

RAPID CREEK

(GURAMBAI)



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(GURAMBAI)

SEÁN HEFFERNAN
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Greening Australia

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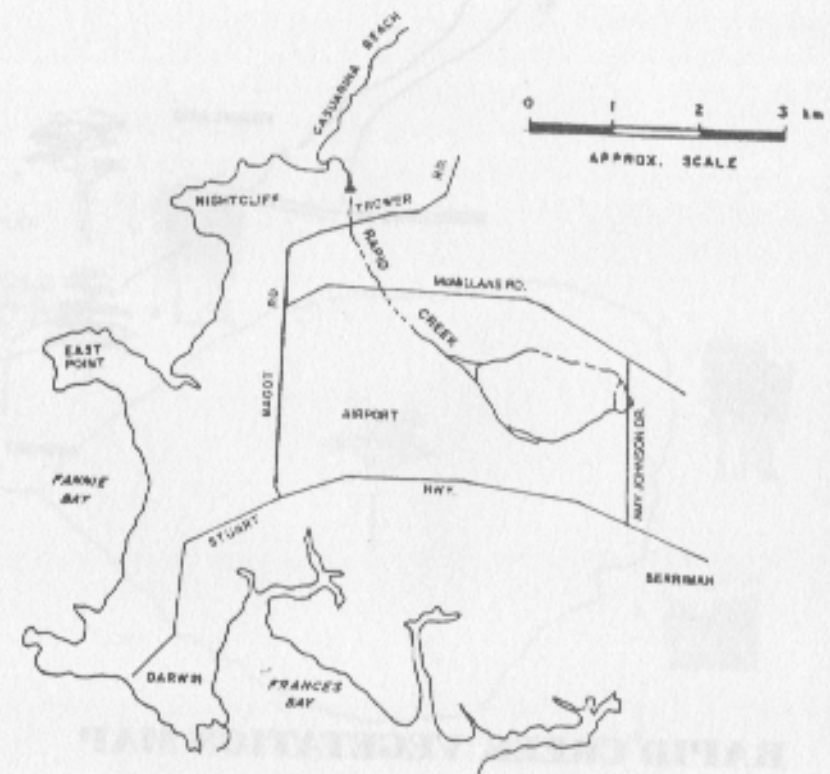
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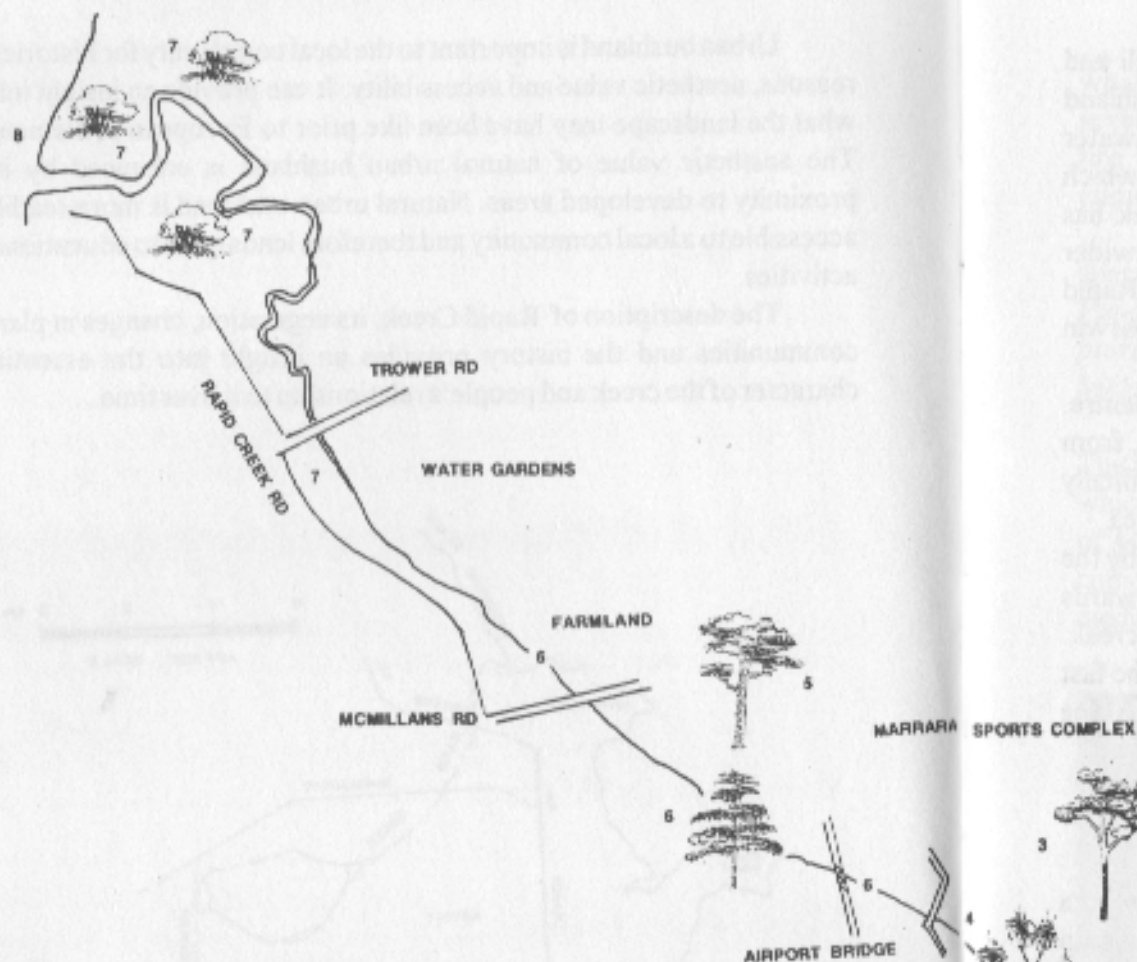
RAPID CREEK (GURAMBAI)

