implementation of new national law #29-05 and its relationship to law #22-07*" and related elements. By interacting with local herbalists, retailers and wholesalers of medicinal and aromatic plants, Mohamed El Haouzi has been fleshing out the information contained in the GDF database on commercialization of fauna and flora in Marrakech markets. We consider that it makes sense that all written outputs – participatory action plans, working paper and peer-reviewed article – be completed by the end of year 3, and this implies slippage in delivering the action plan for participatory natural resource management strategy around Toubkal National Park which was due by the end of year 2. We are confident we will complete this and other elements

of this output by project end, especially now that we have recruited Ahmed Bendella as GDF's Legal and Policy advisor.

Finally, the progress made during Year 2 means we are on target to achieve Output 5 *'the identification and characterisation of additional plant genetic resources'*. We already met our Year 2 target in Year 1 through the completion of ethnobotanical surveys for an additional 50 species (Indicator 5.1) and are ahead of our Year 3 target to complete assessments of an additional 50 species (Indicator 5.2). As of the end of this project year, we have completed assessments for 43 species. Please refer to our comprehensive database containing over 300 interviews, 4,972 use reports, and at least 224 botanical taxa (Annex 27) as evidence of this. Given this progress we expect to achieve all other indicators as planned by Year 3. Based on this database, we will conclude a scientific article entitled "*Amazigh ethnobotany in the High Atlas: potential for plant biodiversity and cultural conservatio*n" by the end of April 2019; of which a draft manuscript is provided in Annex 29.

3.3 Progress towards the project Outcome

Project outcome: Integrated conservation of regionally threatened culturally-important plant species and management of Important Plant Areas in the Atlas Mountains is achieved through Amazigh community action and capacity building, accompanied by improved livelihoods.

As detailed previously, we have completed conservation assessments for all 12 regionally threatened plant species, begun cultivation in both project sites, established the process for assessing the plant quality of all harvested species, distributed 16,102 plants to community members and deepened the ecological monitoring process for these species. We are therefore on track to meet the first indicator under our project outcome: '*twelve regionally threatened plant species and varieties are assessed, cultivated, distributed, sustainably harvested and monitored over three years'* (Indicator 0.1).

Considering the progress made this year with annual distribution of 16,102 commercially valuable plants to 472 households and annual food packages to 75 households, delivery of free health care to more than 400 vulnerable community members and improved access to secondary education for 52 girls, we are in a good position to achieve indicator 0.2 '*In three rural municipalities of the High Atlas, 2500 people, including from the 50 most vulnerable households, benefit from modest income increases and improved wellbeing through useful plant cultivation and marketing, irrigation, access to secondary school for girls, health improvements and adequate nutrition'*. The socioeconomic baseline we are close to completing in both communes using the RHoMIS survey will allow us to assess the income benefits of the project's local product commercialisation activities, especially following this past year's focus on the assessment of the status of product commercialisation in our partner communes.

During the second year of this project, we delivered training to 143 students of Dar Taliba boarding house on a broad range of conservation topics (see activity update above for full details) and to 112 community members (50% women) on plant commercialisation, sustainable water and plant harvesting, seed collection, permaculture, nursery management, amongst other topics. We are therefore on track to deliver on our commitment to benefit '*three hundred and twenty-five people benefit from capacity building delivered in training courses, workshops, a community exchange, and on-the-job experience by* project end' (Indicator 0.3).

We also made progress towards repatriation of a database on commercialised plants and animals, through the compilation of ethnobotanical monographs as described in section 3 above. In November 2018, we recruited Ahmed Bendellah as GDF's Legal and Policy advisor who is primarily tasked to carry out a case study on the implementation of law #29-05. This activity, alongside the action plan for participatory natural resource management strategy around Toubkal

National Park and journal article on protection and marketing of wild flora, is planned for completion in Year 3.

Finally, as described in further detail above, we have conducted conservation assessments for a further 13 species, bringing our current total to 43 assessments. As we have already completed the ethnobotanical surveys for the 50-additional species and are carrying out a systematic approach to participatory plant characterisation, we are making good progress to achieve and surpass indicator 0.5 *'A participatory process of characterizing 50 additional species for the household basket of useful plant resources that bring monetary and non-monetary benefits, launched by year 2'*.

3.4 Monitoring of assumptions

All our assumptions hold true at this stage of project implementation.

3.5 Impact: achievement of positive impact on biodiversity and poverty alleviation

Impact statement: '*Atlas Mountains Amazigh people are empowered to expand their role as stewards of Important Plant Areas and plant genetic resources while improving their livelihoods in a changing socio-economic context'.*

The project contributes to the higher goal of biodiversity conservation and poverty alleviation through the development of:

1) *Locally appropriate sustainable management plans and the empowerment of local communities to deliver them*. Working in close collaboration with local communities and using a participatory approach we identified 12 regionally threatened plant species and varieties. So far, we have developed the conservation assessments of the selected 12 species while cultivating and distributing these species in partnership with local communities, ensuring a sense of project ownership. We also delivered a series of capacity building sessions to equip and empower our partner communities to expand their role as environmental stewards. Similar to Year 1, this reporting year we have worked with local community researchers, cooperatives, students and other community members to deliver training in the following: sustainable water harvesting, seed collection, ecological monitoring, plant nursery management, enrichment planting, permaculture and plant commercialisation, amongst others. In year 3, we will continue to support local communities as they expand their role as stewards of IPAs with the development of sustainable harvesting and commercialisation action plans and strengthen local cooperatives as they engage more actively with wide markets.
2) *Support for local livelihoods and establishment of sustainable, reliable sources of plant material in rural communities*. This is being implemented through the management and expansion of community plant nurseries, enrichment planting and distribution of valuable plant species to vulnerable communities. These activities are supported by (1) capacity-building on sustainable plant harvesting and transformation of valuable plants to support improved annual incomes from the sale of plant based products (see section 3.1) and (2) local product commercialisation activities that will come to fruition in year 3 as a result of the background work we have carried out to date on baseline assessments, state-of-play reports and development of niche market connections for direct sale.
3) *Improved community wellbeing* is a core element of our project. We are achieving this through the following: (i) empowerment of community members and community researchers through training and sharing decision-making and responsibilities in project implementation, (ii) delivery of annual medical caravans and food distribution to support health improvements and adequate nutrition (Activities 2.5 and 2.7) (iii) improved access to secondary school for girls (Activity 2.6).

4) *New knowledge regarding conservation status of key plant species in Important Plant Areas of Morocco*. Expanding our knowledge of plant conservation status is essential for developing targeted conservation measures and establishing a baseline upon which to assess the impact of these measures. This has been achieved through the creation of conservation assessments for twelve regionally threatened plant species and varieties, five of which have been published on the IUCN Red List of Threatened Species and the remaining seven have been completed and submitted for publication this reporting year.

