Plant Survey

Lucinda Drain – Fisherman Islands

April (summer) 2005
Plant Survey

PORT OF BRISBANE CORPORATION
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May 2005

1. Executive Summary

This Plant Assessment Report is the ninth report prepared following an assessment of plants occurring along the banks of the Lucinda Drain, Fisherman Islands. The Lucinda Drain is located along the eastern side of Fisherman Islands and is approximately 2.5 kilometres in length. The drain provides tidal, stormwater and wash-drainage from all hardstands and roof water runoff for the majority of facilities and roads along the eastern section of Fisherman Islands.

Rob Friend & Associates Pty Ltd (RF&A) was commissioned to undertake this and the previous eight plant surveys of Lucinda Drain.

Summary of findings

The following point summaries the findings of the March 2005 plant survey of Lucinda Drain.

1. A new plant species Stinking Roger (*Tagetes minuta*) was recorded from a wet area within the western bank of the drain. This plant is relatively common within the Brisbane Area and it is not declared in the *Land Protection (Pest and Stock Route Management) Regulation* 2003 (LPR 2003)
2. the following weed species have been recorded previously however due to poor specimen material they have not been identified previously. They include: -
   - Hairy pigweed (*Portulaca pilosa*). This plant is common throughout both banks of the Lucinda Drain
   - Caustic weed (*Chamaesyce maculata*), common on the eastern bank
   - Creeping cinderella weed (*Calyptocarpus vialis*). This weed occurs on both banks
   - Creeping phyllantus (*Phyllantus virgatus*). This plant grows on both banks
3. Balloon vine (*Cardiospermum halicacabum*) was found to be growing strongly on the western bank over vegetation within a landscape bed. This vine should be brought under control
4. Singapore daisy (*Sphagneticola trilobata*) was not observed in the locality where it was recorded during the October 2004 survey
5. No individuals of Groundsel (*Baccharis halimifolia*) or Broad-leafed peppertree (*Schinus terebinthifolia*) were recorded during the survey
6. Green panic (*Panicum maximum*) Rhodes grass (*Chloris gayana*), feather-top Rhodes grass (*C. virgata*), red Natal grass (*Melinis repens*), and Siratrio (*Macroptilium atropurpureum*) were the dominant plant species along the eastern bank of the drain
7. 50 plant species were recorded. This consisted of 17 native/planted species and 33 environmental weed species

No target weed species identified by Australian Quarantine and Inspection Service (AQIS) (see Appendix III) were located during the plant survey. Additionally, no other exotic plant species new to the site or in the general Brisbane area were recorded during the plant survey.

All environmental weed species that have been identified following the implementation of the plants surveys are being managed in accordance with a land management schedule. No unusual plant species or potential exotic plant incursions were identified during this and the previous plant surveys.

Recommendations regarding the long-term management of environmental weeds within the Lucinda Drain area are provided in Section 6 of this report.

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Cover photo Stinking roger (*Tagetes minuta*) on the wester side of the Lucinda Drain.

2. Introduction

This report is the ninth of in a series of reports detailing the findings from surveys of plant species along the Lucinda Drain, Fisherman Islands. The previous reports were prepared from surveys undertaken in:

- February (summer) 2001;
- October – December (spring) 2001;
- February (summer) 2002;
- November (spring) 2002;
- March (summer) 2003;
- November (spring) 2003
- March (summer) 2004 and
- October (spring) 2004

These plant surveys have been implemented in a response to a request from the Australian Quarantine and Inspection Service (AQIS) to increase surveillance relating to potential pest incursions. The surveys, commissioned by the Port of Brisbane Corporation (PBC), represents a long-term monitoring program at the port to survey for, and identify, exotic plant species which may enter the country on containers or other materials shipped and unloaded at the Fisherman Islands facility.

The biannual plant survey is undertaken on a six monthly interval, during (summer) February and (spring) October of each year. The current survey was undertaken in April 2005.

As there has been little rainfall within the Fisherman Islands area in the period since the last plant survey (March 2004) (see rainfall chart pg 10)

2.1. Site description

The plant surveys focus on the Lucinda Drain area at Fisherman Islands. The Lucinda Drain is located along the eastern side of Fisherman Islands and provides drainage for stormwater run-off from the hardstand areas adjacent to the drain.

The Lucinda Drain is a constructed drainage channel using concrete filled geo-textile sandwich construction some 2.5 kilometres in length. The berms of the channel consist of sand above the geo-textile sandwich.

The channel currently has a regular maintenance schedule that provides for the west bank of the drain, adjacent to Lucinda Drive, to be mowed and sprayed for noxious weeds.

3. Methodology

This plant survey of the Lucinda Drain was undertaken on the 28th April 2005

The survey consisted of one transect on eastern side of the Lucinda Drain.

This technique was trailed during the November 2003 survey of the Lucinda Drain. Results did not differ in terms of species presence or absence from recorded during previous surveys.

As visual access to the western bank overall is better from the eastern bank regular inspections were made of this bank during the transect along the eastern bank.

The data sheet developed during previous surveys to record observations was used during the current works. This tool, along with the new survey technique, has improved the timeliness of the survey.

All plant species observed during the survey were recorded on the survey tool (see appendix V). GPS locations were recorded of the location of plant species which are listed in Schedule 2 of the *Land Protection (Pest and Stock Route Management) Regulations* 2003 (LPR, 2003).

The east bank of the drain has an irregular maintenance program with some time between maintenance events. The west bank has a high maintenance schedule resulting in the mowing and spraying with herbicides of all areas apart from the landscaping on that bank.

AQIS Target Weeds List

The Australian Quarantine and Inspection Service (AQIS) has prepared a list of weed

species identified as presenting a threat to natural and agriculture systems. This list is contained in Appendix III.

None of the target weed species identified by AQIS was located during this plant survey. No additional exotic plant species, which has not previously been recorded within the site or in the general Brisbane area, were recorded during the plant survey.

