

RAPID CREEK MANAGEMENT PLAN VEGETATION SURVEY

For the purposes of the survey, Rapid Creek was divided into 4 sections:

- A Rapid Ck. mouth to Trower Rd bridge
- B Trower Rd. bridge to Kimmorley bridge
- C Kimmorley bridge to new Airport bridge
- D New airport bridge to headwaters (RAAF Land)

* indicates any naturalised exotic (weed) species

Section A - Mouth to Trower Rd bridge

Site A.1 - near the creek mouth, at the end of the cycle/walking path on the western (Darwin) side of the creek near the footbridge (map loc. 702440E; 8631040N).

Narrow band of stunted coastal vine-thicket 2-3m high on slightly raised laterite fringing the mangroves beside the creek mouth. The mangrove community consists mainly of *Avicennia marina* with some *Ceriops legal* var. *australis* and *Bruguiera exaristata*

Species

Acacia buriculiformis (Black Wattle)

Allophylus cobbe

Bridelia tomentosa

Capparis sepiaria

Celtis philippensis

Hibiscus tiliaceus

**Lantana camara*

Pongamia pinnata

Fremna acuminata

Fremna serratifolia

Secamone elliptica

Sterculia quadrifida

Vitex acuminata

Site A.2 - western side of creek, mangroves beside creek channel, track/drainage access at rear of PAWA chlorine facility on Rapid Ck. Rd. (map loc. 702656E; 8630456N).

Major mangrove communities are *Avicennia marina* and *Ceriops tagel var. australis*.

NB: Area here identified as Monsoon Forest type 49 on Vegetation Communities of Rapid Creek (Clark and Brocklehurst) was not found. However dense infestations of exotic *Leucaena leucocephala* (Coffee Bush) were located around the chlorine facility and road drainage area.

Species

Aegialitis annulata
Aegiceras corniculatum
Avicennia marina
Bruguiera exaristata
Bruguiera parviflora
Ceriops tagel var. australis
Osbornia octodonta
Rhizophora stylosa
Sesuvium portulacastrum
Sonneratia alba

Weed Site - large stormwater drain off Rapid Ck. Rd. opposite Rossiter St. and Holland Pl. Several weeds of major concern were located here and at other similar drainage channels. Of particular concern is Coffee Bush which was found at most disturbed areas in the lower reaches of the creek.

Species

* *Clitoria ternatea* (legume vine with compound leaves and purple or sometimes white peaflowers)
* *Gossypium hirsutum* (Cotton)
* *Leucaena leucocephala* (Coffee Bush)
* *Merremia dissecta* (convolvulus vine with white flowers and palmate leaves)
* *Ruellia tuberosa* (naturalised garden escape)

Site A.3 - eastern side of creek, mangroves beside creek channel; access track at rear of PAWA chlorine facility on Lakeside Drive (map loc. 702696E; 8630456N). This site is effectively opposite Site A.2.

Species

Avicennia marina

Bruguiera exaristata
Ceriops tagal var australis
Cynanchem carnosum(vine)
Excoecaria ovalis
Gymnanthera nitida(vine)
Halosarcia indica(shrub)
* *Leucaena leucocephala*
Lumnitzera racemosa
Scyphiphora hydrophyllacea
Sesuvium portulacastrum(herb)
Suaeda arbusculoides(sub-shrub)
Thespesia populneoides

Site A.4 - NB - Large stormwater drain between northern end of Alawa sports complex and southern end of NTU Casuarina campus (map loc. 703000E; 8631000N). Area marked here as Monsoon Forest type 49 on Clark and Brocklehurst not found. Instead dense infestation of closed Coffee Bush located.

Section B - Trower Rd. bridge to Kimmorley bridge

Site B.1 - western side of creek, near intersection of Rapid Ck. Rd. and Aldridge Rd., margin of mangroves and beginning of cleared parkland (map loc. 702832E; 8629560N).

The main mangrove community was *Lumnitzera racemosa*.

Species

Acacia auriculiformis
Acanthus ilicifolius
Acrostichum speciosum
Barringtonia acutangula
* *Clitoraea ternatea*
* *Cynodon dactylon*(Couch)
Flagellaria indica
Gymnanthera nitida
Hibiscus tiliaceus
Ipomoea macrantha
Ipomoea pes-caprae
Ipomoea triloba
* *Leucaena leucocephala*
Lumnitzera racemosa
Malachra fasciata

Melaleuca cajuputi
* *Merremia dissecta*
* *Mimosa pigra*
* *Pennisetum pedicillatum* (annual *Pennisetum*)
* *Wedelia trilobata* (Singapore Daisy)

Transect B.2 - following creek from Kimmorley Bridge downstream for approx. 500m. A very narrow band of rainforest community consisting of barely a single row of trees lining each creek bank.

