ECOHAVEN

BAR LE DUC CRATER

Ecological Restoration Plan

A framework for native forest recovery, invasive alien plant control, assisted natural regeneration and long-term ecological resilience

RESTORATION PHILOSOPHY

Protect → Release → Regenerate → Enrich → Monitor

Prepared for the EcoHaven biodiversity restoration programme
Bar Le Duc, Mauritius | 2026

Executive Summary

Bar Le Duc Crater contains an ecologically important remnant of Mauritius' native forest, including indigenous and endemic trees, shrubs, orchids, ferns, filmy ferns and mosses. Its ecological integrity is, however, increasingly constrained by invasive alien vegetation and associated changes to forest structure, regeneration and microclimate.

This plan translates the biodiversity survey recommendations into an operational ecological restoration framework. The principal strategy is not conventional reforestation. It is the progressive recovery of a functioning native ecosystem through protection of existing native vegetation, strategic invasive alien plant control, assisted natural regeneration, selective enrichment planting and long-term monitoring.

CORE PRINCIPLE

Natural regeneration is the preferred recovery pathway. Nursery-grown plants are used strategically where ecological recovery is insufficient, for population reinforcement, or where a scientifically justified reintroduction is required.

Restoration interventions will be spatially targeted and phased to protect rare plants and mature native trees first, while avoiding sudden canopy opening that could expose moisture-dependent understorey species to physiological and hydric stress. Plant provenance, habitat suitability and the ecological distinctiveness of the crater rim, slopes and bottom will guide any enrichment or reintroduction.

Expected ecological direction

- Reduced dominance and reinvasion of invasive alien plants.
- Improved survival, flowering, fruiting and recruitment of native vegetation.
- Protection and recovery of rare and locally vulnerable native plant populations.
- Greater structural complexity, ecological connectivity and habitat quality.
- An increasingly self-sustaining native forest requiring progressively less intensive intervention.

Plan Structure

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1. Introduction and Scope

1.1 Project Background

EcoHaven is an ecological restoration initiative designed to strengthen the conservation of native biodiversity within the Moka landscape. Bar Le Duc Crater is one of the project's priority restoration sites because it retains significant native vegetation while simultaneously experiencing substantial pressure from invasive alien plants.

1.2 Purpose of the Plan

This Restoration Plan establishes the ecological and operational framework for restoring the native forest ecosystem of Bar Le Duc. It translates the findings of the biodiversity and ecological surveys into a phased programme of conservation management, invasive alien plant control, assisted natural regeneration, enrichment planting and long-term ecological monitoring.

1.3 Scope

- Existing native vegetation and priority species protection.
- Invasive alien plant management and maintenance.
- Natural and assisted natural regeneration.
- Selective enrichment planting and justified reintroduction.
- Nursery production, provenance and planting-ready standards.
- Monitoring, adaptive management, stakeholder participation and knowledge transfer.

2. Site Description and Ecological Baseline

2.1 Ecological Significance

Bar Le Duc represents a critical biodiversity site containing rare endemic plants, native orchids, ferns and moisture-dependent vegetation. The presence of mosses, filmy ferns and orchids reflects the persistence of high-quality forest microhabitats ranging from sub-humid to humid conditions.

2.2 Vegetation Communities and Environmental Heterogeneity

Restoration planning shall recognise differences between the crater rim, slopes, crater bottom and the vegetation communities identified by the survey. Species distributions should not be homogenised across the crater: the absence of a species from a particular zone may reflect genuine ecological limitations such as moisture, exposure, soil or topography.

2.3 Principal Threats

Threat	Ecological consequence	Priority
Invasive alien plants	Competition, suppression of regeneration and altered forest structure	Very High
Invasive climbers	Canopy suppression, breakage and mortality of native trees	Very High
Sudden canopy opening	Microclimatic drying and physiological stress	High

Threat	Ecological consequence	Priority
Introduced mammals	Trampling, rooting and seedling disturbance	High
Limited seed dispersal	Reduced recruitment of some native species	Medium
Small rare populations	Risk of local extinction	High

3. Restoration Vision, Goals and Objectives

VISION

To progressively restore Bar Le Duc as a resilient, self-sustaining native forest ecosystem in which indigenous and endemic vegetation can regenerate naturally, ecological interactions are maintained or recovered, and invasive alien species are reduced to levels compatible with long-term conservation.

