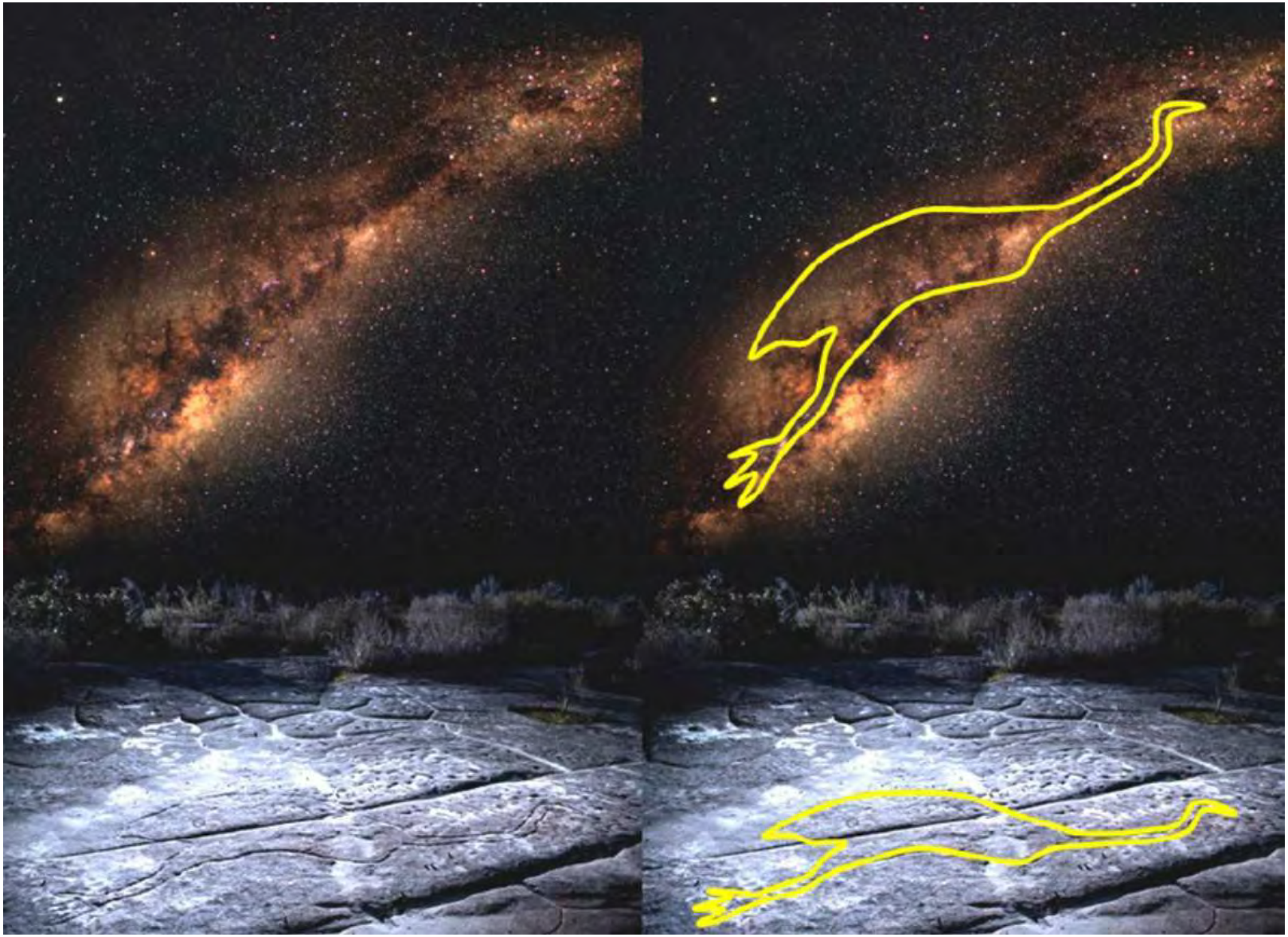
Biodiversity Conservation Now and in the future

Jacob Sife, Manager Environment and Sustainability
STEP 25/11/2023



Ku·ring·gai Council

Lane Cove Council

NORTH SYDNEY COUNCIL

northern beaches council

STRATHFIELD COUNCIL

WILLOUGHBY CITY COUNCIL

Biodiversity Conservation Now and in the future

- *What is: **Biodiversity**, **Conservation**, what do we mean by **now** and the **future**?*
- *Monitoring - innovative techniques*
- *Innovative projects*
- *Funding*

Biodiversity Conservation Now and in the future

Biodiversity - the variety of life on Earth at all its levels, from genes to ecosystems, and can encompass the evolutionary, ecological, and cultural processes that sustain life. (*American Museum of Natural History*)

Biodiversity conservation - the practice of protecting and preserving the wealth and variety of species, habitats, ecosystems, and genetic diversity on the planet

