Flying-foxes in Victoria – 2018 update

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POSTERA CRESCAM LAUDE
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- Grant Baverstock – Geelong City Council
- Kate Allen – East Gippsland Shire Council
- Greg McKenzie, Shepparton Council
- Lawrence Pope, FOBBS
- Thousands of volunteer counters, doing 10s of thousands of volunteer-hours

A brief history…

- Seasonal camps in far-east Gippsland (Vic/NSW border) for many decades
- Occasional records around Melbourne
- 1000 roosted in Melbourne in Autumn 1986, with 10-15 over-wintering
- RBGM – 1st permanent camp in Vic
- ~30,000 when relocated to Yarra Bend (2003)
- Many more temporary, seasonal and permanent and growing camps since then…


Mildura
Red Cliffs
Euston
Manangatang
Ouyen
Underbool
Swan Hill
Sea Lake
Hopetoun
Rainbow
Birchip
Charlton
Nhill
Dimboola
Wedderburn
St Arnaud
Horsham
Maryborough
Stawell
Ararat
Edenhope
Coleraine
Hamilton
Ballarat
Broadmeadows
Melbourne
Springvale
Geelong
Heywood
Terang
Camperdown
Portland
Warrnambool
Colac
Frankston
Warragul
Moe
Traralgon
Morwell
Sale
Bairnsdale
Orbost
Lakes Entrance
Mallacoota
Wonthaggi
Cobram
Numurkah
Yarrawonga
Wangaratta
Shepparton
Rochester
Echuca
Wodonga
Beechworth
Corryong
Myrtleford
Bright
Mount Beauty
Euroa
Mansfield
Castlemaine
Bendigo
Seymour
Tatura
Werribee Park
Adelaide
Albury
Croajingolong NP
Royal Bot Gardens
Warburton
Doveton
Bacchus Marsh
HMAS Cerberus
Cann River
Buchan
Maffra
Kalimna


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Happy permanent camps…

- Yarra Bend, Doveton, Geelong: ~5-10k to ~50k max
  - Tree dieback concerns, few complaints, reveg occurring
- Bendigo: increasingly year-round
- Heat stress mgt a concern at all camps


Flying Fox Forest
The trees in this area are representative of some of the species that are ecologically important for the flying foxes. Some provide food, some provide shelter while, in return, the bats either pollinate the trees or spread their seeds. This promotes forest regeneration.
Conserving flying foxes helps save forests. Saving forests helps conserve our bats.
Park Information 13 1963 | www.parks.vic.gov.au
Parks


flying-foxes ahead
You are approaching a colony of Grey-headed Flying-foxes, large bats native to Australia.
Do not be afraid. They will not harm you. Please keep noise levels to a minimum and try not to disturb them.
Penalties apply for harassing or causing injury to flying-foxes.

Yarra Bend and FOBBs

- Stephen Brend – Parks Vic FF Project Officer
- FOBBS formed in 2016
- >100 members, 20 who are active
- Weeding, tree planting, signage, advocacy, etc
- >700 volunteer hours, >2000 trees planted
- Heat stress response
- Run the soft release enclosure for FF and birds
- Details via PV Parks Connect

The success of Yarra Bend

- From a management perspective:
  - Distance between bats and houses
  - Space to plant new trees / colony to grow
  - Single, engaged manager / point of contact
  - Consistent message about camp
  - Support of FOBBS / wildlife carers
  - Monthly citizen science flyout & static counts
  - ‘Soft release’ enclosure – supporting carers

Happy camps, for now…

- Maffra – 1st overwinter 2018, no obvious mgr
- Warrnambool – Overwintered last couple of years, small, no 'responsible' mgr.
- Tatura – definitely permanent, >10,000 in 2018, Council and local mgt committee, moved to middle of park, exclusion fencing
- Bendigo – permanent, profile/conflict appears to have declined with camp size
- Warburton – seasonal, few thousand

Not so happy camps

- Werribee mansion: a ‘few thousands’ ‘regularly’ in car park/near mansion and nudging
- Bairnsdale:
  - ~30k in 2017, 100’s overwintered 2018
  - Tree decline major issue
  - Revegetation along Mitchell River

