

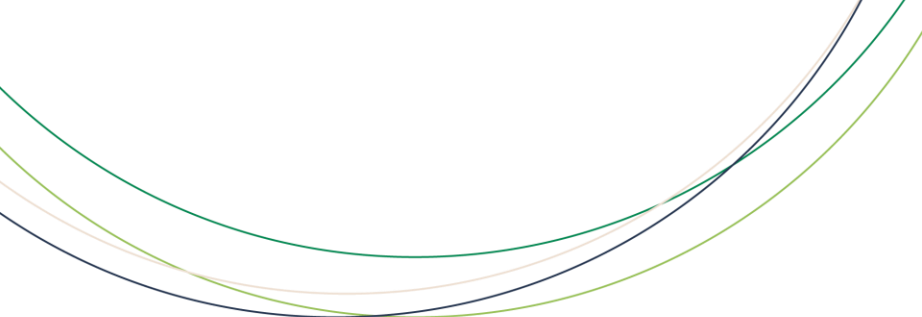


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improving ecosystems



# Restoring Flying Fox Habitat

National Flying Fox Forum  
14<sup>th</sup> September 2021



Ecosure acknowledge the Traditional Custodians of the lands and waters where we work. We pay deep respect to Elders past and present who hold the songlines and dreaming of this Country. We honour and support the continuation of cultural, spiritual, and educational practices of Aboriginal and Torres Strait Islander peoples of this Nation.



# Flying Fox Habitat Requirements

- Roost Sites
  - Complex, stable sites with well developed structure
  - Canopy / midstory 5 – 17 m in height
  - Usually near or within 500 m of permanent water
  - Rainforest (subtropical rainforest; dry rainforest); wet sclerophyll; riparian; mangrove; *Casuarina* and *Melaleuca* (paperbark) forests; palm forests; *Eucalyptus* ecosystems; islands etc.
  - Presence of emergent trees
  - Easterly / southerly aspect
- Foraging Sites
  - *Eucalyptus* / *Corymbia* / *Melaleuca* forests – flowering species
  - Rainforest types for fruit eating species.

# Challenges – flying foxes

- Fragmentation and loss of habitat
- Changing climate – hotter temperatures and more frequent heatwaves impacting flying foxes
- More frequent and hotter fires
- Higher rates of human wildlife conflict
  - Due to fragmentation
  - Degradation of habitat including established roost sites
  - More urban sites often contain wetter systems (e.g. gullies) and more stable conditions.

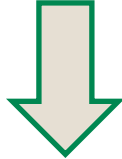


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# Challenges – flying foxes and ecological restoration practitioners

- Weeds – dispersal of many weed species including:
  - Tobacco bush (*Solanum mauritianum*); Cocos palm (*Syagrus romanzoffianum*); large leaved privet (*Ligustrum lucidum*); small-leaved privet (*L. sinense*); orange jessamine (*Murraya paniculata*); fruit trees (e.g. dragon fruit, mulberry, peach etc.) etc.
- Impact to canopy altering roosting, feeding and cooling opportunities
- Changes to forest structure resulting in an altered microclimate
  - The additional light and changed conditions favour weeds
- Added fertiliser under camps supports greater weed growth
- If exotic vines are already present (e.g. Madeira vine, cat's claw creeper, *Ipomoea* spp. balloon vine etc.), the loss of canopy results in greater impact and faster growth rates of weeds.

# Site assessment and ecological restoration approaches

- Understanding the goals of the project
  - Pre-existing vegetation type / Regional Ecosystem
  - Understanding how the site naturally recovers and capacity for recovery
  - Knowing where to start and how, when and where to intervene
  - Restoration planning – good restoration is usually applied systematically
  - Funding
- 
- Natural regeneration
  - Assisted regeneration or facilitated regeneration
  - Reconstruction – revegetation (e.g. planting, direct seeding etc.)
  - Fabrication