4. Findings

Appendix I contains a list of plant species recorded from the first survey to date. Appendix II contains a schedule of all plant species recorded within the survey sites as well as those recorded incidentally during all surveys.

With respect to this plant survey, the findings are:

1. 50 plant species were recorded. This consisted of 17 native/planted species and 33 environmental weed species
2. A new plant species Stinking Roger (*Tagetes minuta*) was recorded from a wet area within the western bank of the drain. This plant is relatively common within the Brisbane Area and it is not declared in the *Land Protection (Pest and Stock Route Management) Regulation* 2003 (LPR 2003)
3. The following weed species have been observed on previous surveys however, due to poor specimen material they have not been identified previously. These species include: -
   - Hairy pigweed (*Portulaca pilosa*). This plant is common throughout both banks of the Lucinda Drain
   - Caustic weed (*Chamaesyce maculata*), common on the eastern bank
   - Creeping cinderella weed (*Calyptocarpus vialis*). This weed occurs on both banks
   - Creeping phyllantus (*Phyllantus virgatus*). This plant grows on both banks
4. Balloon vine (*Cardiospermum halicacabum*) was found to be growing strongly on the western bank over vegetation within a landscape bed. This vine should be brought under control
5. Singapore daisy (*Sphagneticola trilobata*) was not observed in the locality where it was recorded during the October 2004 survey
6. No individuals of Groundsel (*Baccharis halimifolia*) or Broad-leafed peppertree (*Schinus terebinthifolia*) were recorded during the survey
7. Green panic (*Panicum maximum*) Rhodes grass (*Chloris gayana*), feather-top Rhodes grass (*C. virgata*), red Natal grass (*Melinis repens*), and Siratrio (*Macroptilium atropurpureum*) were the dominant plant species along the eastern bank of the drain
8. No other significant environmental weeds were recorded on either bank of the Lucinda Drain.

Figure 1 - Site map – Lucinda Drain, Fisherman Islands

Source: Mapview (DNR, 2004).

5. Discussion

5.1. Weediness of plants observed

This ninth survey of plants occurring along the banks of Lucinda Drain has identified a total number 46 plant species, of these 29 are considered weeds.

The following weeds have been listed as declared weeds in the *Land Protection (Pest and Stock Route Management) Regulation* 2003 (LPR 2003). In addition, these plants are identified as noxious plants within the Brisbane City Council Local Laws:

- No Class 1 pest species were recorded within the Lucinda Drain area;
- No Class 2 recorded within the Lucinda Drain include
- Class 3 Pest species recorded within the Lucinda Drain include

i. Lantana (*Lantana camara*).
   - This species occurs in several locations along the right and left banks of the drain;
   - This species does not present a significant threat to the local environment.

ii. Balloon vine (*Cardiospermum halicacabum)*
   - The Balloon vine was identified on the western bank.
   - *C. halicacabum* is not listed however, *C. grandifolium* is listed as a Class 3 weed.
   - This vine may degraded the landscape amenity if not controlled in the near future

5.2. General comments

The long-term management of these environmental weed species should be integrated into a program of habitat management, including actions such as:

1. Shading through the development of a canopy and understorey
2. Increase the understorey diversity to increase competition for resources with the potential decrease in weediness and weed plant diversity and
3. Targeted herbicide application.

5.3. Comparisons between surveys

The list of species recorded using the survey method for this survey in compassion with previous surveys indicates that there is little variation in the number of plant species recorded.

The following table (table 2) highlights the numbers of weed plants identified in the previous seven surveys of Lucinda Drain.

Table 1 - No. of weeds recorded per survey

Survey	No. of weeds recorded
February 01	37
October 01	35
February 02	27
November 02	35
May 03	27
November 03	36
March 04	27
October 04	29
April 05	**33**

Table 2 – No of weed species by family

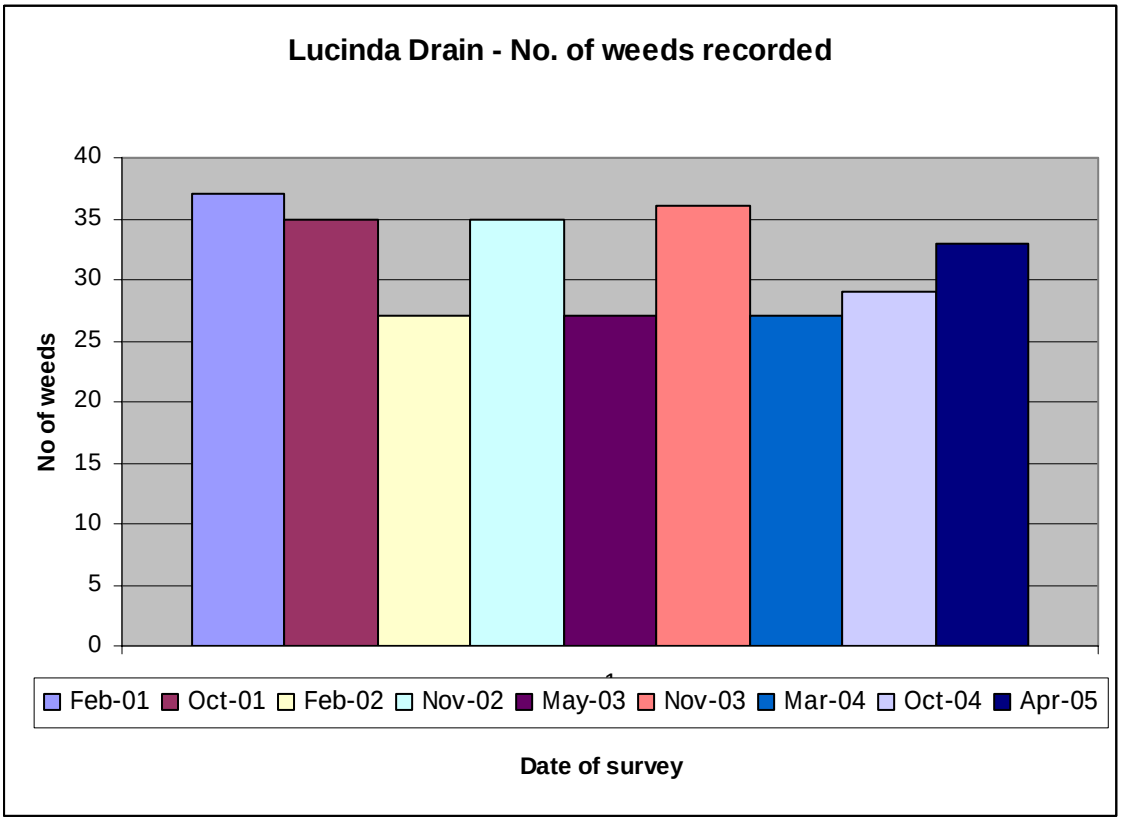
Family	No. of species.
Poaceae	12
Asteraceae	6
Fabaceae	4
Malvaceae	3
Euphorbiaceae	2

