Port of Brisbane Annual Weed Survey 2021

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Synopsis: **This report provides the results of the 2021 Weed Monitoring Program at the Port of Brisbane.**

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Executive Summary

Weed monitoring has been conducted annually at the Port of Brisbane (the Port) since 2001. The program aims to:

- detect the introduction and spread of new weed species on Port lands
- monitor priority weed species at high value natural asset locations managed by the Port of Brisbane Pty Ltd (PBPL), especially habitat for migratory waders, locally significant wetlands and sites considered to be at potential risk to new weed incursion from imported vehicles.

Priority weeds targeted in the survey include Weeds of National Significance, Prohibited and Restricted Matters regulated under the Queensland *Biosecurity Act 2014*, environmental weeds listed by the Brisbane City Council and native species that have the potential to negatively impact on local habitat values.

Weed composition and distribution at the Port has remained relatively stable over the monitoring period. No newly imported weeds were recorded at the Port. The sites considered most at risk to weed imports are imported vehicle storage areas and downstream environments. These areas are maintained (mown) and/or are influenced by saline water, reducing the potential for new weeds to establish and spread.

All weed species recorded at the monitoring sites are common and widespread in degraded coastal habitats of south-east Queensland. No new weed species were recorded during the survey. Patches of native reed *Phragmites australis* and *Sesbania cannabina* were detected - both species may impact saltmarsh habitat values, particularly in the bird hide. *Sesbania* is an annual to perennial woody plant that can form dense thickets which die out and are re-established through the soil seedbank. Ongoing monitoring will assess whether these species are contributing to altered hydrological conditions that may favour the establishment of terrestrial weeds which could reduce saltmarsh values for migratory waders.

Regular monitoring has indicated that weeds recorded at the Port are widespread in south-east Queensland and that saltmarsh communities are vulnerable to the impacts of exotic and native species encroachment. Annual monitoring will be required to monitor these high value habitats to ensure weed control measures can be applied, if required, to protect habitat condition and resources (e.g. wader feeding grounds).

Restoration works at Fort Lytton have resulted in an increase in saltmarsh habitat in previously degraded habitats. The restored habitats comprise succulent saltmarsh, saltcouch grasslands, intertidal mudflats and sparse mangrove recruitment. There was also evidence of wader-use at this newly restored site. Filled sites within and directly adjacent to intertidal wetlands at Port Drive may have similar restoration potential. It is recommended that recreational and service vehicles are prevented from accessing intertidal habitats at Port Drive to protect saltmarsh and wader habitat values.

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1 Introduction

Weed monitoring surveys have been conducted annually at the Port of Brisbane (the Port) since 2001. The weed monitoring program aims to detect the introduction and spread of new weed species at the Port and to monitor priority weed species within high value natural assets managed by the Port of Brisbane Pty Ltd (PBPL). The monitoring program focuses on habitat for migratory waders, locally significant wetlands and sites considered to be at potential risk to new weed incursion from imported goods.

Priority weeds targeted in the survey include plant species listed under one or more of the following categories:

- Weeds of National Significance (WoNS) (refer Appendix A)
- Prohibited and Restricted Matters regulated under the Queensland *Biosecurity Act 2014* (refer Appendix B)
- Environmental weeds listed by the Brisbane City Council (refer Appendix C)
- Native species that have the potential to negatively impact on local natural assets.

Recommendations for strategic weed management at the Port are provided based on a risk-based approach which considers feasibility, likelihood of success and impact.

2 Methodology

In accordance with previous monitoring surveys, weed inspections in 2021 were undertaken in post-summer in March. The survey was conducted by a qualified botanist (Suanne Richards) with over 20 years weed and native vegetation survey experience in coastal south-east Queensland habitats.

All surveys were conducted on-foot to ensure that extensive coverage of the survey sites was achieved. Incidental observations of target weed species outside the survey sites were also recorded. The locations of all notable weed observations were recorded on a handheld GPS. Weed identification was undertaken on site.

Sesbania cannabina is a native species however, it's presence was recorded as this this woody species can form thickets and it is potentially spreading in local saltmarsh and developing a seedbank. It has the potential to displace low saltmarsh cover and provide conditions more suitable for exotic grasses. We are monitoring it to ensure it doesn't form permanent extensive thickets to the point it excludes low saltmarsh and wader habitat.

Survey sites were comprised of the following:

- Sites of locally significant natural asset value:
  - Bird Hide habitat for migratory waders
  - Local bird habitat at the lake adjacent to the previous Visitors Centre
  - Locally significant wetlands at Lucinda Drain, Port Drive, Fort Lytton and Port West.
- Sites at risk to new weed imports:
  - T1-3 Overflow area and Car Precinct Area
  - Port West Drain
  - Port Gate Drain.

Whilst every effort has been made to identify targeted weed species in the Port survey sites, the detectability of plant species and the ability to accurately identify these in the field varies with seasonal and climatic conditions. Such conditions influence the presence of reproductive features (flowers, fruits and seeds) which are useful, and in some cases essential, for species identification. Consequently, the survey conducted should not be regarded as conclusive that targeted weeds do not occur at the Port.

3 Results

Figure 3-1 shows the distribution of the major environmental and restricted weeds recorded in the 2021 survey. The following section provides a description of weed composition and distribution recorded at each of the survey sites in 2021.

3.1 Locally Significant Natural Assets

3.1.1 Lucinda Drain

3.1.1.1 Site Description

Lucinda Drain is a constructed channel located east of Lucinda Drive that provides drainage for stormwater run-off from hardstand areas at the Port to the north. The drain lies adjacent to locally significant estuarine wetlands and discharges through the Lucinda Weir into Boat Passage.

The tidal channel does not contain extensive aquatic macrophyte cover but supported a low, discontinuous fringe of native grey mangrove (*Avicennia marina*). The drain is periodically maintained, with mangroves actively removed to ensure the drain fulfils its primary purpose for stormwater run-off.

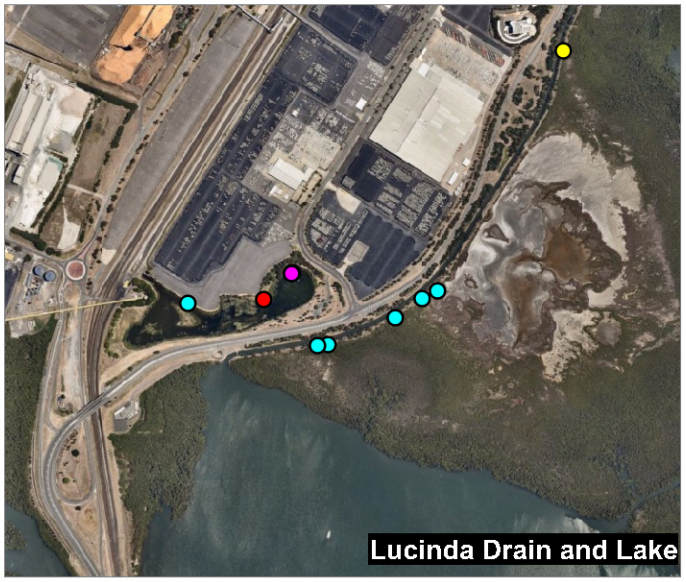
The channel banks supported planted and naturally recruited shrubs and trees comprised of a mix of local native terrestrial species such as eucalypts, she-oaks (*Casuarina* spp.), figs (*Ficus* spp.), cotton tree (*Hibiscus tiliaceus*), *Melaleuca* spp. and *Macaranga tanarius*. Introduced shrubs were sparse and the groundcover was dominated by exotic grasses.