Ku-ring-gai Council

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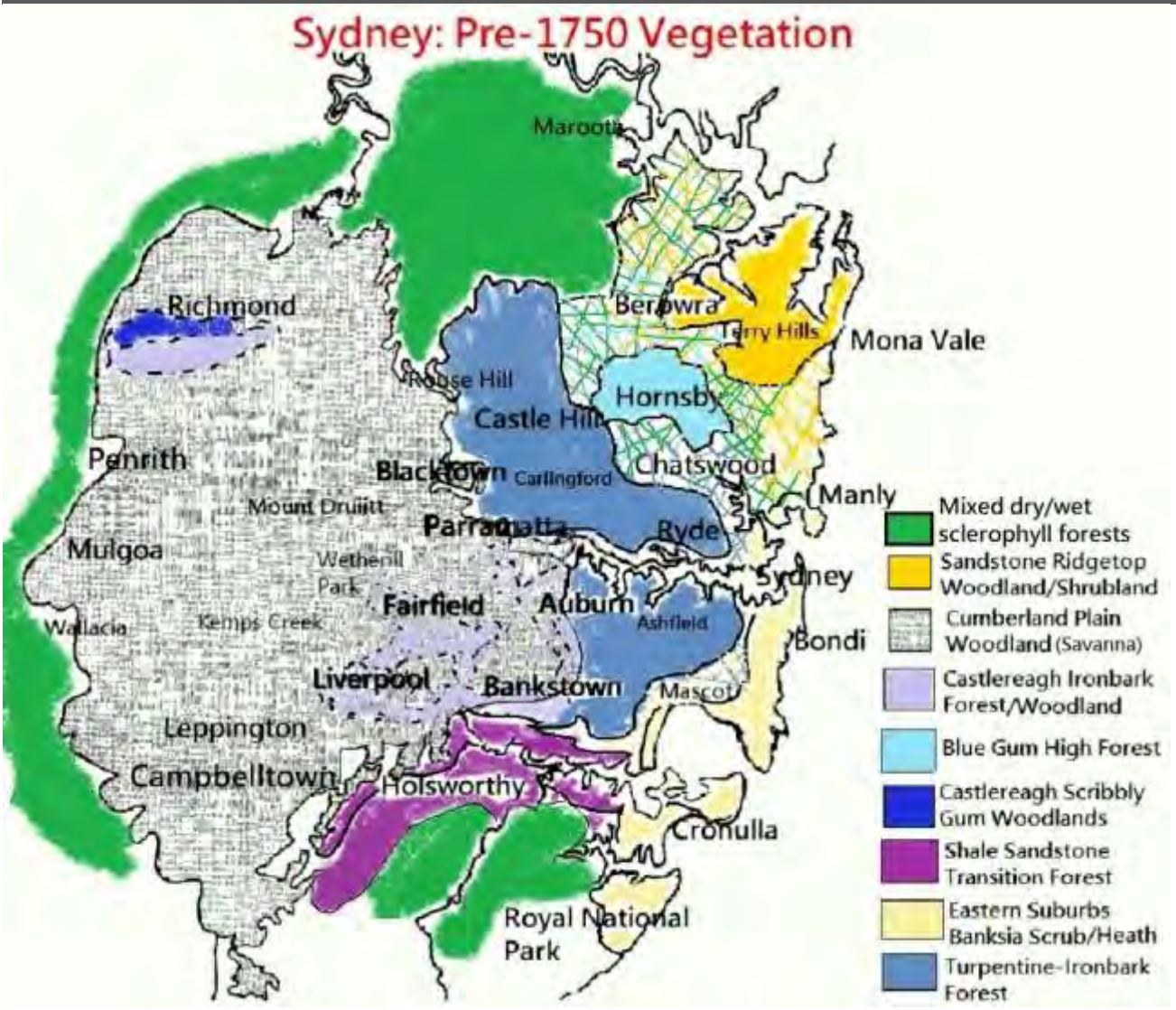
