

Landscape & Ecological Mitigation Programme (LEMP)

Annual Report

<u> April 2017 – March 2018</u>

1. Executive Summary

- 1.1. LEMP works continued to build momentum in this fourth full year of the programme with the largest number of sites completed in one year to date and signs of real success through natural regeneration and evidence of colonisation of LEMP sites by native endemic invertebrates.
- 1.2. 2017/18 saw the LEMP project complete the rehabilitation of 19 plots across seven main sites (zones). These plots involved fencing of approximately 6km enclosing a total of 15.5 hectares. More than 66,000 plants were propagated for LEMP during the year with 36,000 being planted into LEMP rehabilitation sites and Environmental Management Division (EMD) seed orchards and gene banks (see Appendix 1 for key achievements). This represents an increase of over 13,700 plants planted when compared with the previous year. The survival rate of the plants planted within these subplots was estimated at greater than 70% across all species.
- 1.3. Other key successes included working with partners and colleagues on island to agree final actions for the compensatory areas identified for LEMP activities and the development of a forward plan for the remaining three years of LEMP identifying all remaining rehabilitation actions.
- 1.4. A key challenge this year was the need to restructure the LEMP team and downscale the project to reflect the changing budget profile. Despite what was a difficult time for staff in the last three months of the year the team remained relatively stable throughout the year (see staff organogram in Appendix 3).
- 1.5. In the fourth quarter of this year the LEMP Project Manager and Director of ENRD along with SHG colleagues in procurement and finance have worked extensively with the National Trust to investigate options for divestment of the LEMP to the voluntary sector for the remaining three years of delivery. Relationships have been positive and potential to divest is high with positive progress being made.

2. Partnerships

2.1. Environmental Management Division (EMD)

LEMP continued to fund two full time members of staff to work on LEMP related activities such as seed collection, sorting and storage, plant propagation as well as nursery and living gene bank maintenance to support EMD in achieving deliverables agreed in a Service Level Agreement between the two sections of the Environment and Natural Resources Directorate.

During the year EMD propagated and supplied more than 11,000 plants as part of the Service Level Agreement with LEMP. Approximately 70% of these were planted by the EMD team within living gene banks or at LEMP compensatory sites at Peak Dale and 30% were provided to the LEMP team to plant in rehabilitation areas.

EMD staff participated in LEMP consultation activities, and priorities for remaining LEMP compensatory sites and actions were agreed and started. Dryland areas were identified as a key habitat affected by the airport development and two natural scrubwood (*Commidendrum rugosum*) populations were prioritised for conservation activities. Clearance of invasive species at a scrubwood population on Flagstaff was started in December; the LEMP team aims to spend a day every one to two months clearing areas around the individual scrubwoods.

Blue Point is a priority site for EMD and the National Trust; LEMP actions there will include funding a rabbit and stock proof fence to enclose a large natural scrubwood population with fence on three sides and the sheer cliffs as a natural barrier on the third. Rabbit drop traps will

also be installed along the fence line to provide a mechanism for ongoing control of the rabbit population in that area.

2.2. St Helena National Trust (The Trust)

The Trust completed a contract to deliver reinstatement works in three LEMP rehabilitation zones adjacent to the Millennium Forest. The contract included rabbit proof fencing of approximately 2km enclosing a total area of just over 6 hectares. Irrigation was then laid across part of this area and 10,000 endemic plants were planted.

The Trust were awarded the contract to install the rabbit and stock proof fencing at Blue Point. This is a difficult site to work on with very uneven terrain and some hard and rocky areas (see Appendix 2, photo 2.1). The contract progressed well but harsh weather conditions and other priority projects meant the contract was extended into 2018/19. It is anticipated that it will be completed in 2018/19.

2.3. AECOM

AECOM's three and a half year contract to support the LEMP came to an end in September 2017. Final actions included completion of the template for the LEMP's long-term management plan and a final update to the Landscape Detailed Designs (LDDs). Works were also completed to convert the Landscape Detailed Designs to a GIS format from the existing AutoCAD format to enable future updates to be completed in-house by the LEMP team.

