

ROOST MANAGEMENT PLAN – PALMETUM



6/10/2016

Townsville City Council

Guiding management of flying foxes in botanic gardens.

Roost Management Plan – Palmetum

TOWNSVILLE CITY COUNCIL

Aims

This roost management plan has been compiled to guide management practices within the Palmetum Botanic Gardens. The aim of this Roost Management Plan (RMP) is to provide:

1. A guide to the works proposed to be undertaken within the Palmetum;
2. Welfare strategies to ensure safety of flying-foxes and other fauna throughout the proposed activity;
3. Strategies to mitigate any site specific threats;
4. Ready access to important regulatory information and operational guidelines.

Objectives

The objectives of the plan are to actively manage the flying fox colony at the Palmetum through best practice methods in order to;

- achieve an environment suitable for residents to enjoy,
- minimise vegetation damage and other environmental values at the roost site
- minimise the impact of flying-foxes on residents and park users
- provide improved visitor facilities at and near the roost site
- increase community understanding and support for flying-fox conservation.

To clarify, success can be measured overall by

- the ability for residents to access the pathways of the rainforested area safely;
- the palm collection to subsist in the presence (or absence) of flying foxes
- flying foxes welfare is maintained particularly during peak breeding and rearing seasons
- the community gains an understanding of the complexity of managing this important native animal and its benefits to the local ecology including educational opportunities for interested groups

Site location

The Palmetum Roost site is adjacent the Ross river in a rain forested section of the botanical gardens; The Palmetum (Figure 1.). The rain forested area is approximately 4.5 Ha and contains a system of pathways. The site is located in the Urban Flying Fox Management Area and listed by the Queensland government as a site that may be used continuously or seasonally/irregularly by flying foxes (Figure 2.). The site has also been recognised by the Federal Department of Environment for having hosted the ‘Vulnerable’ (Status under the EPBC Act) Spectacled Flying fox, though irregularly.

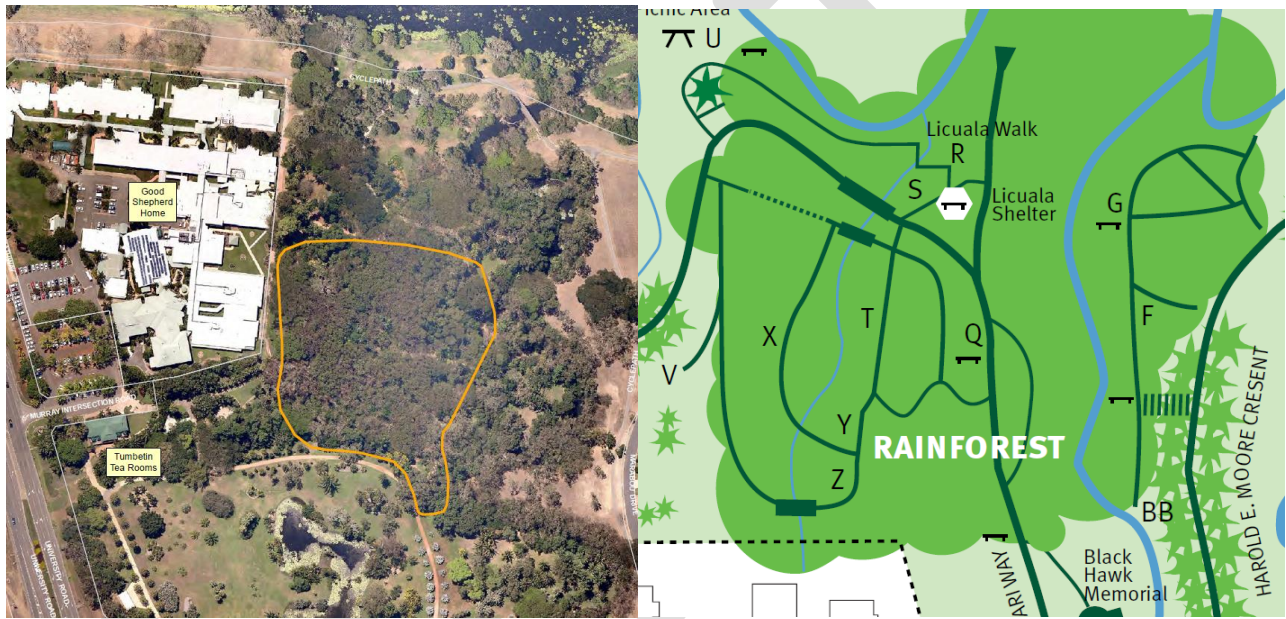


Figure 1: Aerial view of the rainforested area of the Palmetum and system of pathways.