Mitchell River Revegetation Program

Bairnsdale Grey-headed Flying Fox Roost Site

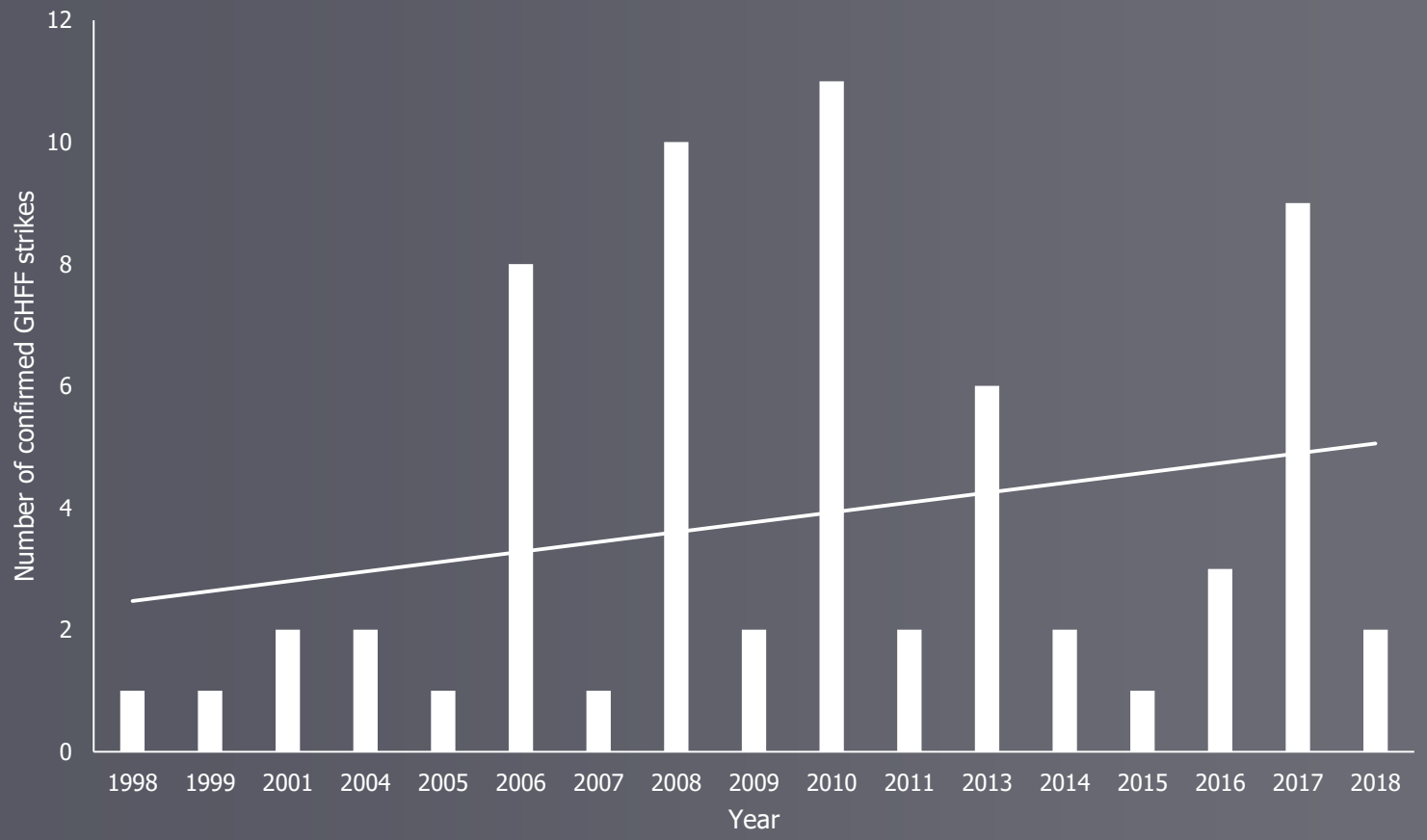
Strategic Management and Action Plan

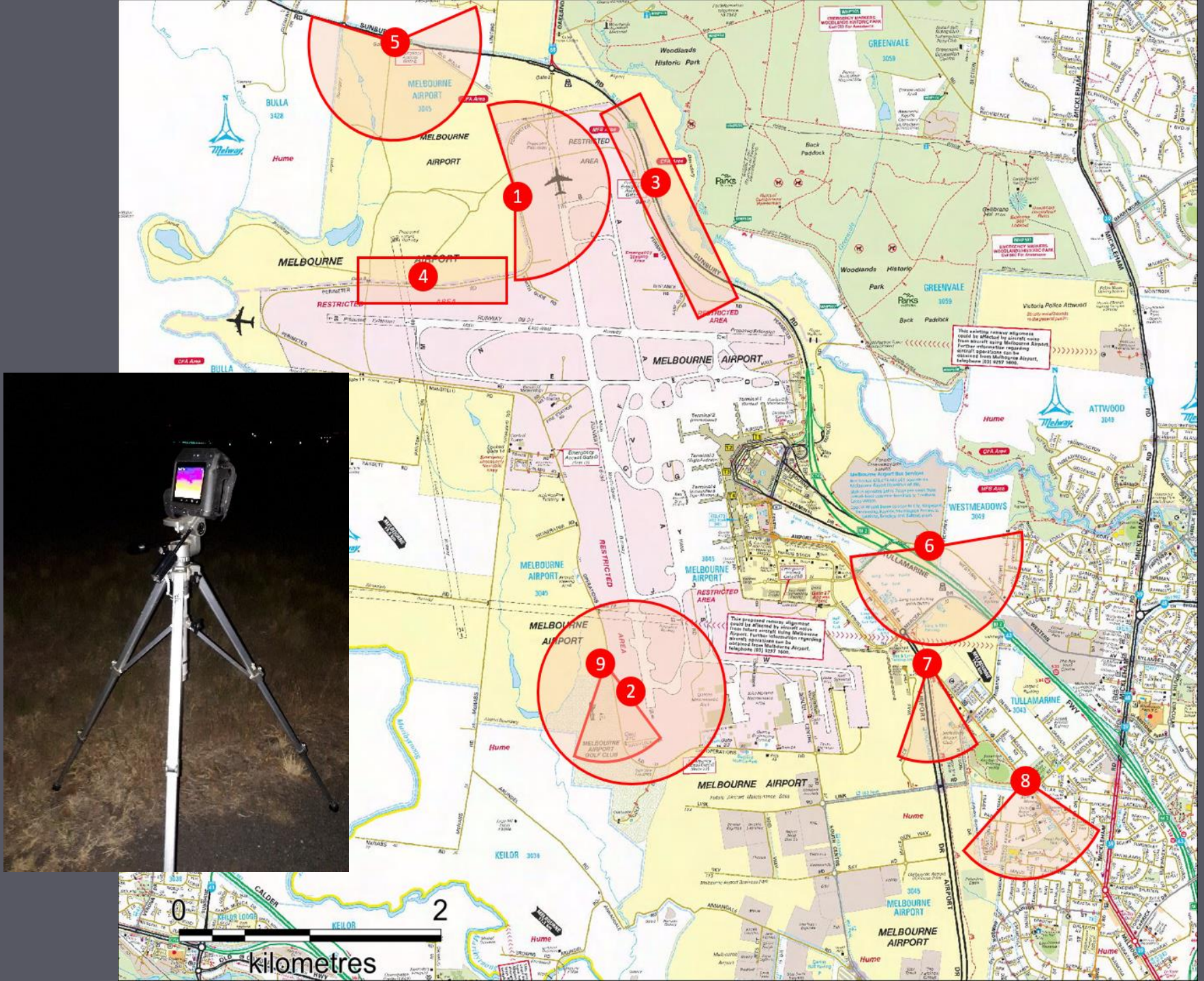
Bairnsdale

- East Gippsland Shire Council
  - Manage in-situ
  - Undertake tree removal and revegetation
  - Controlled action under EPBC
- Council attempting to balance reveg goals, human safety, bat welfare, small budgets, & community expectations….