Over the past three and a half years AECOM have provided valuable input on and off island to support delivery of the LEMP vision and practical works on the ground.

2.4. Basil Read

Two sites which had previously received ground preparation works from Basil Read were reviewed and signed off in 2017/18 and site visits were held to agree final actions to enable the sign off of the remaining six LEMP specifications already in progress. Forward planning was also completed for issuing the final ground works specifications to Basil Read. These have been agreed and will be issued in early 2018/19.

Basil Read held two environmental audit meetings which included a review of LEMP works completed and those programmed for the next few months. The LEMP Project Manager worked with colleagues from Basil Read to deliver a presentation entitled "Lost and Found on St Helena: Environmental Monitoring and Mitigation of the Airport Project" at an International conference hosted on St Helena on 'Diverse Island Environments' in January 2018.

2.5. Department for International Development (DfID)

The DFID Deputy Programme Manager for St Helena Airport and Senior Policy Adviser visited St Helena in late October/early November 2017 as part of the overall airport project and spent time visiting LEMP bases and rehabilitation sites. Positive comments were received on the LEMP activities undertaken so far. The LEMP Project Manager also accompanied the DFID Team Leader for the St Helena Airport Project on a site visit during a brief visit to the Island in January 2018.

The LEMP Logical Framework was updated and an overarching Project Plan developed to outline achievements and work completed to date along with targets and priorities for the remaining 3 years of the LEMP programme.

2.6. Other

The first major works on a LEMP compensatory site were completed in June 2017 at Peak Dale gumwood (*Commidendrum robustum*) forest. EMD, SNCG and LEMP worked together to fund a stock proof fence installed by a local contractor. The finished fence is 1.5km long and encloses just under 6 hectares. With livestock excluded from the area it is hoped that successful natural regeneration of the gumwoods will be encouraged (see Appendix 2, photo 2.2). LEMP attended a day organised by the SNCG to celebrate the installation of the fence and inputted to a workshop of stakeholders to develop a long-term management plan for the site.

A private sector contract, issued to a local business to install roofing on the LEMP containers at Horse Point Landfill site, was completed in March 2018.

In 2014 LEMP bought 10 Jora composter units with a capacity of 50-80 litres per week (400 litre volume) with the aim of establishing a community composting scheme. Units were distributed to individuals and organisations to manage in the community, with 50% of the resulting compost being provided free-of-charge to the LEMP as compost for growing medium for LEMP plants. Conceptually a good idea, a lack of resources to fully promote the scheme meant that community involvement was lower than expected. However, LEMP currently receive approximately two bags of compost per quarter per participant; some participants, who are conservation partners of LEMP retain 100% of the compost produced for their own projects, such as the EMD nursery.

3. Delivery

3.1. Staff

The year saw a more settled staffing period with considerably fewer staff movements during the year than in the previous 12 months. Three staff left the LEMP project and three new staff joined; in addition, two existing staff received promotions from Conservation worker to Field Supervisor following an internal recruitment process. During the year the long-term volunteer work placement offered by LEMP as part of the Occupational Therapy scheme also came to an end. A student from Prince Andrew School was offered an apprenticeship placement with LEMP, however, the student was successful in gaining full time employment elsewhere and chose not to continue with the apprenticeship (see Appendix 3 for the staff organogram for 2017/18).

The last three months of 2017/18 was an unsettled period for the LEMP team as the project was restructured to take account of the changing budget profile as the project reached targets and objectives and began to downscale. Two roles were already vacant due to in-year resignations and a further eleven members of staff left LEMP at the end of March 2018 as their fixed term contracts came to an end. Eleven members of staff have been offered new fixed term contracts and will continue with LEMP into 2018/19. The LEMP Project Manager and LEMP Ecologist will remain with the project for an additional 2-3 months to support the transition to the new delivery structure. The contribution of all previous and ongoing staff to the LEMP project is greatly valued and those leaving will be very much missed by their remaining team members.