The above tables 2 and 3 indicates:

- The is a relatively consistent trend of the number of weed species along the banks of Lucinda Drain in the post summer and post winter surveys (see figure 1)
- The graph contained in Figure 2 identifies the survey outcome trend that surveys taken early in the calendar year provides less plant weed species than those conducted in the later half of the calendar year.

- The number of plants identified in this survey is approximately 13.4% less than the average number of plants recorded (33.4 over the four winter surveys;
- Grasses continue to be the dominant family along the drain followed by plant species within the family Asteraceae;
- the trend of less plants following the drier periods of the year leading up to the summer survey than the period following the summer months; and
- Influences such as dry years cannot be interpreted from the short data collection period for the Lucinda Drain site.

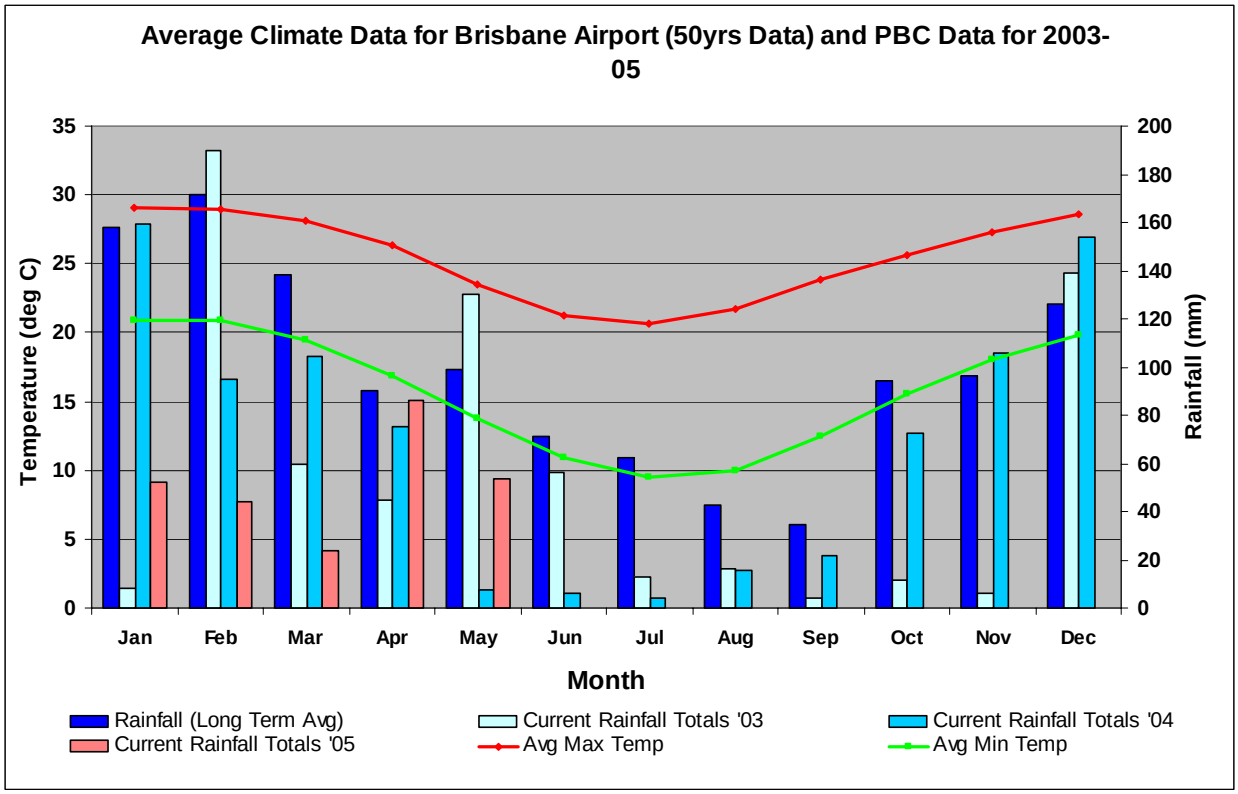
Figure 2 - Species number vs survey date



5.4. Weather conditions

The following graph portrays the rainfall recorded at the Port of Brisbane as well as the rainfall and temperature average climatic records from the Port Office for the last 50 years.

Figure 3 - Climatic averages – Port of Brisbane



The following can be derived from this data with respect to the plant growth around the Lucinda Drain.

- There was near average rainfall leading up to January 2005
- The rainfall between January 2005 to May 2005 was significantly below average and well below to preceding year (2004) with the exception of April (86.2mm verses 90.4mm)
- Plant cover throughout the eastern portion of the drain was greater than 70 % within those areas which had not been slashed

As can be seen (Figure 3), rainfall in the months preceding the current survey have been more reflective of average conditions. Rainfall throughout 2003 and early 2004 was much lower than average.