- Community angst – for and against!

Melbourne Airport

GHFF the greatest wildlife risk to aircraft

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RESTRICTED AREA
GREENVALE
WESTMEADOWS
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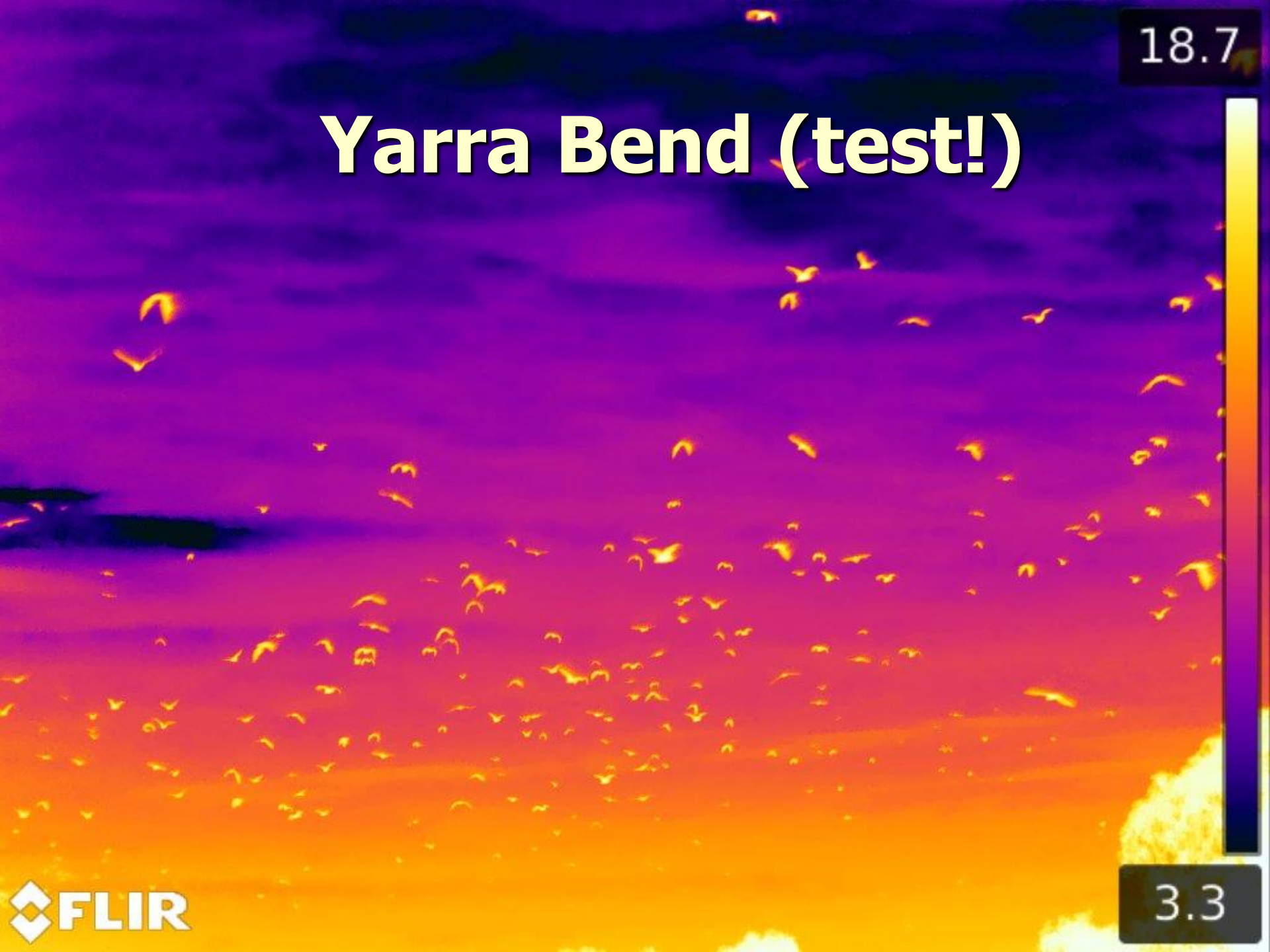
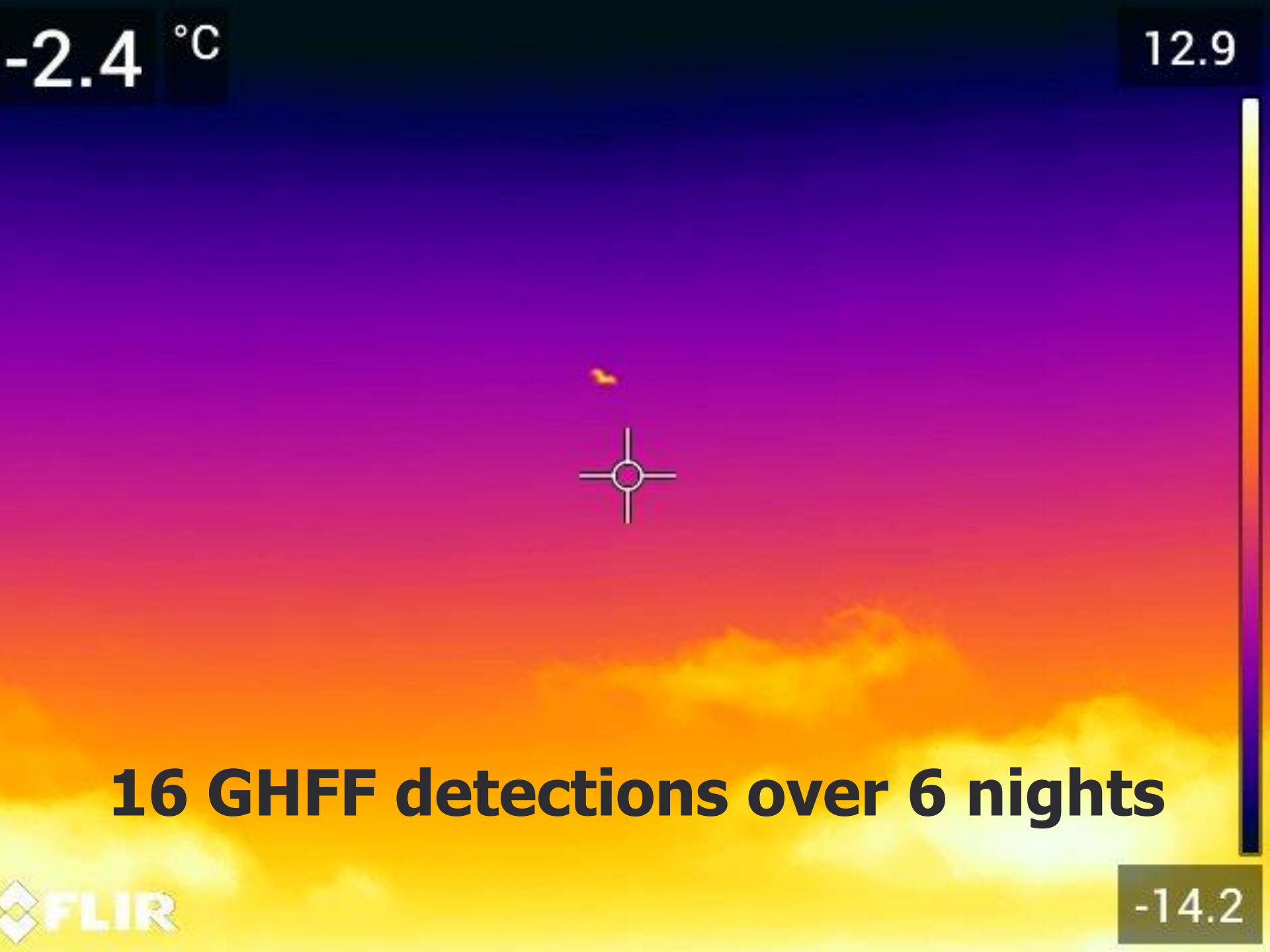
ATTWOOD
BULLA
KEILOR
Hume
0
2
kilometres