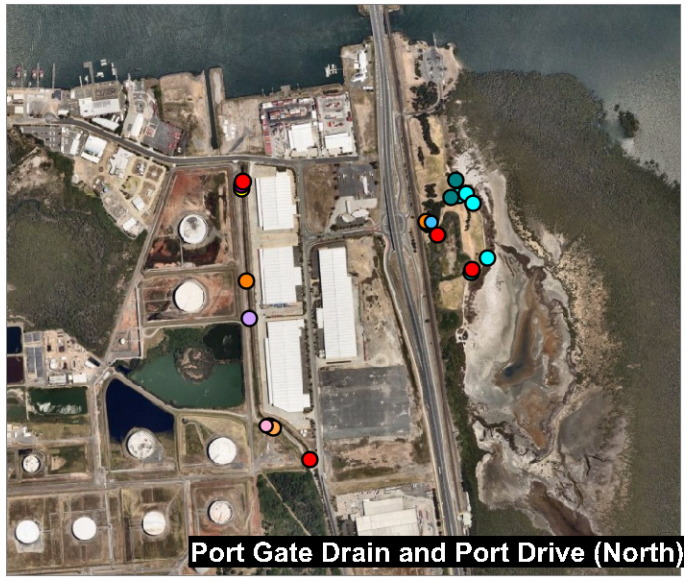
The western bank of the drain adjacent to Lucinda Drive undergoes regular maintenance involving mowing and weed spraying. Poor access along the eastern bank of Lucinda Drain limits regular maintenance but weeds are reportedly removed on an annual basis.

3.1.1.2 Weeds

The following observations were made in the 2021 survey:

- No new weed species were recorded within or directly adjacent to Lucinda Drain
- Woody weed cover remains sparse due to active weed management
- Restricted Matters recorded included: widespread but sparse broad-leaved pepper tree (*Schinus terebinthifolius*), lantana (*Lantana camara*) and groundsel (*Baccharis halimifolia*)
- Exotic species recorded were dominated by environmental weeds well established across Brisbane including: mile a minute *(Ipomoea cairica), Schinus terebinthifolius,* siratro (*Macroptilium atropurpureum*), Rhode's grass (*Chloris gayana*), green panic (*Megathyrsus maximus var. maximus*), Brazilian nightshade (*Solanum seaforthianum*), blackberry nightshade (*Solanum nigrum*) and rattlepod (*Crotalaria pallida*)
- Consistent with previous surveys, the dominant woody weed recorded at Lucinda Drain was *Schinus terebinthifolius*. Other woody weeds included *Lantana camara* and *Leucaena leucocephala*





LEGEND

Title:

2021 Weed Survey Results

Figure: 3-1

Rev: A

BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.

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Approx. scale

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- *Macroptilium atropurpureum, Ipomoea cairica,* glycine (*Neonotonia wightii)* and *Solanum seaforthianum* were the most abundant exotic vine species
- The groundcover was dominated by mown exotic grasses including *Chloris gayana, Megathyrsus maximus* var. *maximus, Melinis repens* and Mossman River grass (*Cenchrus echinatus*)
- Other exotic groundcovers, forbs and herbs included *Stylosanthes scabra*, *Commelina benghalensis, Tridax procumbens, Calyptocarpus vialis, Gomphrena celosioides, Cynodon dactylon, Sida cordifolia, Capsella bursa-pastoris, Heliotropium amplexicaule, Erigeron bonariensis, Crassocephalum crepidioides, Bidens pilosa, Portulaca oleracea, Ageratum houstonianum, Oenothera drummondii, Plantago major, Sonchus oleraceus, Phyllanthus virgatus* and *Malvastrum coromandelianum*
- No aquatic macrophyte weed species were recorded. The brackish to saline conditions of the channel limits the establishment of exotic aquatic macrophytes known from the region
- Species not recorded in this survey or in the previous survey in 2020 included Easter cassia (*Senna pendula* var. *glabrata)* and prickly pear (*Opuntia stricta).*

Sparse *Sesbania cannabina* was also observed on the banks of the drain.

Figure 3-2 Lucinda Drain 2021

3.1.2 Bird Hide Wetlands

3.1.2.1 Site Description

The bird hide survey site adjacent to Lucinda Drive comprises intertidal flats supporting sparse mangroves and saltmarsh and provides important habitat for migratory waders (refer to Figure 3-3).

3.1.2.2 Weeds

The filled surrounds above tidal influence supported terrestrial grasslands which are regularly mown and comprised a range of exotic grasses and herbaceous environmental weeds widespread throughout the region. This included:

- Woody weeds: *Baccharis halimifolia, Lantana camara (*both Restricted Matters*)* and *Solanum nigrum*

- Exotic grasses: *Chloris gayana, Megathyrsus maximus var. maximus, Cenchrus echinatus, Melinis repens, Sorghum halepense, Cynodon dactylon* and *Setaria sphacelata*
- Vines: *Ipomoea cairica and Macroptilium atropurpureum* and *Neonotonia wightii*
- Herbs: *Stylosanthes scabra, Tridax procumbens, Gomphrena celosioides, Erigeron bonariensis, Crassocephalum crepidioides, Sonchus oleraceus, Bidens pilosa,* dirty Dora *(Cyperus difformis), Capsella bursa-pastoris, Portulaca oleracea, Ageratum houstonianum, Oenothera drummondii, Cakile edentula* and *Macroptilium lathyroides.*

Weed composition on the fill surrounding the wetlands has not greatly changed between survey episodes. Localised increases in the extent of the native *Sesbania cannabina*, a salinity tolerant species, was observed on the upper banks. Sesbania is an annual to perennial woody plant that can form dense thickets which die out and are re-established through the soil seedbank.

The saline conditions of the intertidal wetlands prevent the establishment of most introduced taxa, except for minor patches of *Baccharis halimifolia. Macroptilium atropurpureum* was also observed in samphire zones at the upper tidal limit. The native species *Phragmites australis* and *S. cannabina* are also expanding within the samphire and saltmarsh communities of the wetlands. Ongoing monitoring will assess whether these species are contributing to altered hydrological conditions that may favour the establishment of terrestrial weeds, such as *Chloris gayana, Schinus terebinthifolius* and *Baccharis halimifolia.* Such changes could reduce saltmarsh values for migratory waders.