# Restoration Planning

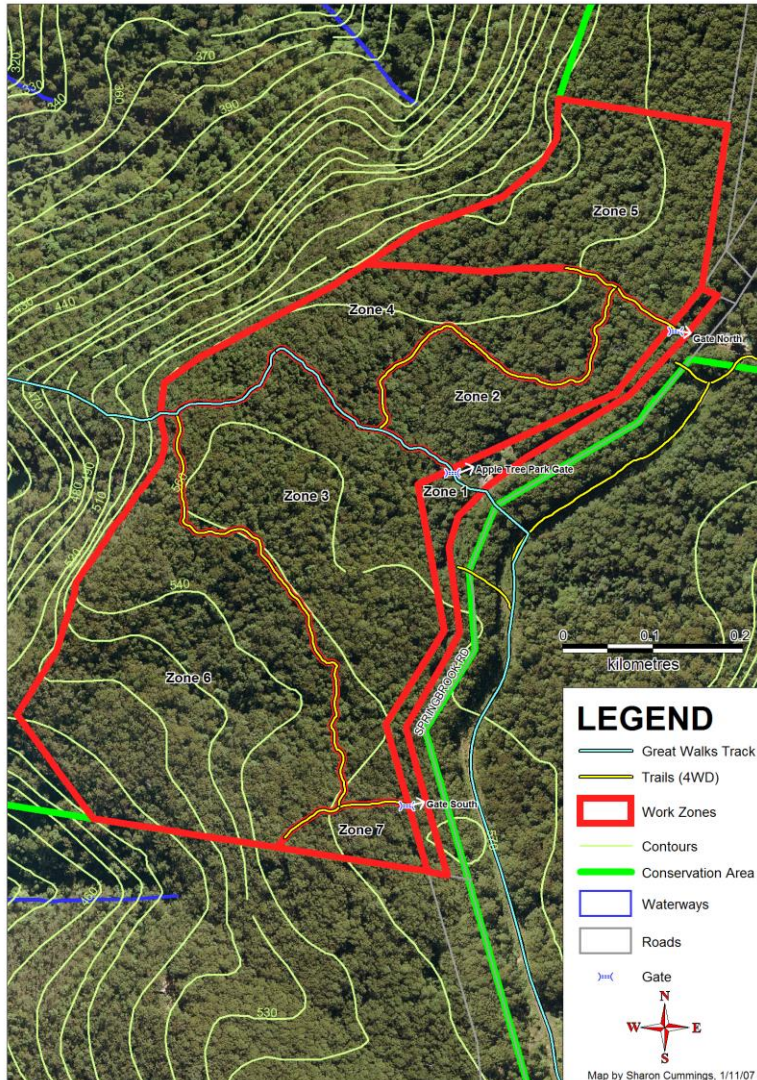


Image – City of Gold Coast

## Apple Tree Reserve - 33 hectares

- Zoned to assist direction of works and consolidation of whole areas before expanding works
- Good practice often involves the control of weeds in the understorey (ground layer and midstory) before any canopy weeds are addressed
- Need to assess where on site the flying foxes mainly roost
- May need to work smaller areas?
- May need to consider a mosaic approach to weed control which may be more important in smaller patches.

# On ground works and other solutions

- Where priority sites are identified, start works ASAP to avoid longer term and more expensive restoration i.e. reduce the impact to existing habitat.
- Consider habitat requirements and how best to apply works – depending on the size of the site, a mosaic approach maybe required.
- Consider longer term (5-10 years) funding arrangements to work around needs of flying foxes:
  - Avoid working underneath colonies while young are small (Oct – Dec)
  - Avoid removing lots of midstory (even weeds) during or just prior to the hotter months (Jan – Mar)
  - Consider the techniques being applied and tools that are being used especially when working close to camps.



# On ground works and other solutions

- Work larger areas during the cooler months especially when the control of midstory weeds are required ensuring this habitat type is available in summer
- If working on a regional or state scale, understand the priority sites and areas as whole sites might be able to be worked if enough other sites exist
- If applying assisted regeneration, consider how and where the site can be expanded and the edges of the site consolidated
- If applying a reconstruction approach, consider:
  - Pre-existing vegetation type
  - Restoring the edges e.g. creek edge; site edge etc. to improve microclimate
  - If expanding the size of the site, determine if planting this should be done prior to OR after regeneration of core.

# Coomabah Wetlands Reserve, Gold Coast



March, 2008



November, 2008

# Coombabah Wetlands Reserve, Gold Coast



June, 2010



June, 2012

# Hurst Family Park, Nerang

## Impacted by cat's claw creeper (*Dolichandra unguis-cati*)



January, 2009



June, 2009

# Hurst Family Park, Nerang

## Impacted by cat's claw creeper (*Dolichandra unguis-cati*)



June, 2011



June, 2012

# Hurst Family Park, Nerang

## Impacted by cat's claw creeper (*Dolichandra unguis-cati*)



June, 2009



June, 2012

# Previously burnt sites impacted by weeds and being restored via assisted regeneration



July, 2014



August, 2020

## Revegetation to expand key foraging and roost habitat



February, 2014



July, 2016



# Wet sclerophyll, rainforest and mixed forest communities Assisted Regeneration



August, 2008



September, 2008

# Wet sclerophyll, rainforest and mixed forest communities Assisted Regeneration



June, 2009



June, 2010

Images: Saul Hondow, City of Gold Coast

## Ongoing recovery at Numinbah Conservation Area



June, 2011



August, 2017

Images: City of Gold Coast

It is possible!!



Thank you!



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