Yarra Bend (test!)





16 GHFF detections over 6 nights

REVIEW OF PLANTING ASSESSMENT CRITERIA

Introduction to current Planting Assessment Criteria and current plant list.

ASSUMPTIONS

TREES

TREES BETWEEN 2-5M
Assumption made that there is minimal risk for trees at a height between 2-5m for attracting birds and bats.

TREES 5-10M
Assumption made that trees between a height of 5-10m is a medium risk for attracting birds and bats.

TREES >10M
Trees greater than 10m have the highest risk for attracting birds and bats.

UNDERSTOREY VEGETATION

VEGETATION LESS THAN 2M
Assumption made that understorey vegetation under 2m has minimal risk for attracting birds or bats but densities should be considered carefully.

NO WETLAND PLANTS
Wetland plants (especially reeds in pools of water) have high risk of attracting birds.

RISK IDENTIFICATION

Identification of three categories of risk, birds bats and people.

PEOPLE

RESPIRATORY ALLEGENS
Plants that release proteins into the air that can trigger airway inflammation.

CONTACT ALLERGENS
Allergic rashes may be triggered in individuals who are in direct contact of certain plants.

PHYSICAL HARM
Recognising trees that are known to experience sudden limb failures or plants that harm upon direct contact (e.g. thorns).

TOXICITY
Plants there are poisoinous to touch or ingest.

BATS
- Grey-headed Flying fox

FLOWER ATTRACTIVENESS
Typical flower size, and therefore attractiveness will determine the 'risk vs reward' for flying foxes.

FRUIT ATTRACTIVENESS
Typical fruit size, and therefore attractiveness will determine the 'risk vs reward' for flying foxes.

FOOD ABUNDANCE
An area that produces a large quantity of fruit or flower will be more attractive than an area that produces a small quantity.