3.1 Overall Goal

Protect and enhance the ecological integrity, native biodiversity and long-term resilience of the remnant forest ecosystem of Bar Le Duc.

3.2 Specific Objectives

- Protect existing mature, rare and ecologically important native vegetation.
- Progressively reduce invasive alien plant pressure without causing unacceptable disturbance to native forest microclimates.
- Promote natural and assisted natural regeneration as the principal mechanisms of forest recovery.
- Reinforce depleted native populations through ecologically appropriate enrichment planting where necessary.
- Restore ecological structure, connectivity and plant-fauna interactions.
- Establish measurable indicators and an adaptive management process.

4. Reference Ecosystem and Restoration Targets

The reference condition for Bar Le Duc should be derived primarily from the best surviving native vegetation within the crater, supplemented by the biodiversity survey, historical botanical records and ecologically comparable native forest. The purpose is to recover ecological composition, structure and function rather than create a uniform plantation.

Attribute	Current direction	Restoration target
Native species diversity	Remnant but significant	Maintain and increase
Invasive plant cover	High	Progressive sustained reduction
Natural regeneration	Localised	Increase recruitment and survival
Native canopy structure	Fragmented/degraded	Strengthen continuity and complexity
Rare species populations	Some very small	Stabilise and increase
Ecological connectivity	Fragmented	Improve through recovery and enrichment

5. Restoration Strategy

5.1 Protection of Existing Native Vegetation

The restoration hierarchy begins with the native biodiversity already present. Rare native species and mature native trees will receive priority because they are difficult to replace and provide disproportionately important functions including canopy structure, microclimate regulation, epiphyte habitat, flowers, fruits and resources for seed-dispersing fauna.

OPERATIONAL PRIORITY

Rare species → Mature native trees → Native vegetation clusters → Natural regeneration → Degraded areas

5.2 Progressive Invasive Alien Plant Control

Invasive alien plant control is the principal active management intervention. Control shall be spatially targeted, species-specific and gradual in sensitive areas. Sudden complete removal around small native plants, orchids, filmy ferns and other humidity-dependent organisms shall be avoided where it would create abrupt increases in light, temperature, wind exposure and evapotranspiration.

5.3 Timing and Species Prioritisation

- Prioritise major control during wetter periods where practicable to reduce hydric stress.
- Treat priority invasive species before fruit maturation and seed dispersal where feasible.
- Eradicate rare but highly invasive species early, before their populations expand.
- Control fast-reproducing understorey weeds that could rapidly occupy newly opened ground.
- Assess large invasive trees for standing treatment where gradual canopy transition is ecologically preferable.

5.4 Faunal and Structural Considerations

Where invasive plants temporarily provide shelter, breeding sites or structural habitat for native fauna, removal should be phased and linked to the establishment or protection of suitable native replacement vegetation. Rubus alceifolius should be assessed in relation to effective biological control by Cibdela janthina rather than automatically subjected to indiscriminate removal.

6. Assisted Natural Regeneration

Natural regeneration is the preferred recovery pathway. Following invasive control, restored areas should be given time to respond before enrichment planting is prescribed. Native seedlings emerging from the seed bank or arriving through natural dispersal should be identified, protected and released from competition.

ANR SEQUENCE

Identify → Mark → Protect → Release from competition → Maintain → Monitor

6.1 Assisted Seed Dissemination

Where seed dispersal is demonstrably limiting, ripe fruits or seeds from ecologically appropriate native plants may be redistributed to suitable microsites. Local source material should be prioritised, and seed movement between ecologically distinct crater zones should be conservative.