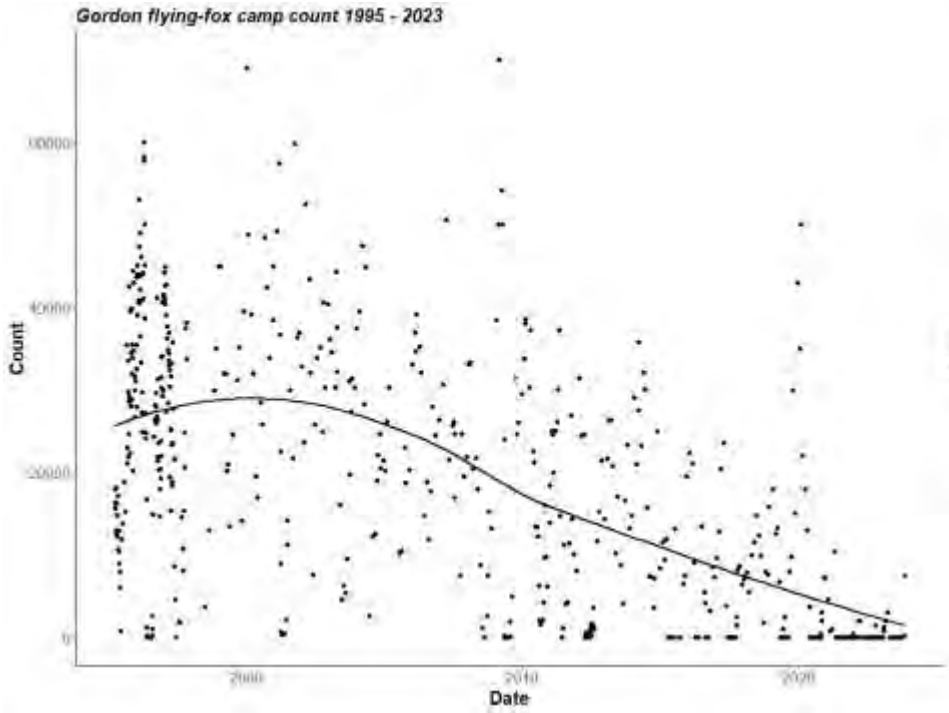
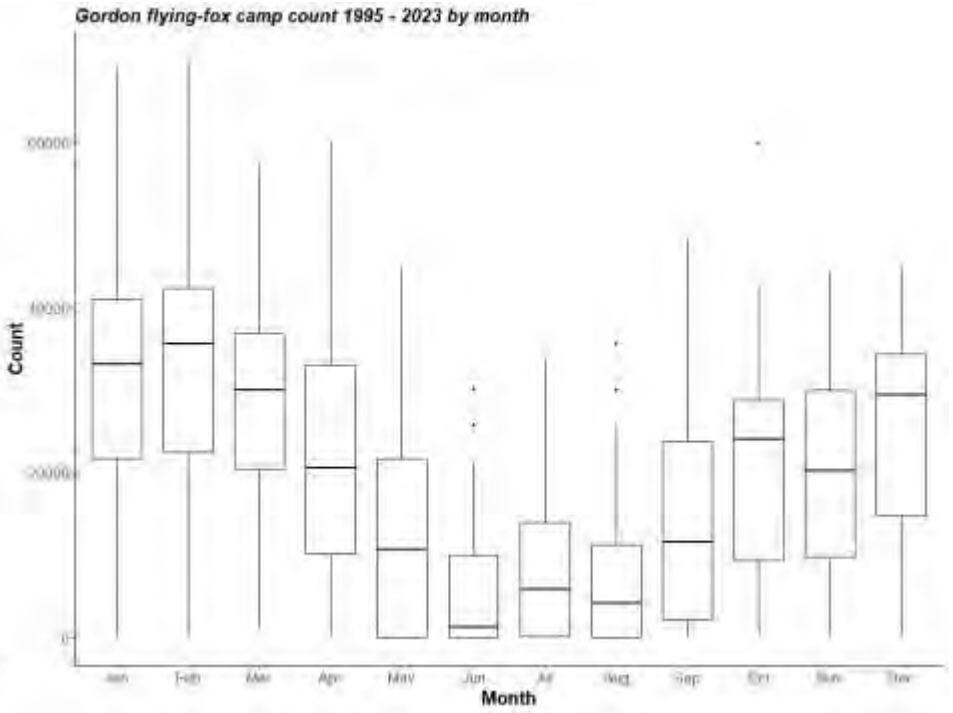
Biodiversity Conservation Now and in the future