The reasonable levels of rainfall experienced prior to the survey are more likely to have provided suitable conditions for introduced plant species to germinate than the pervious year's drought conditions. As such, the non-detection of additional introduced or known weed species is encouraging.

6. Recommendations

Recommendations relating to the management of the banks of the Lucinda Drain and of the inflow of stormwater into the drain which may transport and introduce exotic plant material to the drain have been made in previous reports.

It is assumed that either these recommendations have been adopted and are being implemented or they are yet to be implemented.

Therefore, as there has been no significant alteration in the environmental weed status and the management of the banks of the Lucinda Drain the following recommendations are made.

1. Maintain all existing weed management programs along both banks of the Lucinda Drain and
2. Continue programmed monitoring of the diversity and status of plant species along the banks of the Lucinda Drain through twice-yearly plant surveys.

7. Bibliography

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Appendix I – Survey analysis

Species	Common name	LPR class	March 05	Oct 04	March 04	May 03
Aizoaceae						
Carpobrotus glaucescens	Pigface*	-	**X**	X	X	X
Sesuvium portulacastrum	Sea purslane*	-	**X**	X	X	X
Amaranthaceae						
Alternanthera pungens	Khaki weed	-	**X**			X
Amaranthus viridis	Green amaranths	-	**X**			
Anacardiaceae						
Schinus terebinthifolius	Broad-leaved Peppertree	3		X	X	
Asclepiadaceae						
Gomphocarpus physocarpus	Balloon cotton bush	-				
Asteraceae						
Ageratum houstonianum	Blue billy-goat	-				X
Ambrosia artemisiifolia	Annual ragweed	2		X	X	
Baccharis halimifolia	Groundsel bush	2		X	X	X
Bidens pilosa	Cobblers pegs	-	**X**	X	X	X
Calyptocarpus vialis	Creeping cinderella weed	-	**X**			
Cirsium vulgare	Spear thistle	-		X		
Conyza bonariensis	Faxleaf fleabane	-	**X**			X
Conyza pusilla	Canadian fleabane	-				
Crassocephalum crepidioides	Thickhead	-	**X**	X		X
Hypochaeris radicata	Flatweed	-		X		X
Parthenium hysterophorus	Parthenium weed	2				
Sonchus oleraceus	Rough sow thistle	-	**X**			
Sphagneticola trilobata	Singapore daisy	**3**		X	X	X
Tagetes minuta	Stinking Roger	**-**	**X**			
Avicenniaceae						
Avicennia marina	Grey mangrove*	-	**X**	X		
Boraginaceae						
Heliotropium amplexicaule	Blue heliotrope	-				
Cactaceae						
Opuntia sp	Prickly pear					
Casuarinaceae						
Casuarina equisetifolia	Coastal sheoak*	-	**X**	X	X	
Casuarina littoralis	Black sheoak*	-	**X**	X	X	
Caesalpiniaceae						
Crotalaria paniculata	Poor mans gold					
Senna pendula var glabrifolia	Easter cassia	-				
Convolvulaceae						
Cuscuta campestris	Dodder	-	**X**			
Convolves arvensis	European bindweed	-				
Ipomoea so (alba)	White ipomoea	-				
Ipomoea cairica	Mile-a-minute	-		X		X
Ipomoea pes-caprae	Goats foot convolvus	-	**X**	X	X	X
Cyperaceae						
Cyperus sp.	A sedge				X	
Cyperus rotundus	Nut grass	-				
Euphorbiaceae						
Chamaesyce maculata	Caustic weed		**X**			

Species	Common name	LPR class	March 05	Oct 04	March 04	May 03
Euphorbia hirta	Asthma plant	-		X		
Euphorbia sp.	Spurge	-			X	
Macaranga tanarius	Macaranga	-	**X**	X	X	
Phyllantus virgatus	Creeping phyllantus	-	**X**			
Fabaceae						
Crotalaria pallida	Rattle pod	-	**X**			X
Desmodium uncinatum	Silver leafed desmodium	-	**X**		X	
Macroptilium atropurpureum	Siratro	-	**X**	X	X	X
Medicago sativa	Lucerne	-		X	X	X
Melilotus indicus	Sweet melilotus	-		X		
Sesbania cannabina	Sesbania pea	-	**X**		X	X
Trifolium repens	Clover	-				
Lauraceae						
Cinnamomum camphora	Camphora laurel	3		X		
Mimosaceae						
Acacia aulacocarpa	Hickory wattle	-		X	X	
Malvaceae						
Hibiscus tiliaceus	Cotton tree	-	**X**	X	X	
Modiola caroliniana	red flower mallow	-				
Sida cornifolia	Flannel weed	-	**X**	X	X	
Sida rhombifolia	Common sida	-	**X**		X	X
Myrtaceae						
Eucalyptus robusta	Swamp mahogany	-	**X**			
Lophostemon confertus	Brush box	-	**X**	X	X	
Melaleuca linariifolia	Flax-leafed paperbark	-	**X**	X	X	
Melaleuca quinquenervia	Paperbark teatree	-	**X**	X	X	
Onagraceae						
Oenothera drummondii	Beach evening primrose	-	**X**	X	X	X
Oxalidaceae						
Oxalis corniculata	Creeping oxalis	-				
Pandanaceae						
Pandanus tectorius	Screw pine	-	**X**	X	X	
Passifloraceae						
Passiflora cairica	Stinking passion vine	-		X		X
Passiflora subpeltata	White passion flower	-		X	X	X
Poaceae						
Brachiaria decumbens	Signal grass		**X**			
Brachiaria mutica	Para crass		**X**	X	X	X
Cenchrus ciliaris	Buffel grass	-				
Cenchrus echinatus	Mossman River grass	-	**X**	X	X	X
Chloris gayana	Rhodes grass	-	**X**	X	X	X
Chloris truncata	Windmill grass	-	**X**	X	X	X
Chloris virgata	Feather-top Rhodes grass	-	**X**			
Cynodon dactylon	Couch grass	-	**X**	X	X	X
Dichanthium aristatum	Angleton grass	-				
Digitaria ciliaris	Summer grass					
Eleusine indica	Crowsfoot grass	-	**X**			
Hemarthria uncinata	Mat grass	-				
Imperata cylindrica	Blady grass	-				
Melinis repens	Red Natal grass	-	**X**	X	X	X

