

Flora and Vegetation Assessment Acker Quarry (MCI 70/2), Christmas Island

Prepared for: Acker Pty Ltd

Prepared by: Christmas Island Environmental Services

Date: July 2025

Flora and Vegetation Assessment: Acker Quarry (MCI 70/2)

June 2025 Survey Report

Executive Summary

In June 2025, a flora and vegetation survey was conducted by Christmas Island Environmental Services within Mining Lease MCI 70/2, Christmas Island. This survey was undertaken to support an application for a clearing permit under the Environmental Protection Act 1986 (WA) (CI) for future quarry expansion by Acker Pty Ltd. The survey identified a total of 36 flora species, of which 21 were native (including two endemics: *Arenga listeri* and *Grewia insularis*) and 15 were introduced weed species. Estimates of foliage cover indicated that weed species dominated seven of the ten waypoints. Only three sites were assessed as being in Good condition, with the remainder classified as Completely Degraded.



1. Introduction

1.1 Background and Purpose

Acker Pty Ltd commissioned a Level 1 flora and vegetation survey within MCI 70/2 to inform clearing permit requirements for quarry expansion. The quarry site is located on Christmas Island's eastern terrace near the existing limestone extraction area. The 2025 survey builds upon previous assessments, updating vegetation conditions following intense seasonal rainfall and localised weed proliferation.

2. Existing Environment

2.1 Location and Land Use

The survey area lies within Lot 3039 on Christmas Island, adjacent to active industrial operations and infrastructure depots. Land use is primarily industrial with historical clearing and stockpiling.

2.2 Climate

The island has a tropical monsoonal climate with distinct wet (Dec–Apr) and dry (May–Nov) seasons. Early 2025 conditions were unusually wet, with lingering soil moisture contributing to increased weed growth.

2.3 Geological and Physiographic Context

2.3.1 Geology and Soils

The area is underlain by limestone terraces with phosphate-rich soils and exposed pinnacles. Soil profiles are shallow, and red crabs influence organic turnover.

2.3.2 Landforms and Topography

Surveyed waypoints ranged from relatively flat terrace land to moderate slopes (5–10%).

2.3.3 Hydrogeology and Hydrology

Surface runoff is rare. Infiltration dominates due to the karstic limestone substrate.

2.4 Vegetation

Vegetation classification was informed by site inspection and cross-referenced with the GeoScience Australia (2014) Christmas Island Vegetation Map. Only two vegetation types were identified across the survey area:

- - Semi-deciduous scrub – native regrowth vegetation with a mixture of native and occasional weed species. Found in less disturbed sections of the lease.
- - Weedy vegetation and pioneer regrowth – heavily disturbed areas dominated by invasive plant species and early successional vegetation.

2.5 Flora

EPBC Act-listed flora known to occur on Christmas Island include *Asplenium listeri*, *Pneumatopteris truncata*, and *Tectaria devexa* var. *minor*. These species were considered during the desktop review and field assessment; however, none were observed within the survey area. Two endemic species were recorded during the survey: *Arenga listeri* and *Grewia insularis*. Both are restricted to Christmas Island and were observed at multiple waypoints, primarily in areas assessed as being in Good condition. Introduced species were dominant in degraded areas.

3. Survey Methodology

3.1 Desktop Assessment

Previous reports and the Christmas Island Vegetation Map (GeoScience Australia, 2014) informed pre-survey planning.