Changing baselines



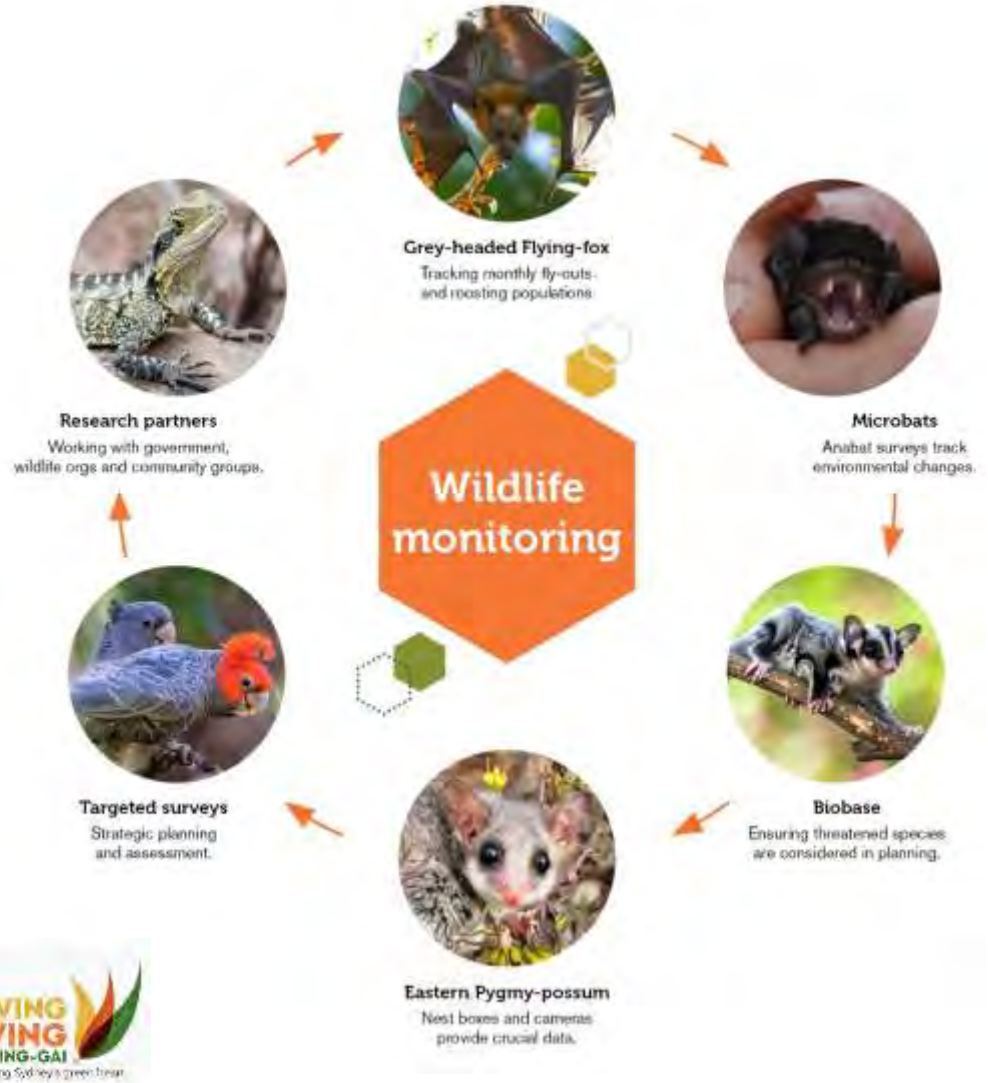


"The importance of planting the right tree in the right position is critical if we are going to have trees in place in 50 years time."

Hamish Mitchell — Speciality Trees, Victoria

- https://vimeo.com/706772898

Biodiversity Conservation – Monitoring



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Eastern Pygmy-possum monitoring program

- 44 nest boxes installed throughout the LGA
- 15 volunteers
- Quarterly nest box checks
- Camera monitoring
- *Aims to improve understanding of EPP*

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Sustaining Sydney's green heart

Ongoing Monitoring

Ku·ring·gai Council

Grey-headed Flying-fox

- During the day, large communal camps
- Excellent sense of smell & eyesight
- Pollinators – feed on nectar and pollen of trees such as *Eucalyptus, Melaleuca, Angophora, Turpentine* and *Banksia*
- Vulnerable under the BC Act and EPBC Act

Grey-headed Flying-fox camp in Gordon (KFFR)

- KFFR is a nationally significant camp providing roosting and maternity habitat
- Wildlife Protection Area

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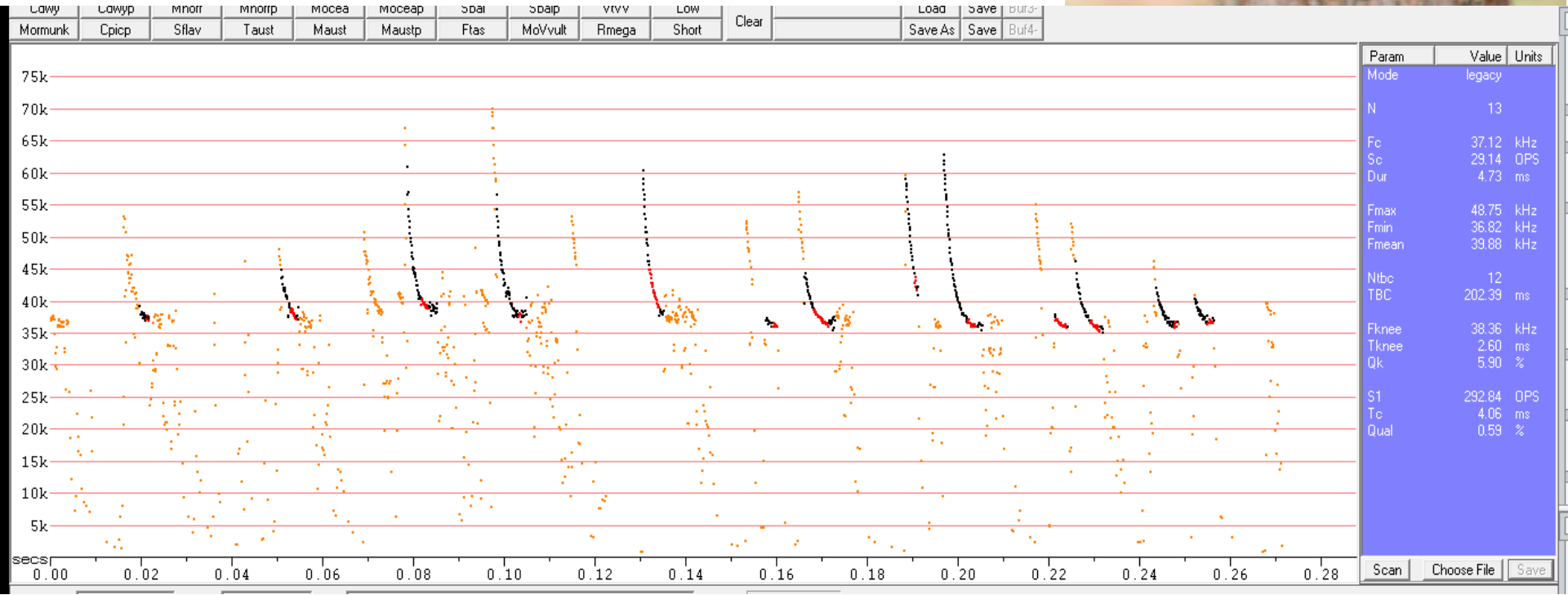
Sustaining Sydney's green heart