Figure 3-3 Bird Hide 2021

Title:

Intertidal Wetlands at the Bird Hide 2021

Figure: **3-4**

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3.1.3 Constructed Lake

3.1.3.1 Site Description

The lake at the previous visitor centre is a highly modified, constructed wetland that provides habitat value for local wetland bird species (refer Figure 3-5).

3.1.3.2 Weeds

There has been no significant change in weed species composition at the lake and observations made in 2021 were consistent with the previous survey as follows:

- No new weed species were recorded at the lake
- Restricted Plants recorded included *Baccharis halimifolia, Schinus terebinthifolius, Celtis sinense, Lantana montevidensis* and *Lantana camara*
- Exotic species recorded were dominated by environmental weeds well established across Brisbane including: *Schinus terebinthifolius, Lantana camara, Ipomoea cairica, Ricinus communis, Macroptilium atropurpureum, Cenchrus echinatus, Megathyrsus maximus var. maximus, Solanum nigrum*
- Dominant woody weeds included *Schinus terebinthifolius, Baccharis halimifolia, Celtis sinense, Ricinus communis* and *Lantana camara*
- Dominant exotic vines recorded included *Ipomoea cairica, Passiflora foetida* and *Macroptilium atropurpureum*
- The sparse groundcover was regularly mowed. The most widespread exotic groundcovers were *Megathyrsus maximus var. maximus, Cenchrus echinatus, Melinis repens, Chloris gayana, Digitaria ciliaris, Cynodon dactylon, Paspalum* spp., *Setaria sphacelata* and *Cortaderia selloana*
- Common exotic herbs and forbs included *Ageratum houstonianum, Plantago lanceolata, Cyperus eragrostis, Bidens pilosa,* coral berry (*Rivina humilis*), *Crassocephalum crepidioides, Eclipta prostrata,* inkweed *(Phytolacca octandra*), *Capsella bursapastoris, Gomphrena celosioides, Heliotropium amplexicaule, Lantana montevidensis, Conyza bonariensis, Hypochaeris radicata, Oenothera drummondii, Tridax procumbens, Verbena bonariensis, Portulaca oleracea and Malvastrum coromandelianum*
- Exotic aquatic macrophytes recorded in the shallow waters on the lakes edge included umbrella sedge (*Cyperus involucratus*) and *Ludwigia longifolia*
- No Fireweed (*Senecio madagascariensis*) was recorded.


Figure 3-5 Lake 2021

3.1.4 Port Drive Wetlands

3.1.4.1 Site Description

Port lands south of Boat Passage and east of Port Drive support extensive intertidal wetlands comprising mangroves and saltmarsh of high ecological value.

3.1.4.2 Weeds

All weed species recorded at this site are widespread across the Port and are well-established in the Brisbane region and throughout coastal south-east Queensland. No new weed species were recorded.

Whilst mangroves are not prone to weed invasion due to regular tidal inundation, the saltmarsh-mangrove ecotone continues to support localised patches of *Schinus terebinthifolius* on higher ground with a groundcover of *Chloris gayana* and *Megathyrsus maximus var. maximus.*

As identified in previous monitoring surveys, the landward edge of the saltmarsh is still being regularly slashed for ground maintenance, resulting in removal of succulent saltmarsh species, alterations to local topography and promoting the spread of exotic grasses, particularly *Chloris gayana,* into saltmarsh habitat. There is also evidence of recreational vehicle disturbance across the site which is damaging saltmarsh and intertidal habitat and may disturb resident waders. *Phragmites australis* continues to form sparse localised patches at the upper tidal limit of the saltmarsh.


Figure 3-6 Port Drive Wetlands 2021

3.1.5 Port Drive South

The western road corridor of Port Drive supports remnant *Melaleuca quinquenervia* wetlands in good condition. Weeds are restricted to the cleared edges and are dominated by *Schinus terebinthifolius, Lantana camara, Baccharis halimifolia, Solanum mauritianum, Schefflera actinophylla, Celtis sinense, Cinnamomum camphora, Baccharis halimifolia* and *Senna pendula* var. *glabrata*. The dominant weedy vines included M*acroptilium atropurpureum, Araujia sericifera, Cardiospermum grandiflorum, Passiflora* spp. and *Anredera cordifolia*. Sparse exotic groundcovers restricted to disturbed woodlands at the edge of the road reserve included *Melinis repens, Megathyrsus maximus var. maximus* and *Asparagus densiflorus.*

All weeds recorded adjacent to the wetlands are widespread in coastal wetlands of south-east Queensland, are restricted to the edge of the wetlands (typically within 10-20 m of the road reserve) and are not compromising the condition or value of these local high value Melaleuca habitats.


Figure 3-7 Port Drive South Wetlands 2021

3.1.6 Fort Lytton Wetlands

Port lands at Fort Lytton adjacent to the Brisbane River support intertidal wetlands comprising mangroves and saltmarsh of high ecological value, including one of the largest remaining patches of saltmarsh near the mouth of the Brisbane River.

Less than 0.5ha of filled land within the saltmarsh of the survey site previously supported dense weeds (refer Figure 3-8). In late 2019, exotic flora within the fill site was cleared and the ground level was re-profiled (refer to Figure 3-8). Bollards were also installed to the north of the site which provides an effective barrier to protect saltmarsh from vehicle disturbance.

The site survey in March 2020 indicated there had been sparse saltmarsh restoration within the cleared site, with approximately 10% groundcover of regenerating *Phragmites australis* and *Sesuvium portulacastrum*. Minor patches of introduced grasses, mainly *Megathyrsus maximus* var. *maximus,* were also observed.

Natural saltmarsh recovery has continued with approximately 60% of the site currently supporting saltmarsh vegetation comprising *Sesuvium portulacastrum* (60% cover), *Sporobolus virginicus* (40% cover) and *Phragmites australis* (10% cover). Sparse *Avicennia marina* seedlings and *Enchylaena tomentosa* were also recorded. Approximately 20% of the restoration site supports bare mudflats which showed signs of wader use, and 20% of the site comprises seasonal ponding (wet at the time of survey). No weeds or *Sesbania cannabina* were recorded directly within the restoration site.