Capacity building in staff is a key legacy of the LEMP project. During this year staff members engaged in thirteen formal training events, including manual handling, Emergency First

responder training, team management, communication and supervision skills, GIS, and Appraisal training, representing approximately 65 training days in total. In addition, staff engaged in three team development days where topics such as Health and Safety, using GPS to map sites and invertebrate identification were covered (see Appendix 2, photo 2.3). Three members of staff also engaged in longer term training programmes; NVQ level 2 in Conservation and PRINCE2 training. Both LEMP Team Leaders completed their ILM Level 3 Leadership and Management training and one of the LEMP Team Leaders was also successful in gaining a place on the SHG Future Leaders programme which she undertook one day per week alongside her full-time position in the LEMP team.

3.2. Infrastructure & Facilities

The only changes to the LEMP infrastructure and facilities during the year was the installation of roofing and rainwater storage on the two LEMP containers at Horse Point Landfill site. A local contractor was utilised to complete the works, which were a planning requirement for allowing the siting of the containers in this area.

3.3. Surveys

The LEMP Ecologist continued the process of biological monitoring which involves taking a baseline survey of marked plots, each with an area of 100m², and recording number of endemic plants and percentage cover of all plant species. Survival rate and changes in abundance of species can then be monitored as further biannual surveys are completed. By the end of 2017/18 the LEMP Ecologist had completed 87 baseline surveys across our rehabilitation and compensatory zones, and it is anticipated there will be approximately 130-140 monitoring plots in total. Ideally each plot will be surveyed at least once, preferably twice, a year representing a long-term monitoring programme which requires significant staff time to complete.

The LEMP teams also completed four rounds of quarterly monitoring; involving a thorough check of all completed rehabilitation sites to monitor fence condition, irrigation functionality, the condition of plants and to identify any other maintenance issues.

The LEMP Ecologist completed the third photographic survey for the project. This involved annual photographs of key LEMP sites taken from the same point to enable a review of progress year on year. This record has produced images over a three-year period which show real change and improvements across a range of areas impacted by construction activities.

The LEMP Ecologist also completed a trial using Terracottem and swell gel which are additives that aim to support plant establishment. The products are added to the soil when seedlings are planted into rehabilitation sites and work through increasing water retention in the surrounding soil and, in the case of Terracottem, by providing additional nutrients in the early stages of growth. Results of the trial were inconclusive in determining any significant improvement in plant growth when using the additives in comparison to a control group.

3.4. Practical Works

The Half Tree Hollow nursery successfully propagated and potted on over 44,000 plants throughout 2017-18; a number of plants from this year as well as plants produced in the previous year were lost due to pests, diseases and delays in planting but losses were significantly less than in the previous year. LEMP also received approximately 10,000 plants from the Trust and more than 11,000 from the EMD nursery at Scotland making this the highest number of plants produced for LEMP over a single year.

In 2017/18 LEMP rehabilitation works were completed in 19 sub plots across seven LEMP zones at Zone 3 – Rupert's to Pipe Ridge, Zone 6 and 7 – Coltsheds and Piccolo, Zone 9 - Bottom Woods, Zone 11 - Cook's Bridge and Zone 12 – Tungi Flats. Fencing was also completed at Peak Dale compensatory area, Zone 21.

In total almost 6km of fencing were used to enclose an area of approximately 15.5 hectares during this year. Approximately 2.8 hectares of land were laid with drip irrigation and planted using more than 36,000 plants. Survival rate of plants is estimated at above 70%¹ and within the rehabilitated areas the percentage of ground covered by endemic and native plants increased from 8% shortly after planting to 20% during follow up surveys, demonstrating good plant establishment and growth.

Real success has been seen in terms of natural regeneration of endemic plants both within rehabilitation plots and natural sites which have been fenced to exclude grazing. Seedlings from a number of native and endemic species have been seen across several LEMP sites including at Bottom Woods, the airport precinct (see Appendix 2, photo 2.4), Dry Gut and Pipe Ridge.