4. Contribution to the Global Goals for Sustainable Development (SDGs)

This project contributes to Sustainable Development Goal (SDG) #2 on food security (zero hunger) by (1) supporting community livelihoods through the production, propagation and distribution of plant species that are used for daily consumption by Amazigh communities, (2) the use of permaculture design principles, improved water management, organic agricultural methods and capacity-building around sustainable agriculture to enhance food yields and reduce external inputs, and (3) the distribution of food packages during the February 'famine month' to the most vulnerable households in our partner communities.

Through our conservation actions (in particular enrichment planting in community territories of threatened plant species, community seed banks and improved territorial resource management) the project contributes to halting biodiversity loss and protecting, restoring and promoting sustainable use of ecosystems in partner communities' territories (SDG #15 – life on land). Given the project's focus on developing measures for sustainable plant harvesting, implementing sustainable plant commercialisation and building associated capacities locally and regionally, the project also contributes to SDG #12 on responsible consumption and production.

Additionally, in collaboration with MBLA and their donor RAIN, the project implements improved water management for all community nurseries as well as 50ha of agricultural plots throughout Imegdal and Ait M'hamed, contributing to SDG #6 on sustainable water management. The project also addresses SDG #3 on good health and wellbeing through the implementation of the highly successful medical health caravans and the distribution of medicines. Finally, it contributes to both SDG #4 on quality education and SDG#5 on gender equality through our support for the Dar Taliba girls boarding house and the associated training and education programme, and our active support for the Aska women's cooperative in Aït M'hamed.

5. Project support to the Conventions, Treaties or Agreements

As detailed in our project proposal, one of our explicit objectives of the project is to support the Moroccan government in implementing the Convention on Biological Diversity (CBD), specifically a series of targets under the Global Strategy of Plant Conservation (GSPC) as detailed below:

Target 1: An online flora of all known plants – Since the beginning of 2016, we have collected and identified 2000 new herbarium specimens which have been mounted, labelled and uploaded to the BRAHMS database and published online.

Target 2: An assessment of the conservation status of all known plant species, as far as possible, to guide conservation action - During Year 2 of this project, GDF has completed and submitted seven assessments to IUCN for publication following the completion of fieldwork to collect baseline data through floristic and ecological studies; these assessments will complement the five already published on the IUCN Red List of Threatened Species to support effective prioritisation of our conservation actions.

Target 3: Information, research and associated outputs, and methods necessary to implement the Strategy developed and shared - GDF has, over the past few years, developed and refined our integrated, community-based approach to plant conservation that provides communities with livelihoods benefits whilst ensuring plant conservation, more efficient water management and protection of cultural landscape management practices, and is supported by

deep capacity-building and engagement with actors across scales. We are currently developing a Theory of Change to describe this approach which will be associated with an analysis of our process and lessons learned. We expect to publish and disseminate by the end of 2019, in support of Target 3.

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

GDF contributes towards this target through restoration measures that include integrated *ex situ - in situ* conservation actions: seeds are collected and conserved in community seed banks, propagated and cultivated in community nurseries, and translocated to the wild through enrichment planting where they enrich existing populations helping to buffer these against environmental change, enhancing connectivity and improving species richness.

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

GDF activities work towards conservation of threatened taxa *in situ* via a range of methods and practices such as research to assess the ecological requirements of the species, management protocols, monitoring and survey of existing populations, application of management protocols and further monitoring to assess population response to management.

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

Documenting, promoting and maintaining traditional skills and indigenous conservation practices is at the heart of all GDF projects in the High Atlas. 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 and the continuation of their culture.

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

Similar to Year 1 of this project, we have focused our efforts in Year 2 on training of community members, students, and local researchers in botany and plant identification, seed collection and conservation, and permaculture design for resilient and diverse agroecosystems.

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

GDF continues to maintain a strong and wide-reaching network of partners and associates as described in section 2 above and to actively support and mentor our main partner Moroccan Biodiversity and Livelihoods Association, a young and upcoming Moroccan NGO. It also continues to support 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 – particularly through the *Making Research Matter* workshop carried out in 2017.

GDF is also a key actor in a Mediterranean-wide partnership, funded by the MAVA Foundation, aimed at sustaining the region's cultural landscapes. The High Atlas is a pilot site for this partnership, and we are either leaders or active participants in the various 'overarching initiatives' of the partnership that seek to further strengthen regional connections with a focus on specific themes (Economic development, Policy, Communications, Communal Governance of Cultural Landscapes, Biodiversity Monitoring, Cultural Practices and Landscape Analysis). Active participation in this network has allowed us to significantly enhance our reach and mutual learning with other Mediterranean experiences.

GDF team members Hassan Rankou and Soufiane M'sou attended the Nagoya Conference in Marrakech in October 2018, an African Regional Training Workshop related to national arrangements on traditional knowledge for achieving Aichi Biodiversity Target 18 and contributing

to Aichi Biodiversity Target 16 of the Strategic Plan for Biodiversity 2011-2020. They presented our joint GDF-MBLA projects and how these contribute to achieving CBD goals and Aichi Biodiversity targets.

In addition, under this project GDF contributes to the implementation of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) in the following ways:

Article #5 on Conservation, Exploration, Collection, Characterization, Evaluation and Documentation of Plant Genetic Resources for Food and Agriculture and Article #6 on Sustainable Use of Plant Genetic Resources

We address article 5.1a by proposing a participatory approach to surveying and inventorying agrobiodiversity to increase benefits to farmers. We use ethnobotanical and systematic approaches to assess status and threats to this agrobiodiversity, based in part on our experience red-listing wild plant species according to the IUCN categories and criteria. We address article 5.1c by supporting farmers' efforts to manage, conserve and benefit from their agrobiodiversity on-farm by working with men and women to enhance their cultivation in different areas of local agroecosystems and in both privately and commonly managed areas in the broader High Atlas cultural landscape.

Through our work in the Dar Taliba boarding house for girls, we provide gender and youth appropriate training and extension services to support the use of agroecological (permaculture) design and techniques for the management of agrobiodiversity (article 6.2c).

Finally, with this project we are developing an efficient and sustainable system of *ex situ* conservation of High Atlas agrobiodiversity by investing in community and regional seed banks, linked to national and international seed banks (5.1e).

6. Project support to poverty alleviation

With the distribution of plants for cultivation and sale, over the course of this project we expect to significantly improve the monetary income of 2500 Amazigh people. In Year 1 we provided 40 members of the local cooperatives from 9 different villages of the Imegdal commune with some 14,992 commercially valuable plants which were widely distributed among the villages. This reporting year, we distributed an additional 16,102 valuable plants to local community members in Imegdal, benefiting 472 household spread across 19 different villages, exceeding our annual target of 400 households in 5 different villages. These species, which are all of high commercial value, are planted out in agricultural terraces to reduce harvesting pressure and enhance rural incomes. In January 2020, we will carry out our first plant distribution in Aït M'hamed and our third in Imegdal, expecting to distribute another 30-50,000 plants, bringing the total for the three year project cycle to approximately 70-80,000.