Disturbed terrestrial lands remain to the east of the restoration site comprising *Leucaena leucocephala, Schinus terebinthifolius, Celtis sinense, Baccharis halimifolia, Phoenix* sp.*, Lantana camara, Phytolacca octandra, Solanum nigrum, Gomphocarpus physocarpus, Opuntia stricta, Ricinus communis* and *Solanum mauritianum.* Exotic groundcovers included *Chloris gayana, Megathyrsus maximus* var. *maximus, Setaria sphacelata* and *Sorghum halepense.* Other weeds recorded included *Anredera cordifolia, Ageratum houstonianum, Passiflora foetida, Erigeron bonariensis, Capsella bursa-pastoris, Bidens pilosa, Cynodon dactylon, Gomphrena celosioides, Ipomoea cairica, Paspalum urvillei, Plantago lanceolata* and *Sida* spp..

July 2019 Prior to Fill Removal and Ground Reprofiling

October 2019 after Site Works with Mangroves / Adjacent Saltmarsh Intact

March 2020 Sparse Natural Recovery Of Saltmarsh

May 2021 Ongoing Saltmarsh Restoration

Figure 3-8 Aerial Imagery of Fort Lytton Over Time

Figure 3-9 Saltmarsh Restoration

3.1.7 Port West Wetlands

3.1.7.1 Wetlands

3.1.7.1.1 Site Description

Port West located west of Lytton Road approximately 4 km south-west of the Port supports a mosaic of mangroves and saltmarsh directly connected to the Brisbane River. Similar to other sites at the Port, the saltmarsh-mangrove ecotone and upper tidal limits which lie adjacent to industrial land uses are susceptible to disturbance and weed invasion.

3.1.7.1.2 Weeds

The landward fringe of closed mangrove forest comprised evenly aged *Avicennia marina* over a dense native saltmarsh shrub layer comprised of *Sporobolus virginicus* and *Sesuvium portulacastrum.*

Weed composition was similar to previous monitoring surveys. Very sparse weed invasion was recorded under the dense mangrove canopy and comprised mainly isolated *Asparagus aethiopicus, Solanum seaforthianum, Baccharis halimifolia, Chloris gayana, Lantana camara, Rivina humilis, Opuntia stricta, Schinus terebinthifolius, Ricinus communis, Leucaena leucocephala, Senna pendula* var. *glabrata, Schefflera actinophylla* and *Megathyrsus maximus var. maximus* on elevated sites.

Locally elevated sites within saltmarsh landward of the mangrove fringe supported sparse *Schinus terebinthifolius* over a groundcover of *Megathyrsus maximus var. maximus* and *Chloris gayana.* More landward sites also supported *Senna pendula var. glabrata, Baccharis halimifolia, Ricinus communis, Opuntia stricta, Manihot grahamii, Tithonia diversifolia* and *Asparagus* spp..

All weed species recorded within the saltmarsh-mangrove interface at Port West are widespread across the Port and are well-established in the Brisbane region and throughout coastal south-east Queensland.

Figure 3-10 Port West Estuarine Habitat 2021

3.2 Sites at Risk to New Weed Imports

3.2.1 T1-3 Overflow Area and Car Precinct

3.2.1.1 Site Description

The T1-3 and Car Precinct areas at the Port store imported vehicles and are potential vectors for newly introduced weed species entering the country via container ships. The survey area is heavily modified and cleared, and undergoes regular maintenance including mowing and spraying for weeds. The site includes constructed concrete drains, regularly maintained roadside lawn, landscaped garden beds and the maintained Queensland Rail freight line easement.

3.2.1.2 Weeds

The following observations were made in the 2021 survey:

- No new weed species were recorded within the survey site
- Restricted Matters recorded included *Lantana montevidensis*
- Exotic species recorded were dominated by environmental weeds well established across Brisbane including: *Ipomoea cairica, Macroptilium atropurpureum, Cenchrus echinatus, Megathyrsus maximus var. maximus, Solanum nigrum*
- Dominant exotic vines recorded included *Ipomoea cairica* and *Macroptilium atropurpureum*
- The sparse groundcover was regularly mowed. The most widespread exotic groundcovers were *Megathyrsus maximus var. maximus, Cenchrus echinatus, Melinis repens, Chloris gayana, Digitaria ciliaris, Cynodon dactylon, Paspalum* spp. and *Setaria sphacelata*
- Common exotic herbs and forbs included *Ageratum houstonianum, Bidens pilosa, Crassocephalum crepidioides, Eclipta prostrata, Capsella bursapastoris, Gomphrena celosioides, Heliotropium amplexicaule, Lantana montevidensis, Conyza bonariensis, Hypochaeris radicata, Oenothera drummondii, Tridax procumbens, Verbena bonariensis, Portulaca oleracea and Malvastrum coromandelianum*
- There has been no significant change in weed species composition in the survey site.

Figure 3-11 T1-3, Car Precinct Waterway

3.2.2 Port Gate Drain

3.2.2.1 Site Description

Port Gate Drain lies to the south of Boat Passage and collects stormwater run-off from the adjacent hardstand areas and drains into, and partially receives, the tidal waters in Boat Passage. The banks of the drain are constructed of concrete, gravel and/or compacted earth, which limits extensive vegetation growth. The instream channel and banks were cleared of vegetation prior to the 2019 weed survey.

3.2.2.2 Weeds

The following observations were made in the 2021 survey:

- No new weed species were recorded within or directly adjacent to Port Gate Drain;
- Restricted Matters recorded included: *Baccharis halimifolia, Schinus terebinthifolius, Lantana camara, Celtis sinense* and *Cinnamomum camphora*
- Exotic species recorded were dominated by environmental weeds well established across Brisbane including: *Ipomoea cairica, Macroptilium atropurpureum, Chloris gayana, Megathyrsus maximus var. maximus, Bidens pilosa, Gomphocarpus physocarpus, Melinis repens, Solanum nigrum, Conyza bonariensis, Leucaena leucocephala, Passiflora foetida* and *Macroptilium lathyroides*
- The dominant woody weeds recorded included *Schinus terebinthifolius, Baccharis halimifolia* and *Lantana camara*. Other woody weeds included *Cinnamomum camphora, Celtis sinense, Gomphocarpus physocarpus, Leucaena leucocephala, Solanum chrysotrichum, Solanum nigrum* and *Psidium guajava*

- The groundcover was numerically dominated by exotic grasses including *Megathyrsus maximus* var. *maximus*, *Chloris gayana, Melinis repens, Sorghum halepense, Cenchrus echinatus* and *Paspalum* spp. Other introduced grasses included *Arundo donax, Cynodon dactylon* and *Andropogon virginicus*
- Dominant exotic vines included *Ipomoea cairica, Macroptilium atropurpureum, Vigna* sp. and *Passiflora* spp
- Common exotic herbs and forbs included *Bidens pilosa*, *Capsella* sp., *Emilia sonchifolia, Conyza bonariensis, Commelina benghalensis, Gomphrena celosioides, Sida cordifolia* and tridax *(Tridax procumbens)*
- No major differences in weed composition have been observed from that of the 2020 survey.