MATURE VEGETATION HEIGHT
Taller tree species are more desirable for flying fox to feed in safety.
(10m+ is the highest risk)

BIRDS
- Magpie
- Ibis
- Crow/Raven
- Plover/Lapwing
- Rock Dove/Pigeon
- Black-Shouldered Kite
- Starling
- Corella/Cockatoo

FOLIAGE DENSITY
A dense tree canopy is desirable for birds to roost and hide.

BRANCH STRUCTURE
Horizontal branching is desirable for birds to roost.

MATURE VEGETATION HEIGHT
Taller tree species are more desirable for birds to roost.
(10m+ is the highest risk)

FOOD
- Flowers
- Fruits
- Nectar
- Insects

LEGEND

RISK FACTOR:

- LOW (MOST SUITABLE)
- MODERATE (MODERATELY SUITABLE)
- HIGH (LEAST SUITABLE)
- NOT APPLICABLE

GENERAL TRAITS:

- MAINTENANCE
- DROUGHT TOLERANCE
- FROST TOLERANCE
- COMPACT TOLERANCE
- WIND TOLERANCE
- LONGEVITY
- CANOPY DENSITY
- SHADE CAST
- PATHOGEN/PEST
- AVAILABILITY

LARGE TREES (+10m)

	GENERAL TRAITS	RISK TRAITS: BIRDS	RISK TRAITS: BATS	RISK TRAITS: PEOPLE
 *Acacia melanoxylon*				
 *Acmena smithii*				
 *Angophora costata*				
 *Banksia integrifolia*				
				

Next steps for airport

- Refining of landscape zoning for tree planting
- More accurate quantification of risk:
  - Thermal camera surveys at airport Summer and Autumn 2018/19
  - Acoustic and radar surveys of GHFF activity
  - Recording of wildlife-aircraft collisions

Take home messages

- Victoria continues to have:
  - More camps over larger area of state
  - Larger camps
  - More permanent camps
- Some camps managed well and better
- Others managed with benign neglect – works while camps relatively small
- Need more/better pro-active planning by DELWP and other camp mgrs

Geelong

- Roosting in Pines, edge of Geelong
- Similar size to Yarra Bend (~50k max)
- Geelong City Council supportive
- Very little community concern
- Major issue is senescence of mature Pine trees
- Difficult to grow new pines within an existing stand

Werribee Park

- Historic mansion from 1800s
- Beautiful gardens
- Few thousand for last few years
- Early 2017 DELWP approved a dispersal
- Currently empty

Tatura

- 10,000 arrived in late 2016
- In bushland reserve and residential property
- Shepparton Council – preparing a mgt plan to manage in-situ within middle of park
- Currently 250 GHFF