Ongoing Monitoring

Ku·ring·gai Council

- Annual surveys in autumn (min 2 nights per site)

  Anabat bat detector - convert inaudible sound to spectrogram



Microbat Monitoring

- 7 years of monitoring
- Monitoring of P2P sites, residential backyards, creeks, bushland, wetland habitat, and golf course dams.
- Over 60 sites throughout the LGA

Biodiversity Conservation – expanding our focus

Biodiversity in Ku-ring-gai

- 1,160 hectares of bushland
- 24 vegetation communities
- 7 endangered ecological communities
- 700 native plant species
- 300+ vertebrate species

Can't monitor all! ..Focused on threatened species, or species who are good environmental indicators

The Forgotten Invertebrates

- Invertebrate Conservation - the exoskeletal elephant-in-the-room

- Invertebrates make up 80% of all known species[1]
- With insects alone making up 75%[2]
- Foundational to terrestrial biomes
- fraction of conservation attention

Steps towards knowledge

- Focussing on assemblages likely more beneficial
- Flagship species (e.g. the Green Carpenter Bee) useful as ambassadors
- connectivity and how breaks can influence population dynamics e.g. roads, housing developments etc.

- Ku-ring-gai Council -
The present and the future

- We monitor our waterways for macroinvertebrates
- Proxy for waterway health

Expanding into:

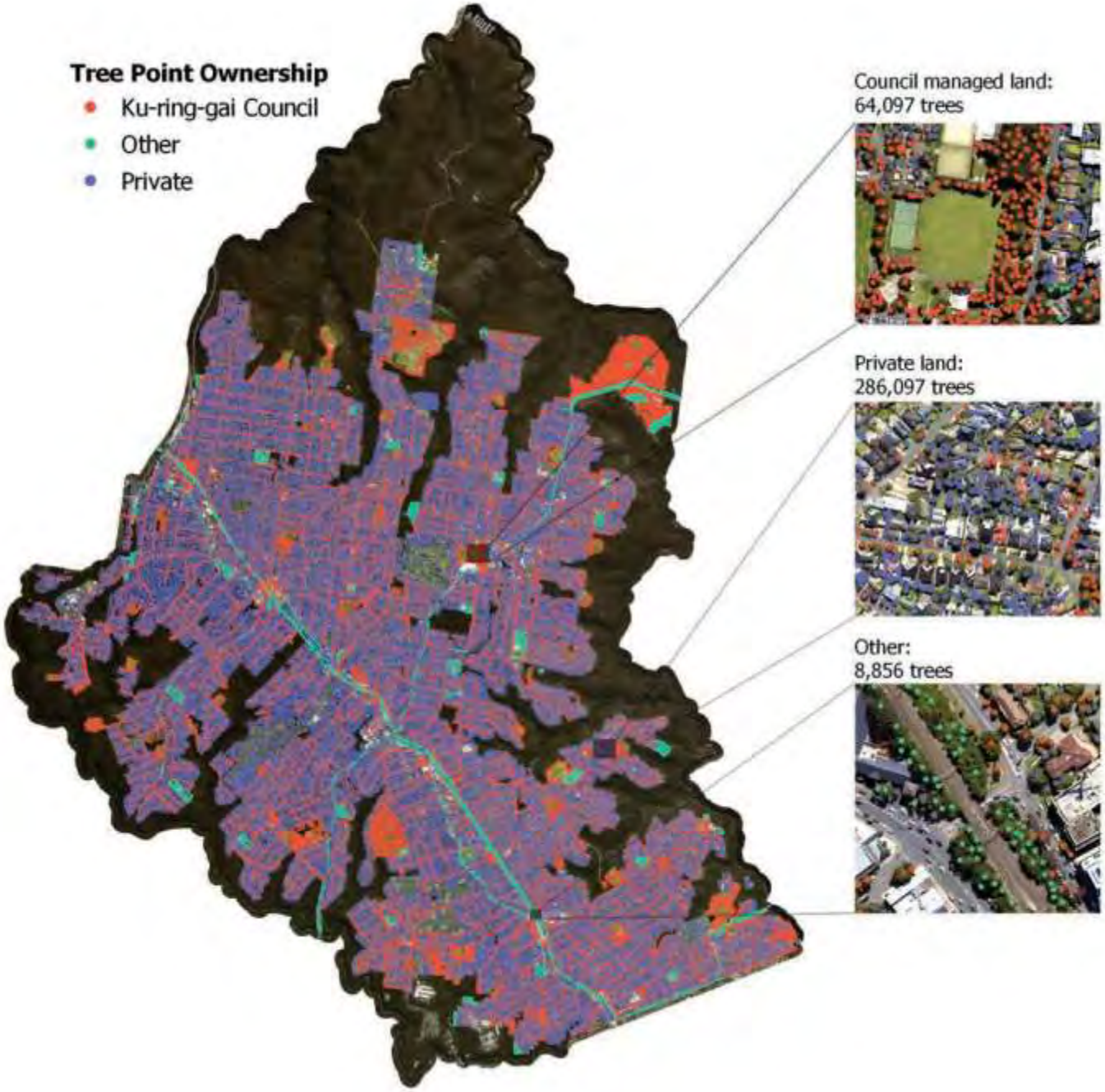
- eDNA analysis of KRG creeks
- Aim to expand efforts into terrestrial systems