MAP 34: Flying Fox Roost Sites



Map Projection:
 Universal Transverse Mercator (MGA) zone 55
 Horizontal Datum:
 Geocentric Datum of Australia 1994 (GDA94)
 Map Production: 11 August, 2011

Disclaimer:
 This map has been prepared with all due diligence and care, based on the best available information at the time of publication. Neither the department nor the Queensland Government holds any responsibility for any errors or omissions within this document. Any decisions made by other parties based on this document are solely the responsibility of those parties.

- Legend**
- Flying Fox Roost Sites
 - QPWS Estate
 - National Park (scientific)
 - National Park
 - National Park (CYPAL)
 - National Park (recovery)
 - Conservation Park
 - Resources Reserve
 - Forest Reserve
 - State Forest
 - Timber Reserve



Queensland Government
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 Department of Environment and Heritage Protection, 2013
 Ref: .\mpo\16201\07017 (16062011;.RT)

Figure 2: State mapping of flying fox roosts in Townsville

Site History

Flying foxes have inhabited the site anecdotally for around 20 years and the population size varies greatly as does their spatial distribution within that area. An active monitoring program has been undertaken on a weekly basis since August 2015, during which time the roost site has undergone a decline in numbers (Figure 3.).

Currently the site contains no flying foxes.

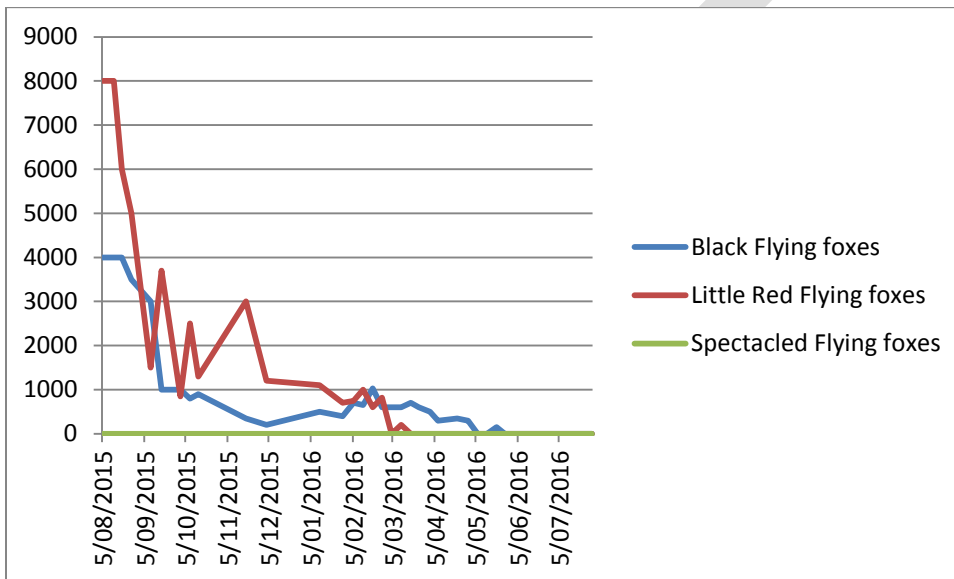


Figure 3: Monitoring results at the Palmetum over a 23 month period

Proposed activity

Townsville City Council has undertaken a comprehensive review of flying fox dispersals within Queensland and maintains ongoing consultation with Queensland Councils on the matter. It is understood from the Discussion paper (Appendix 1) that vegetation management in roost areas changes the structure of the available vegetation and decreases habitat availability for flying-fox colonies. Because of the Palm collection necessitating the need for canopy cover this is not a preferred option though cannot be completely ruled out. It is also understood that the success of dispersal is relatively low (See Discussion Paper Appendix 1) and may come at a significant cost. As such the alternative non-lethal strategies are proposed to be undertaken in a staged manner that recognises the importance of early intervention and can be delivered at a low cost to achieve the overall objectives of this plan.

Given that the site is currently uninhabited it is desirable to maintain the area as it was once designed without the concerns for staff and public safety; and the inherent risk to the palm collection of a failing canopy. This may be achieved by trialling several strategies whilst flying foxes are not present (Strategy 1: Early intervention and ongoing mitigation strategies), and should they return (combination of Strategy 1 and 2).