Figure 3-12 Port Gate Drain 2021

3.2.2.3 Port West Drain

3.2.2.3.1 Site Description

Port West Drain is a narrow intertidal channel fringed with remnant mangroves comprised of *Avicennia marina*. The channel is bounded to the west by extensive mangrove forest (described above) and to the east by cleared land for industrial purposes.

3.2.2.3.2 Weeds

The following observations were made in the 2021 survey:

- No new weed species were recorded within or directly adjacent to Port West Drain
- Restricted Matters recorded at the site included: *Schinus terebinthifolius, Lantana camara, Asparagus aethiopicus, A. africanus, Anredera cordifolia* and *Baccharis halimifolia*
- Exotic species recorded included *Ipomoea cairica, Macroptilium atropurpureum, Chloris gayana, Megathyrsus maximus* var. *maximus, Bidens pilosa*, *Gomphocarpus physocarpus*, *Melinis repens*, *Solanum nigrum*, *Conyza bonariensis, Macroptilium lathyroides, Asparagus aethiopicus* and *Asparagus africanus.* These environmental weeds are well established across Brisbane
- The dominant woody weeds recorded included *Schinus terebinthifolius* and *Lantana camara*. Other woody weeds included *Gomphocarpus physocarpus, Macroptilium lathyroides, Rivina humilis, Senna pendula var. glabrata, Phytolacca octandra* and *Solanum nigrum*
- The groundcover was numerically dominated by the exotic grasses *Megathyrsus maximus* var. *maximus, Chloris gayana, Melinis repens, Sorghum halepense* and *Paspalum urvillei*
- Dominant exotic vines included *Ipomoea cairica, Macroptilium atropurpureum, Neonotonia wightii,* white passionflower (*Passiflora subpeltata*) and stinking passionflower (*Passiflora foetida*)
- Common exotic herbs and forbs included *Bidens pilosa*, *Crotalaria pallida*, *Gomphrena celosioides*, *Sida cordifolia*, *Verbena bonariensis*, *Verbena litoralis, Sonchus oleraceus* and *Asclepias curassavica*
- No aquatic macrophyte weed species were recorded and none are likely to occur given the brackish to saline conditions of the waterway.

Figure 3-13 Port West Drain 2021

3.3 Weed Species Significance

The distribution of weed species identified as significant under each of the applicable governing bodies and Acts is shown in Figure 3-14. This mapping shows that Weeds of National Significance were relatively sparse but were distributed across the majority of study sites. Restricted invasive plants (under the Queensland Biosecurity Act) and environmental weeds (identified by the Brisbane City Council) are more widespread across the Port in terms of distribution and frequency.

LEGEND

- WONS (DAWE)
- Restricted Invasive Plants - QLD Biosecurity Act (DAWE)

Biosecurity Act

- High Risk
- Moderate Risk
- Low Risk
- Very Low Risk
- Little Risk
- Natural Assets Local Law

Title:

Weed Species Significance Distribution 2021

Figure: 3-14

Rev: A

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4 Discussion

The PBPL weed monitoring program aims to detect the introduction and spread of new weed species imported to the Port and to monitor priority weed species within high value natural assets, including habitat for migratory waders and locally significant wetlands. In summary:

- Weed composition and distribution at the Port has remained relatively stable over the monitoring period.
- All the weed species recorded in the survey sites at the Port are widespread in degraded coastal habitats of south-east Queensland and no new weed species were recorded during the survey.
- No newly imported weeds were recorded at the Port in 2021.
- The sites considered most at risk to weed imports are the imported vehicle storage areas and downstream environments. These sites provide poor habitat for weeds (well maintained and/or saline affected).
- Localised patches of native *Phragmites australis* and *Sesbania cannabina* may cause impacts to saltmarsh habitat values, particularly at the bird hide. Ongoing monitoring will assess whether these species are contributing to altered hydrological conditions that may favour the establishment of terrestrial weeds which could reduce saltmarsh values for migratory waders.
- Regular monitoring will continue to be essential to manage the potential risk associated with the import of new weed species to the Port.
- Restoration works at Fort Lytton have resulted in an increase in saltmarsh habitat in previously disturbed and degraded habitats at this site. Filled sites within and directly adjacent to intertidal wetlands at Port Drive may have similar restoration potential. It is recommended that recreational and service vehicles are prevented from accessing intertidal habitats within this site to protect saltmarsh and wader habitat values.

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Appendix A Weeds of National Significance (Department of Agriculture Water and the Environment)

Common Name	Scientific Name
African boxthorn	*Lycium ferocissimum*
Alligator weed	*Alternanthera philoxeroides*
Asparagus fern	*Asparagus aethiopicus*
Asparagus fern	*Asparagus scandens*
Athel pine	*Tamarix aphylla*
Bitou bush, boneseed	*Chrysanthemoides monilifera* subsp. *monilifera* and *rotundata*
Blackberry	*Rubus fruticosus* agg.
Bridal creeper	*Asparagus asparagoides*
Bridal veil creeper	*Asparagus declinatus*
Broom	*Cytisus scoparius*
Cabomba	*Cabomba caroliniana*
Cats claw vine	*Dolichandra unguis-cati*
Chilean needle grass	*Nassella neesiana*
Climbing asparagus	*Asparagus africanus*
Climbing asparagus fern	*Asparagus plumosus*
Cotton-leaved physic-nut	*Jatropha gossypifolia*
Delta arrowhead	*Sagittaria platyphylla*
Fireweed	*Senecio madagascariensis*
Flax-leaved broom	*Genista linifolia*
Gamba grass	*Andropogon gayanus*
Gorse	*Ulex europaeus*
Hymenachne	*Hymenachne amplexicaulis*
	Lantana camara
Mesquite	*Prosopis* spp.
Maderia vine	*Anredera cordifolia*
Mimosa	*Mimosa pigra*
Montpellier broom	*Genista monspessulana*
Parkinsonia	*Parkinsonia aculeata*
Parthenium weed	*Parthenium hysterophorus*
Pond apple	*Annona glabra*
Prickly acacia	*Vachellia nilotica* ssp. *indica*
Prickly pear	*Austrocylindropuntia* spp.
Prickly pear	*Cylindropuntia* spp.
Prickly pear	*Opuntia* spp.