Aerial Mapping

Canopy mapping was undertaken over the Ku-ring-gai LGA in 2020

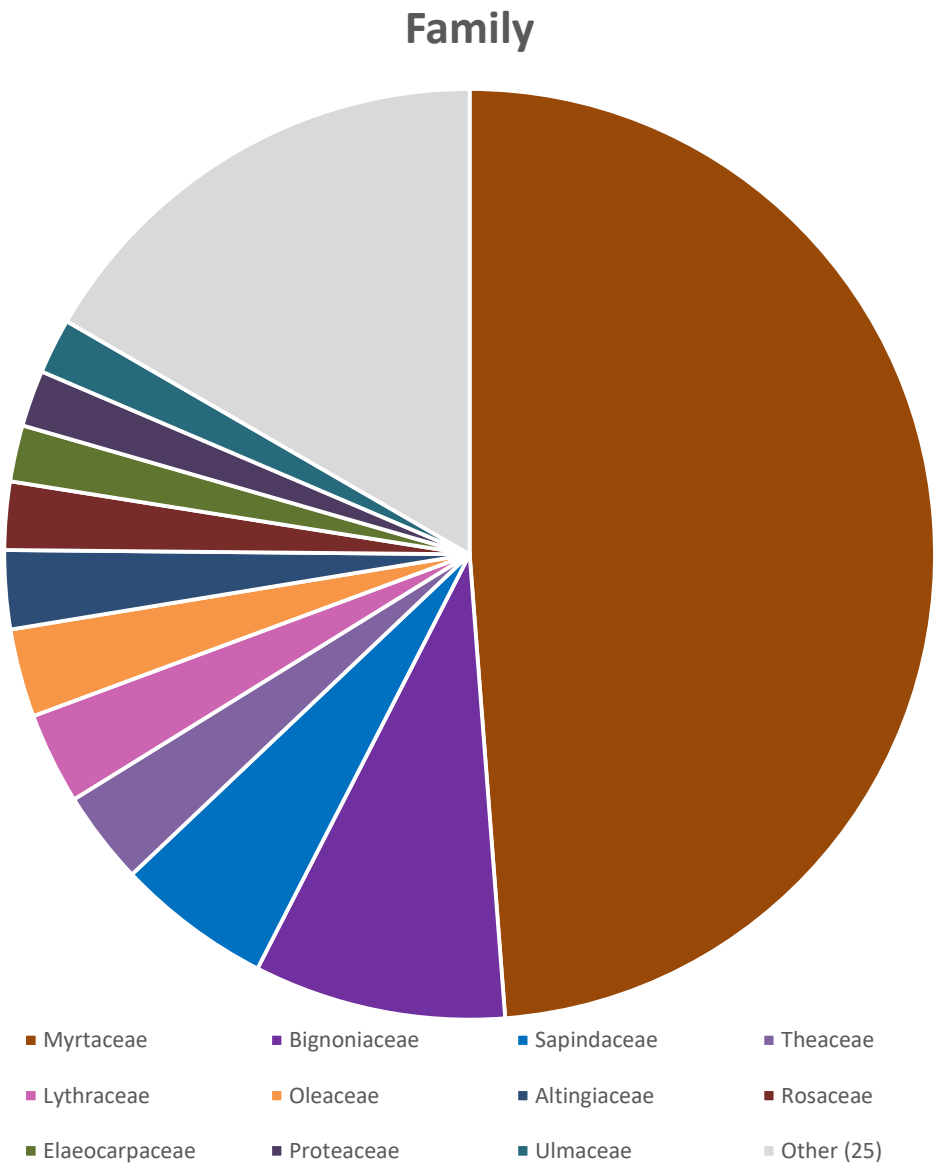
In 2021 ArborCarbon undertook a preliminary tree inventory based on the LGA boundary