Species	Common name	LPR class	March 05	Oct 04	March 04	May 03
Melinis minutiflora	Molasses grass					
Poa annua	Winter grass	-				
Panicum effusum	Hairy panic	-	**X**		X	
Panicum maximum	Green panic	-	**X**	X	X	X
Paspalum dilatatum	Paspalum	-			X	X
Phragmites australis	Common reed	-	**X**	X	X	X
Sorghum halepense	Johnson grass	-	**X**	X	X	X
Typha orientalis	Cumbungi	-	**X**	X		
Portulacaceae						
Portulaca pilosa	Hairy pigweed	-	**X**			
Proteaceae						
Banksia integrifolia	Coastal banksia	-	**X**	X	X	
Sapindaceae						
Cardiospermum halicacabum	Balloon vine	-	**X**			
Cupaniopsis anacardioides	Tuckeroo	-	**X**	X	X	
Dodonaea triquetra	Hop bush				X	
Solanaceae						
Solanum nigrum	Brazilian nightshade	-	**X**		X	
Verbenaceae						
Lantana camara	Climbing lantana	3	**X**	X	X	
Verbena bonariensis	Purple top	-			X	
Verbena aristigera		-				
Vitex trifolia var trifolia		-			X	

Notes: -

- * designates indigenous species
- LPRA – *Land Protection (pest and stock route management) Regulations* 2003, Schedule 2.

Appendix II – plant species list

This species list is a combination of the all plant surveys undertaken along the Lucinda Drain, Fisherman Islands.

Form code: - T = tree; t = small tree; s = shrub; g = grass; h = herb; f = fern; v = vine; w = weed; a = aquatic plant; (p) = planted, n = native or planted. Highlighted species indicate new species recorded during the plant survey. LPA – Land *Protection (pest and stock route management) regulations* (2003)

Family/Species	Common name	Form	Declaration category (LPR)
Aizoaceae			
Carpobrotus glaucescens [n]	pigface	v	-
Sesuvium portulacastrum [n]	sea purslane	h	-
Amaranthaceae			
Alternanthera pungens	Khaki weed	h,w	-
Amaranthus viridis	Green amaranthus	h,w	-
Anacardiaceae			
Schinus terebinthifolia	Broad-leaved peppertree	s,w	-
Asclepiadaceae			
Gomphocarpus physocarpus	Balloon cotton bush	s,w	-
Asteraceae			
Ageratum houstonianum	blue billy-goat	h,w	-
Ambrosia artemisiifolia	annual ragweed	h,w	2
Baccharis halimifolia	groundsel bush	s,w	2
Bidens pilosa	cobblers pegs	h,w	-
Calyptocarpus vialis	creeping cinderella weed	h,w	-
Cirsium vulgare	spear thistle	h,w	-
Conyza bonariensis	flaxleaf fleabane	h,w	-
Conyza pusilla	Canadian fleabane	h,w	-
Crassocephalum crepidioides	thickhead	h,w	-
Hypochaeris radicata	flatweed	h.w	-
Parthenium hysterophorus	Parthenium weed	h,w	2
Senecio sp (lautus)	Fireweed	h	-
Sonchus oleraceus	Rough sow thistle	h,w	-
Sphagneticola trilobata	Singapore daisy	h,w	3
Tagetes minuta	**Stinking Roger**	**h,w**	-
Avicenniaceae			
Avicennia marina [n]	grey mangrove	t	-
Boraginaceae			
Heliotropium amplexicaule	Blue heliotrope	h,w	-
Cactaceae			
Opuntia sp.	Prickly pear	s,w	2
Casuarinaceae			
*Casuarina equisetifolia**	Coastal sheoak	t	-
*Allocasuarina littoralis**	Black sheoak	t	-
Caesalpiniaceae			
Crotalaria paniculata	Poor mans gold	h	-
Senna pendula var *glabrifolia*	Easter cassia	s,w	-
Convolvulaceae			
Cuscuta campestris	Dodder	v,w	-
Convolvulus arvensis	European bindweed	h,w	-