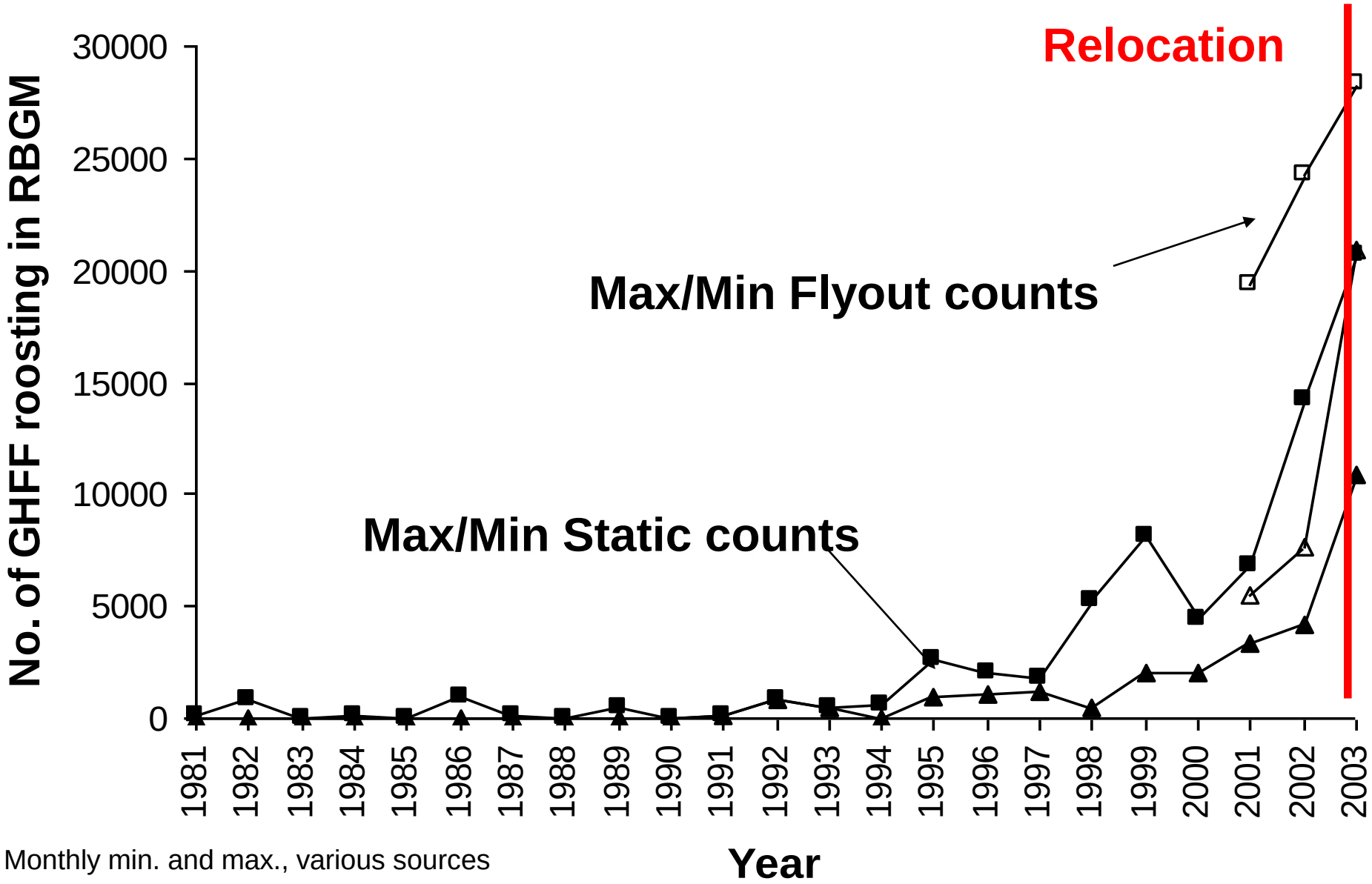
Bendigo

- High numbers 2016/2017
- Bendigo Council deliberating over a management plan
- Appear to be settling on managing in-situ

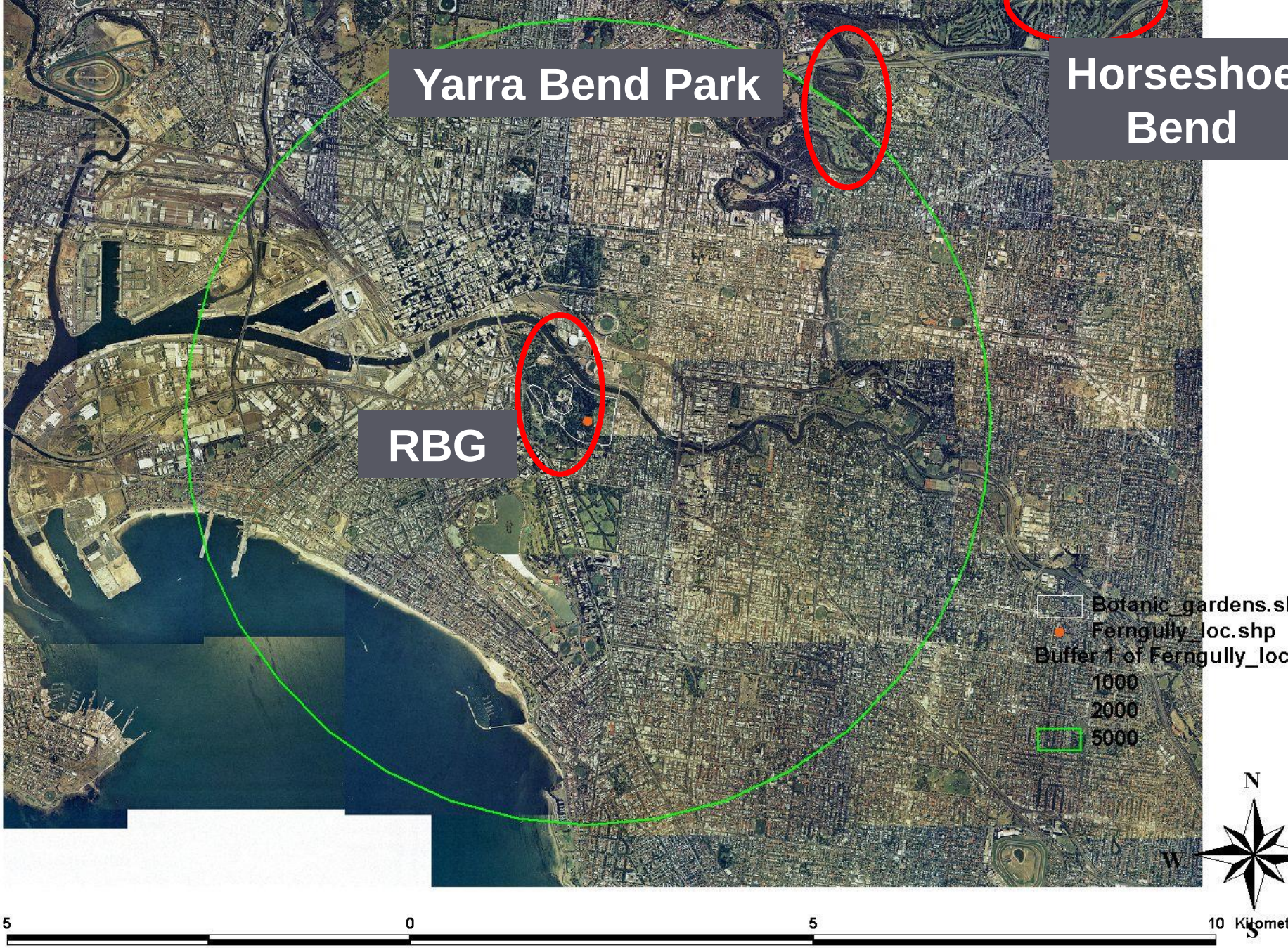
Conclusion

- No major major issues
- Bairnsdale highest conflict site (?)
- Bendigo developing management plan
- Ongoing management at other sites
  - Increasing # of camps
  - Increasing permanence of camps
  - Increasing size of colonies