Our annual plant distribution activities are supported by the capacity building trainings to local community members on value-adding and transformation of commercially promising plant products, carried out in both partner communes (see section 3.1; Output 3). These trainings were designed to build local knowledge and capacities to add value through the transformation of the most commercially promising plant products, and to strengthen the local cooperatives as they engage more actively with wide markets. To sustain this process of market access, we carried out research on the 'state of play' of local product commercialisation in the communes where we work, allowing us to launch, in Year 3, a series of concerted activities to directly enhance sales of local products in the regional niche markets of Marrakech, including through participation in the creation and launch of a local social enterprise EthnoBotanica.

In order to develop a robust socioeconomic baseline for our programme and to measure the increase in income derived from sale of plant products, we launched a socioeconomic survey process across both communes in Year 2. Hajar Salamat has started carrying out household surveys in both partner communes using the Rural Households Multi-Indicator Survey (RHoMIS). Currently 174 (of a total of 250) surveys have been carried out in seven villages of participating

communities in Aït M'hamed and Imegdal; the remainder will be completed in May and June 2019. See Annex 34, 35 and 36 for the survey, database records and a photo report.

In addition, we support the economic empowerment of women in the communities where we work. This year, we have provided access for 52 girls to secondary education through residency at Dar Taliba boarding house and provided continuous training in plant conservation and value adding to help enhance their socio-economic opportunities in the future.

Finally, as highlighted in our proposal, we are working to support the health and wellbeing of communities where we work through the delivery of medical caravans. After a first successful health caravan in Aït M'hamed carried out in Year 1, we organised a follow-up caravan on 28 and 29 July 2018 to implement follow up consultations for almost 100 patients with chronic conditions such as diabetes. In January 2019, we carried out the first health caravan in the commune of Imegdal where we established a temporary medical centre and pharmacy at the Imegdal community centre. A medical team of 40 people (including paediatricians, gynaecologists and general practitioners, amongst others) carried out more than 400 free medical exams for men, women and children and provided over 1000 free medicine. In addition to these health caravons, we delivered annual food packages to 75 highly vulnerable households (far exceeding our yearly target of 25 households) across 26 different villages in Imegdal during the cold 'famine period' in February 2019. Please see Annex 17 for the full recipient list. The food packages included necessities such as flour, cooking oil, tea, sugar, lentils, laundry powder, washing soap and milk.

7. Project support to gender equality issues

GDF is committed to ensuring that gender is mainstreamed across all our programmes. We do so by recognising women and men as equal actors and beneficiaries throughout the project cycle; take a gender perspective when evaluating issues arising in project implementation as well as in the assessment of project impact; promote equal male and female participation in all community led workshops and consultations and operate gender-balanced teams at all levels. In January 2019, we recruited two new female team members Fatima Chaari (GIS mapping consultant) and intern Louisa Aarrass, and are currently in the process of recruiting two more women to the team for roles in the agroecology and plant commercialisation components. We have also been successful in building capacity of two female Community Researchers (Fadma Aït Illigh and Touday Atyha) who hold an integral role in engaging with other women in their communities to ensure that applied research results are gender-balanced. At the beginning of 2019, Jamila Boussata, Dar Taliba director and ex-student, has taken on an active role in delivering weekly garden trainings to Dar Taliba students and she continues to receive on-the-job training from our local partners MBLA and Radiant Design.

As further explained in this report (section 6 above), we place an emphasis on supporting women's empowerment. During our second year we have been able to target the following: 143 girls at Dar Taliba boarding house, two female CRs received continued employment and on-the-job training, one community liaison who is being trained to become a workshop facilitator and 55 women that participated in our capacity building workshops as detailed above in section 3.1.

Given the challenges of working directly with women or on gender issues in the conservative society of the Amazigh communities in the High Atlas and in Morocco more generally, we consider these successes significant.

8. Monitoring and evaluation

Monitoring and evaluation of achievements is built in to the very structure of the project.

To support our M&E process, at the beginning of the project we established a quarterly internal reporting process to facilitate regular assessment of progress against project indicators and to identify adaptive management needs or changes in strategy as required. In addition to this, we practice a GDF-MBLA internal communications policy, which all staff adhere to and ensures

regular communication and coordination across the project team, including with daily WhatsApp updates, allowing us to monitor progress in the field very closely. On a day-to-basis the Management Team is responsible for ensuring the delivery of the project outputs and outcomes. Management Meetings are held on a bi-monthly basis during which project progress is discussed, implementation issues identified and resolved, and forward planning agreed. It is composed of five representatives of GDF and MBLA. All GDF/MBLA teams (including Conservation, Ethnobiology, Communications & Coordination) are represented through the Management Team Membership:

Emily Caruso, (GDF-UK Director); Gary Martin (Mediterranean Programme Lead Consultant); Ugo D'Ambrosio (Mediterranean Ethnobiology Programme Director); Hassan Rankou (Mediterranean Conservation Programme Director and Morocco Institutional Partner Coordinator) and Pommelien Da Silva Cosme (Mediterranean Programme and Communication Coordinator).

To support the M&E process described above, and as a result of our team expansion in Morocco, we recently launched bi-monthly Field Team meetings during which all Field Team members gather at the MBLA office. They are joined by the Management Team (via Skype if not in country) and discuss field activities, decision-making and project planning. Please see Annex 37 for an updated organigram.

Finally, we practice a yearly external evaluation process for our High Atlas Cultural Landscapes programme (which this project contributes to). In year 1, Najwa Es-siari completed an external evaluation following 10-days of intensive field- and office-based assessments. Her external evaluation report of Year 1 (in French) can be provided upon request. The Year 2 evaluation is currently in process, again under the direction of external evaluator Najwa Es-siari; once it is complete (ETA end of May 2019) we will directly send it on to Darwin.

9. Lessons learnt

The second year of this project has gone relatively smoothly and we made good progress against our planned activities, as detailed in section 3.

The principal challenge we have faced this year is team turnover, with four resignations occurring between January and April 2019. In two cases, the team member in question was offered a job that allowed them to be closer to family and friends and better salary conditions. These kinds of resignations are understandable and there is little we can do as a team to address these issues at the source, nor does hindsight offer any particular lessons.

In the other two cases, we have since reflected that the resignations may have been avoided through a more judicious selection process at the outset. One of our staff members took on more than she could do, as she had other part-time jobs, and she resigned after only a few months because she could not handle the pace. We learned that part-time jobs are only appropriate in very specific circumstances and we also learned to be much more careful recruiting individuals who have an existing workload to manage. In the other case, the resignation was due to a combination of an unmotivated individual and a certain lack of line management given that the management was split across team members. We have learned the lesson that each staff member needs a single line manager and again, that we need to pay more attention, during the selection process, to candidate's capacities to operate autonomously and in a self-directed manner. We will be recruiting for two new staff members in May 2019 and will be very careful in our selection process to ensure high degrees of motivation, autonomy and self-direction.