7. Active Restoration and Enrichment Planting

Planting is a complementary intervention and should not be applied uniformly. Three distinct actions must be recognised:

Action	Purpose	Decision basis
Enrichment planting	Add missing or under-represented native structure/species	Natural regeneration insufficient
Population reinforcement	Increase numbers of an existing small population	Conservation need and suitable habitat
Reintroduction	Return a species believed to have become locally extinct	Historical evidence + further survey + suitable provenance

SPECIES-SELECTION RULE

No species should be introduced into a restoration zone solely because it is indigenous or endemic to Mauritius. Historical occurrence, habitat suitability, existing community composition and provenance must guide selection.

8. Plant Material and Nursery Production

8.1 Provenance

Wherever feasible, propagation material intended for Bar Le Duc should originate from Bar Le Duc itself. If this is not possible, the nearest ecologically appropriate population should be considered, supported by scientific justification.

8.2 Nursery Records

- Mother plant identity and GPS reference.
- Collection date and phenological stage.
- Seed/propagule quantity and batch number.
- Propagation method and germination date.
- Nursery losses and treatments.
- Destination restoration zone.

8.3 Planting-Ready Standard

Planting readiness should be based on plant quality rather than height alone. Stock should have a healthy root collar, well-developed non-circling roots, a coherent root plug, healthy hardened foliage, appropriate shoot-to-root balance and freedom from significant pests and disease.

9. Restoration Zoning and Intervention Map

A GIS-based intervention map should divide the crater into operational management units based on native vegetation value, invasive pressure, topography, moisture, accessibility and restoration need.

Indicative zone	Ecological condition	Primary intervention
Zone A	High-value native forest	Protection; minimal intervention; targeted maintenance

Indicative zone	Ecological condition	Primary intervention
Zone B	Native forest under severe invasive pressure	Progressive IAS control + assisted regeneration
Zone C	Degraded mixed vegetation	IAS control + regeneration assessment + enrichment
Zone D	Highly degraded vegetation	More active restoration where justified
Zone E	Crater-bottom hydrological zone	Monitoring; specialised management if wetland develops

10. Implementation Programme

Phase	Main activity	Timing / trigger
1. Baseline	GIS mapping, zoning, tagging, monitoring points	Before major intervention
2. Ecological rescue	Rare species and mature native trees	Initial priority
3. IAS control	Progressive targeted control	Preferably wetter periods
4. Recovery	Natural regeneration observation and maintenance	Following control
5. Assisted recovery	Seed dissemination and selective enrichment	Where recovery is insufficient
6. Consolidation	Maintenance, monitoring and adaptive management	Long-term

11. Monitoring, Evaluation and Adaptive Management

Restoration success shall be assessed through ecological recovery rather than planting numbers alone. Monitoring should use repeatable indicators and fixed locations wherever possible.

Indicator	Desired direction	Method	Frequency
Native plant richness	Increase / maintain	Permanent plots	Annual
Native seedling density	Increase	Quadrats / regeneration plots	6–12 monthly
Invasive plant cover	Decrease	Vegetation plots / photo points	6 monthly
Priority-tree survival	Stable / increase	Tagged individuals	6 monthly
Planted-stock survival	Meet project target	GPS / sample plots	3, 6, 12 months

Indicator	Desired direction	Method	Frequency
Flowering and fruiting	Increase	Phenology monitoring	Seasonal
Canopy structure	Progressive recovery	Fixed photography / GIS	Annual
Rare-species recruitment	Increase	Tagged populations	Annual

11.1 Adaptive Management

Monitoring observation	Management response
Strong natural regeneration	Protect regeneration; reduce unnecessary planting
Poor native recruitment	Identify limiting factor before planting
High invasive regrowth	Increase maintenance frequency
Understorey drying	Reduce rate of canopy opening
Low planted-stock survival	Review species-site match, stock quality and planting method
Rare species recruits naturally	Establish focused protection around recruitment
Introduced-mammal disturbance increases	Strengthen exclusion/protection measures

12. Biosecurity and Operational Controls

- Tag and brief teams on native plants before each weeding operation.
- Use designated access routes to minimise trampling and accidental damage.
- Clean tools and equipment where required to avoid movement of invasive propagules.
- Protect orchids, ferns, epiphytes and sensitive microsites during operations.
- Apply approved invasive-species and herbicide protocols with trained supervision.
- Maintain clear intervention and monitoring records.