Weeds of National Significance (Department of Agriculture Water and the Environment)

Common Name	Scientific Name
Rubber vine	*Cryptostegia grandiflora*
Salvinia	*Salvinia molesta*
Serrated tussock	*Nassella trichotoma*
Silver nightshade	*Solanum elaeagnifolium*
Water hyacinth	*Eichhornia crassipes*
Willows except weeping willows, pussy willow and sterile pussy willow	*Salix* spp. except *S. babylonica*, *S. X calodendron* and *S. X reichardtiji*

Appendix B Restricted Invasive Plants under the Queensland Biosecurity Act (Department of Agriculture and Fisheries)

Restricted Matter	Category
African boxthorn (*Lycium ferocissimum*)	3
African fountain grass (*Cenchrus setaceum*)	3
African tulip tree (*Spathodea campanulata*)	3
alligator weed (*Alternanthera philoxeroides*)	3
annual ragweed (*Ambrosia artemisiifolia*)	3
asparagus fern (*Asparagus aethiopicus, A. africanus* and *A. plumosus*)	3
asparagus fern (*Asparagus scandens*)	3
athel pine (*Tamarix aphylla*)	3
badhara bush (*Gmelina elliptica*)	3
balloon vine (*Cardiospermum grandiflorum*)	3
belly-ache bush (*Jatropha gossypiifolia* and hybrids)	3
bitou bush (*Chrysanthemoides monilifera* ssp. *rotundifolia*)	2,3,4,5
blackberry (*Rubus anglocandicans*, *Rubus fruticosus* aggregate)	3
boneseed (*Chrysanthemoides monilifera* ssp. *monilifera*)	2,3,4,5
bridal creeper (*Asparagus asparagoides*)	2,3,4,5
bridal veil (*Asparagus declinatus*)	3
broad-leaved pepper tree (*Schinus terebinthifolius*)	3
cabomba (*Cabomba caroliniana*)	3
camphor laurel (*Cinnamomum camphora*)	3
candyleaf (*Stevia ovata*)	3
cane cactus (*Austrocylindropuntia cylindrica*)	3
cat's claw creeper (*Dolichandra unguis-cati*)	3
Chilean needle grass (*Nassella neesiana*)	3
chinee apple (*Ziziphus mauritiana*)	3
Chinese celtis (*Celtis sinensis*)	3
cholla cacti with the following names—	
• coral cactus (*Cylindropuntia fulgida*)	3
• devil's rope pear (*C. imbricata*)	3
• Hudson pear (*Cylindropuntia rosea* and *C. tunicata*)	2,3,4,5
• jumping cholla (*C. prolifera*)	2,3,4,5
• snake cactus (*C. spinosior*)	3
Dutchman's pipe (*Aristolochia* spp. other than native species)	3
elephant ear vine (*Argyreia nervosa*)	3
Eve's pin cactus (*Austrocylindropuntia subulata*)	3

Restricted Invasive Plants under the Queensland Biosecurity Act (Department of Agriculture and Fisheries)

Restricted Matter	Category
fireweed (*Senecio madagascariensis*)	3
flax-leaf broom (*Genista linifolia*)	3
gamba grass (*Andropogon gayanus*)	3
giant sensitive plant (*Mimosa diplotricha* var. *diplotricha*)	3
gorse (*Ulex europaeus*)	3
groundsel bush (*Baccharis halimifolia*)	3
harrisia cactus (*Harrisia martinii*, *H. tortuosa* and *H. pomanensis* syn. *Cereus pomanensis*)	3
harungana (*Harungana madagascariensis*)	3
honey locust (*Gleditsia triacanthos* including cultivars and varieties)	3
hygrophila (*Hygrophila costata*)	3
hymenachne or olive hymenachne (*Hymenachne amplexicaulis* and hybrids)	3
Koster's curse (*Clidemia hirta*)	2,3,4,5
kudzu (*Pueraria montana* var. *lobata* syn. *P. lobata*, *P. triloba* other than in the Torres Strait Islands)	3
lantanas—	
• creeping lantana (*Lantana montevidensis*)	3
• lantana, common lantana (*Lantana camara*)	3
limnocharis, yellow burrhead (*Limnocharis flava*)	2,3,4,5
Madeira vine (*Anredera cordifolia*)	3
Madras thorn (*Pithecellobium dulce*)	2,3,4,5
mesquites—	
• honey mesquite (*Prosopis glandulosa*)	3
• mesquite or algarroba (*Prosopis pallida*)	3
• Quilpie mesquite (*Prosopis velutina*)	3
Mexican bean tree (*Cecropia pachystachya*, *C. palmata* and *C. peltata*)	2,3,4,5
Mexican feather grass (*Nassella tenuissima*)	2,3,4,5
miconia with the following names—	
• *Miconia calvescens*	2,3,4,5
• *M. cionotricha*	2,3,4,5
• *M. nervosa*	2,3,4,5
• *M. racemosa*	2,3,4,5
mikania vine (*Mikania micrantha*)	2,3,4,5
mimosa pigra (*Mimosa pigra*)	2,3,4,5
Montpellier broom (*Genista monspessulana*)	3
mother of millions (*Bryophyllum delagoense* syn. *B. tubiflorum*, *Kalanchoe delagoensis*)	3
mother of millions hybrid (*Bryophyllum* x *houghtonii*)	3
ornamental gingers—	

Restricted Invasive Plants under the Queensland Biosecurity Act (Department of Agriculture and Fisheries)

Restricted Matter	Category
• Kahili ginger (*Hedychium gardnerianum*)	3
• white ginger (*H. coronarium*)	3
• yellow ginger (*H. flavescens*)	3
parkinsonia (*Parkinsonia aculeata*)	3
parthenium (*Parthenium hysterophorus*)	3
pond apple (*Annona glabra*)	3
prickly acacia (*Vachellia nilotica*)	3
prickly pears—	
• bunny ears (*Opuntia microdasys*)	2,3,4,5
• common pest pear, spiny pest pear (*O. stricta* syn. *O. inermis*)	3
• drooping tree pear (*O. monacantha* syn. *O. vulgaris*)	3
• prickly pear (*O. elata*)	2,3,4,5
• tiger pear (*O. aurantiaca*)	3
• velvety tree pear (*O. tomentosa*)	3
• Westwood pear (*O. streptacantha*)	3
privets—	
• broad-leaf privet, tree privet (*Ligustrum lucidum*)	3
• small-leaf privet, Chinese privet (*L. sinense*)	3
rat's tail grasses—	
• American rat's tail grass (*Sporobolus jacquemontii*)	3
• giant Parramatta grass (*S. fertilis*)	3
• giant rat's tail grass (*S. pyramidalis* and *S. natalensis*)	3
rubber vines—	
• ornamental rubber vine (*Cryptostegia madagascariensis*)	3
• rubber vine (*C. grandiflora*)	3
sagittaria (*Sagittaria platyphylla*)	3
salvinia (*Salvinia molesta*)	3
Scotch broom (*Cytisus scoparius*)	3
Senegal tea (*Gymnocoronis spilanthoides*)	3
Siam weed with the following names—	
• *Chromolaena odorata*	3
• *C. squalida*	3
sicklepods—	
• foetid cassia (*Senna tora*)	3
• hairy cassia (*S. hirsuta*)	3
• sicklepod (*S. obtusifolia*)	3
silver-leaf nightshade (*Solanum elaeagnifolium*)	3
Singapore daisy (*Sphagneticola trilobata* syn. *Wedelia trilobata*)	3