Most of the strategies fall within the realm of the Code of Practice Ecologically sustainable management of flying fox roosts (CoP) (Appendix 1) though there is flexibility to act outside of the CoP where appropriate. Any strategies the Council chooses to prevent the uptake of the site by flying foxes should they return will require a rapid response hence a Flying fox Response Procedure (Appendix 2) has been developed to guide communications and rapid mobilisation.

There is a high likelihood that flying foxes will inevitably seek to return to the site. In this event the preferred management option is to follow the recommendations of the report 'Management Options: Palmetum Flying-fox Roost, Townsville', written by Ecosure (Appendix 3). The report discusses in-situ management as the preferred approach to management of flying foxes at the site and Strategy 2 will outline this approach.

Strategy 1: Early intervention and ongoing mitigation strategy

Strategy 1 is aimed at the upkeep of amenity in the gardens in key areas. These strategies are to be enacted **prior to flying foxes returning the site** and can remain in place as part of the ongoing mitigation strategy. Where and when devices are to be relocated within the management area care shall be taken to avoid modification or destruction to trees where there are flying foxes present or nearby and likely to be harmed as a result of the destruction or modification. A notification form will need to be sent (Appendix 4) to the Department of Environment and Heritage Protection (DEHP) at least 2 business days prior to works being undertaken (though through close cooperation with DEHP this timeframe may be reduced).

Table 1 Strategy 1: Early Intervention and ongoing mitigation strategy

Management Strategy	Location	Justification	CoP compliant	Success measure
Erect high voltage lighting at the site with timers to ensure activation of the lights before dawn.	Major pathways of the rainforest area and along the boundary adjacent the Good Sheppard Home (GSH).	To maintain an amenity buffer to residents of the GSH and to keep the pathways clear of flying foxes to mitigate the risk to public safety of limb fall, and increase amenity for visitors to the gardens.	Yes	Flying foxes choose not to utilise the area or do so in lesser numbers
Utilise infra red motion detected sprinklers in the canopy	Above the major pathways within the rainforest area	To keep the pathways clear of flying foxes to mitigate the risk to public safety of limb fall, and increase amenity for visitors to the gardens.	No	Pathways are clear of flying foxes, public safety is increased, maintenance costs are decreased.
Place infrared motion sensor with noise and light deterrents in the canopy to discourage use of key areas.	Recommended for the raintrees adjacent to the GSH and along major pathways of the rainforested area.	To maintain amenity for visitors to the gardens and the GSH	No	Flying foxes choose not to utilise the area or do so in lesser numbers
Trial hormone inhibitors for any available food sources for flying foxes within the gardens to prevent daytime foraging (and	Any available fruiting or flowering species within the rainforested area.	Flying foxes have very short intestinal tracts and will pass food within 15 mins of consumption. Removing foraging resources in the gardens should lessen the presence of excrement on the	Yes	Foraging within the gardens ceases resulting in less excrement at the site.

therefore reduce excrement).		garden's paths therefore increasing amenity and decreasing cleaning costs.		
Trial audible tape from trees in key areas for amenity	Along the major pathways	Keep paths clear to decrease cleaning costs and increase amenity for visitors. Decreased safety risk due to limb fall.	Yes	Flying foxes choose not to utilise the area or do so in lesser numbers
Trial an air activated bird of prey replica to deter use of key areas	Rotate amongst pathway areas and front entrance to prevent habituation.	To provide space at the entrance to the rainforest where visitors can observe any notices and interpretive information.	Yes	The entry area is clean and presentable for public amenity
Install nest boxes that may encourage use by natural predators including the rufous owl	In appropriate areas of the rainforested area in consultation with the Curator.	To provide habitat to other vulnerable species such as the rufous owl whose presence may help deter flying foxes from key areas.	n/a	Nest boxes are utilised by birds of prey.

Strategy 2

Strategy 2 considers active management strategies where strategy 1 has failed. The aim is to split the rainforest into management zones and nudge flying foxes out of key areas to uphold public amenity and ensure that the canopy has sufficient 'rest' periods in order to recover from stress (See Palm Collection ID document (?)) and provide amenity to visitors by attempting to keep the concrete pathways and Good Sheppard Home boundary clear of flying foxes.