13. Stakeholder Participation and Knowledge Transfer

Restoration should combine technical implementation with capacity building and public awareness. Participation by project partners, employees, volunteers, academic collaborators and community groups can strengthen long-term stewardship when activities are appropriately supervised.

13.1 Knowledge Products

- Practical native and endemic plant identification guide.
- Species propagation protocols and nursery records.
- Phenology and seed-collection information.
- Field restoration training and demonstrations.
- Educational and community biodiversity activities.
- Documentation and dissemination of restoration results.

14. Risks and Mitigation

Risk	Potential consequence	Mitigation
Excessive weed removal	Microclimatic shock	Progressive canopy opening
Heavy invasive regrowth	Loss of restoration gains	Scheduled maintenance
Drought after planting	Plant mortality	Plant during suitable wet conditions
Poor species-site matching	Low establishment	Use zoning, habitat evidence and provenance
Root-bound nursery stock	Poor establishment	Apply planting-ready quality standard
Introduced-mammal disturbance	Seedling loss	Fencing / protection where necessary
Accidental damage during weeding	Native plant mortality	Pre-tagging, training and supervision
Insufficient follow-up	Rapid reinvasion	Multi-year maintenance commitment

15. Restoration Progress and Achievements

Implementation of the Bar Le Duc ecological restoration programme has progressed from baseline assessment and planning to active site protection, invasive alien vegetation management and indigenous plant establishment. The achievements recorded to date demonstrate substantial progress towards the restoration objectives established for the crater.

The interventions remain consistent with the ecological restoration approach adopted for Bar Le Duc: protect existing native vegetation, progressively control invasive alien vegetation, encourage natural regeneration, and use strategic indigenous planting to reinforce ecological recovery where necessary.

15.1 Site Securing and Protection

The Bar Le Duc restoration site has been successfully fenced, securing a total area of approximately 22,705 m^2. The fencing provides an important physical protection measure for the restoration site, particularly by reducing access by deer and limiting disturbance to naturally regenerating vegetation and newly transplanted indigenous plants.

Achievement: 22,705 m^2 secured by fencing.

15.2 Indigenous Plants Transplanted

A total of 3,237 indigenous plants representing six species have been transplanted at Bar Le Duc. Based on the latest monitoring figures provided, 2,953 plants are recorded as surviving, corresponding to an overall recorded survival rate of approximately 91.2%. Continued monitoring remains necessary to assess establishment through time and to guide adaptive management.

Date	Family	Plant Name	Quantity Planted	Quantity Survived	Location	Accession Number	Survival Rate (%)
21/02/2026	Pittosporaceae	Pittosporum senacia	57	57	Bar Le Duc	MDA.25.110	100.0
15/04/2026	Phormiaceae	Dianella ensifolia	1,000	1,000	Bar Le Duc	MDA.25.167	100.0

Date	Family	Plant Name	Quantity Planted	Quantity Survived	Location	Accession Number	Survival Rate (%)
23/04/2026	Nephrolepidaceae	Nephrolepis cordifolia	1,000	899	Bar Le Duc	MDA.26.183	89.9
29/04/2026	Euphorbiaceae	Acalypha integrifolia	675	652	Bar Le Duc	MDA.25.116	96.6
05/05/2026	Erythroxylaceae	Erythroxylum macrocarpum	500	340	Bar Le Duc	MDA.25.85	68.0
28/07/2025	Phyllanthaceae	Phyllanthus phillyreifolius	5	5	Bar Le Duc	MDA.26.214	100.0
TOTAL		**6 species**	**3,237**	**2,953**			**91.2**

15.3 Indigenous Species Identified

The final August 2025 flora and fauna survey provides a consolidated botanical baseline for the crater. Its appendices list 65 native/indigenous flowering plant taxa and 32 fern taxa, alongside the exotic flora inventory. These records now provide the formal species baseline for restoration planning, monitoring and nursery prioritisation.