Urban bushland is important to the local community for historical reasons, aesthetic value and accessibility. It can provide an insight into what the landscape may have been like prior to European settlement. The aesthetic value of natural urban bushland is enhanced by its proximity to developed areas. Natural urban bushland is more readily accessible to a local community and therefore lends itself to educational activities.

The description of Rapid Creek, its vegetation, changes in plant communities and the history provides an insight into the essential character of the creek and people's relationship to it over time.



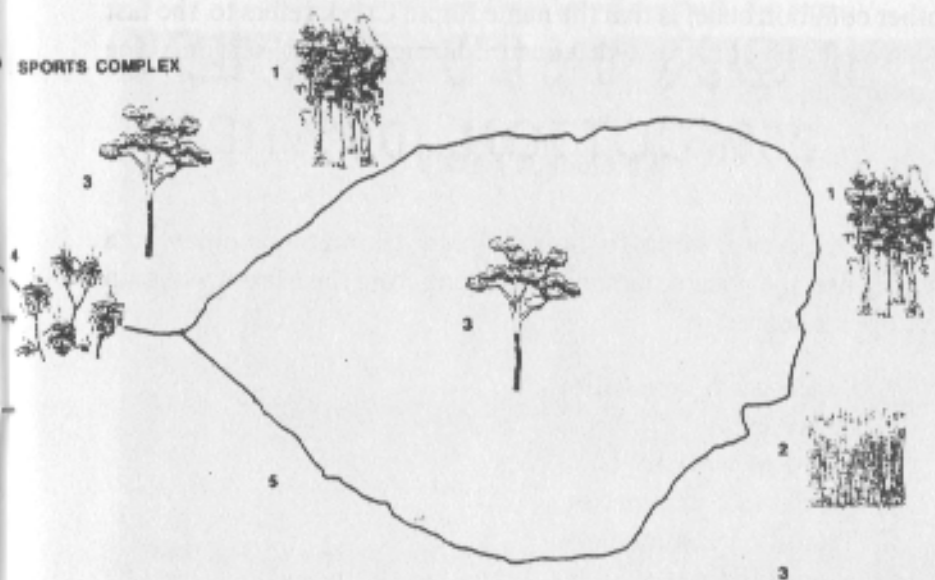
RAPID CREEK LOCATION MAP



- 1) Paperbark communities
- 2) Grasslands
- 3) Eucalypt woodlands
- 4) Pandanus communities
- 5) Transition communities
- 6) Monsoon forests
- 7) Mangroves
- 8) Coastal community

RAPID CREEK VEGETATION MAP

MARRARA SPORTS COMPLEX



BERRIMAH

LOCATION

Rapid Creek flows through the suburbs of Millner, Jingili and Rapid Creek and is an excellent example of remnant natural bushland occurring in an urban setting. It is the last relatively natural freshwater creek system in the Darwin area and has a saltwater characteristic which includes an extensive, rich mangrove community. Rapid Creek has historical significance both, to the Aboriginal and to the wider community of Darwin. All of these factors combine to make Rapid Creek an excellent focus for educational programmes in Darwin schools.

Rapid Creek is located to the north-east of Darwin's city centre. It originates from a natural spring to the east of Darwin airport, from where it flows in an approximately north westerly direction, finally passing over Casuarina beach and discharging into the Timor sea.