The onground delivery of this strategy shall be informed by the Flying fox Response Procedure and Council's Environmental Management System includes;

1. Flying fox monitoring
2. Flora/Fauna Assessment results (from the person knowledgeable about flying fox behaviour)
3. Active management coordination
 - a. Inducted activity participants
 - b. Dispersal reports
 - c. Animal Welfare considerations
 - d. Human health considerations
4. Risk Assessment
5. Safe work Method Statement
6. Management of Splinter colonies in undesirable locations
7. Dispersal outcome reporting
8. Review

Dispersals shall avoid breeding and rearing seasons (Table 2) and will require advice from a person knowledgeable about flying fox behaviour (See Operational Plan Appendix 5, and definition of knowledgeable person in CoP). Noise intensive strategies may require community consultation and a communication strategy in order to prevent nuisance complaints pursuant to the Environmental Protection (Noise) Policy 2008. The Flying fox response procedure and Communications strategy (Appendix 5 & 6 respectively) should also clearly outline the risk of dispersing part of the colony into nearby resident's backyards or other equally undesirable locations, and outline the process for rectification. It should be noted that this process comes with significant risk as outlined in the Management Options: Palmetum Flying-fox Roost, Townsville report (Appendix 3). All management strategies must immediately cease and the DEHP are immediately notified if flying-foxes appear to have been killed or injured.

Table 2 Peak birthing and mating seasons

Breeding seasons

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Black flying-fox												
Little red flying-fox												

(Red indicates peak birthing times, Green indicates peak mating times)

Table 3 Strategy 2 Active Management Strategies

Management Strategy	Location	CoP Compliant	Communications Plan required
Utilise a falconry expert to nudge flying foxes away from nominated recovery zones.	The gardens shall be split into zones and the falconry expert shall attempt to maintain the nominated recovery / exclusion zone free of flying foxes	No – Permit required	Yes
Banging pots and pans	Along the concrete pathways	Yes	No
Starter pistols to nudge flying foxes away from nominated recovery zones	Utilise in nominated recovery / exclusion zones	Yes ¹	Yes
Smoke	Utilise in nominated recovery / exclusion zones	Yes ²	Yes
Vegetation modification	Along major pathways	Yes ³	Yes

¹ Any attempt to nudge flying foxes from an area may only occur in the early evening and/or morning. When being carried out in the early evening, activities must commence immediately prior to dusk ‘flyout’ at a roost and continue for no longer than 2 hours. When being carried out in the early morning, activities must commence immediately when flying-foxes start returning to a roost from foraging activities, and continue for no longer than 3 hours.

² As above

³ No roost tree may be destroyed or modified when there are flying-foxes in the tree, or when flying-foxes are near to the tree and likely to be harmed as a result of the destruction or modification.

Ongoing Mitigation strategy and Communications

As part of Council's overall commitment to the environmental values of the City it is appropriate in the context of flying foxes to consider the location of a long term roosting site for flying foxes that can hold a large population and avoid any negative consequences associated with proximity to the community. This approach was mentioned in the Discussion Paper (Appendix). Ideally the south bank of Ross River, a historic roosting area would fit this purpose. Value adding to existing revegetation commitments and sourcing additional funding arrangements may help catalyze the take up of the area.

Ongoing monitoring should continue across the Local Government Area to gain insight into the spatial and temporal habits of flying foxes in the Townsville area. Maintaining open communication with other councils undertaking management of flying-fox roosts should also continue so that a regional approach can be considered.

The community in the immediate vicinity (10km radius) should receive an update on the proposed course of action and allowed the opportunity for feedback. Residents should be advised of some mitigation strategies to lessen impacts from the colony including;

- Close windows and doors to reduce noise and smell impacts;
- Remove washing before sunset;
- Cover outdoor furniture before sunset;
- Retrofit shade sails to property to protect outdoor areas from droppings;
- Ensure vehicles are parked undercover, or use car-covers to protect from droppings.
- Don't pick up any injured or dead FF, contact the local wildlife groups
- If any FF dead FF are located use gloves and double bag and dispose of the carcass

Reporting and Procedural updates

The coordinating person shall complete reports at appropriate intervals whilst Strategy 2: Active management strategies are undertaken. A review of the Flying fox response procedure shall be undertaken at least 6 monthly or as deemed appropriate for continual improvement. Sharing of the outcome report with interested Council's will occur to ensure transfer of learning's and improvement of management techniques.