Achievement: 65 native/indigenous flowering plant taxa and 32 fern taxa are listed in the final survey appendices.

15.4 Planted Forest Area

Active restoration planting has been undertaken across several targeted zones within the crater. The cumulative area currently recorded as planted is approximately 3,748 m^2. The planted zones are distributed within the restoration site rather than established as one continuous plantation block, reflecting the plan's targeted enrichment approach and the need to respect existing native vegetation and habitat conditions.

Achievement: 3,748 m^2 planted.



Figure 1. Planted areas within Bar Le Duc Crater. Green-hatched polygons represent areas where indigenous planting has been undertaken within the fenced restoration perimeter.

15.5 Forest Area Cleared and Under Restoration Management

Progressive invasive alien vegetation control has been undertaken across approximately 14,689 m^2 of the Bar Le Duc Crater. This represents a major operational achievement because invasive alien plant control is the principal active management intervention of the restoration strategy. The term "cleared" refers to areas brought under invasive alien vegetation management and should not be interpreted as complete removal of all vegetation. Management remains progressive and spatially targeted to avoid sudden canopy opening and associated microclimatic stress.

Achievement: 14,689 m^2 under invasive alien vegetation clearing/restoration management.

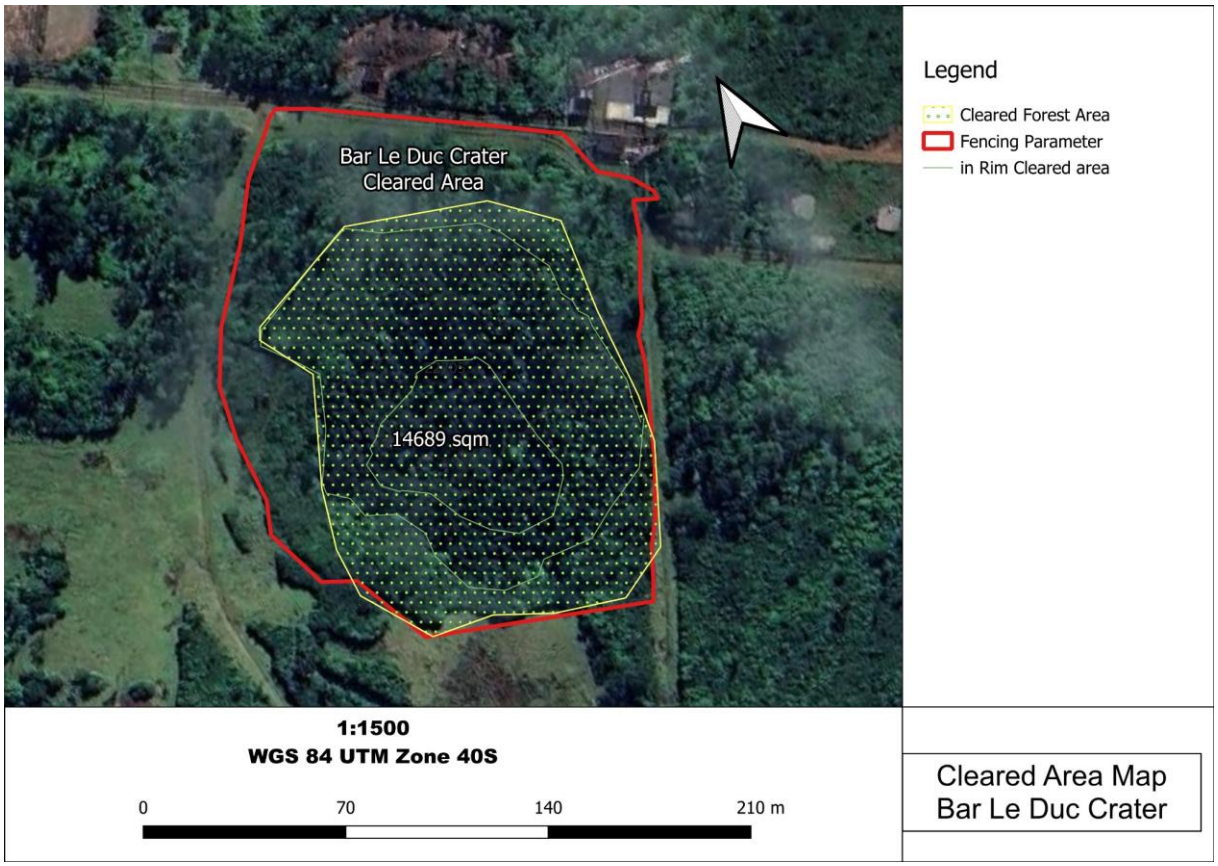


Figure 2. Cleared forest area within Bar Le Duc Crater. The mapped area represents approximately 14,689 m^2 subjected to invasive alien vegetation management within the fenced restoration perimeter.

15.6 Summary of Achievements

Restoration Indicator	Achievement to Date
Area secured by fencing	22,705 m^2
Forest area cleared / under invasive control	14,689 m^2
Planted restoration area	3,748 m^2
Indigenous plants transplanted	3,237 plants
Plants currently recorded as surviving	2,953 plants
Overall recorded survival rate	91.2%
Species transplanted	6 species

Restoration Indicator	Achievement to Date
Indigenous species identified through survey	To be confirmed from final Bar Le Duc survey inventory

15.7 Interpretation of Progress

The results demonstrate that restoration at Bar Le Duc has moved beyond the preparatory phase into active ecological restoration and management. Site protection has been established through fencing, a substantial portion of the crater has entered invasive alien vegetation management, and targeted indigenous planting has begun within selected restoration zones.