The name Rapid Creek refers to the small 'rapids' caused by the meeting of the incoming tide with the flow of the freshwater towards the open sea. These 'rapids' are visible close to the mouth of the creek. Another common belief is that the name Rapid Creek refers to the fast flowing freshwater upstream that occurs during the 'wet' season. (See Location Map Page 1)

VEGETATION

Rapid Creek is home to eight different plant communities. In a general sense, the plant communities ranging from the Marrara swamp to the open sea are:

- 1) Paperbark communities
- 2) Grasslands
- 3) Eucalypt woodlands
- 4) Pandanus communities
- 5) Transition communities
- 6) Monsoon forests
- 7) Mangroves
- 8) Coastal community

(See map previous page)

Paperbark communities

The majority of the paperbark communities of Rapid Creek form what is known as the Marrara swamp. These communities have been severely damaged both by Cyclone Tracy in 1974, and by indiscriminate fire over the years. A large proportion of plant species in these communities have regenerated since the cyclone.

Melaleuca viridiflora (broad-leaved paperbark) is the dominant species of the Marrara swamp. Other species that occur include: *Pandanus spiralis*, *Acacia auriculiformis* (black wattle), *Grevillea pteridifolia* (fern-leaved grevillea), *Lophostemon lactifluus* and *Melaleuca cajaputi* (paperbark).

Melaleuca viridiflora has many medicinal properties and uses. The flowers of the fern-leaved grevillea provide a rich source of nectar which may be shaken into water to make a refreshing drink. The wood of *Melaleuca cajaputi* is traditionally used by Aboriginal people to construct dug-out canoes. This tree also yields the 'cajaput oil' used for medicinal reasons.

Melaleuca viridiflora (Broad Leaved paperbark) (Ian Morris)



Grasslands

Grasslands occur around the Marrara swamp. One such community is dominated by the native speargrass, (*Sorghum intrans*), which occurs with the herbs, *Leptocarpus spathaceus* and *Xyris complanata*. This grassland community bordering the north east boundary of the swamp contains scattered *Melaleuca viridiflora* and *Lophostemon lactifluus*.

There are several grassland communities bordering either side of the creek from the Kimmorley bridge up to the Marrara swamp. These communities also contain *Sorghum intrans* with scattered *Eucalyptus alba* and *Grevillea pteridifolia*.

One major *Sorghum intrans* grassland community is situated on the eastern side of the swamp to the north of a eucalypt woodland. Further to the north of this woodland lies a melaleuca or paperbark swamp. Speargrass dominates the ground storey of this swamp.

Sorghum intrans (Speargrass) (Greening Australia NT)



Eucalypt woodlands

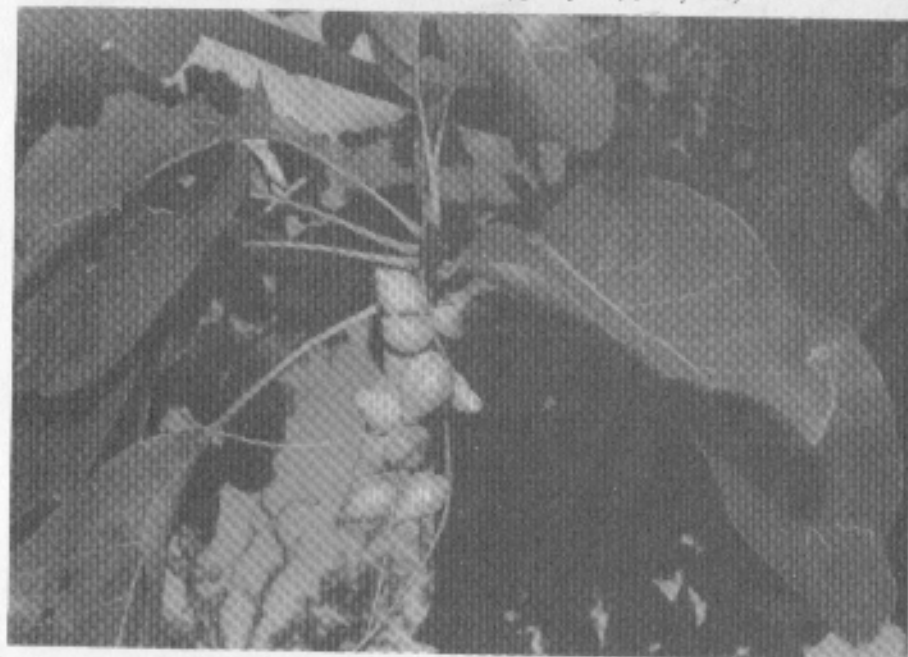
To a large extent the different species growing in the eucalypt woodlands represent regeneration since Cyclone Tracy. In the cyclone many larger trees were destroyed, some of which can still be seen today.