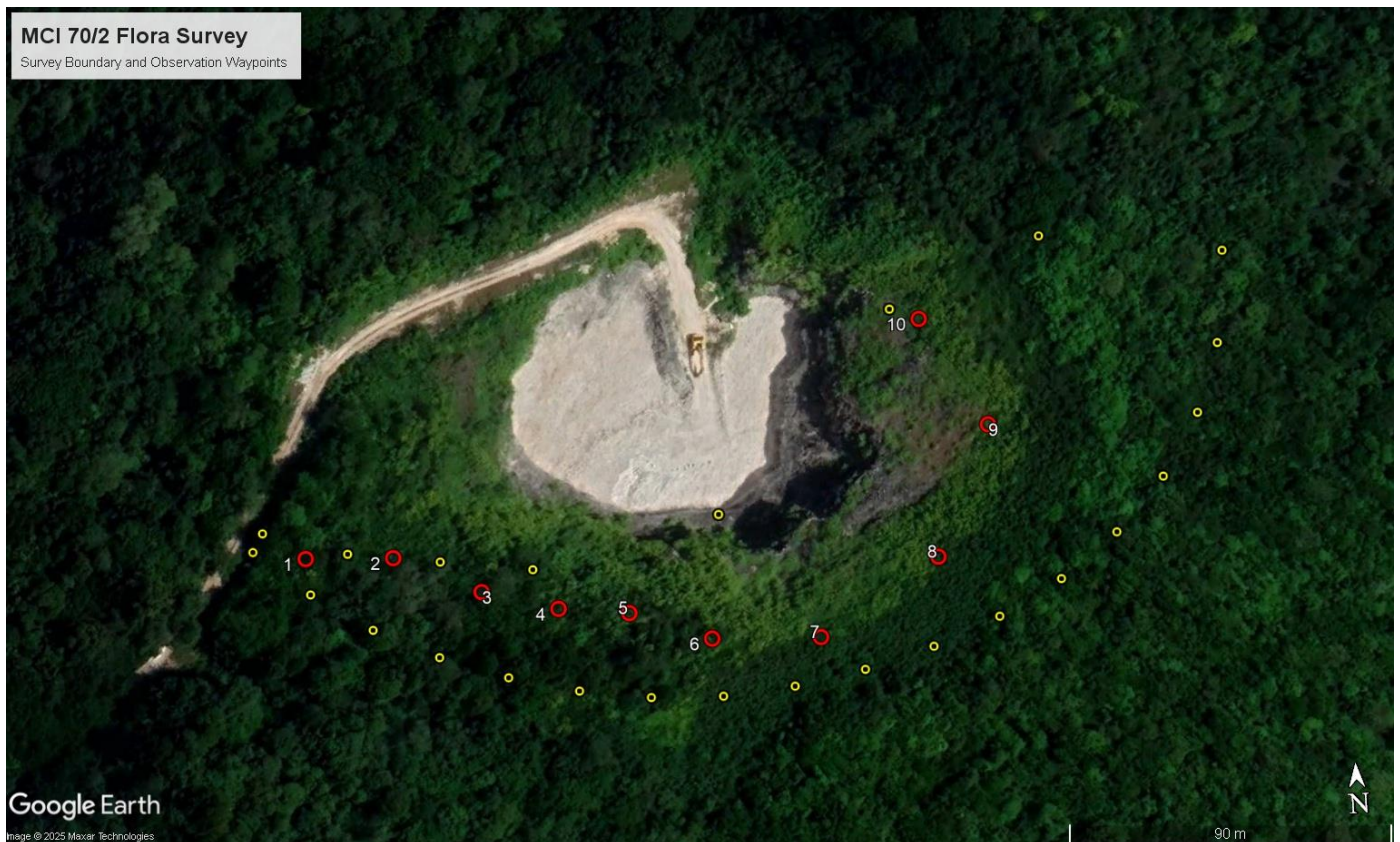
3.2 Field Survey

A map of the survey area, showing the proposed clearing boundary and the locations of all ten flora survey waypoints, is provided in Figure 1. The survey was conducted in June 2025 by an experienced environmental professional with over a decade of fieldwork experience on Christmas Island. Data was recorded using GPS-enabled tablets, and species were identified in the field or from photographs and reference materials.

3.2.1 Survey Limitations

Survey completeness was high. Some sites had dense vine or weed cover that limited access but these areas were already classed as degraded.

Figure 1. Survey Area and Flora Waypoint Locations



A spatial map showing the MCI 70/2 clearing boundary and the ten flora survey waypoints.

4. Results

4.1 Flora

A total of 36 species were recorded across the ten survey waypoints. Of these, 21 were native species (including two endemics: *Arenga listeri* and *Grewia insularis*), and 15 were introduced weed species.