Growth of population in Melbourne



Monthly min. and max., various sources


Yarra Bend Park
Horseshoe Bend
RBG
Botanic_gardens.sh
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Buffer 1 of Ferngully_loc
1000
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S
5
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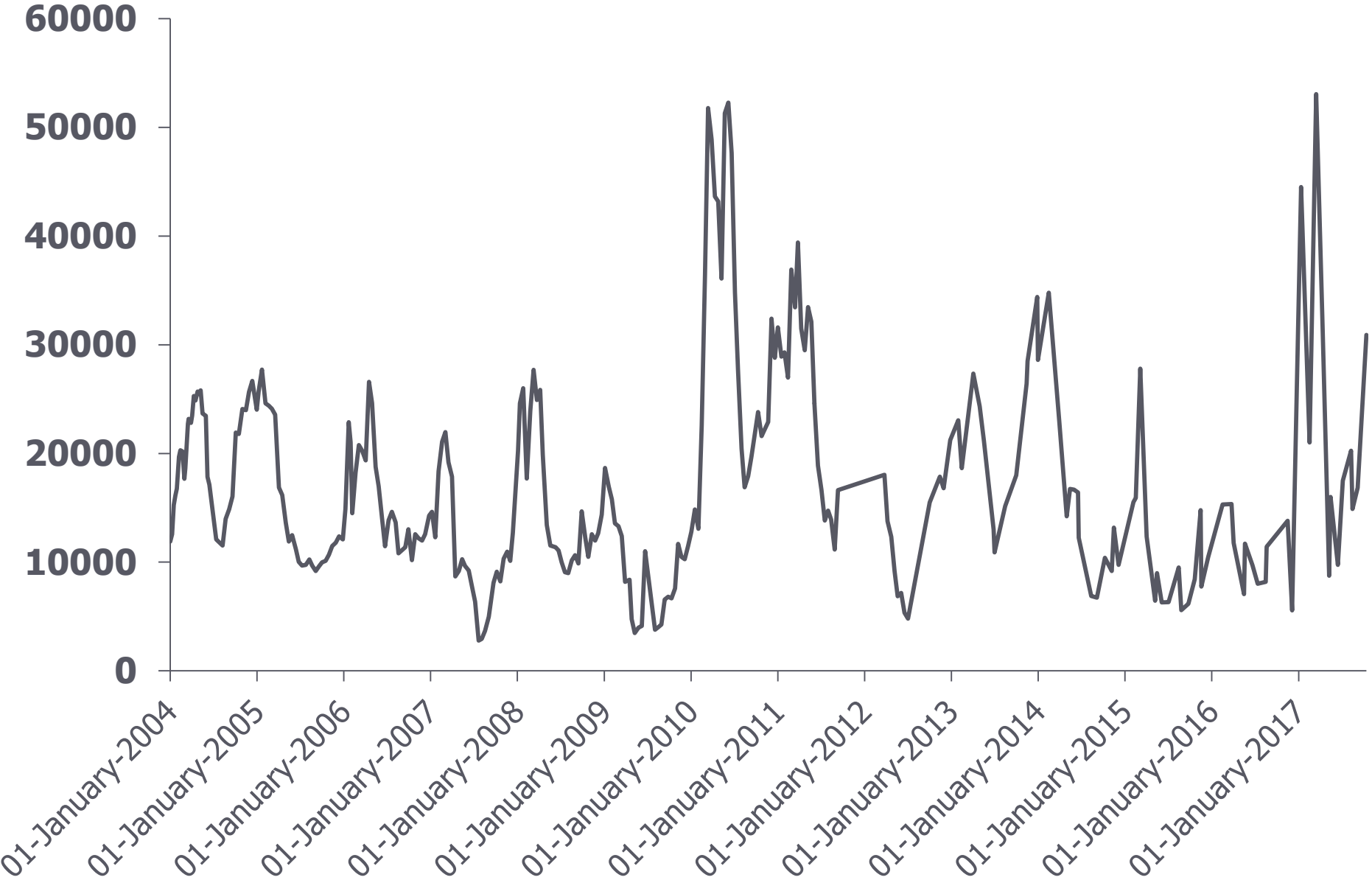
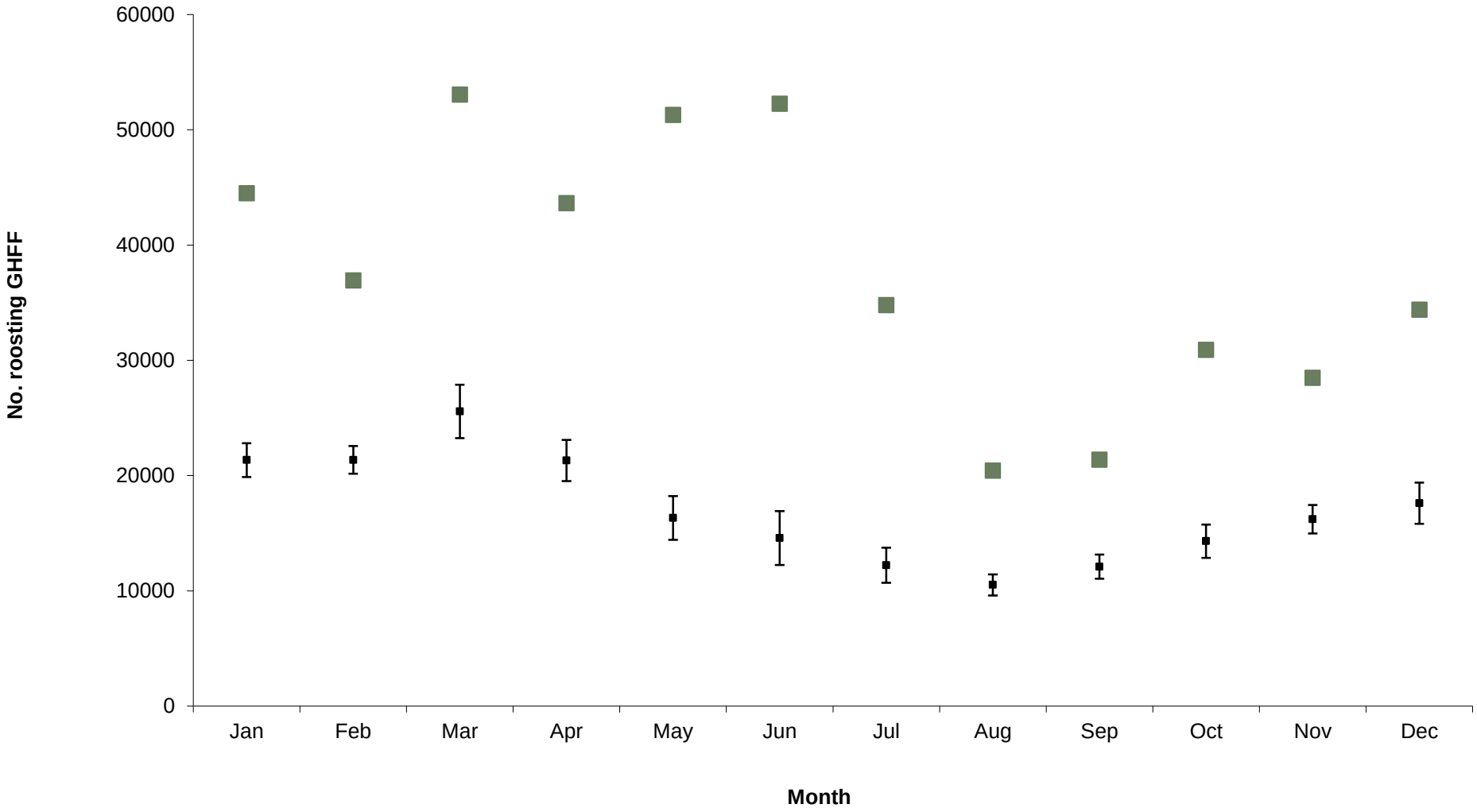
5
10 Kilomet