Restricted Invasive Plants under the Queensland Biosecurity Act (Department of Agriculture and Fisheries)

Restricted Matter	Category
telegraph weed (*Heterotheca grandiflora*)	3
thunbergia (*Thunbergia grandiflora* syn. *T. laurifolia*)	3
tobacco weed (*Elephantopus mollis*)	3
water hyacinth (*Eichhornia crassipes*)	3
water lettuce (*Pistia stratiotes*)	3
water mimosa (*Neptunia oleracea* and *N. Plena*)	2,3,4,5
willows (all *Salix* spp. other than *S. babylonica*, *S.* x *calodendron* and *S.* x *reichardtii*)	3
yellow bells (*Tecoma stans*)	3
yellow oleander, Captain Cook tree (*Cascabela thevetia* syn. *Thevetia peruviana*)	3

Appendix C Brisbane City Council Environmental Weeds (Brisbane City Council)

Species included in the Biosecurity Act – prioritised for the Brisbane LGA

Risk	Common Name	Scientific Name
Significant	Alligator weed	*Altemanthera philoxeroides*
	Cabomba	*Cabomba caroliniana*
	Horsetails	*Equisetum spp.*
High	Broad-leaved pepper tree	*Schinus terebinthifolius*
	Cat's claw creeper	*Dolichandra unguis-cati*
	Hymenachne	*Hymenachne amplexicaulis*
	Kudzu	*Pueraria lobate*
	Parthenium	*Parthenium hysterophorus*
	Rat's tail grass/giant rat's tail grass	*Sporobolus pyramidalis* and *S.natalensis*
	Salvinia	*Salvinia molesta*
	Senegal tea	*Gymnocoronis spilanthoides*
	Water hyacinth	*Eichhornia crassipes*
	Water lettuce	*Pistia stratiotes*
	Water mimosa	*Neptunia oleracea (*and *N. plena)*
Moderate	Asparagus ferns	*Asparagus aethiopicus 'Sprengeri' A. africanus*
	Balloon vine	*Cardiospermum grandiflorum*
	Bridal creeper	*Asparagus asparagoides*
	Broadleaf privet	*Ligustrum lucidum*
	Giant Parramatta grass/rat's tail grasses/Parramatta grass	*Sporobolus fertilis, S. africanus, S. jacquemontii*
	Groundsel bush	*Baccharis halimifolia*
	Hygrophila/glush weed	*Hygrophila costata*
	Kahili ginger	*Hedychium gardnerianum*
	Madeira vine	*Anredera cordifolia*
	Willows	*Salix spp*. other than *S. babylonica, S. x calodendron, S. xreichardtii* and *S. chilensis; syn. S. humboldtiana* = pencil willow (Chilean willow*)*
Low	Annual ragweed	*Ambrosia artemisiifolia*
	Bitou bush	*Chrysanthemoides monilifera subsp. rotundata*
	Boneseed	*Chrysanthemoides monilifera ssp. monilifera*
	Camphor laurel	*Cinnamomum camphora*
	Chinese celtis	*Celtis sinensis*
	Dutchman's pipe	*Aristolochia elegans*
	Fireweed	*Senecio madagascariensis*

Risk	Common Name	Scientific Name
	Honey locust	*Gleditsia triacanthos* including cultivars and varieties
	Mexican feather grass	*Nassella tenuissima*
	Rubber vine	*Cryptostegia grandiflora*
	Tropical soda apple	*Solanum viarum*
	Yellow ginger	*Hedychium flavescens*
Very low	African fountain grass	*Pennisetum setaceum (Cenchrus setaceus)*
	African tulip tree	*Spathodea campanulata*
	Athel pine	*Tamarix aphylla*
	Belly-ache bush/cotton leaf/physic nut	*Jatropha gossypiifolia*
	Bitterweed	*Helenium amarum*
	Blackberry	*Rubus anglocandicans, Rubus fruticosus agg.*
Very low	Chilean needle grass	*Nasella neesiana*
	Elephant ear vine	*Philodendron spp. Argyreia nervosa*
	Harrisia cactus	*Harrisia martinii*
	Lantana (all species)	*Lantana spp.*
	Mexican bean tree	*Cecropia. palmata* and *C. peltata*
	Miconia	*Miconia calvescens, M. racemosa* and *M. nervosa*
	Mother of millions hybrid	*Bryophyllum × houghtonii*
	Pond apple	*Annona glabra*
	Prickly pear/ tiger pear/ drooping tree pear/westwood pear/velvety tree pear	*Opuntia spp. (O. elata* and *O. microdasys* – cat.2,3,4,5*)*
	Sagittaria	*Sagittaria platyphylla*
	Singapore daisy	*Sphagneticola trilobata*
	Small-leaved privet/ Chinese privet	*Ligustrum sinense*
	Telegraph weed	*Heterotheca grandiflora*
	Yellow bells	*Tecoma stans*
	Yellow oleander/Captain Cook tree	*Cascabela thevetia syn. Thevetia peruviana*

Species in the Biosecurity Act – but assessed as having little impact in the Brisbane LGA

Common Name	Species Name
Acacias non-indigenous to Australia	*Acacia spp.* other than *Acacia nilotica* and *Acacia farnesiana*
African boxthorn	*Lycium ferocissimum*
Anchored water hyacinth	*Eichhornia azurea*
Annual thunbergia	*Thunbergia annua*
Badhara bush	*Gmelina elliptica*
Candleberry myrtle/candleberry myrth	*Myrica faya*

Common Name	Species Name
Candyleaf	*Stevia ovata*
Chinee apple	*Ziziphus mauritiana*
Cholla cactus/coral cactus/devil's rope pear/snake cactus/Hudson pear	*Cylindropuntia spp.* and their hybrids, other than *C. spinosior, C. fulgida* and *C. imbricata*
Christ's thorn	*Ziziphus spina-christi*
Eurasian water milfoil	*Myriophyllum spicatum*
Floating water chestnuts	*Trapa spp.*
Gamba grass	*Andropogon gayanus*
Giant sensitive plant	*Mimosa diplotricha* (prev. *Mimosa invisa)*
Giant sensitive tree	*Mimosa pigra*
Gorse	*Ulex europaeus*
Harungana	*Harungana madagascariensis*
Kochia	*Kochia scoparia syn Bassia scoparia*
Koster's curse	*Clidemia hirta*
Lagarosiphon	*Lagarosiphon major*
Laurel clock vine, fragrant thunbergia	*Thunbergia laurifolia, (syn grandiflora)*
Limnocharis/yellow burrhead	*Limnocharis flava*
Madras thorn	*Pithecellobium dulce*
Mesquites	All *Prosopis spp*. and hybrids other than *Prosopis glandulosa, P. pallida* and *P. velutina*
Mikania vine	*Mikania spp.*
Parkinsonia	*Parkinsonia aculeata*
Peruvian primrose	*Ludwigia peruviana*
Prickly acacia	*Acacia nilotica syn(Vachellia nilotica)*
Red sesbania	*Sesbania punicea*
Serrated tussock	*Nassella trichotoma*
Sicklepod/hairy cassia/foetid cassia	*Senna obtusifolia, S. hirsuta* and *S. tora* and *obtusifolia*
Spiked pepper	*Piper aduncum*
Tobacco weed	*Elephantopus mollis*
Water soldiers	*Stratiotes aloides*
White ginger	*Hedychium coronarium*
Witch weeds	*Striga spp.* other than native species