In the over-storey of the eucalypt woodland can be found the species *Eucalyptus tetradonta* (stringybark) and *Eucalyptus miniata* (woollybutt). Both of these eucalypts have many different medicinal properties and uses.

Terminalia ferdinandiana (billy goat plum), *Pandanus spiralis*, *Livistona humilis* (sand palm) and *Buchanania obovata* (green plum) are the main species occurring in the mid-storey. The billy goat plum, the green plum and pandanus fruit are all excellent sources of native bush tucker.

Sorghum intrans (speargrass) is the predominant species in the under-storey of the eucalypt woodland.

Terminalia ferdinandiana (billygoat plum) (Tony Orr)



Pandanus communities

The pandanus communities along Rapid Creek range from open woodland, to low open forest, to closed forest. The dominant species of these plant communities are: *Pandanus spiralis* with scattered *Eucalyptus alba* (salmon gum). This eucalypt is a good source of nectar for bees and provides good firewood.

The pandanus forest which borders on Yankee pool is a rich and attractive plant community. It is rare to see such an extensive pandanus community in a metropolitan setting. This forest is rather swampy by nature, especially after a good 'wet'. In addition, the pool's walls contribute to the water regime of this community by retaining a greater degree of moisture.

Pandanus spiralis (Glenn Wightman)



Transition communities

The transition communities in the Rapid Creek catchment area range from open woodland to the more densely canopied open forest. The following species predominate transition communities.

Species

Some Aboriginal Uses

Lophostemon lactiflorus

good shade tree

Eucalyptus polycarpa

medicinal properties, wood used for roasting sticks, digging sticks, spears, didgeridus, paddles, music sticks and pegs for throwing sticks, good tree for nectar and sugar bag

Pandanus spiralis

source of food, medicinal properties, leaves used in basket, mat weaving etc

Alstonia actinophylla
(milkwood)

wood used in making dug-out canoes, paddles. medicinal properties

Alstonia actinophylla (milkwood) (Tony Orr)



Monsoon forests

The monsoon forests of Rapid Creek are located upstream from Kimmorley bridge, McMillan's Road and extend to Yankee pool, Marrara. This area of monsoon forest is a relatively small pocket of jungle described by Russell-Smith as a "small rainforest associated with a lowland spring on a mainland sandplain" (Jungle Group No.6, Russell-Smith J. 1991). There are also remnants of monsoon forest downstream from the Kimmorley bridge.

The following species dominate this plant community:

Species	Some Aboriginal Uses
<i>Acacia auriculiformis</i> (black wattle)	medicinal properties, wood used for weapon making, crushed seeds used as fish poison, crushed pods used as bush soap, good shade tree
<i>Alphitonia excelsa</i> (soap leaf or red ash tree)	medicinal properties
<i>Barringtonia acutangula</i>	pounded leaves & bark used as fish poison
<i>Carallia brachiata</i>	edible fruit
<i>Euodia elleryana</i>	nectar of flowers attract bees
<i>Lophostemon lactiflous</i>	good shade tree
<i>Syzygium angophorides</i>	edible fruit



Barringtonia acutangula (Tony Orr)

Mangroves

Rapid Creek contains a rich mangrove community most of which has been altered to some degree by urban development or cyclone damage. According to Semeniuk (1985) the mangroves of Rapid Creek are classified as a riverine mangrove community.

The mangroves nearer to the mouth of the creek are subject to tidal inundation even though they are mostly not exposed to the coast. Different mangrove species are affected to varying degrees by the tide.

Freshwater flowing down the creek feeds the salt tolerant mangroves downstream towards the mouth. Trees further upstream are taller because the freshwater inflow allows these mangroves to expend less energy expelling salt and therefore they grow at a faster rate.

Mangroves are noted for providing a calm habitat for various crustaceans, fish and molluscs and a rich resource of feeding grounds and nursery beds. The plants and associated fauna are an important resource for Aboriginal people.

There are at least 18 species of mangroves at or near the mouth

of Rapid Creek and upstream from the Trower Road bridge.

Cyclone Tracy was also responsible for knocking the top off some of the tall cedar mangroves (*Xylocarpus mekongensis*) that stood approximately 20 metres high. Some of these mangroves survived. The mangroves affected were situated near the Alawa Oval adjacent to Lakeside drive. (Richard Noske pers. comm.) *Xylocarpus mekongensis* have a large, heavy, round fruit.