Weed dominance was assessed based on percentage foliage cover estimates recorded in the field. Weed cover ranged from 50% to 96% at

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degraded sites (Waypoints 4–10), with native vegetation contributing only a minor proportion of total cover in these areas. In contrast, Waypoints 1–3 exhibited higher proportions of native foliage cover. Native species accounted for between 50% and 58% of total foliage cover at these sites. While native vegetation remained the dominant structural component, the presence of weed species still indicates a level of ecological degradation.

4.2 Vegetation Condition

Vegetation condition was assessed using a Modified Condition Scale for Christmas Island Vegetation. This scale was adapted from Keighery's *Bush Forever* condition rating system to reflect the island's unique biophysical characteristics. The adapted scale allows better discrimination of vegetation integrity in local contexts and incorporates criteria such as native regeneration, weed dominance, age classes, and native species diversity. The original Keighery's *Bush Forever* system and the adapted Condition Scale for Christmas Island Vegetation are included in Appendix A for reference.

Condition ratings are as follows:

- - **Good:** Waypoints 1, 2, 3
- - **Completely Degraded:** Waypoints 4, 5, 6, 7, 8, 9, 10

This pattern indicates that only three of the ten survey sites retain reasonable structural integrity and native diversity, while the remainder exhibit advanced weed colonisation and structural collapse.

5. References

- - GeoScience Australia (2014). *Christmas Island Vegetation Map*. Department of Infrastructure and Regional Development.
- - Keighery, B.J. (1994). *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc.).
- - Range to Reef Environmental (2017). *Flora and Vegetation Assessment – Mining Lease MCI 70/2, Christmas Island*.

Appendix A. Condition Scales

The original Keighery's *Bush Forever* condition rating system and the adapted Condition Scale for Christmas Island Vegetation are shown below:

Condition scale used in BUSH FOREVER VOL 2, from Keighery BJ (1994)

Pristine (1)

Pristine or nearly so, no obvious signs of disturbance

Excellent (2)

Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species.

Very Good (3)

Vegetation structure altered, obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.

Good (4)

Vegetation structure significantly altered by very obvious signs of multiple disturbance. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and grazing.

Degraded (5)

Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing.

Completely Degraded (6)

The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs

Modified Condition scale for Christmas Island Vegetation

Pristine (1)

Pristine or nearly so, no obvious signs of disturbance

Excellent (2)

High density native regeneration, no weeds, closed canopy, multiple age classes, previous disturbance

Very Good (3)

Medium density native regeneration, mostly native species, different ages, diversity of species

Good (4)

Medium density native regeneration, mostly primary (coloniser) species with weedy understory or mostly young native overstory

Degraded (5)

Low density native regeneration with weedy understory or native vine thicket e.g Schefflera, Maclura

Completely Degraded (6)

Little to no mature native species e.g. Fern field, Cordia, Cherry or Leucaena thicket

Appendix B. Field Data Sheets

The following appendix includes the raw field data sheets collected during the July 2025 flora survey. These sheets contain species lists, percentage foliage cover estimates, vegetation condition assessments, and other observations recorded at each of the ten survey waypoints.

Waypoint 1 Field Data Sheet

Flora Survey							
Date: 25 Jun 2025		Time:	9:27am		Weather conditions: Warm, humid and overcast conditions. Temperature around 27 °C		
Surveyor(s): Leonard Stapp							
Location: MCI 70/2							
Site ID: PT_MCI 70/2_01							
GPS Coordinates (WGS 84)		Zone: 48L		Easting: 575933.635		Northing: 8847827.293	
Topography/Slope: Gentle, NW				Disturbance: Soil pushed up into windrows			
Soil type:		Skeletal limestone		Erosion: Nil			
Photo ID: 20250625_092731				Vegetation Condition: Good			
Vegetation Class (circle one): Semi-deciduous scrub							
Genus	Species	Family	<1m	1 - 5m	5 - 20m	20m+	% Cover
*Clausena	excavata	RUTACEAE	30	11	4		40
*Cordia	curassavica	BORAGINACEAE	5	5			7
*Leucaena	leucocephala	FABACEAE	2	2			2
*Turnera	ulmifolia	PASSIFLORACEAE	2				1
Allophylus	cobbe	SAPINDACEAE	5	1			1
Arenga	listeri	ARECACEAE	1	2			2
Celastrus	paniculatus	CELASTRACEAE		2	1		3
Dysoxylum	gaudichaudianum	MELIACEAE		2	2		7
Guettarda	speciosa	RUBIACEAE	1				1
Macaranga	tanarius	EUPHORBIACEAE		1	1		5
Maclura	cochinchinensis	MORACEAE	1	2			2
Ochrosia	ackeringae	APOCYNACEAE	2	6	3		20
Pachygone	ovata	MENISPERMACEAE	1				1
Pittosporum	ferrugineum	PITTOSPORACEAE		1			1
Planchonella	duclitan	SAPOTACEAE			1		5
Terminalia	catappa	COMBRETACEAE	3	1			2
Tristiropsis	acutangula	SAPINDACEAE	1	3			2