During a vegetation survey at LEMP sites at Bottom Woods a small population of endemic gumwood leafhoppers (*Sanctahelenia decellei*) was found amongst the planted gumwoods (see Appendix 2, photo 2.5). The leafhopper is a specialist species that is believed to feed mostly on gumwoods. The closest resident population is located approximately 350m away in large densities at the Millennium Forest. The discovery highlights the success of LEMP plantings in establishing suitable habitats and corridors for endemic species.

Works to sow native vegetation along the lengths of the airport access road from the top of Rupert's to Pipe Ridge (zone 3) took place in 2017/18, with more than a million seeds being sown across 8,800 square meters (see Appendix 2, photo 2.6). The purpose of these works is to introduce samphire (*Suaeda fruticosa*), fish-bone grass (*Eragrostis cilianensis*) and purslane (*Portulaca oleracea*) to LEMP sites otherwise practically devoid of native vegetation. This species mix doesn't contain St Helena's endemic plant species (just native or probably native species) and is likely to be more rabbit resistant in areas where fencing or other rabbit protection is not practical.

The LEMP team also spent two days working on a remote site with a natural population of scrubwoods at Flagstaff (see Appendix 2, photos 2.7 and 2.8). The team carefully cleared invasive vegetation directly impacting on the existing scrubwood plants. Further workdays on this site are planned for 2018/19.

3.5. Challenges

Weeds and invasive species

Dealing with invasive species is a growing challenge for LEMP. As more rehabilitation areas are completed the volume of ongoing maintenance, particularly regular weeding of sites, is increasing. Increased rainfall this year compared to the last year has also meant a greater

¹ Survival rate is calculated based on the number of endemic plants in the latest follow up survey as a percentage of the number of plants in the original baseline survey for all LEMP rehabilitation survey plots which have a baseline and at least one follow up survey (19 survey plots in total). The actual figure for all plots from when surveys began to November 2017 is 90% survival, however there is some error in this as it is based on number of endemic plants present and does not distinguish between original plants and any replacement or additional planting. With a margin for error of 20% built in this still represents good survival rates mainly due to the regular watering and maintenance of rehabilitation zones by LEMP staff.

abundance of weeds germinating. The LEMP teams also started compensatory works on sites where clearance of invasive species is a key task. While working on a number of sites within the Airport Development Area (ADA) LEMP staff continue to find areas where the newly introduced iceplant species (*Galenia papulosa*) imported in construction materials has germinated. When it is found, LEMP staff assist colleagues from EMD and Biosecurity with the removal and disposal of the plants.

Rabbits and other pests

Rabbit grazing continues to be an ongoing issue for conservation across St Helena and not just for LEMP. The majority of LEMP sites where planting takes place are fenced to exclude rabbits, but in some areas where fencing is not practical LEMP activities are limited. Over the year the LEMP project manager worked with colleagues in EMD and ANRD to investigate a range of options for rabbit control including drop traps, rabbit repellents and a trial using poison. A consultation run by SHG found public opinion was strongly not in favour of the latter option, so the poison trial did not go ahead. LEMP continues to investigate other options for control.

Nursery pests have also been an ongoing issue over the past few years and nursery staff continue to trial a range of options to deal with key pests such as caterpillars, white fly and mealy bug.

Erosion

Heavy rains during the year have often led to erosion channels being created in LEMP sites. This can result in valuable topsoil being washed away and can also create gaps under the fencing that allow rabbit incursion inside the planting areas. LEMP teams have been attempting to deal with erosion in a number of ways; erosion control fabric (see Appendix 2, photos 2.9 and 2.10) has been used as well as installing flax wattles to slow the flow of water. Thatching rush (*Ficinia nodosa*) has also proved very good at creating natural barriers to slow the flow of water, increase deposition of soil and reduce erosion.