In the end, we were able to resolve these team departures swiftly, successfully and with as little impact on our team's wellbeing as possible. Nevertheless, the broader lessons learned about redundancy (i.e. ensuring that no one single team member ever holds exclusive knowledge about a project area) and forward thinking were not lost on us, and we have tightened up our selection process as well as our internal knowledge-sharing methods and processes.

10. Actions taken in response to previous reviews (if applicable)

As requested during Darwin's review of this project's first year of implementation, we attach to this report the following documents:

- A Memorandum of Understanding with the national office of the High Commissariat for Water and Forests and Desertification (Annex 14).
- We added the Darwin logo on the GDF High Atlas Cultural Landscape Programme website and on the dedicated project page (see section 13 for further detail).
- The ToRs for the expert panel on plant commercialisation (Annex 38).

We would also like to note that in order to develop a socioeconomic baseline, we carried out 174 household interviews in our two partner communes using the Rural Household Multi-Indicator Survey (RHoMIS) and will complete the full 250 by end of June 2019. This will be used to measure income increases in Year 3 and beyond. Finally, we were attentive to the number of women participating in our capacity-building initiatives and ensured that at least 50% of participants in community-based events were women.

11. Other comments on progress not covered elsewhere

NA

12. Sustainability and legacy

Through the participation of our team in national workshops such as the Nagoya workshop and at community level through the annual Moussem festival in Aït M'hamed, we are actively engaging with different stakeholders to promote our work and project activities in the High Atlas. Our continued collaboration with students from Cadi Ayyad University in Marrakech and the all-girls boarding house in Ourika (Dar Taliba) has allowed us to reach young changemakers in Morocco through trainings and workshops as part of our capacity building activities under this project.

In January 2019, following a successful grant proposal, GDF launched a new project entitled "Enhancing the resilience of High Atlas agroecosystems in Morocco", funded by our new partner the Open Society Foundation (£157,230). This project aims to strengthen resilience in High Atlas agroecosystems by working on three principal aspects of the problem: 1) Loss of agrobiodiversity and associated knowledge and practices, 2) Lack of public participation in policy-making related to seeds and agriculture and 3) Need for a strong civil society to support the process of building resilience and relationships across scales.

GDF also secured additional co-funding of $19,945 in February 2019 from Semester at Sea (SAS). GDF was selected as one of its 2019 Fall Voyage partners to host a four-day Field Programme for 25 Voyage students designed to inform them about GDF's work with indigenous Amazigh communities in the High Atlas while actively engaging them through a series of practical activities in the field. These grants will allow us to ensure a sustained legacy of our project outcomes and processes in existing communities of Imegdal and Aït M'hamed, as well as to expand our reach and scale up our integrated agroecology- biodiversity- hydrology- capacity building approach in a fourth project site in the commune of Oukaïmeden – as well as consolidate our financial stability in the medium-term.

Finally, we had a clear focus in Year 2 on building local capacity to deliver quality biodiversity conservation and livelihoods projects throughout the High Atlas. We deem our intensive training and capacity-building work with cooperatives and associations, in particular, to lay the foundations for the latter to both increasingly lead on project actions into the future, and to fund these actions through the successful and high-return sale of local products and nursery plants. In parallel, the MBLA team continues to grow: new community researchers and young

conservationists have joined the team and the organisation continues to expanded their network of collaborators and supporters locally. They have also maintained excellent partnerships with all stakeholders, including the associations and cooperatives that are gradually taking increasing responsibility in the implementation of project actions. Building local and national capacities in this way forms the foundation of our legacy and sustainability.

13. Darwin identity

GDF actively and regularly shares progress updates and news from our Darwin funded project as part of our wider High Atlas Cultural Landscape Programme on its website, social media profiles (with 556 Twitter, 3,357 Facebook and 281 Instagram followers), our annual Newsletter distributed to our 2706 subscribers and in GDF's Annual Report. Please note that our 2018 Annual Report will be shared with Darwin following its publication in May 2019.

The Darwin Initiative logo has been added to GDF's High Atlas Cultural Landscape Programme and Dar Taliba webpages and the support received from the Darwin Initiative is recognised on our dedicated project page and referenced across our blog updates where relevant and appropriate, including our latest video on the 1st Mediterranean Environments Regional Academy. This reporting year, we have continued distributing brochures in French and Arabic (Annex 39) during workshops, meetings and community events, which include the Darwin Initiative logo.

In addition to the above, GDF has been actively engaging with the Darwin Initiative on Facebook, Twitter and LinkedIn. Please see Annex 40 for a summary of our online activity during this reporting period.

Finally, GDF contributed to Darwin's May 2018 and February 2019 newsletters, which we have shared widely on our social media networks and included in the GDF website stories section.

14. Project expenditure

Table 1: Project expenditure during the reporting period (1 April 2018 – 31 March 2019)

Project spend (indicative) sinc last annual report	2018/19 Grant (£)	2018/19 Total Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)				
Consultancy costs				
Overhead Costs				
Travel and subsistence				
Operating Costs				
Capital items (see below)				
Monitoring & Evaluation (M&E)				
Others (see below)				
TOTAL				

Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2018-2019

Project summary	Measurable Indicators	Progress and Achievements A 2018 - March 2019
Impact Atlas Mountains Amazigh people are empowered to expand their role as stewards of Important Plant Areas and plant genetic resources while improving their livelihoods in a changing socio-economic context.		In Year 2, our activities have proceeded as planned and had a c focus on delivering targeted capac building to local Amazigh commun aimed at enhancing their socio-economic opportunities.
Outcome Integrated conservation of regionally threatened culturally-important plant species and management of Important Plant Areas in the Atlas Mountains is achieved through Amazigh community action and capacity building, accompanied by improved livelihoods.	0.1 Twelve regionally threatened plant species and varieties are assessed, cultivated, distributed, sustainably harvested and monitored over three years 0.2 In three rural municipalities of the High Atlas, 2500 people, including from the 50 most vulnerable households, benefit from modest income increases and improved wellbeing through useful plant cultivation and marketing, irrigation, access to secondary school for girls, health improvements and adequate nutrition. 0.3 Three hundred and twenty-five people benefit from capacity building delivered in training courses, workshops, a community exchange, and on-the-job experience by project end 0.4 One detailed case study of implementation of the new national law #29-05 on the protection and commercialization of wild flora and fauna and its relationship to law #22-07 on protected areas developed and disseminated within Morocco, by year 3	1.1 Remaining 7 conservation assessments for 12 regionally threatened plant species subm to IUCN for review and publica (five published on the IUCN Re List of Threatened Species). Cultivation, plant quality testing distribution activities continued Year 2. 1.2 Distribution of 16,102 valuable plants to local community mem in Imegdal carried out, benefiti 472 household spread across different villages, 160 metres o seguias (traditional water cana repaired in Imegdal, providing irrigation to 10 ha of land and directly benefiting 40 smallhold and 232 inhabitants, 52 girls gained residency to secondary school, more than 400 people Imegdal received medical consultations and 75 received packages during vulnerable fa period. 1.3 Delivered training to 143 stude of Dar Taliba boarding house o broad range of conservation to (see Output 3 for full details). 1 community members from loca cooperatives and associations Aït M'hamed and Imegdal (50% women) received training on sustainable water harvesting, value-adding and marketing of aromatic and medicinal plants, permaculture, seed collection a beekeeping, and a team of six received continuous on the job training. 1.4 Additional information gathered from local herbalists in the Marrakech markets on plants, including ones that were not y