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Waypoint 2 Field Data Sheet



Flora Survey							
Date: 25 Jun 2025		Time: 10:00am	Weather conditions: Warm, humid and overcast conditions. Temperature around 27°C				
Surveyor(s): Leonard Stapp							
Location: MCI 70/2							
Site ID: PT_MCI 70/2_02							
GPS Coordinates (WGS 84)		Zone: 48L	Easting: 575958.037		Northing: 8847825.854		
Topography/Slope: Moderate, NNW			Disturbance: Cleared previously, mounds pushed up				
Soil type:	Skeletal limestone		Erosion: Nil				
Photo ID: 20250625_100408			Vegetation Condition: Good				
Vegetation Class (circle one): Semi-deciduous scrub							
Genus	Species	Family	<1m	1 - 5m	5 - 20m	20m+	% Cover
* <i>Clausena</i>	<i>excavata</i>	RUTACEAE	11	3	20		40
* <i>Cordia</i>	<i>curassavica</i>	BORAGINACEAE	4	12			20
* <i>Leucaena</i>	<i>leucocephala</i>	FABACEAE		2			1
* <i>Melia</i>	<i>azedarach</i>	MELIACEAE		2			5
* <i>Tecoma</i>	<i>stans</i>	BIGNONIACEAE		1			2
* <i>Turnera</i>	<i>ulmifolia</i>	PASSIFLORACEAE	1				1
<i>Allophylus</i>	<i>cobbe</i>	SAPINDACEAE		1			1
<i>Arenga</i>	<i>listeri</i>	ARECACEAE		2			2
<i>Carmona</i>	<i>retusa</i>	BORAGINACEAE		1			1
<i>Celastrus</i>	<i>paniculatus</i>	CELASTRACEAE		1			1
<i>Macaranga</i>	<i>tanarius</i>	EUPHORBIACEAE		1	2		8
<i>Maclura</i>	<i>cochinchinensis</i>	MORACEAE		1			1
<i>Ochrosia</i>	<i>ackeringae</i>	APOCYNACEAE	1	2	1		20
<i>Terminalia</i>	<i>catappa</i>	COMBRETACEAE	5	3	6		10
<i>Tristiropsis</i>	<i>acutangula</i>	SAPINDACEAE	1				1

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Waypoint 3 Field Data Sheet

Flora Survey							
Date: 25 Jun 2025		Time: 10:00am		Weather conditions: Warm, humid and overcast conditions. Temperature around 27°C			
Surveyor(s): Leonard Stapp							
Location: MCI 70/2							
Site ID: PT_MCI 70/2_03							
GPS Coordinates (WGS 84)		Zone: 48L		Easting: 575982.087		Northing: 8847814.79	
Topography/Slope: Moderate, N				Disturbance: Soil pushed up into mounds			
Soil type:		Skeletal limestone		Erosion: Nil			
Photo ID: 20250625_102602				Vegetation Condition: Good			
Vegetation Class (circle one): Semi-deciduous scrub							
Genus	Species	Family	<1m	1 - 5m	5 - 20m	20m+	% Cover
*Clausena	excavata	RUTACEAE	3	14	18		40
*Cordia	curassavica	BORAGINACEAE		2	10		10
*Leucaena	leucocephala	FABACEAE	9	7			25
*Tecoma	stans	BIGNONIACEAE		4			5
*Turnera	ulmifolia	PASSIFLORACEAE	12				2
Allophylus	cobbe	SAPINDACEAE	1	5			5
Celastrus	paniculatus	CELASTRACEAE		2			2
Guettarda	speciosa	RUBIACEAE		2			2
Kleinhovia	hospita	MALVACEAE			2		5
Macaranga	tanarius	EUPHORBIACEAE			2		10
Ochrosia	ackeringae	APOCYNACEAE		1			5
Pachygone	ovata	MENISPERMACEAE		2			1
Terminalia	catappa	COMBRETACEAE		1	1		3