Ipomoea sp. (alba)		v,w	-
Ipomoea cairica	mile-a-minute	v,w	-
Ipomoea pes-caprae [n]	goats foot convolvus	v	-
Euphorbiaceae			
Chamaesyce maculata	Caustic weed	h,w	-
Euphorbia hirta	Asthma plant	h,w	-
Euphorbia sp.	Spurge	h,w	-
Macaranga tanarius [n]	Macaranga	t (p)	-
Phyllanthus virgatus	creeping phyllanthus	h,w	-
Fabaceae			
Crotalaria pallida	rattle pod	h,w	-
Desmodium uncinatum	Silver-leafed desmodium	v,w	-
Macroptilium atropurpureum	siratro	v,w	-
Medicago sativa	Lucerne	h,w	-
Melilotus indicus	Sweet melilotus	h,w	-
Sesbania cannabina	Sesbania pea	h,w	-
Trifolium repens	White clover	h,w	-
Lauraceae			
Cinnamomum camphora	camphora laurel	t,w	3
Malvaceae			
Hibiscus tiliaceus [n]	cotton tree	t	-
Modiola caroliniana [n]	red flower mallow	h,w	-
Sida cornifolia	flannel weed	h,w	-
Sida rhombifolia	common sida	h,w	-
Mimosaceae			
Acacia aulacocarpa [n]	hickory wattle	t	-
Myrtaceae			
Eucalyptus robusta [n]	swamp mahogany	T,(p)	-
Lophostemon confertus [n]	brush box	T,(p)	-
Melaleuca linariifolia [n]	flax-leafed paperbark	t,(p)	-
Melaleuca quinquenervia [n]	paperbark teatree	T,(p)	-
Onagraceae			
Oenothera drummondii [n]	beach evening primrose	s	-
Oxalidaceae			
Oxalis corniculata	Creeping oxalis	h,w	-
Pandanaceae			
Pandanus tectorius [n]	screw pine	t,(p)	-
Passifloraceae			
Passiflora cairica	stinking passion vine	v,w	-
Passiflora subpeltata	white passion vine	v,w	-
Plantaginaceae			
Plantago lanceolata	lamb's tongue	h,w	-
Plantago major	Great plantain	h,w	-
Poaceae			
Brachiaria decumbens	signal grass	g,w	-
Brachiaria mutica	Para grass	g,w	-
Cenchrus ciliaris	buffel grass	g,w	-
Cenchrus echinatus	Mossman River grass	g,w	-
Chloris gayana	Rhodes grass	g,w	-
Chloris truncata	windmill grass	g,w	-
Chloris virgata	feather-top Rhodes grass	g,w	-
Cynodon dactylon	couch grass	g,w	-
Dichanthium aristatum	Angleton grass	h,w	-
Digitaria ciliaris	summer grass	g,w	-
Eleusine indica	crowsfoot grass	g,w	-

Hemarthria uncinata	Mat grass	g,w	-
Imperata cylindrica [n]	Blady grass	g	-
Melinis repens	red Natal grass	g,w	-
Melinis minutifolia	molasses grass	g,w	-
Poa annua	winter grass	g,w	-
Panicum effusum	hairy panic	g	-
Panicum maximum	green panic	g,w	-
Paspalum dilatatum	paspalum	g,w	-
Phragmites australis [n]	Common reed	g	-
Sorghum halepense [n]	Johnson grass	g,w	-
Typha orientalis [n]	Typha	g	-
Portulacaceae			
Portulaca pilosa	Hairy pigweed	h,w	-
Proteaceae			
Banksia integrifolia [n]	coastal banksia	t (p)	-
Sapindaceae			
Cardiospermum halicacabum	Balloon vine	v,w	-
Cupaniopsis anacardioides [n]	tuckeroo	T	-
Dodonaea triquetra	Hop bush	s	-
Solanaceae			
Solanum nigrum	Brazilian nightshade	s,w	-
Verbenaceae			
Lantana camara	climbing lantana	s,w	2
Verbena bonariensis	purple top	h,w	-
Verbena aristigera		h,w	-
Vitex trifolia var trifolia [n]		s	-

Appendix III – Weed Target List (AQIS)

List reference: - http://www.affa.gov.au

Family	Genus species	Author	Common name	Comments
Amaranthaceae	*Amaranthus dubius*	Mart. ex Thell	Chinese spinach	annual crops, rice, gardens, disturbed sites and secondary vegetation.
Asteraceae	*Austroeupatorium inulaefolium*	(H.B.K.) King and Robinson		tea, rubber, rosella and other plantation crops; roadsides; environmental weed in secondary forests.
Asteraceae	*Chromolaena odorata*	(L.) King and Robinson	Siam weed, Christmas bush	pastures, oil palm, rubber, coffee, cashew, fruit, maize, forestry. Toxic to livestock. Major environmental weed: secondary forests, roadsides, disturbed sites.
Asteraceae	*Mikania cordata*	(Burm. f.) B.L. Robinson		rubber, coffee, banana, cocoa and oil palm plantations, pastures; potential environmental weed
Asteraceae	*Mikania micrantha*	H.B.K.	mile-a-minute	cocoa, coconut, orchards, rubber, oil palm, sugarcane, vegetables, upland rice, pastures; serious environmental weed
Capparaceae	*Cleome rutidosperma*	DC.	spiderflower	crops including vegetables, bananas, maize, tobacco, watermelons, cocoa, pineapples and coconuts; weed of disturbed ground and immature plantations.
Cyperaceae	*Fimbristylis umbellaris*	(Lam.) Vahl	globular Fimbristylis	rice, pastures; swamps.
Cyperaceae	*Schoenoplectus juncoides*	(Roxb.) Palla		rice, freshwater and tidal swamps.
Cyperaceae	*Scirpus maritimus*	L.		rice, freshwater and tidal swamps.
Equisetaceae	*Equisetum ramosissimum*	Desf. subsp. debile (Vauch.) Hauke	horsetail, scouring rush	rice terraces and bunds, tea plantations.
Eriocaulaceae	*Eriocaulon truncatum*	Buch. - Ham. ex Mart		rice, wetlands, river banks and floodplains
Euphorbiaceae	*Croton hirtus*	L'Herit		rubber plantations; crops including mung beans, peanuts, soybeans, papaya, vegetables and tobacco.
Fabaceae	*Mucuna pruriens*	DC.	velvet bean, cow-itch	weed of pastures and a wide range of dryland crops; smothering habit and ability to climb to tree tops makes a