Species

Acacia auriculiformis
Barringtonia acutangula
Carallia brachiata
Carpentaria acuminata (2 mature palms located, possibly garden escapes?)
Maranthes corymbosa
Syzygium angophoroides
* *Pennisetum polystachion* (Mission Grass)

B.3 - Weed Site - Kimmorley Bridge. Of particular concern here is Candle Bush, which can rapidly invade watercourses and wet areas

Species

* *Clitorea ternatea*
* *Crotalaria goreensis* (a Rattlepod)
* *Gmelina arborea*
* *Leucaena leucocephala*
* *Macroptilium atropurpureum*
* *Merremia dissecta*
* *Senna alata* (formerly *Cassia alata* - Candle Bush)

Section C - Kimmorley Bridge to new Airport bridge.

Transect C.1 - following creek upstream from Kimmorley Bridge approx. 1.5km to the new Airport bridge. A narrow band of rainforest community ranging in width from about 50m to sometimes less than 10m. Canopy height of about 10-13m. Main species are *Acacia auriculiformis*, *Syzygium angophoroides*, *Carallia brachiata* and *Lophostemon lactifluus*, with *Pandanus spiralis* and *Barringtonia acutangula*.

Species

Acacia auriculiformis
Alphitonia excelsa
Alstonia actinophylla(Milkwood)
Antiaris toxicaria
Barringtonia acutangula(Freshwater Mangrove)
 * *Bauhinia galpinii*(garden shrub escape)
Breynia cernua
Calophyllum soulattri
 * *Calopogonium mucunoides*(Calopo, legume vine with brown-hairy trifoliolate leaves)
Canarium australianum
Carallia brachiata
Carpentaria acuminata(a few seedlings)
Clerodendrum costatum
Cupaniopsis anacardioides
Cryptocarya cunninghamii
Denhamia obscura
Dianella odorata
Dicranopteris linearis
Diospyros calycantha
Dysoxylum oppositifolium
Elaeocarpus arnhemicus
Erythrophloeum chlorostachys(Ironwood)
Euodia elleryana
Ficus opposita
Ficus scabina
Flagellaria indica
Galactia sp. ? *tenuiflora*
Gymnanthera nitida
Helicia australasica
Ipomoea triloba
Ixora klenderana
 * *Leucaena leucocephala*
Litsea glutinosa
Lophostemon lactifluus
Lygodium flexuosum
Maranthes corymbosa
Meibomia leucadendra
Meibomia viridiflora
Nemecylon pauciflorum
Nauclea orientalis(Leichhardt Tree)
Opilia amentacea
Pandanus spiralis
 * *Passiflora foetida*(Wild Passionfruit)
 * *Pennisetum pedicellatum*(annual *Pennisetum*)
 * *Pennisetum polystachion*(Mission Grass)

Pittasporum melanaspermum
Planchonella pohimaniensis
Pleomele angustifolia
Pouteria sericea
Smilax australis
* *Stachytarpheta* spp.
* *Stylosanthes hamata*
Syzygium angaphoroides
Timonius timon
Trema tomentosa
Urena lobata
Uvaria haltzei
Waltheria indica

Site C.1 - western side of creek, just west of airport bridge (map loc. 704080E; 8627960N). *Sorghum* grassland with dense weed infestations.

Species

* *Calopogonium mucunoides*
Hibiscus meraukensis
* *Hyptis suaveolens*
* *Passiflora foetida*
* *Pennisetum pedicellatum*
* *Pennisetum polystachion*
Sorghum intrans

Site C.2 - eastern side of creek, west of airport entrance road (map loc. 703920E; 8628360N). Transition *Pandanus/Lophostemon* woodland with dense grassy understorey. The *Pandanus* community interspersed with some mixed eucalypt grassy woodland covered most of this area bounded by the creek, Macmillans Rd. and the airport entrance road.

Early control burns in this area in 1992, before *Pennisetum polystachion* had flowered, had greatly reduced the density of this grass in the current year (Mike Clark pers. comm.)

Species

Eucalyptus alba (occasional)
Eucalyptus polycarpa
Heteropogon triticeus
Lophostemon lactiflorus
Pandanus spiralis
* *Pennisetum polystachion*

Section D – new Airport bridge to headwaters (RAAF land)

D.1 – Eucalypt woodland enclosed by the two upper arms of the creek and the catchment area – RAAF land. Regeneration *Eucalyptus tetradonta* / *E. miniata* woodland with sparse midstorey and little ground layer other than *Sorghum intrans*. This community is subject to severe annual or biannual fires and shows substantial degradation in tree density and structure as a result. *Terminalia ferdinandiana*, *Livistona humilis*, *Acacia sulacocarpea* and *Cycas armstrongii* are found as scattered individuals.

Site D.3 – near south-eastern corner of Northlakes Golf Course (map loc. 706000E; 8627960N)

Large infestation of wetland grass weed *Brachiaria mutica* (Para Grass) covering margins of extensive *Melaleuca viridiflora* swamp – the swamp being part of the system of paperbark swamps enclosing the headwaters of the main (northern) arm of Rapid Ck.

Site D.4 – creek crossing on minor (southern) arm of Rapid Ck. near end of main airport runway (map loc. 705880E; 8626480N). No substantial Paperbark Community type 12 was found here as indicated on the Veg. Map.