Restoration success should nevertheless not be evaluated solely through the number of plants planted or the surface area cleared. The longer-term objective remains the recovery of a functioning native forest ecosystem characterised by increased natural regeneration, reduced invasive dominance, improved survival of indigenous vegetation, recovery of rare species populations and increasing ecological resilience.

16. Expected Outcomes and Long-Term Management

16.1 Outputs

- Area brought under invasive alien plant management.
- Priority native plants mapped and protected.
- Native propagation material collected and recorded.
- Plants propagated and selectively introduced where justified.
- Monitoring plots and fixed photographic points established.
- Restoration and propagation knowledge documented and transferred.

16.2 Ecological Outcomes

- Reduced invasive dominance and reinvasion pressure.
- Greater native recruitment and survival.
- Improved condition of threatened and rare plant populations.
- Increasing native canopy continuity and structural complexity.
- Improved flowering, fruiting and seed-dispersal processes.
- Progressively more self-sustaining native forest regeneration.

16.3 Long-Term Management and Exit Strategy

The end of the funded restoration period should not represent the end of ecological management. Responsibility for maintenance, invasive-species surveillance, monitoring data, nursery support and future intervention thresholds should be assigned before project closure. Intervention intensity may be reduced only where monitoring demonstrates that native regeneration and forest structure are sufficiently resilient to maintain restoration gains.

17. Conclusion

Bar Le Duc should be restored as an ecosystem, not treated as a conventional planting site. The first responsibility is to protect and strengthen the native forest that survives. Strategic and progressive invasive alien plant control should create the conditions for natural recovery while preserving the humid microclimates required by sensitive flora and associated fauna.

Natural and assisted natural regeneration should form the principal recovery pathway, complemented by local-provenance propagation, selective enrichment and carefully justified reintroduction. Through long-term monitoring and adaptive management, Bar Le Duc can progressively recover towards a more diverse, resilient and self-sustaining native forest ecosystem.

18. References and Appendices

18.1 Core Reference Framework

- Bar Le Duc biodiversity and ecological survey and associated management recommendations.
- IUCN ecological restoration guidance and protected-area restoration principles.
- FAO guidance on forest restoration and assisted natural regeneration.
- Mauritius national forestry and invasive alien species policy/guidance.