	0.5 A participatory process of characterizing 50 additional species for the household basket of useful plant resources that bring monetary and non-monetary benefits, launched by year 2	identified to a species level, or are of special interest, such as endemic species of oregano a thyme and compilation ethnobotanical monographs. 1.5 Additional 13 full conservation assessments completed (43 to ethnobotanical survey of the 5 species completed.
Output 1. Conservation action plans for threatened useful plants implemented	1.1 Conservation assessments and action plans for 12 species of threatened useful plants updated and drafted in year 1; published in year 2 1.2 Collection and conservation of seed of these 12 species in community seed banks in year one 1.3 Market analysis and business plans for sustainable commercialisation of the six most commercially promising species, by year 2 1.4 Cultivation of at least 2000 plants of each of the 12 species in community nurseries by year 1, and enrichment planting by year 2 1.5 Quality of plants grown controlled through participatory processes and phytochemical analysis and necessary adjustments made 1.6 Enrichment planting implemented 1.7 Participatory ecological monitoring and matrix modelling of population trends in enrichment planted areas by year 3 1.8 Journal article on outcome of conservation actions plans by year 3	1.1 Species accounts and conserv completed, 5 assessments have b submitted for publication (See sect 1.2 Seeds of all 12 species collecte MARK regional seed bank in Marra 1.3. Phenotypic, ecological and mo selected as the most commercially be carried out in Year 3. Initial repo commercialisation processes deve 1.4. Cultivation of 2000 plants of a community nurseries achieved. Se Enrichment planting was conducte plant distribution) in designated are collection on wild habitat and popu 1.5 In Year 2, Abdellah Aghraz (GI completed laboratory-based plant compare the quality of (1) wild spe nurseries and (2) plants of the sam analyses of the remaining 3 specie section 3.1 and Annex 8 for initial r 1.6 In Year 2, we carried out enrich distribution to local community mer saplings of *Lavandula maroccana* parcel of forest land in Imegdal, tha those two species. 1.7 Annual cycle of participatory ec completed (see section 3.1). 1.8 No update. To be completed in
Activity 1.1 Conservation assessments compiled and published, including GIS mapping of species and threats		12 conservation assessments com Threatened Species. Please see a means of verification (Annexes 2 a
Activity 1.2 Community seed banks established, and seeds collected and stored		Completed. Community seed bank See activity narrative report for furt
Activity 1.3 Market analyses and business plans elaborated		Completed full characterisation for potential (*Quercus ilex, Fraxinus d saturejoides, Mentha sauveolens* a developing market analyses and b 31). These will be completed in Ye activities and local product markets

Activity 1.4 Cultivation of plants in community plant nurseries established		Cultivation of 2000 plants of all 12 community nurseries achieved. Ple details and means of verification (A
Activity 1.5 Quality of plants grown controlled through participatory processes and phytochemical analysis and necessary adjustments made		Abdellah Aghraz (GDF Plant Quali laboratory-based plant quality testi remaining 3 to be completed by th for initial results.
Activity 1.6 Enrichment planting implemented		Enrichment planting carried out in community members and continue monitoring - of nursery-grown sapl *saturejoides* in Boumagour, a 5ha significantly overharvested for thos
Activity 1.7 Participatory ecological monitoring and matrix modelling completed		Annual cycle of participatory ecolo habitat and enrichment planting ar report for further details and mean
Activity 1.8 Peer-reviewed article on conservation actions submitted		To be completed in Year 3.
Output 2. Livelihood improvements for Amazigh villages, households and residents achieved	2.1 Annual distribution of commercially valuable plants – an average of 10 useful trees (e.g. almond, oak, ash as well as carob, olive, walnut and others) and 100 medicinal and aromatic herbs (e.g cultivated thyme, mint, sage) – to 400 households in 5 Amazigh villages, compared with no distribution at present	2.1 Completed - distribution of 16,1 Imegdal (see Annex 13).
	2.2 Medicinal and aromatic plants (e.g. thyme, mint, etc) and produce of useful trees (e.g. almond, carob, etc.) are of suitable commercial quality, as tested through participatory processes with farmers and commercial buyers and laboratory-based phytochemical analysis, at end of year 1 and year 2.	2.2. To support the sustainable pla Abdellah Aghraz (GDF Plant Quali laboratory-based plant quality testi Meghan Henshaw, MSc Ethnobota carrying out ethnographic fieldwor quality along the supply chain for c lavender in the High Atlas.
	2.3 Improved irrigation of 50 hectares of arable land benefitting a total of 5 Amazigh villages, 400 households and 2500 residents, on plots currently with insufficient water for cultivation, by year 2	2.3 New irrigation systems have be In collaboration with our partner RI engineering firm, we repaired 160 partner community Imegdal, provic benefiting 40 smallholders and 232 in Dar Taliba (Annex 19) and Ait M repair and reconstruction work in A completion in 2019.
	2.4 Increase of 20% in annual income derived from sale of commercialized medicinal and aromatic plants from the baseline of 1000 – 2000 Dhs (£75 - £150) annually per household, by year three	2.4 To support local product comm incomes and livelihoods, we starte wellbeing survey - the Rural House process has permitted us to develo we are accurately measuring the ir Year 2 towards increasing incomes valuable plants in Imegdal in Janu 2.5 Baseline data exists; survey to 2.6 In Year 2, 52 new students gai the academic year (September 20