Waypoint 4 Field Data Sheet

Flora Survey							
Date: 25 Jun 2025		Time: 10:45am		Weather conditions: Warm, humid and overcast conditions. Temperature around 27°C			
Surveyor(s): Leonard Stapp							
Location: MCI 70/2							
Site ID: PT_MCI 70/2_04							
GPS Coordinates (WGS 84)		Zone: 48L		Easting: 576003.175		Northing: 8847808.691	
Topography/Slope: Moderate, N				Disturbance: Prior cleared with weedy regrowth			
Soil type:		Skeletal limestone		Erosion: Nil			
Photo ID: 20250625_104745				Vegetation Condition: Completely degraded			
Vegetation Class (circle one): Weedy vegetation and pioneer regrowth							
Genus	Species	Family	<1m	1 - 5m	5 - 20m	20m+	% Cover
*Acalypha	indica	EUPHORBIACEAE	1				1
*Clausena	excavata	RUTACEAE	12	4			8
*Cordia	curassavica	BORAGINACEAE	2	11			25
*Cyanthillium	cinereum	ASTERACEAE	10				1
*Ipomoea	nil	CONVOLVULACEAE	1	1			1
*Leucaena	leucocephala	FABACEAE	12	32			40
*Macroptilium	atropurpureum	FABACEAE		1			1
*Mimosa	pudica	FABACEAE	2				1
*Passiflora	foetida	PASSIFLORACEAE		3			1
*Tecoma	stans	BIGNONIACEAE	7	11			25
*Turnera	ulmifolia	PASSIFLORACEAE	13				7
Ochrosia	ackeringae	APOCYNACEAE	1				1
Sida	acuta	MALVACEAE	4	3			2

Christmas Island Environmental Services Waypoint 5 Field Data Sheet

Flora Survey							
Date: 25 Jun 2025		Time: 11:08am		Weather conditions: Warm, humid and overcast conditions. Temperature around 27°C			
Surveyor(s): Leonard Stapp							
Location: MCI 70/2							
Site ID: PT_MCI 70/2_05							
GPS Coordinates (WGS 84)		Zone: 48L		Easting: 576022.804	Northing: 8847806.169		
Topography/Slope: Moderate, NNW				Disturbance: Prior cleared with weedy regrowth			
Soil type:		Limestone rock		Erosion: Nil			
Photo ID: 20250625_110909				Vegetation Condition: Completely degraded			
Vegetation Class (circle one): Weedy vegetation and pioneer regrowth							
Genus	Species	Family	<1m	1 - 5m	5 - 20m	20m+	% Cover
* <i>Cordia</i>	<i>curassavica</i>	BORAGINACEAE	5	12			30
* <i>Leucaena</i>	<i>leucocephala</i>	FABACEAE	2	6			10
* <i>Tecoma</i>	<i>stans</i>	BIGNONIACEAE	6	18			50
<i>Guettarda</i>	<i>speciosa</i>	RUBIACEAE		1			5
<i>Maclura</i>	<i>cochinchinensis</i>	MORACEAE		2			2
<i>Ochrosia</i>	<i>ackeringae</i>	APOCYNACEAE		4			8
<i>Pipturus</i>	<i>argenteus</i>	URTICACEAE	1				1
<i>Grewia</i>	<i>insularis</i>	MALVACEAE		1			5
<i>Colubrina</i>	<i>pedunculata</i>	RHAMNACEAE		1			5