Species NOT in the Biosecurity Act but that are regulated under the Natural Assets Local Law

Common Name	Scientific Name
Agave	*Agave spp.*
Amazon frogbit	*Limnobium laevigatum*

Common Name	Scientific Name
Anzac tree daisy	*Montanoa hibiscifolia*
Arrowhead vine	*Syngonium spp.*
Arsenic bush	*Senna septemtrionalis*
Arum lily	*Zantedeschia aethiopica*
Bahia grass	*Paspalum notatum*
Balsam (busy Lizzie)	*Impatiens spp.*
Bamboos	*Phyllostachys aurea* and *nigra*
Black eyed Susan	*Thunbergia alata*
Blackberry nightshade	*Solanum nigrum*
Blade apple, lemon vine, Barbados gooseberry	*Pereskia aculeata*
Blue trumpet vine	*Thunbergia grandiflora*
Brazilian nightshade	*Solanum seaforthianum*
Cadaga or cadaghi	*Corymbia torelliana*
Cape ivy	*Senecio angulatus*
Cape spinach	*Emex australis*
Capeweed	*Arctotheca calendula*
Castor oil plant	*Ricinus communis*
Chinese tallow	*Triadica sebifera*
Cockspur coral tree	*Erythrina crista-galli*
Cocos palm or Queen palm	*Syagrus romanzoffiana*
Common Indian hawthorn	*Rhaphiolepis indica*
Condamine couch/lippia	*Phyla canescens*
Coral berry or Indian currant	*Ardisia crenata, Rivina humilis* or *Symphoricarpos orbiculatus*
Coral creeper	*Barleria repens*
Corky passion vine	*Passiflora suberosa*
Cotoneaster	*Cotoneaster lacteus*
Creeping lantana	*Lantana montevidensis*
Crofton weed	*Eupatorium adenophorum*
Dense water weed	*Egeria densa*
Devil's fig	*Solanum torvum*
Duranta	*Duranta erecta syn. D. repens* and *D. plumieri*
Dyschoriste	*Dyschoriste depressa*
Easter cassia	*Senna pendula var. glabrata*
Elephant grass	*Pennisetum purpureum*
Feathertop Rhodes grass	*Chloris virgata*
Fire flag	*Thalia geniculata*

Common Name	Scientific Name
Fishbone fern	*Nephrolepis cordifolia*
Foxglove	*Digitalis purpurea*
Giant devil's fig	*Solanum hispidum*
Giant reed	*Arundo donax*
Glory lily	*Gloriosa superba*
Glycine	*Neonotonia wightii*
Golden chain tree	*Laburnum anagyroides*
Golden rain tree	*Koelreuteria elegans ssp. formosana*
Golden rod	*Solidago altissima*
Green cestrum	*Cestrum parqui*
Guinea grass	*Megathyrsus maximus*
Hemlock	*Conium maculatum*
Himalayan ash	*Fraxinus griffithii*
Hiptage	*Hiptage benghalensis*
Indian rubber tree	*Ficus elastica*
Ivy gourd	*Coccinia grandis*
Jacaranda	*Jacaranda mimosifolia*
Japanese/Mexican sunflower	*Tithonia diversifolia, T.sp*
Japanese honeysuckle	*Lonicera japonica*
Johnson grass	*Sorghum halepense*
Khaki weed	*Alternanthera pungens*
Kidney leaf mud plantain	*Heteranthera reniformis*
Leucaena	*Leucaena leucocephala (all spp.)*
Little bluestem	*Schizachyrium microstachyum*
Live plant, Resurrection plant	*Bryophyllum pinnatum*
Mile a minute	*Ipomoea cairica*
Mist flower	*Ageratina riparia*
Mock orange	*Murraya paniculata*
Molasses grass	*Melinis minutiflora*
Monkey's comb	*Pithecoctenium crucigerum*
Morning glory	*Ipomoea indica*
Mossman river grass	*Cenchrus echinatus*
Mother-in-law's tongue	*Sansevieria trifasciata*
Needle burr or spiny amaranth	*Amaranthus spinosus*
Ochna	*Ochna serrulata*
Oleander	*Nerium oleander*
Pampas grass	*Cortaderia selloana*

Common Name	Scientific Name
Paper mulberry	*Broussonetia papyrifera*
Para grass	*Urochloa mutica*
Parrot feather	*Myriophyllum aquaticum*
Perennial horse gram	*Macrotyloma axillare*
Perennial ragweed	*Ambrosia psilostachya*
Pongamia tree	*Millettia pinnata*
Praxelis	*Praxelis clematidea*
Prickly poppy or Mexican poppy	*Argemone ochroleuca*
Purple succulent	*Callisia fragrans*
Red-head cotton bush	*Asclepias curassavica*
Rhodes grass	*Chloris gayana*
Rhus	*Toxicodendron succedaneum*
Ruellia	*Ruellia tweediana*
Shoebutton ardisia	*Ardisia elliptica*
Sicklebush	*Dichrostachys cinerea*
Signal grass	*Urochloa decumbens*
Silver leaf desmodium or velcro plant	*Desmodium uncinatum*
Siratro	*Macroptilium atropurpureum*
Slash pine	*Pinus elliotii*
South African pigeon grass	*Setaria sphacelata*
Stinking roger	*Tagetes minuta*
Taro	*Colocasia esculenta*
Thorn apples	*Datura spp*
Tipuana	*Tipuana tipu*
Tropical pickeral weed	*Pontederia rotundifolia*
Umbrella tree	*Schefflera actinophylla*
Wandering Jew	*Tradescantia fluminensis, T. pallida and T. spathacea*
Water lily	*Nymphaea caerulea ssp. zanzibarensis*
Whiskey grass	*Andropogon virginicus*
White moth plant	*Araujia sericifera and A. hortorum*
White mulberry	*Morus alba*
Wait-a while	*Caesalpinia decapetala*
Wild aster	*Aster subulatus*
Wild tobacco tree	*Solanum mauritianum*
Zebrina	*Tradescantia zebrina*

BMT has a proven record in addressing today's engineering and environmental issues.

Our dedication to developing innovative approaches and solutions enhances our ability to meet our client's most challenging needs.

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