	2.5 Reduction, in children of 0 -15 years, by 75% in incidence of intestinal parasites (currently found in 30% of this age group), goitre (20% of the age group) and dermatological problems (3%) by year 3 2.6 Access to secondary school for 75 girls from 5 communities through residency in boarding houses over three years, compared to no girls in secondary school from these families 2.7 Annual supplements of locally-produced food provided to approximately 25 highly vulnerable households in February 'famine period' compared to no food relief presently)	access to secondary school throug this indicator ahead of schedule. S 2.7 This year we delivered food pa Imegdal during the February 'famir
Activity 2.1. Annual distribution of an average of 10 trees and 100 MAPs per household		Completed. 16,102 valuable plants spread across 19 different villages activity narrative report for further d
Activity 2.2. Plant quality testing carried out		Laboratory-based plant quality test analyses of the remaining 3 specie
Activity 2.3 Efficient irrigation systems for community nurseries and smallholder parcels established		Efficient irrigation systems have be (Imegdal, Aït M'hamed and Dar Ta (traditional water canals) in partner activity narrative report for further d
2.4 Household surveys on income derived from sale of plant products		Currently 174 (of a total of 250) su of participating communities in Aït completed in May and June 2019.
2.5 Annual health caravans carried out		Completed. Over 400 people in Im medicine. Please see activity narra verification (Annex 16).
2.6 Annual selection of girls for entry to boarding houses completed		Completed. 52 girls obtained resid activity narrative report for further d
2.7 Annual food supplements distributed during 'famine month' to most vulnerable families		Completed. 75 households receive Please see activity narrative report (Annex 17).
Output 3. Capacity-building for Amazigh associations, community members, community researchers and institutional representatives delivered.	3.1 Twelve leaders (50% women) of 3 community associations participate in 3 training courses on economical use of water, plant product marketing and new Moroccan laws on wild species conservation and commercialization by year 3 3.2 Two hundred community members (40% women) participate in 12 workshops on water harvesting,	3.1 and 3.2 – 143 girls and 112 me in Imegdal and Aït M'hamed (50% workshops on sustainable water m aromatic and medicinal plants, sus beekeeping and permaculture. Sel specific capacity-building activities to further community members wh workshops. Please see section 3.1 3.3 Six community researchers (th continuous on the job training throu recruited (one in Aït M'hamed, two

	sustainable harvest and adding value to plant resources by year 3 3.3 Ten community researchers (6 men/4 women) receive continuous on-the-job training over 3 years 3.4 Seventy-five girls in secondary school boarding houses participate in 2 workshops on transformation and adding value to plant products, every year 3.5 Twenty-five representatives of institutions working on biodiversity and livelihoods in Atlas Mountains throughout North Africa participate in a Community Exchange on the topic of wild plant species conservation, community seed banks and nurseries in year 2	3.4 143 students have participated permaculture, making organic ferti collection, sustainable plant harves 3.5 As indicated in our Year 2 half European Community Exchange o in September 2017 with funding fr the exchange to another Global En Environments Regional Academy November 2018 in the Moroccan H
Activity 3.1 Training courses on economical use of water, plant product marketing and new Moroccan laws implemented		Completed and ongoing. Please se details and means of verification (A
Activity 3.2 Community workshops on water harvesting, sustainable plant harvesting and adding value to plant resources implemented		Completed and ongoing. Worksho and transformation of valuable pla boarding house and 112 members Imegdal and Aït M'hamed (50% wo
Activity 3.3 Community researchers trained		Completed and ongoing. All six co the job training and 3 new CRs ha Oukaïmeden). Please see section
Activity 3.4 Workshops for secondary school girls on transformation and adding value to plant products carried out		Completed and ongoing. 143 stude Please see activity narrative report (Annexes 20 and 21)
Activity 3.5 Community Exchange on wild plant species conservation, community seed banks and nurseries implemented		Completed. Please see section 3.1 further details means of verification
Output 4. Case study on implementation of new national law #29-05 and its relationship to law #22-07 submitted	4.1 Repatriation of 10 years of GDF data on local commercialization of fauna and flora to the Marrakech Delegation of Water and Forests 4.2 Action plan for participatory natural resource management strategy around Toubkal National Park under law #22-07 on protected areas developed with the Marrakech Delegation, by year 2	4.1 Further data collation for the re commercialised in Marrakech mark High Commissariat for Water and collection in Marrakech markets. 4.2 The participatory action plans 4.3 Permits for seed collection and 1. Regulations for obtaining permit explicitly established due to relativ have obtained permission from loc moqadems to the Provincial gover Water and Forests Department. 4.4. We are well advanced in gath on implementation of new national

	4.3 Permits under law #29-05 for seed collection, multiplication and sale for 12 wild plants species obtained, by year 1 4.4 Working paper on implementation of new national law #29-05 completed and disseminated to government agencies, academic institutions and non-governmental organizations, by year 3 4.5 Journal article on protection and marketing of wild flora submitted, by year 3	and related elements. We remain c Year 3. 4.5. No progress to report. We rem 3.
Activity 4.1 GDF database on commercialization of fauna and flora in Marrakech markets repatriated		Through the establishment of an M Commissariat for Water and Fores to repatriate data to the Regional D Commissariat of Water and Forest
Activity 4.2 Participatory action plan on natural resource management around Toubkal National Park elaborated		In Year 2 we carried out in-depth r local management actions, for 6 hi To comply with this action, in Year for key resources.
Activity 4.3 Permits for seed collection, multiplication and sale sought and obtained		The permits for seed collection and Protocol established in Year 1. Re have not been formally and explicit implementation of law #29-05. We future, but the status quo is broadl
Activity 4.4 Working paper on implementation of law 29-05 completed and disseminated		To be completed in Year 3 as set c
Activity 4.5 Peer-reviewed paper on protection and marketing of wild flora submitted		To be completed in Year 3 as set c
Output 5. Identification and characterization of additional plant genetic resources completed	5.1 Floristic and ethnobotanical surveys provide information on an additional 50 species of useful plants by year 2 5.2 Conservation assessments of 50 additional useful plants completed by year 3 5.3 Initial analyses of market potential prepared for at least 20 species by year 3 5.4 Seed collection, cultivation and distribution to community members, on a small experimental scale, of at least 10 additional species of high potential, by year 3	5.1 Floristic and ethnobotanical su completed (Annex 27) 5.2 Conservation assessments of (see Annex 3) 5.3 To be completed in Year 3 5.4 Completed – we have over 200 bank and community seed banks (been distributed during our annual 5.5 To be completed in Year 3 5.6 The article is under final revisio Ethnobiology and Ethnomedicine i activity narrative report for further c

	5.5 Popular manual, in Arabic and French, of the household basket of more than 50 useful plants that can improve local livelihoods and wellbeing, disseminated in High Atlas communities by year 3 5.6 Journal article on cultural keystone species of the High Atlas	
Activity 5.1 Floristic and ethnobotanical surveys conducted		Completed – ethnobotanical surve includes detailed information on ho report for further details and mean
Activity 5.2 Conservation assessments of 50 additional species completed		Completed – conservation assessr Year 2, bringing our current total to report for further details and mean
Activity 5.3 Initial market analyses of 20 species achieved		To be completed in Year 3 as set o
Activity 5.4 Seed of at least 10 species collected and cultivated; plants distributed		Completed – see 5.4 above
Activity 5.5 Popular manual completed and disseminated		To be completed in Year 3 as set o
Activity 5.6 Peer-reviewed paper on cultural keystone species submitted		To be completed in Year 3 as set o

Annex 2: Project's full current log frame as presented in the application form (unless changes have been agreed)