18.2 Recommended Appendices

Appendix	Content
A	Complete flora inventory
B	Threatened and priority species
C	Invasive alien species list and control priorities
D	GIS restoration zoning and intervention map
E	GPS coordinates of priority native plants
F	Nursery propagation and provenance register
G	Restoration species matrix
H	Monitoring field forms and indicator protocols
I	Photographic baseline
J	Annual operational work programme

18.3 Survey-Based Restoration Appendices

The following appendices have been populated from the final Bar Le Duc Flora and Fauna Survey (August 2025). They convert the survey findings into operational restoration reference tools. Where the survey does not provide a required operational dataset, the appendix is clearly identified as a register to be completed from project field or nursery records rather than inferred.

Appendix A - Complete Flora Inventory

The final survey records three complementary flora inventories: exotic plants, native/indigenous flowering plants, and ferns. These inventories should be maintained as the project baseline and updated only through verified botanical records.

Inventory component	Survey baseline	Restoration use
Exotic flora	51 exotic plant taxa listed in Survey Appendix 1	Invasive-control planning and reinvasion monitoring
Native/indigenous flowering flora	65 taxa listed in Survey Appendix 2	Reference ecosystem, protection, propagation and enrichment

Ferns	32 taxa listed in Survey Appendix 3	Microhabitat protection, humidity-sensitive monitoring and enrichment

The complete species-by-species inventory remains traceable to Appendices 1-3 of the final survey. The native inventory includes trees, shrubs, herbs, climbers and orchids, while the fern inventory includes terrestrial, epiphytic and tree-fern taxa.

Appendix B - Threatened and Priority Species

Priority species	Survey status	Restoration priority
Cordyline mauritiana	CR	Largest and healthiest population reported at Bar Le Duc; protect in situ; seed collection and nursery propagation.
Roussea simplex	CR	Immediate in-situ protection; avoid canopy/microclimate disturbance around occurrences.
Dracaena floribunda	CR	Protect existing plants; propagate ex situ and reinforce suitable habitat.
Elaeocarpus integrifolius	CR	Protect remnant habitat; propagation and reintroduction/enrichment where suitable.
Ocotea mascarena	CR	Protect remnant trees; control competition; nursery propagation and enrichment.
Macaranga anomala	CR	Use as a restoration/pioneer species where ecologically appropriate; monitor populations.
Ixora vaughanii	CR	Protect humid shaded understory habitat; targeted monitoring.
Erythroxylum macrocarpum	CR	Protect mapped individuals and use local provenance for reinforcement.
Eugenia pyxidata	CR	Priority understory species for protection and enrichment.
Bulbophyllum eliotii	EN	Protect host trees and stable humid microhabitat; specialist ex-situ propagation only.
Calanthe candida	EN	Protect terrestrial orchid microsites and avoid trampling/canopy shock.
Pilea pollicaris	CR	Protect known occurrences; monitor recruitment.
Pseudocyclosorus pulcher	CR	Priority fern; conserve humid understory habitat.

Note: conservation categories above reproduce the final survey terminology. Any future formal reporting should verify current national/IUCN status where required.

Appendix C - Invasive Alien Species List and Control Priorities

Species / group	Control priority	Operational direction
Ligustrum robustum (Privet)	Very High	Dominant invasive canopy; progressive/targeted control, avoid sudden canopy opening.

Litsea monopetala (Yati)	Very High	Dominant invasive canopy; progressive control and follow-up regeneration monitoring.
Psidium cattleyanum (Goyave de Chine)	Very High	Dense understory competitor; staged removal and follow-up control.
Rubus rosifolius / Rubus spp.	Very High	Dense understory/climber pressure; remove before spread and monitor regrowth.
Mikania micrantha	Very High	Fast invasive climber; early removal before expansion/seed production.
Leucaena leucocephala	High	Highly invasive woody species; prevent recruitment and remove progressively.
Lantana camara	High	Highly invasive shrub; targeted removal and follow-up.
Hedychium coronarium	High	Highly invasive herb; contain patches and prevent vegetative spread.
Other species listed as Highly invasive in Survey Appendix 1	High	Prioritise according to local abundance, reproductive stage and proximity to native cores.
Other exotic/ornamental/eligible species	Moderate / site-specific	Control where they threaten restoration objectives or facilitate reinvasion.