Waypoint 6 Field Data Sheet

Flora Survey							
Date: 25 Jun 2025		Time: 11:25am		Weather conditions: Warm, humid and overcast conditions. Temperature around 27°C			
Surveyor(s): Leonard Stapp							
Location: MCI 70/2							
Site ID: PT_MCI 70/2_06							
GPS Coordinates (WGS 84)		Zone: 48L		Easting: 576045.428	Northing: 8847797.551		
Topography/Slope: Moderate, NNW				Disturbance: Prior cleared with weedy regrowth			
Soil type:		Skeletal limestone		Erosion: Nil			
Photo ID: 20250625_112458				Vegetation Condition: Completely degraded			
Vegetation Class (circle one): Weedy vegetation and pioneer regrowth							
Genus	Species	Family	<1m	1 - 5m	5 - 20m	20m+	% Cover
* <i>Clausena</i>	<i>excavata</i>	RUTACEAE	6	8			20
* <i>Cordia</i>	<i>curassavica</i>	BORAGINACEAE	3	20			30
* <i>Tecoma</i>	<i>stans</i>	BIGNONIACEAE	2	15			20
<i>Allophylus</i>	<i>cobbe</i>	SAPINDACEAE	3				1
<i>Colubrina</i>	<i>pedunculata</i>	RHAMNACEAE		7			20
<i>Grewia</i>	<i>insularis</i>	MALVACEAE		1			2
<i>Maclura</i>	<i>cochinchinensis</i>	MORACEAE		2			2
<i>Ochrosia</i>	<i>ackeringae</i>	APOCYNACEAE		1			2
<i>Pachygone</i>	<i>ovata</i>	MENISPERMACEAE		2			5
<i>Schefflera</i>	<i>elliptica</i>	ARALIACEAE		2			10

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Waypoint 7 Field Data Sheet



Flora Survey							
Date: 25 Jun 2025		Time: 11:45am		Weather conditions: Warm, humid and overcast conditions. Temperature around 27°C			
Surveyor(s): Leonard Stapp							
Location: MCI 70/2							
Site ID: PT_MCI 70/2_07							
GPS Coordinates (WGS 84)		Zone: 48L		Easting: 576075.738	Northing: 8847795.88		
Topography/Slope: Moderate, NNW				Disturbance: Prior cleared with weedy regrowth			
Soil type:		Skeletal limestone		Erosion: Nil			
Photo ID: 20250625_114612				Vegetation Condition: Completely degraded			
Vegetation Class (circle one): Weedy vegetation and pioneer regrowth							
Genus	Species	Family	<1m	1 - 5m	5 - 20m	20m+	% Cover
* <i>Cordia</i>	<i>curassavica</i>	BORAGINACEAE		6			10
* <i>Ipomoea</i>	<i>obscura</i>	CONVOLVULACEAE	3				5
* <i>Leucaena</i>	<i>leucocephala</i>	FABACEAE		25			30
* <i>Macroptilium</i>	<i>atropurpureum</i>	FABACEAE	2	2			5
* <i>Mimosa</i>	<i>pudica</i>	FABACEAE	7				2
* <i>Stachytarpheta</i>	<i>jamaicensis</i>	VERBENACEAE	7				5
* <i>Tecoma</i>	<i>stans</i>	BIGNONIACEAE		15			30
<i>Sida</i>	<i>acuta</i>	MALVACEAE		12			20

Waypoint 8 Field Data Sheet

Flora Survey							
Date: 25 Jun 2025		Time: 11:56am		Weather conditions: Warm, humid and overcast conditions. Temperature around 27°C			
Surveyor(s): Leonard Stapp							
Location: MCI 70/2							
Site ID: PT_MCI 70/2_08							
GPS Coordinates (WGS 84)		Zone: 48L		Easting: 576110.059	Northing: 8847815.822		
Topography/Slope: Moderate, NW				Disturbance: Prior cleared with weedy regrowth			
Soil type:		Skeletal limestone		Erosion: Nil			
Photo ID: 20250625_115650				Vegetation Condition: Completely degraded			
Vegetation Class (circle one): Weedy vegetation and pioneer regrowth							
Genus	Species	Family	<1m	1 - 5m	5 - 20m	20m+	% Cover
* <i>Carica</i>	<i>papaya</i>	CARICACEAE		1			1
* <i>Cordia</i>	<i>curassavica</i>	BORAGINACEAE	2				3
* <i>Leucaena</i>	<i>leucocephala</i>	FABACEAE	10	30			50
* <i>Macroptilium</i>	<i>atropurpureum</i>	FABACEAE	5				15
* <i>Melia</i>	<i>azedarach</i>	MELIACEAE		1			3
* <i>Muntingia</i>	<i>calabura</i>	MUNTINGIACEAE		1			3
* <i>Turnera</i>	<i>ulmifolia</i>	PASSIFLORACEAE	1				1
<i>Grewia</i>	<i>insularis</i>	MALVACEAE		1			3
<i>Gyrocarpus</i>	<i>americanus</i>	HERNANDIACEAE		2			5
<i>Sida</i>	<i>acuta</i>	MALVACEAE	10	30			40