Project summary	Measurable Indicators	Means of verification
Impact: Atlas Mountains Amazigh people are empowered to expand their role as stewards of Important Plant Areas and plant ge livelihoods in a changing socio-economic context.		
Outcome: Integrated conservation of regionally threatened culturally-important plant species and management of Important Plant Areas in the Atlas Mountains is achieved through Amazigh community action and capacity-building, accompanied by improved livelihoods.	0.1 Twelve regionally threatened plant species and varieties are assessed, cultivated, distributed, sustainably harvested and monitored over three years 0.2 In three rural municipalities of the High Atlas, 2500 people, including from the 50 most vulnerable households, benefit from modest income increases and improved wellbeing through useful plant cultivation and marketing, irrigation, access to secondary school for girls, health improvements and adequate nutrition. 0.3 Three hundred and twenty-five people benefit from capacity-building delivered in training courses, workshops, a community exchange, and on-the-job experience by project end 0.4 One detailed case study of implementation of the new national law #29-05 on the protection and commercialization of wild flora and fauna and its relationship to law #22-07 on protected areas developed and disseminated within Morocco, by year 3 0.5 A participatory process of characterizing 50 additional species for the household basket of useful plant resources that bring monetary and non-monetary benefits, launched by year 2	0.1 Conservation assessme business plans, cultivation distribution records, harves and monitoring data, peer-reviewed article 0.2 Project updates and ph essays, list of secondary sc students, results of househ surveys, medical assessme and participatory appraisals 0.3 Exchange, training cou and workshop reports with participant lists; photo essa community researchers 0.4 Action plan, working pa and peer-reviewed article 0.5 Herbarium collections, database, popular manual peer-reviewed article on cu keystone species
Outputs: 1. Conservation action plans for threatened useful plants implemented	1.1 Conservation assessments and action plans for 12 species of threatened useful plants updated and drafted in year 1; published in year 2 1.2 Collection and conservation of seed of these 12 species in community seed banks in year one 1.3 Market analysis and business plans for sustainable commercialization of the six most commercially promising species, by year 2 1.4 Cultivation of at least 2000 plants of each of the 12 species in community nurseries by year 1, and enrichment planting by year 2 1.5 Participatory ecological monitoring and matrix modelling of population trends in enrichment planted areas by year 3 1.6 Journal article on outcome of conservation actions plans by year 3	1.1 Updated assessments published and uploaded to Red List of Threatened Spe 1.2 Seed collection protoco community seed bank acce records for all species 1.3 Written business plans, incorporating market analys 1.4 Community nursery and enrichment planting record photo documentation 1.5. Monitoring and matrix modelling data sets and ph documentation 1.6 Manuscript and confirm email of article submission
2. Livelihood improvements for Amazigh villages, households and residents achieved	2.1 Annual distribution of commercially valuable plants – an average of 10 useful trees (e.g. almond, oak, ash as well as carob, olive, walnut and others) and 100 medicinal and aromatic herbs (e.g cultivated thyme, mint, sage) – to 400 households in 5 Amazigh villages, compared with no distribution at present 2.2 Medicinal and aromatic plants (e.g. thyme, mint, etc) and produce of useful trees (e.g. almond, carob, etc.) are of suitable	2.1 Plant distribution recor 2.2 Community research protocols; reports on plant and commercial viability, in recommendations for adjus to improve quality

	commercial quality, as tested through participatory processes with farmers and commercial buyers and laboratory-based phytochemical analysis, at end of year 1 and year 2. 2.3 Improved irrigation of 50 hectares of arable land benefitting a total of 5 Amazigh villages, 400 households and 2500 residents, on plots currently with insufficient water for cultivation, by year 2 2.4 Increase of 20% in annual income derived from sale of commercialized medicinal and aromatic plants from the baseline of 1000 – 2000 Dhs (£75 - £150) annually per household, by year three 2.5 Reduction, in children of 0 -15 years, by 75% in incidence of intestinal parasites (currently found in 30% of this age group), goitre (20% of the age group) and dermatological problems (3%) by year 3 2.6 Access to secondary school for 75 girls from 5 communities through residency in boarding houses over three years, compared to no girls in secondary school from these families 2.7 Annual supplements of locally-produced food provided to approximately 25 highly vulnerable households in February 'famine period' compared to no food relief presently	2.3 Water engineering repo detailing irrigation infrastruc and m3 of water provided 2.4 Household surveys on i derived from sale of plant products 2.5 Reports from annual pu health caravans, including sections from dermatologis gastroenterologists and oth specialists 2.6 Lists of boarding house residents with village of orig student surveys 2.7 List of beneficiaries, an contents of supplementary packages
3. Capacity-building for Amazigh associations, community members, community researchers and institutional representatives delivered	3.1 Twelve leaders (50% women) of 3 community associations participate in 3 training courses on economical use of water, plant product marketing and new Moroccan laws on wild species conservation and commercialization by year 3 3.2 Two hundred community members (40% women) participate in 12 workshops on water harvesting, sustainable harvest and adding value to plant resources by year 3 3.3 Ten community researchers (6 men/4 women) receive continuous on-the-job training over 3 years 3.4 Seventy-five girls in secondary school boarding houses participate in 2 workshops on transformation and adding value to plant products, every year 3.5 Twenty-five representatives of institutions working on biodiversity and livelihoods in Atlas Mountains throughout North Africa participate in a Community Exchange on the topic of wild plant species conservation, community seed banks and nurseries in year 2	3.1 Training course reports including participant list and evaluation 3.2 Workshop reports, inclu participant list and evaluatio 3.3 Community researcher records; interviews and pho essays 3.4 Workshop videos; repor including participant list and evaluation 3.5 Exchange video, photo and report including particip list and evaluation
4. Case study on implementation of new national law #29-05 on the protection and commercialization of wild flora and fauna and its relationship to law #22-07 on protected areas submitted	4.1 Repatriation of 10 years of GDF data on local commercialization of fauna and flora to the Marrakech Delegation of Water and Forests 4.2 Action plan for participatory natural resource management strategy around Toubkal National Park under law #22-07 on protected areas developed with the Marrakech Delegation, by year 2 4.3 Permits under law #29-05 for seed collection, multiplication and sale for 12 wild plants species obtained, by year 1 4.4 Working paper on implementation of new national law #29-05 completed and disseminated to government agencies, academic institutions and non-governmental organizations, by year 3 4.5 Journal article on protection and marketing of wild flora submitted, by year 3	4.1. Fauna and flora marke inventory database formatte use by government agency 4.2 Written action plan, sub in French 4.3 Copies of permit applica and approvals 4.4 PDF of working paper 4.5 Manuscript and confirm email of article submission