Species

Acacia holosericea
Alphitonia excelsa
Dicranopteris linearis
Melaleuca viridiflora
Pandanus spiralis

Site D.6 – eastern side of Airport bridge, eucalypt woodland bound on the north by Marara Sports Complex and Northlakes Golf Course and by the creek on the south (map loc. 705000E; 862720N)

A substantial community of *Eucalyptus miniata* and *E. tetradonta* woodland – open forest, relatively healthy habitat with good-sized canopy trees, and moderate regeneration and seedling recruitment. Boundaries on most sides lined with dense belts of grassland dominated by the weed *Fenestrum polystachion* (Mission Grass), however the community appears to be a good representative type, worthy of management protection.

Species

Acacia dimidiata
Acacia mimula
Alphitonia excelsa
Ampelocissus acetosa
Astonia actinophylla
Brachychiton diversifolius
Brachychiton megaphyllus
Buchanania obovata
Cycas armstrongii
Denhamia obscura
Erythrophloeum chlorostachys
Eucalyptus miniata(Woollybutt)
Eucalyptus tetradonta(Stringybark)
Grevillea heliosperma
Pandanus spiralis
* *Pennisetum polystachion*
Persoonia falcata
Planchonia careya(Cocky Apple)
Sorghum intrans
Syzygium suborbiculare(Red Bush Apple)
Terminalia ferdinandiana(Billy Goat Plum)

Site D.7 – headwaters of minor southern arm of creek (map loc. 706560E; 8626320N). No substantial Paperbark community type 12 was located as indicated on the Veg. Map. The main community consisted of *Pandanus spiralis* interspersed with *Lophostemon lactifluus* and *Grevillea pteridifolia*

D.8 NB – approx. 1km upstream from airport bridge on southern (minor) arm of creek (map loc. 705240E; 8627240N) – area marked as Monsoon Forest type 29 on veg. map not located. The main communities along this section of the creek are *Pandanus spiralis* interspersed with *Lophostemon lactifluus*, and some closed *Pandanus spiralis*.

Management Issues

1. Mangrove communities

These communities occupy the saline-influenced tidal zone from near the mouth of the creek to upstream of the Trower Rd. bridge.

Impact on the mangroves largely coincides with major stormwater drains where *Leucaena leucocephala* (Coffee Bush) in particular has invaded. Erosion channels are common at these sites sometimes right down to the creek bank edges.

2. Rainforest

A narrow continuous belt of monsoon rainforest occurs along the creek from approx. 500m downstream of Kimmorley Bridge through to the airport bridge. From there upstream to 'Yankee Pool' the creekside vegetation consists mostly of *Pandanus spiralis*. Another patch of rainforest occurs approximately 800-900m upstream from the airport bridge on the northern (main) arm of the creek. This community is impacted throughout by erosion, bank degradation, car and human traffic, land clearing, weeds and fire. The boundaries in particular have been subject to regular hot fires with consequent loss of much regeneration and ground layer vegetation. Besides the dominant species (see transect C.1), population size of many species is low, and often consists of few individual plants. This area is in need of urgent management measures to stabilise and rehabilitate the remnant rainforest corridor.

3. Transition and grassland communities

These mixed woodland communities comprising amongst others scattered *Eucalyptus*, *Pandanus*, *Acacia* and *Lophostemon* species (e.g. site C.1) are found on both sides of the creek, intergrading with expanses of weed-infested grassland (predominantly *Pennisetum polystachion*), forming ill-defined boundaries between one community and the next. Mid- and shrub layer vegetation is virtually absent, most likely a consequence of regular uncontrolled fires.

4. Weeds

Mimosa pigra - one or two small plants located near site B.1 on cleared recreation land beside Rapid Ck Rd. opposite the water gardens. High priority noxious weed to be eliminated.

Pennisetum polystachion - widespread, particularly edges of eucalypt forest/woodland and lower-lying grassland and pandanus communities. A pervasive weed which produces more dry matter than the native *Sorghum intrans* and dries later in the year potentially facilitating hotter more severe fires towards the end of the dry season.

Andropogon gayanus (Gamba Grass) - few outbreaks only located during survey in vicinity of site D.6 amongst low-lying grassland. A extremely vigorous weed to be eliminated and controlled. Even more than *P.*

polystachionit produces massive quantities of potential dry fuel for uncontrolled fires.

Leucaena leucocephala - mostly present in the lower reaches of the creek especially around the mangroves.

Other serious weeds

Calopogonium mucunoides - already serious infestations.

Bracharia mutica (Para Grass)

Senna alata

Lantana camara

Wedelia trilobata

Less serious:

Clitoria ternatea

Stachytarpheta spp.

Ruellia tuberosa

Gossypium hirsutum

? *Desmanthus virgatus* (Mimosaceae small shrub)

- Classification of R.F. not R.F. Key (Rothbluth)
- Co Recommended SW for Reliab: if saying
- 'Source' of main creek adj. to Kalyunos & ~~is~~ totally degraded. Timers Club. -