It is said that during World War II scraps of metal, star pickets and barbed wire were buried in the mud of the mangroves near the mouth of the creek. It was hoped that this measure would thwart potential Japanese invaders arriving by boat. (Mick Guinea pers. comm.)

Some of the major mangrove species which occur along Rapid Creek are listed below with some uses made by Aboriginal people around the Top End, not necessarily at Rapid Creek. The uses of different mangrove species vary from place to place.

Species	Some Aboriginal Uses
<i>Aegialitis annulata</i>	leaves used as toy stingrays in childrens games
<i>Aegiceras corniculatum</i> (river mangrove)	good source of nectar for native bees
<i>Avicennia marina</i> (white mangrove)	good fuel, bark is burnt to ash & made to a paste & put on infected wounds where it burns out infection, fruit eaten after preparation
<i>Bruguiera parviflora</i>	good source of mangrove worms
<i>Campostemon schultzei</i> (kapok mangrove)	bark is burnt to ash & mixed with salt water &

Species

Campostemon schultzei
(kapok mangrove)

Diospyros maritima

Excoecaria ovalis
(‘blind your eye mangrove’)

Hibiscus tiliaceus
(Timor mangrove or beach hibiscus)

Lumnitzera racemosa

Osbornia octodonta

Pemphis acidula

Rhizophora stylosa

Some Aboriginal Uses

applied to knees of babies to strengthen their legs, used in building canoes, medicinal uses

whole tree contains irritant sap, roots provide yellow dye, leaves placed on burial platforms

contains white latex which can cause blindness, good firewood, also used to make special implement for hunting turtles, medicinal uses

medicinal uses, wood used for making fishing spears & fibre for rope for dugong spear & for carving

good source of firewood, used as firestick & fighting spear

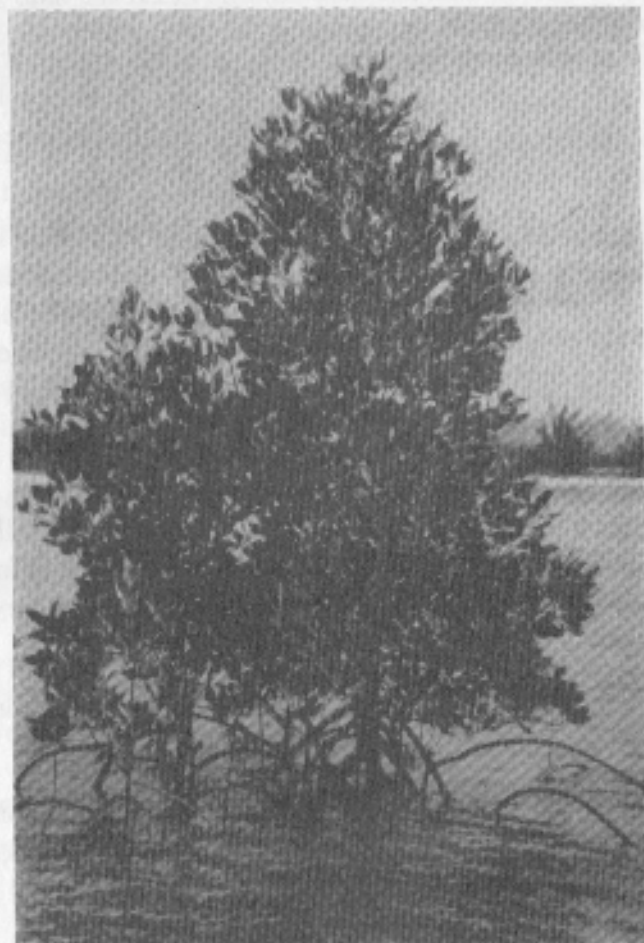
used as flavouring when cooking turtles, applied as insect repellent

medicinal uses, wood used for digging sticks, woomera pegs

timber is good source for mangrove worms, mud crabs often burrow at roots

Sonneratia alba

flowering of this plant
signals that diamond scaled
sea mullet are fat & are
laying eggs



Rhizophora stylosa (NT Department of Education)

Coastal Community

The coastal dune complex at the mouth of the creek include areas of grassland. This complex was extensively modified during and after