5. Identification and characterization of additional plant genetic resources completed	5.1 Floristic and ethnobotanical surveys provide information on an additional 50 species of useful plants by year 2 5.2 Conservation assessments of 50 additional useful plants completed by year 3 5.3 Initial analyses of market potential prepared for at least 20 species by year 3 5.4 Seed collection, cultivation and distribution to community members, on a small experimental scale, of at least 10 additional species of high potential, by year 3 5.5 Popular manual, in Arabic and French, of the household basket of more than 50 useful plants that can improve local livelihoods and wellbeing, disseminated in High Atlas communities by year 3 5.6 Journal article on cultural keystone species of the High Atlas	5.1 Databases of floristic ar ethnobotanical surveys; use plant photos 5.2 Conservation assessme published and uploaded to Red List of Threatened Spe 5.3 Report on market poten analysis 5.4 Collection and distributi records, photo essays 5.5 PDF of popular manual 6.6 Manuscript and confirm email of article submission

Activities (each activity is numbered according to the output that it will contribute towards, for example 1.1,

Output 1. Conservation action plans for threatened useful plants implemented

1.1 Conservation assessments compiled and published, including GIS mapping of species and threats
1.2 Community seed banks established, and seeds collected and stored
1.3 Market analyses and business plans elaborated
1.4 Cultivation of plants in community plant nurseries established
1.5 Quality of plants grown controlled through participatory processes and phytochemical analysis and necessary adjustr
1.6 Enrichment planting implemented
1.7 Participatory ecological monitoring and matrix modelling completed
1.8 Peer-reviewed article on conservation actions submitted

Output 2. Livelihood improvements for Amazigh villages, households and residents achieved

2.1 Annual distribution of an average of 10 trees and 100 MAPs per household
2.2 Efficient irrigation systems for community nurseries and smallholder parcels established
2.3 Annual health caravans carried out
2.4 Annual food supplements distributed during 'famine month' to most vulnerable families
2.5 Annual selection of girls for entry to boarding houses completed

Output 3. Capacity-building for Amazigh associations, community members, community researchers and institu
3.1 Training courses on economical use of water, plant product marketing and new Moroccan laws implemented
3.2 Community workshops on water harvesting, sustainable plant harvesting and adding value to plant resources implem
3.3 Community researchers trained
3.4 Workshops for secondary school girls on transformation and adding value to plant products carried out
3.5 Community Exchange on wild plant species conservation, community seed banks and nurseries implemented

Output 4. Case study on implementation of new national law #29-05 and its relationship to law #22-07 submitted
4.1 GDF database on commercialization of fauna and flora in Marrakech markets repatriated
4.2 Participatory action plan on natural resource management around Toubkal National Park elaborated
4.3 Permits for seed collection, multiplication and sale sought and obtained
4.4 Working paper on implementation of law 29-05 completed and disseminated
4.5 Peer-reviewed paper on protection and marketing of wild flora submitted

Output 5. **Identification and characterization of additional plant genetic resources completed**

5.1 Floristic and ethnobotanical surveys conducted
5.2 Conservation assessments of 50 additional species completed
5.3 Initial market analyses of 20 species achieved
5.4 Seed of at least 10 species collected and cultivated; plants distributed
5.5 Popular manual completed and disseminated
5.6 Peer-reviewed paper on cultural keystone species submitted

Annex 3: Standard Measures

Table 1 Project Standard Output Measures

Code No.	Description	Gender of people (if relevant)	Nationality of people (if relevant)	Year 1 Total	Year 2 To
4A	Number of undergraduate students to receive training *		Moroccan and other African countries	26 (4 of which received in the field training on ecological monitoring and climate change data gathering)	42 students rece training on cons and ecological monitoring and c change effects a Ayyad University
4C	Number of postgraduate students to receive training *		Moroccan, American, British	18 (3 of which received 6- week field training in ethnobotanical techniques)	17 (15 MSc stud received training conservation an ecological monit and climate char effects at Cadi A University, 2 international M students are cur receiving training social science a ethnobotanical r as part of their fi in Imegdal)
5	Number of people to receive at least one year of training (which does not fall into categories 1-4 above)	M and F	Moroccan	6 Community Researchers receive continuous on-the-job training	In addition to the who continue to training, this yea add an additiona new CR in Aït M received on-the- training throughc 2, in addition to community liaiso Ourika who rece training from loc partners MBLA a Radiant Design become a works facilitator at Dar

6A	Number of people to receive other forms of education/training (which does not fall into categories 1-5 above) *	57 M and 198 F	Moroccan	148 Total. 130 students of Dar Taliba boarding house trained in a range of conservation topics and 18 members of the Imdoukal-Znaga Cooperative in Imegdal received training on sustainable water harvesting.	255 Total. 143 D Taliba students t in a range of conservation top 112 community members in Ime and Aït M'hamed received training sustainable wate plant harvesting collection, perma amongst other to (see section 3.1)
7	Number of (i.e., different types - not volume - of material produced) training materials to be produced for use by host country			8 Manuals (English and French) produced on the following topics: 1) biodiversity conservation monitoring and assessment, 2) floristic and ecological monitoring 3) ecological remote sensing and modelling 4) seed bank techniques 5) climate change modelling 6) ethnobotany techniques 7) team work and time management 8) community-based research design	NA to Year 2

Table 2 Publication

Title	Type (e.g. journals, manual, CDs)	Detail (authors, year)	Gender of Lead Author	Nationality of Lead Author	Publishe (name, ci
"KBA's for plants by country – Morocco" in Valderrábano, M., Gil, T., Heywood, V., Montmollin, B.d. (eds) Conserving wild plants in the South and East Mediterranean region, pp. 45-52	Electronic Book	Rankou, H., D'Ambrosio, U., Caruso, E. and Martin, G.J., 2018	Male	Moroccan	Gland, Switzerlan Málaga, Spain : IU for Mediterranean Cooperation, 2018
Studying ecosystems with the involvement of local communities: A conservation programme case study in Morocco. P. 122. In: Valderrábano, M., Gil, T.,	Electronic Book	D'Ambrosio, U., Rankou, H., Caruso, E. & Martin, G. 2018	Male	Spanish	Gland, Switzerlan Málaga, Spain : IU for Mediterranean Cooperation, 2018

Heywood, V. & de Montmollin, B. (Eds.). Conserving wild plants in the south and east Mediterranean region.					

Annex 4 Onwards – supplementary material (optional but encouraged as evidence of project achievement)

Checklist for submission

	Check
Is the report less than 10MB? If so, please email to Darwin-Projects@ltsi.co.uk putting the project number in the Subject line.	Yes
Is your report more than 10MB? If so, please discuss with Darwin-Projects@ltsi.co.uk about the best way to deliver the report, putting the project number in the Subject line.	No
Have you included means of verification? You need not submit every project document, but the main outputs and a selection of the others would strengthen the report.	Yes
Do you have hard copies of material you want to submit with the report? If so, please make this clear in the covering email and ensure all material is marked with the project number. However, we would expect that most material will now be electronic.	/
Have you involved your partners in preparation of the report and named the main contributors	Yes
Have you completed the Project Expenditure table fully?	Yes
Do not include claim forms or other communications with this report.	