- excluding C1 and C2 zoned land-


Tree Point Ownership
Ku-ring-gai Council
Other
Private
Council managed land:
64,097 trees
Private land:
286,097 trees
Other:
8,856 trees

Street Tree Stats

- 2078 individual trees (excluding dead and unidentifiable)
- Around 166 species/varieties
- Representing 85 different genera



Canopy Cover

- Bi-annual data capture
- Canopy cover statistics were calculated for the urban area only – this was determined to be the LGA boundary, excluding land zoned as C1 – National Parks and Nature Reserves (Figure 6).

2020

51% Overall

45% Urban

2022

50% Overall

43% Urban

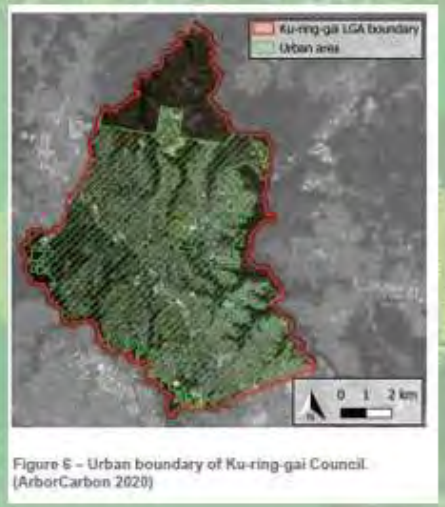


Figure 6 – Urban boundary of Ku-ring-gai Council. (ArborCarbon 2020)

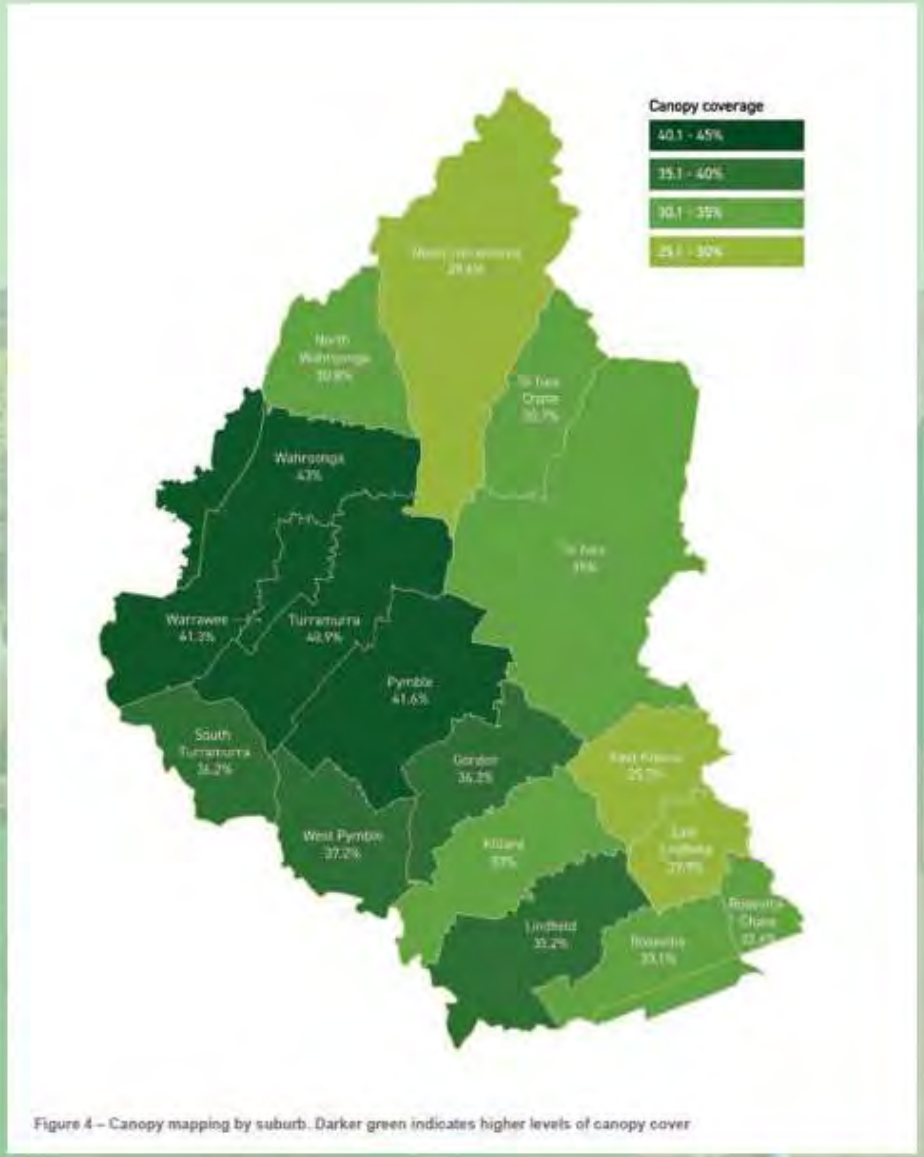


Figure 4 – Canopy mapping by suburb. Darker green indicates higher levels of canopy cover