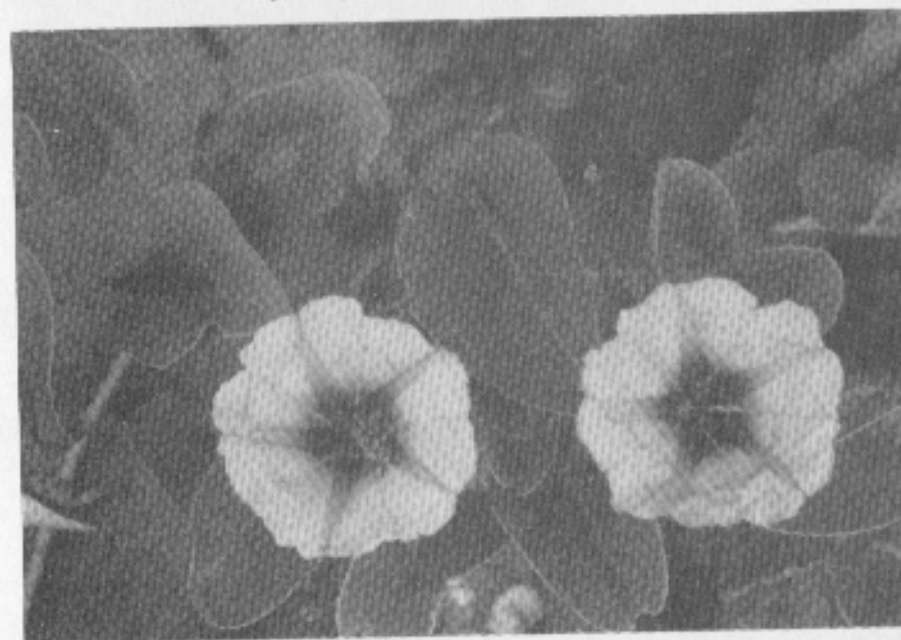
Cyclone Tracy and so does not represent a truly natural coastal dune complex.

The ground creeper commonly known as 'beach morning glory' (*Ipomea pes-caprae*) occurs above the high tide water mark. According to traditional Aboriginal plant knowledge this plant has many different medicinal uses ranging from the treatment of marine stings to healing headaches and scabies.

On and around the dunes near the mouth of Rapid Creek are found such native species as the grass, *Spinifex longifolius* and the perennial shrubs, *Vitex rotundifolia* and *Vitex trifolia*.

The bare salt pans in and around the mangroves of Rapid Creek contain other hardy native grasses such as, *Sporobolus virginicus* and *Cynodon dactylon*. These grasses are capable of surviving extremely hot temperatures, high salinity and soil conditions depleted of oxygen.

Ipomea pes caprae (Glenn Wightman)



ABORIGINAL HISTORY



Dariba Nunggalinya (Old Man Rock) (Aboriginal Areas Protection Authority)

a) Traditional knowledge

Rapid Creek lies within the traditional tribal boundaries of the Larrakia people and remains an important area to them. It contains at least one sacred site, *Gurambai*, which is also the Larrakia name for the creek. *Gurambai* means 'elbow', which refers to the shape of the creek towards its mouth.

To the north west of the mouth of Rapid Creek lies the Larrakia sacred site, *Dariba Nunggalinya* (Old Man Rock). In Larrakia language *Dariba* means 'old man' - a term of respect- and *Nunggalinya* is the old man's name. *Dariba Nunggalinya* protects Darwin and the Larrakia people. The Larrakia believe that if he is disturbed a natural calamity will occur. This is how they explain the destruction caused by Cyclone Tracy.

The mouth of the creek was an important camping place for Aboriginal people travelling through the area and an excellent source of bush tucker, eg yams, goanna, blue-tongue lizard, fish and, in the mangroves, longbums, cockles etc. Plentiful food, natural springwater, and the tall shady trees made it an ideal camping site.



Larrakia people-late 1800s (State Reference Library)

b) Early Aboriginal/white contact

Rapid Creek contains the site of a Catholic mission which was in existence before the turn of the century (1880s) and was run by the Jesuits. The main buildings of this site were located near the corner of Ryland Road and Pinder Street, Millner but extended down to the creek (to the area now called the Water Gardens) and out to the Nightcliff coast.

The first Aboriginal groups that the Jesuits worked with were the Larrakia and Woolna people who came from further east of Darwin.

At the mouth of Rapid Creek on the Casuarina side, it is thought there was a large pitched battle between Larrakia and visiting Alligator Rivers tribe around the time that the mission was operating. It is also the site of a burial ground and is marked by a large fig tree.



Rapid Creek Mission 1882-1891

HISTORY SINCE EUROPEAN SETTLEMENT

Rapid Creek is famous for its recreational use over the years by the Darwin community. Picnics, camping, fishing and swimming have always been popular activities on the creek. During the early part of this century it was deemed a 'big day out' to travel to Rapid Creek from the centre of town for a picnic, a swim or to camp.