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Waypoint 9 Field Data Sheet



Flora Survey							
Date: 25 Jun 2025		Time: 12:09pm		Weather conditions: Warm, humid and overcast conditions. Temperature around 27°C			
Surveyor(s): Leonard Stapp							
Location: MCI 70/2							
Site ID: PT_MCI 70/2_09							
GPS Coordinates (WGS 84)		Zone: 48L		Easting: 576126.615	Northing: 8847851.518		
Topography/Slope: Moderate, WNW				Disturbance: Prior cleared with weedy regrowth			
Soil type:		Skeletal limestone		Erosion: Nil			
Photo ID: 20250625_120803				Vegetation Condition: Completely degraded			
Vegetation Class (circle one): Weedy vegetation and pioneer regrowth							
Genus	Species	Family	<1m	1 - 5m	5 - 20m	20m+	% Cover
* <i>Cordia</i>	<i>curassavica</i>	BORAGINACEAE	2	6			25
* <i>Leucaena</i>	<i>leucocephala</i>	FABACEAE	5	12			30
* <i>Macroptilium</i>	<i>atropurpureum</i>	FABACEAE	4				5
* <i>Stachytarpheta</i>	<i>jamaicensis</i>	VERBENACEAE	2				1
* <i>Tecoma</i>	<i>stans</i>	BIGNONIACEAE	6	13			35
<i>Sida</i>	<i>acuta</i>	MALVACEAE	6				10

Waypoint 10 Field Data Sheet

Flora Survey							
Date: 25 Jun 2025		Time: 12:18pm		Weather conditions: Warm, humid and overcast conditions. Temperature around 27°C			
Surveyor(s): Leonard Stapp							
Location: MCI 70/2							
Site ID: PT_MCI 70/2_10							
GPS Coordinates (WGS 84)		Zone: 48L		Easting: 576109.397	Northing: 8847882.147		
Topography/Slope: Moderate, SW				Disturbance: Prior cleared with weedy regrowth			
Soil type:		Skeletal limestone		Erosion: Nil			
Photo ID: 20250625_121807				Vegetation Condition: Completely degraded			
Vegetation Class (circle one): Weedy vegetation and pioneer regrowth							
Genus	Species	Family	<1m	1 - 5m	5 - 20m	20m+	% Cover
* <i>Cordia</i>	<i>curassavica</i>	BORAGINACEAE	10	30			50
* <i>Leucaena</i>	<i>leucocephala</i>	FABACEAE	3				5
* <i>Tecoma</i>	<i>stans</i>	BIGNONIACEAE	4	17			15
* <i>Turnera</i>	<i>ulmifolia</i>	PASSIFLORACEAE	5				5
<i>Grewia</i>	<i>glabra</i>	MALVACEAE	3				4
<i>Grewia</i>	<i>insularis</i>	MALVACEAE	2				4
<i>Sida</i>	<i>acuta</i>	MALVACEAE	17				20

Appendix C. Waypoint Photographs

Photographs taken at each of the ten survey waypoints during the July 2025 flora survey are presented in this appendix. These images support field observations and provide visual context for vegetation condition, structure, and dominant species at each site.