Drone-based thermal remote sensing provides an effective new tool for monitoring the abundance of roosting fruit bats

Eliane D. McCarthy, John M. Martin, Matthias M. Boer, Justin A. Welbergen

First published: 09 April 2021 | https://doi.org/10.1002/rse2.202 | Citations: 8

https://youtu.be/zEG7Bm5OLOk

Innovative projects

Sunday, 03 September 2023 01:01

Ku-ring-gai Council is trialling a woody meadow project

https://youtu.be/i9Mc2g0HR9U

Tiny Forests

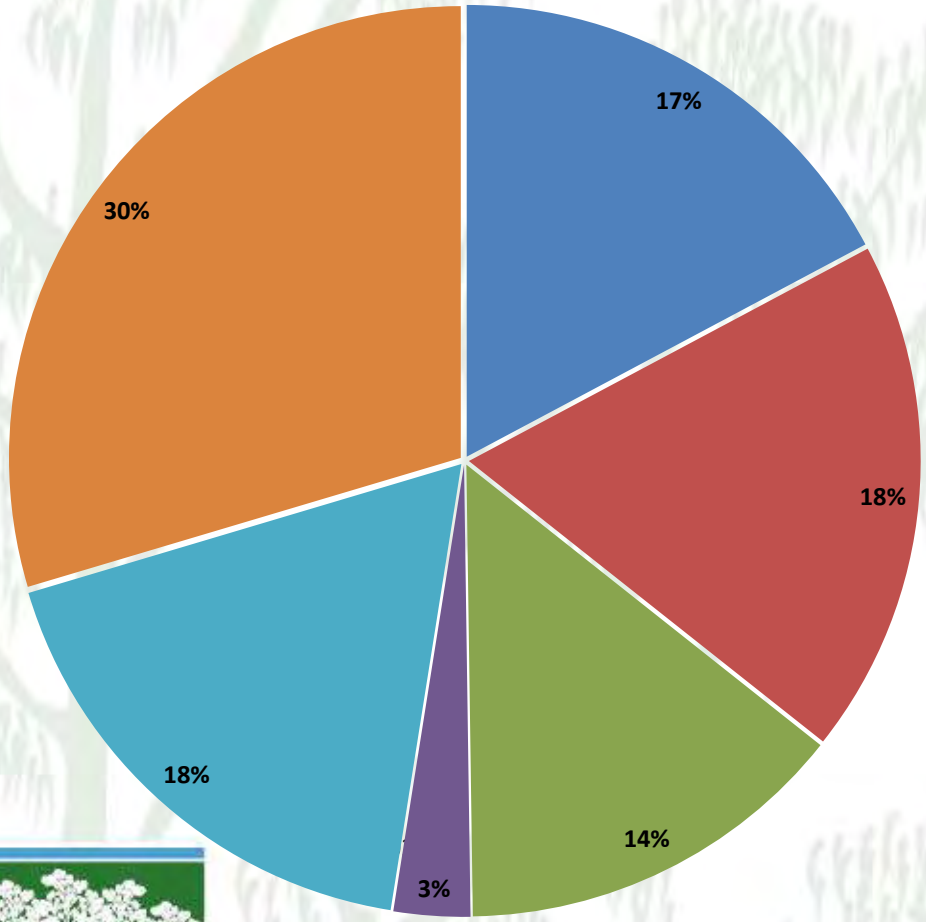
- https://youtu.be/lVS3quJMusQ

Biodiversity Conservation – Funding

Primarily funded through **your** Environmental Levy!

- Began in 2005 and levied at 5% of Council's total rate revenue
- Successfully applied in 2019 to IPART to make the Levy permanent
- Funds over $3 million of environmental programs and works annually,
- Under the current Levy the average residential ratepayer pays around $80 annually

What is the Environmental Levy?



- Energy management
- Biodiversity and bushfire management
- Water and catchment management
- Sustainable transport and community recreation
- Community programs and environmental educatio
- Project management and administration

Ku·ring·gai Council

The Future

In 2024 Council will engage the community on how the Environmental Levy is structured and delivered

Ku·ring·gai Council


KOBELCO

Key take aways:

Biodiversity conservation in the future must:

- include a focus on the evolutionary, ecological and cultural processes
- Recognise the context of our existing socio-economic and urbanised world – what change to accept and what change we should fight against
- Continue to expand and utilise innovative techniques for monitoring
- Create partnerships and trials for successful projects
- Keep people engaged