Restructuring

Staff movements were greatly reduced this year compared to previous years with just three people leaving the project and three new starters over the course of the year. The staffing resource was affected quite significantly by a virus that affected a large proportion of St Helena's population from October 2017 to February 2018 both through direct illness and the need to care for dependents. In addition, the need to plan and deliver a restructured team from 1 April 2018 meant that the last few months of 2017/18 were a particularly unsettled time for the LEMP team. Despite this the work plan remained largely on schedule and targets were achieved due to the hard work and resilience of the whole LEMP team.

3.6. Public Relations/Communications

- Monthly highlight and progress reports were produced for partner stakeholders.
- The wider Airport Project held a Stakeholder Engagement Forum in January 2018; LEMP representatives were present to answer questions if required.
- Meetings and site visits were held with various stakeholders throughout the year to review LEMP progress and contribute to future plans, particularly regarding compensatory areas. A presentation was given to SHG Elected Members and senior management followed by a site visit to gather feedback on LEMP progress to date.
- A public meeting was held on 31 May 2017 for residents of Deadwood to comment on the plans for re-vegetating the berm between the resident's access road and the main airport access road.

 In January 2018 St Helena hosted an international conference on 'Diverse Island Environments'. The conference sessions, which spanned two weeks, were well attended and topics covered the environmental and social issues associated with life on a remote island. The LEMP Project Manager worked with colleagues from Basil Read to deliver a presentation on the 'lost and found' aspects of the airport project.

Updates on LEMP progress were also provided through local media, via newspaper articles or features in the AAO Airport Update Newsletter and ENRD newsletter. Further information can be found through the following links:

- Air Access website http://www.sainthelenaaccess.com/news/
- St Helena Independent newspaper <u>http://www.saint.fm/the-independent/</u>
- St Helena Sentinel newspaper http://www.sams.sh/L2_sentinel.html

4. Future Works

- 4.1. The overall project plan clearly lays out the remaining works to be completed as part of the LEMP project. 2018/19 and 2019/20 will focus on completing outstanding rehabilitation works and compensatory projects including Blue Point, Flagstaff, compensatory areas at Bottom Woods and activities in Rupert's valley. There will also need to be considerable time invested in maintaining existing planting areas.
- 4.2. The long term sustainability of LEMP sites is a major issue and partnership working over the next two to three years will be key in identifying who can play a role in supporting the longer term maintenance of rehabilitated and compensatory areas. Identification of funding to support building the legacy of LEMP will also be key.
- 4.3. The early part of the next year will be focused on ensuring a successful transition to a reduced team structure and reviewing options for divesting delivery of the LEMP to the voluntary sector. As rehabilitation areas are completed the need for plant propagation reduces and works at the Half Tree Hollow nursery will begin to scale down. We will also be looking to reduce watering, and in some cases maintenance, at some of our older sites as they become more established.
- 4.4. It is also anticipated that during the early part of 2018/19 delivery of the LEMP Project will be divested to the National Trust until the conclusion of the project in March 2021.

5. Conclusion

- 5.1. This year has been a very productive year for LEMP with considerable practical rehabilitation works on the ground being achieved. Construction is complete in many areas and Basil Read have completed the necessary ground works to enable the LEMP team to progress rehabilitation works. The LEMP team has been close to full capacity for the majority of the year and have built on all the planning and preparation of previous years to achieve significant forward progress.
- 5.2. Strong partnership working has also resulted in agreed priorities and actions for the remaining LEMP compensatory sites. Key compensatory projects were completed at Millennium Forest and Peak Dale, and further works started for Blue Point and Flagstaff, with works at Central Basin agreed.
- 5.3. As some of the early LEMP rehabilitation plots become established it is gratifying to see early signs of natural regeneration and colonisation by endemic fauna.