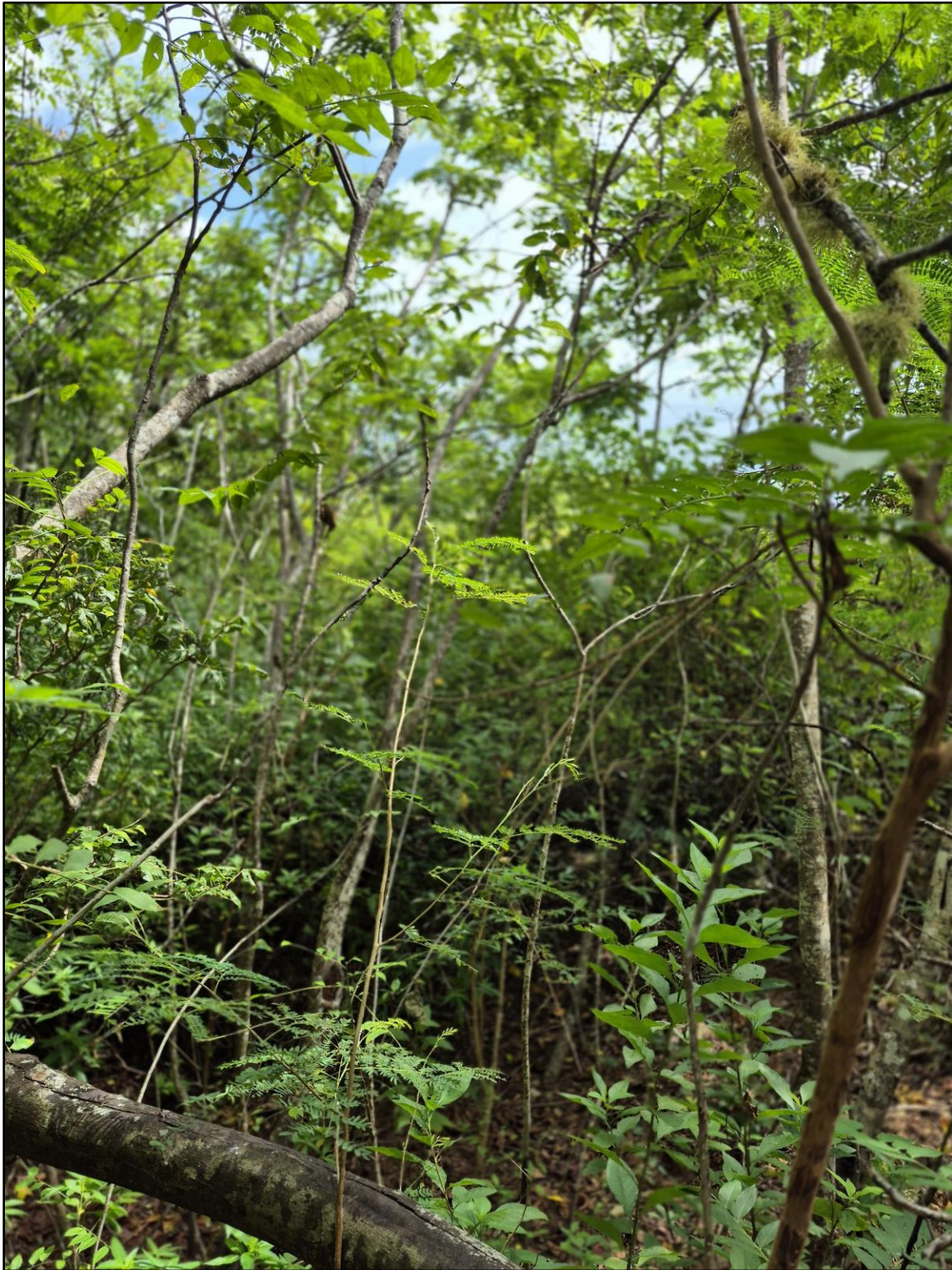
Christmas Island Environmental Services
Waypoint 1 Photograph



Christmas Island Environmental Services
Waypoint 2 Photograph



Christmas Island Environmental Services
Waypoint 3 Photograph



Christmas Island Environmental Services
Waypoint 4 Photograph



Christmas Island Environmental Services
Waypoint 5 Photograph



Christmas Island Environmental Services
Waypoint 6 Photograph



Christmas Island Environmental Services
Waypoint 7 Photograph



Christmas Island Environmental Services
Waypoint 8 Photograph



Christmas Island Environmental Services
Waypoint 9 Photograph



Christmas Island Environmental Services
Waypoint 10 Photograph