Picnic at Rapid Creek 1899 (NT Archives)

From approximately the forties until the sixties the local Chinese community would celebrate 10/10 day each year near the mouth of the creek. 10/10 referred to the tenth of October. This date signified a celebration day at the creek with a big picnic, many people playing Pi Que (a Chinese gambling game) while others fished and swam. Pi Que was mostly played for pleasure and not for high money stakes. The picnic usually included a large roast pig shared by everyone.

It is also significant to note that there used to be a large Chinese vegetable garden near the mouth of the creek, in the 1950s. It was on

the site where the Beachfront Hotel now stands on Casuarina Drive and was a viable commercial operation. Aboriginal people who camped nearby would sometimes work there. For the most part they were Tiwi Islanders.



Chinese Vegetable Garden, Rapid Creek, 1950s

War years

During the war years (the forties) and as recently as the sixties some people were occupied in crocodile trapping and selling the skins for profit. This activity was usually carried out towards the mouth of the creek and along the Nightcliff coastline.

The war years (the forties) meant that a larger number of people used the creek for recreational purposes. This was because of the influx of servicemen to Darwin, especially American personnel. Some of these servicemen sandbagged off sections of the freshwater to create swimming pools. Yankee pool on Rapid Creek got its name because American servicemen were noted for swimming and relaxing there.

Modern times

Since the 1950s and in more recent times Rapid Creek has continued to be used by the Darwin local community as a popular recreation area. Since then the Water Gardens have been developed upstream of the Trower Road bridge, the Casuarina Coastal Reserve

has been established (which includes the mouth of Rapid Creek) and walking and bike tracks and a pedestrian overpass have been constructed at the mouth of the creek.

Modern urban developments such as the construction of roads, bridges, a golf course, caravan parks and the new Darwin airport have affected the creek system in some way.

The Rapid Creek freshwater/saltwater system retains to a great degree its rich, diverse character both, in an ecological and cultural sense.

MANAGEMENT ISSUES

The Rapid Creek catchment area covers approximately 28 hectares and encompasses a great variety of different land uses including: residential, farming, industrial, sporting/recreational, commercial, conservation, educational, transport, defence and vacant crown land.

(See Over Page)

Erosion and Human Impact

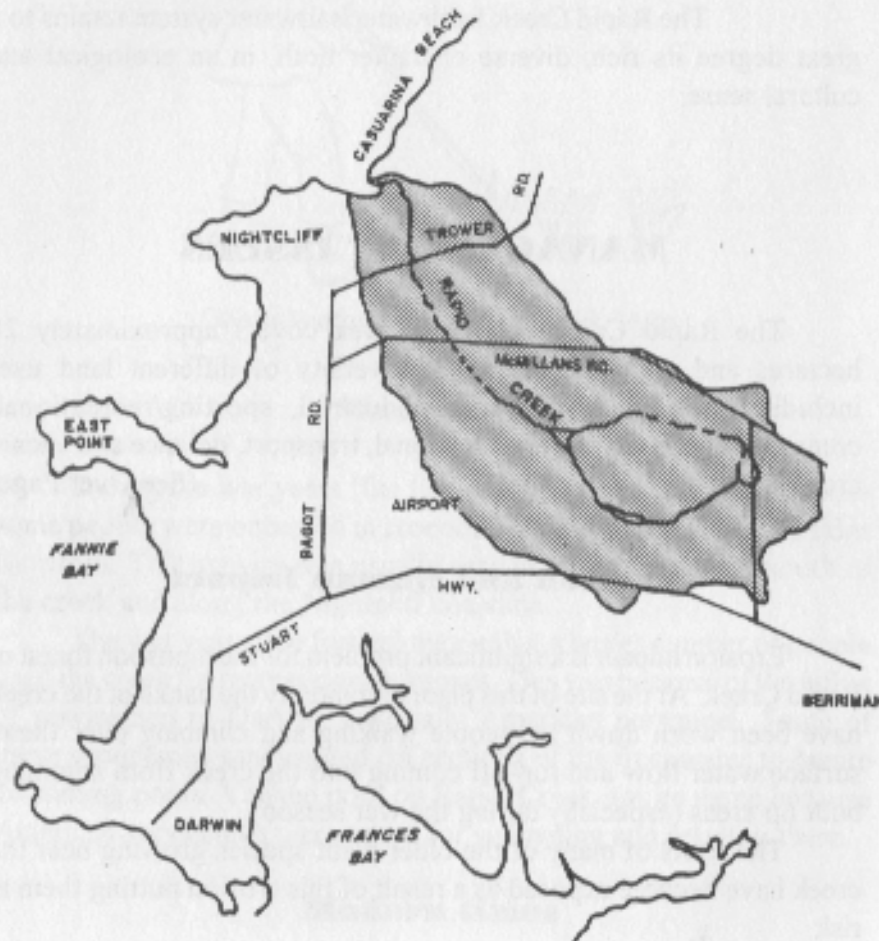
Erosion impact is a significant problem for the monsoon forest of Rapid Creek. At the site of this plant community the banks of the creek have been worn down by people walking and climbing over them, surface water flow and run-off coming into the creek from adjoining built up areas (especially during the wet season).