Family	Genus species	Author	Common name	Comments
				significant potential environmental weed. Irritant hairs can kill livestock if ingested and cause severe skin reaction if touched.
Haloragaceae	*Myriophyllum spicatum*	L.	Eurasian watermilfoil	serious weed of lakes, water-storages, canals and rivers. Affects fish and shellfish production and recreational use of water bodies
Lamiaceae	*Hyptis brevipes*	Poit.	lesser roundweed	plantation crops, orchards, vegetables rice; secondary forest, and disturbed sites in areas of high rainfall.
Limnocharitaceae	*Limnocharis flava*	(L.) Buchenau	yellow bur-head, yellow sawah lettuce	serious weed of rice and wetlands. Used as a green vegetable.
Lythraceae	*Rotala indica*	(Willd.) Koehne	toothcup	rice fields, river banks, ditches and moist environments
Melastomaceae	*Clidemia hirta*	(L.) D. Don.	Koster's curse, soap bush	cocoa, tea, coconut, oil palm and rubber plantations, cultivated areas, pastures, secondary forest and woodlands; other disturbed sites.
Myrtaceae	*Rhodomyrtus tomentosa*	(Ait.) Hassk.	downy rose myrtle	environmental weed; pastures, rangelands and untended areas.
Nyctaginaceae	*Boerhavia erecta*	L.		peanuts, sorghum, rice and other annual crops; weed of cultivated land, pastures and coastal environments.
Piperaceae	*Piper aduncum*	L.		weed of grazing lands and secondary forest, roadsides; environmental weed.
Poaceae	*Brachiaria paspaloides*	(Presl.) C.E. Hubb	common Brachiaria, Thurston grass	orchards, tea, coffee, rice, lawns, roadsides, disturbed sites.
Poaceae	*Coix aquatica*	Roxb.	Job's tears	serious weed of waterways, rice
Poaceae	*Digitaria fuscescens*	(Presl.) Henr.	common crabgrass	tobacco, vegetables, rubber, rice; pastures, disturbed sites, roadsides, coastal dunes, dry forests.
Poaceae	*Digitaria insularis*	(L.) Mes ex Ekman		pineapples; unpalatable weed of pastures, headlands, roadsides.
Poaceae	*Echinochloa glabrescens*	Munro ex Hook. f.	a barnyard grass	rice, maize.
Poaceae	*Echinochloa stagnina*	(Retz) Beauv.		rice; lakes, rivers, wetlands; roadsides, open places. Potential major environmental weed.
Poaceae	*Eriochloa*	H.B.K.	Carib grass	rice, riverbanks, swamps,

Family	Genus species	Author	Common name	Comments
	polystachya			drains and ditches; suppresses other vegetation.
Poaceae	*Ischaemum timorense*	Kunth.	centipede grass	cloves, cocoa, rubber, coconut, oil palm, sugarcane and rice plantations; weed of roadsides, ditches, forest margins.
Poaceae	*Leptochloa chinensis*	(L.) Nees.	red sprangletop, feathergrass	rice, cotton, soybean, maize, sugarcane, pineapple, sweet potato, vegetables, peanuts, tea, bananas.
Poaceae	*Leptochloa panicea*	(Retz.) Ohwi	sprangletop	rice, cotton, soybeans, peas, sugarcane, maize, peanuts, pastures.
Poaceae	*Sacciolepis interrupta*	(Willd.) Stapf.		rice, irrigation channels, wetlands. Potential environmental weed.
Rubiaceae	*Diodia sarmentosa*	Sw.		coffee, tea, leucaena, Stevia sp. plantations.
Rubiaceae	*Paederia foetida*	L.	lesser Malayan stinkwort	sugarcane, secondary forest; climbs over shrubs and trees - potential environmental weed.
Rubiaceae	*Spermacoce assurgens*	Ruiz & Pav.		rice, maize, coconuts, sugarcane, bananas, pasture, gardens, forest clearings
Rubiaceae	*Spermacoce mauritiana*	Gideon		invades tracks in primary rainforest; rice, sugarcane, gardens, lawns.
Salviniaceae	*Salvinia cucullata*	Roxb.	Salvinia	rice, waterways, wetlands.
Salviniaceae	*Salvinia natans*	(L.) All.	Salvinia	rice, waterways wetlands.
Scrophulariaceae	*Striga angustifolia*	(D. Don.) C.J. Saldanha	witchweed	root parasite on rice, sorghum, sugarcane.
Scrophulariaceae	*Striga asiatica*	(L.) O. Ktze.	witchweed	serious root parasite on rice, maize, sorghum, sugarcane, millet; also on some broadleaf crops including sunflower, tomatoes, some legumes.
Violaceae	*Hybanthus attenuatus*	(Humb. & Bonpl.) G.K. Schulze		rice, a wide diversity of annual crops, pastures, waste places.

Appendix IV – Land Protection Regulations 2003 – Classes.

The following table contains a list of species recorded from the Lucinda Drain and which have been listed in Schedule 2 of the *Land Protection (Pest and Stock Route Management) Regulations* 2003.

Class	Species
Class 1 pests	▪ No species recorded
Class 2 pests	▪ Groundsel bush - *Baccharis halimifolia* ▪ Prickly pear - *Opuntia spp.*
Class 3 pests	▪ Broad-leafed peppertree – *Schinus terebinthifolia* ▪ Camphora laurel – *Cinnamomum camphora* ▪ Lantana – *Lantana camara* ▪ Singapore Daisy – *Sphagneticola trilobata*