Timing: conduct weeding under adequate soil-moisture conditions where practicable, target invasive plants before seed maturation, integrate clearing with restoration planting, and monitor regrowth after each intervention.

Appendix D - GIS Restoration Zoning and Intervention Map

The final survey divides the crater into four vegetation-quality grades and maps transects, native-plant GPS observations and rare-plant locations. These layers should be combined with the project fencing, cleared-area and planted-area layers already presented in this plan.

Survey zone	Ecological interpretation	Restoration intervention
Grade 1	≥70% indigenous vegetation; high-quality native core	Strict protection; minimal disturbance; targeted invasive control only.
Grade 2	50-70% indigenous cover; fragmented but recoverable	High-priority protection + progressive invasive control + assisted natural regeneration.
Grade 3	20-50% indigenous cover; severely degraded	Invasive control + regeneration assessment + enrichment planting.
Grade 4	<20% indigenous vegetation; exotic-dominated	Long-term rehabilitation and more extensive native replanting.

GIS deliverable: maintain a single operational project geodatabase containing vegetation grades, rare/native plant points, permanent transects, fencing, access routes, intervention polygons, planted polygons and monitoring points, all using the project coordinate reference system.

Appendix E - GPS Coordinates of Priority Native Plants

The survey confirms that transects, key landmarks and individual plant occurrences were recorded by GPS using WGS 84, with a target accuracy of 3 m or better, and Figure 11 maps rare-plant positions

Species	Plant / tag ID	Latitude / Northing	Longitude / Easting	Accuracy	Protection / monitoring note
To be imported from survey GPS dataset					

Appendix F - Nursery Propagation and Provenance Register

The survey recommends nursery propagation of priority native species, including Cordyline mauritiana, Dracaena floribunda and specialist epiphytes such as Bulbophyllum eliotii. The restoration plan requires local Bar Le Duc provenance wherever feasible. Operational project record to be completed from nursery data.

Accession / batch	Species	Mother plant / GPS source	Collection date	Propagule type	Propagation method	Qty	Destination zone

Appendix G - Restoration Species Matrix

Species / group	Functional layer	Indicative zone	Restoration role	Decision note
Labourdonnaisia glauca	Canopy tree	Grades 2-3	Enrichment / structural recovery	Survey identifies as canopy example for reintroduction.
Eugenia pyxidata	Understory tree/shrub	Grades 2-3	Enrichment	Survey identifies as understory example.
Cordyline mauritiana	Shrub/small tree	Grades 1-3 suitable humid sites	Protection + reinforcement	Major Bar Le Duc conservation priority.
Dracaena floribunda	Small tree/large shrub	Grades 2-3	Reinforcement / enrichment	Priority native species for propagation.
Erythroxylum macrocarpum	Understory tree/shrub	Grades 2-3	Enrichment / reinforcement	CR in survey appendix; already used in project planting.
Pittosporum senacia	Tree/shrub	Grades 2-3	Enrichment	Already established in project planting.
Dianella ensifolia	Ground/understory	Grades 2-4	Ground-layer recovery	Already established; useful structural layer.
Nephrolepis cordifolia	Fern / ground layer	Humid Grades 2-4	Ground cover / erosion and microhabitat	Already established; monitor ecological suitability by microsite.
Acalypha integrifolia	Shrub	Grades 2-4	Enrichment / cover	Already established in project planting.

Bulbophyllum eliotii	Epiphytic orchid	Protected humid native core only	Conservation / specialist reinforcement	Do not use as routine planting; protect host trees and microclimate.
Calanthe candida	Terrestrial orchid	Shaded humid microsites	Conservation / habitat protection	Protect existing populations; specialist reinforcement only.
Native ferns incl. Angiopteris madagascariensis, Ptisana fraxinea, Ochropteris pallens	Ground/understory	Humid shaded microsites	Microhabitat enrichment	Use only where moisture/light conditions match species requirements.

Species selection remains site-specific: planting should follow vegetation grade, microclimate, historical/native occurrence, provenance availability and evidence that natural regeneration alone is insufficient.