The roots of many of the older plant species growing near the creek have become exposed as a result of this erosion putting them at risk.

Indiscriminate fire contributes to the erosion in some plant communities in the creek catchment area, particularly eucalypt woodlands, transition communities and the monsoon forest. Uncontrolled fires burn off ground cover leaving the earth bare and susceptible to wind and water erosion.

RAPID CREEK

CATCHMENT AREA



 CATCHMENT AREA

0 1 2 3 km
APPROX. SCALE

Another example of erosional impact occurs near the mouth of the creek. The banks of this site have been eroded causing heavy silting. The degradation has been caused by run-off from the urban areas, the tide and by human traffic and recreational use of the area. This silting also increases the likelihood of localised flooding.

Another human impact factor which affects the creek includes vehicular damage. Vehicles continue to drive down to the edge of the creek at the site of the monsoon forest. This compacts the soil, destroys ground cover, not allowing some species to regenerate. This creates a potential erosion problem for the future.

Weed Invasion

The transition communities that lie upstream of McMillan's Road to the east of the creek show the effects of an extensive invasion of the fast growing weed, *Pennisetum*. The presence of this weed also compounds the fire problem for this plant community. During the dry season *Pennisetum* is highly flammable and puts other young regenerating species at risk. Greening Australia believe that carefully controlled burning early in the dry season or late in the wet season may be a way of managing this problem.

Fire

Paperbark communities, grasslands, eucalypt woodlands, transition communities and pandanus communities are all subject to damaging wild fires from time to time.

The paperbark/melaleuca swamp which lies adjacent to Amy Johnson Drive is dominated by speargrass (*Sorghum intrans*). It has attained such dominance because of the effects of wild fires, the changes in the hydrology of the Marrara swamp due to drainage construction and damage caused by Cyclone Tracy (1974).

Eucalypt woodlands along Rapid Creek tend to be burnt at least once a year either by wild fires or deliberately. The eucalypt species are able to survive these fires although their growth is suppressed.

Fires do not have a large impact on pandanus communities because of their swampy nature. However, in a dry year the communities may well be susceptible to burning.

While the transition communities upstream of McMillan's Road are subject to destructive wild fires they have also been affected to some degree by Cyclone Tracy. The cyclone was responsible for knocking down some taller, older plant species.

Fire damage to plant communities on Rapid Creek is a major issue on its own. Indiscriminate fires on Rapid Creek are sometimes caused by campers and other people using the creek for recreational purposes.

Urban Encroachment

Urban encroachment is a major factor in effecting change to the vegetation of the plant communities along Rapid Creek over the years. Some reasons for this include:

- i) the clearing of land for various uses,
- ii) the development of residential areas and
- iii) the construction of roads and bridges.

The proposed "Lakeside" development of the 1970s and the effects of Cyclone Tracy (1974) combined to destroy the mangroves at the mouth of Rapid Creek on a large scale. However, since that time there has been substantial regrowth.

Some mangrove sites have remained more intact than others. One example where a section of the community has largely retained its established canopy is upstream of the Trower Road bridge. However, even this site has been affected to some degree by the initial development of the suburb of Jingili along with the construction of the Water Gardens recreation area.

The construction of Trower Road, McMillan's Road, the airport access bridge (1991) and the new airport and its carpark have all impacted on the creek and the vegetation in some way. The new airport bridge has not altered the flow of the creek in a large way but a significant portion of monsoon forest was cleared in the process.

Community Involvement

There are many opportunities for everyone in the local community to join in caring for Rapid Creek. Some of these activities include the rehabilitation of the creek (cleaning up and tree planting), educational activities and the management and future planning for the creek. Organisations you may contact to find out what's happening at the creek are: Greening Australia, Darwin City Council, Conservation Commission of the Northern Territory and the Environment Centre.