Appendix V – Plant Survey Tool

Family/Species	Common name	Form	Declaration category (LPA)	Presence	Abundance
Aizoaceae					
Carpobrotus glaucescens [n]	pigface	v	-		
Sesuvium portulacastrum [n]	sea purslane	h	-		
Amaranthaceae					
Alternanthera pungens	Khaki weed	h,w	-		
Amaranthus viridis	Green amaranthus	h,w	-		
Anacardiaceae					
Schinus terebinthifolia	Broad-leaved peppertree	s,w	-		
Asclepiadaceae					
Gomphocarpus physocarpus	Balloon cotton bush	s,w	-		
Asteraceae					
Ageratum houstonianum	blue billy-goat	h,w	-		
Ambrosia artemisiifolia	annual ragweed	h,w	2		
Baccharis halimifolia	groundsel bush	s,w	2		
Bidens pilosa	cobblers pegs	h,w	-		
Calyptocarpus vialis	creeping cinderella weed	h,w	-		
Cirsium vulgare	spear thistle	h,w	-		
Conyza bonariensis	flaxleaf fleabane	h,w	-		
Conyza pusilla	Canadian fleabane	h,w	-		
Crassocephalum crepidioides	thickhead	h,w	-		
Hypochaeris radicata	flatweed	h.w	-		
Parthenium hysterophorus	Parthenium weed	h,w	2		
Senecio sp (lautus)	Fireweed	h	-		
Sonchus oleraceus	Rough sow thistle	h,w	-		
Sphagneticola trilobata	Singapore daisy	h,w	3		
Tagetes minuta	Stinking Roger	h,w	-		
Avicenniaceae					
Avicennia marina [n]	grey mangrove	t	-		
Boraginaceae					
Heliotropium amplexicaule	Blue heliotrope	h,w	-		
Cactaceae					
Opuntia sp.	Prickly pear	s,w	2		
Casuarinaceae					
*Casuarina equisetifolia**	Coastal sheoak	t	-		
*Allocasuarina littoralis**	Black sheoak	t	-		
Caesalpiniaceae					
Crotalaria paniculata	Poor mans gold	h	-		
Senna pendula var *glabrifolia*	Easter cassia	s,w	-		
Convolvulaceae					
Cuscuta campestris	Dodder	v,w	-		
Convolvulus arvensis	European bindweed	h,w	-		

Family/Species	Common name	Form	Declaration category (LPA)	Presence	Abundance
Ipomoea sp. (alba)		v,w	-		
Ipomoea cairica	mile-a-minute	v,w	-		
Ipomoea pes-caprae [n]	goats foot convolvus	v	-		
Euphorbiaceae					
Chamaesyce maculata	Caustic weed	h,w	-		
Euphorbia hirta	Asthma plant	h,w	-		
Euphorbia sp.	Spurge	h,w	-		
Macaranga tanarius [n]	Macaranga	t (p)	-		
Phyllanthus virgatus	creeping phyllanthus	h,w	-		
Fabaceae					
Crotalaria pallida	rattle pod	h,w	-		
Desmodium uncinatum	Silver-leafed desmodium	v,w	-		
Macroptilium atropurpureum	siratro	v,w	-		
Medicago sativa	Lucerne	h,w	-		
Melilotus indicus	Sweet melilotus	h,w	-		
Sesbania cannabina	Sesbania pea	h,w	-		
Trifolium repens	White clover	h,w	-		
Lauraceae					
Cinnamomum camphora	camphora laurel	t,w	3		
Malvaceae					
Hibiscus tiliaceus [n]	cotton tree	t	-		
Modiola caroliniana [n]	red flower mallow	h,w	-		
Sida cornifolia	flannel weed	h,w	-		
Sida rhombifolia	common sida	h,w	-		
Mimosaceae					
Acacia aulacocarpa [n]	hickory wattle	t	-		
Myrtaceae					
Eucalyptus robusta [n]	swamp mahogany	T,(p)	-		
Lophostemon confertus [n]	brush box	T,(p)	-		
Melaleuca linariifolia [n]	flax-leafed paperbark	t,(p)	-		
Melaleuca quinquenervia [n]	paperbark teatree	T,(p)	-		
Onagraceae					
Oenothera drummondii [n]	beach evening primrose	s	-		
Oxalidaceae					
Oxalis corniculata	Creeping oxalis	h,w	-		
Pandanaceae					
Pandanus tectorius [n]	screw pine	t,(p)	-		
Passifloraceae					
Passiflora cairica	stinking passion vine	v,w	-		
Passiflora subpeltata	white passion vine	v,w	-		
Plantaginaceae					
Plantago lanceolata	lamb's tongue	h,w	-		
Plantago major	Great plantain	h,w	-		
Poaceae					
Brachiaria decumbens	signal grass	g,w	-		

Family/Species	Common name	Form	Declaration category (LPA)	Presence	Abundance
Brachiaria mutica	Para grass	g,w	-		
Cenchrus ciliaris	buffel grass	g,w	-		
Cenchrus echinatus	Mossman River grass	g,w	-		
Chloris gayana	Rhodes grass	g,w	-		
Chloris truncata	windmill grass	g,w	-		
Chloris virgata	feather-top Rhodes grass	g,w	-		
Cynodon dactylon	couch grass	g,w	-		
Dichanthium aristatum	Angleton grass	h,w	-		
Digitaria ciliaris	summer grass	g,w	-		
Eleusine indica	crowsfoot grass	g,w	-		
Hemarthria uncinata	Mat grass	g,w	-		
Imperata cylindrica [n]	Blady grass	g	-		
Melinis repens	red Natal grass	g,w	-		
Melinis minutifolia	molasses grass	g,w	-		
Poa annua	winter grass	g,w	-		
Panicum effusum	hairy panic	g	-		
Panicum maximum	green panic	g,w	-		
Paspalum dilatatum	paspalum	g,w	-		
Phragmites australis [n]	Common reed	g	-		
Sorghum halepense [n]	Johnson grass	g,w	-		
Typha orientalis [n]	Typha	g	-		
Portulacaceae					
Portulaca pilosa	Hairy pigweed	h,w	-		
Proteaceae					
Banksia integrifolia [n]	coastal banksia	t (p)	-		
Sapindaceae					
Cardiospermum halicacabum	Balloon vine	v,w	-		
Cupaniopsis anacardioides [n]	tuckeroo	T	-		
Dodonaea triquetra	Hop bush	s	-		
Solanaceae					
Solanum nigrum	Brazilian nightshade	s,w	-		
Verbenaceae					
Lantana camara	climbing lantana	s,w	2		
Verbena bonariensis	purple top	h,w	-		
Verbena aristigera		h,w	-		
Vitex trifolia var trifolia [n]		s	-		