Acronyms and abbreviations

AAO	Air Access Office (SHG)
AECOM	UK based environmental consultants (contracted LEMP project partner)
BR	Basil Read (Airport Project DBO contractor)
DBO	Design Build Operate (Contract)
DfID	Department for International Development (UK) (project funder)
EMD	Environmental Management Division (SHG)
ENRD	Environmental & Natural Resources Directorate (SHG)
HTH	Half Tree Hollow (Island District)
LEMP	Landscape & Ecology Mitigation Programme
LDD	Landscape Detailed Designs
NGO	Non-Governmental Organisation
PMU	Project Management Unit
SHG	St Helena Government
SNCG	St Helena Nature Conservation Group
The Trust	St Helena National Trust (Island NGO)

Appendix 1 – Key LEMP achievements: Apr 2017 - Mar 2018

Achievement	Details	Date	Delivered by
Plants grown and seed collected	 44,465 plants were grown at Half Tree Hollow nursery 11,845 plants were grown for LEMP at the EMD nursery at Scotland and planted into LEMP rehabilitation sites and seed orchards 10,328 plants were supplied to LEMP from private nurseries 	April 2017 to March 2018	EMD / LEMP
Site preparations	 Preparations Ground preparation works were signed off for two LEMP specifications, including works and Dry Gut terraces and the sea rescue facility planting beds. 		Basil Read
LEMP compensatory works	The first major pieces of compensatory works were completed at Peak Dale and the Millennium Forest.	June 2017 and February 2018	LEMP / EMD / SNCG Private contractor/SHNT
LEMP rehabilitation plots	LEMP rehabilitation works were completed in 19 subplots across seven zones. Compensatory works were completed at Peak Dale, Zone 21 (see table below).	April 2017 to March 2018	LEMP

Zone	Subplot	Name of area	Works	Fence length (m)	Area (m²)	Irrigated area (m ²)	No. plants	No. direct sown
1	1.24, 1.25	Sea Rescue beds	Fenced, irrigated and planted	NA	133	133	274 from 3 species	NA
3	All	Road verge from top of Rupert's to Pipe Ridge	Sown with samphire and fishbone grass	NA	8,829	NA	NA	176,541 from 2 species
6	6.10	Coltsheds lower	Fenced, irrigated and planted	69	232	232	410 from 2 species	NA
7	7.1, 7.2, 7.5	Coltsheds / Piccolo	Fenced, irrigated and planted (and cleared at Piccolo)	390	2,785	2,785	2,952 from 4 species	NA
9	9.1E, 9.1F	Bottom Woods	Fenced, irrigated and planted	734	19,195	6,914	5,110 from 6 species	
9	9.2, 9.3, 9.4	Millennium Forest*	Fenced, irrigated and planted by the National Trust	2,058	62,961	7,182	10,431 from 4 species	NA
11	11.1, 11.3, 11.5, 11.6, 11.8	Cook's Bridge	Fenced, irrigated and planted. Erosion control fabric installed in some areas.	805	4,179	4,179	5,892 from 9 species	NA
12	12.10, 12.12B	Tungi Flats / Site Compound	Fenced irrigated and planted.	370	6,579	6,579	3,329 from 7 species	NA
21	All	Peak Dale*	Fenced to protect a natural population of scrubwoods. Fenced: private contractor, planted: SNCG/EMD	1,562	58,734	NA	4,100 from 1 species	NA
Totals			5,988	163,627	28,004	32,498	176,541	
Additional plants in other LEMP sites (seed orchards etc.)						4,123		
Total planted 2017/18						36,621		

* Part or all compensatory works

Appendix 2 – Photographic Review: April 2017 - March 2018



2.1 Installation of fencing at Blue Point, March 2018



2.Newly installed fence at Peak Dale, June 2017



2.3 LEMP Team photo, Team Day July 17



2.4 Airport terminal beds, natural regeneration of ebony seedlings, Oct 17



2.5 Endemic gumwood leafhopper (Sanctahelenia decellei) on planted gumwoods at Bottom Woods



2.6 LEMP ecologist mixing plant seed and sand for sowing, Sept 17

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2.7 Invasive species clearance at Flagstaff, Dec 17



2.8 Flagstaff scrubwoods



2.9 and 2.10 Trialling erosion control fabric at Cooks Bridge (before and after), July 17

Appendix 3 – LEMP Organogram: March 2017-2018 (in-house)