Yarra Bend Popn size (static count data)



Yarra Bend 2004 – 2017: Mean ±1se and Maximum



Dynamic system!

Yarra Bend

- Typically ~5–35k, max ~50k
- Parks Victoria responsible
- Dedicated project Officer
- Established Friends of Bats & Bushcare
- Revegetation
- Heat stress minimisation & response

VEGETATION			BIRDS			BATS				PEOPLE		
BOTANIC NAME	COMMON NAME	SIZE (HxW)	FOLIAGE DENSITY	HORIZONTAL BRANCHES	FOOD (FLOWER, FRIUT, NECTAR & INSECTS)	FLOWER ATTRACTIVENESS	FRUIT ATTRACTIVENESS	FOOD ABUNDANCE	FLOWERING DURATION	RESPIRATORY ALLERGENS	CONTACT ALLERGENS	TOXI
EVERGREEN TREES												
> 10m												
Acacia melanoxylon	Blackwood	12 x 8	2	2	2	3	1	2	6 months (September - February)	2	3	1
Acmena smithii	Lilly Pilly	12 x 6	3	2	3	2	3	3	5 months (November - February)	0	0	0
Angophora costata	Smooth-barked Apple	20 x 15	3	2	2	0	3	3	One month (Early January or Early February)	0	0	1
Banksia integrifolia	Coast Banksia	12 x 5	1	2	1	3	0	3	7 months (January - July)	1	0	0
Casuarina cunninghamiana	River She-oak	20 x 8	2	1	2	1	0	1	2 months (February - March)	3	0	0
Corymbia citriodora	Lemon-scented Gum	25 x 18	2	2	2	3	0	3	6 months (June - November)	3	0	3
Corymbia maculata	Spotted Gum	20 x 15	3	2	3	3	0	3	7 months (March - September)	3	0	1
Cupressus sempervirens	Cypress Pine	12 x 3	1	1	1	0	0	0	-	3	0	0
Eucalyptus camaldulensis	River Red Gum	20 x 15	2	3	2	2	0	3	2 months (October-November)	2	0	0
Eucalyptus leucoxylon	Yellow Gum	12 x 8	2	2	2	3	0	3	7 months (April - October)	2	0	0
Eucalyptus melliodora	Yellow Box	25 x 20	2	2	2	3	0	3	5 months (August - December)	2	0	1
Eucalyptus microcarpa	Grey Box	20 x 15	2	2	2	3	0	3	4 months (February - May)	2	2	1
Eucalyptus sideroxylon	Red Iron Bark	18 x 10	2	2	2	3	0	3	3 months (June - August)	2	0	1
Eucalyptus viminalis	Manna Gum	20 x 12	2	2	2	2	0	3	6 months (December - May)	2	0	2
Ficus microcarpa var. hillii	Hills Weeping Fig	15 x 10	3	3	3	0	3	3	2 months (March - April)	1	0	0
Lophostemon confertus	Brush Box	12 x 8	3	2	2	2	0	2	3 months (December - February)	1	0	0
Magnolia grandiflora	Bull Bay Magnolia	20 x 10	3	3	2	2	0	2	3 months (September - November)	0	0	0
Waterhousea floribunda	Weeping Lilly Pilly	15 x 8	2	2	1	3*	3	3	3 months (November - January)	2	0	0
5-10m												
Acacia implexa	Lightwood	10 x 6	1	2	1	1*	0	2	3 months (December - March)	2	0	0
Acacia pycnantha	Golden Wattle	7 x 4	2	2	2	1	0	3	4 months (July - October)	3	0	1
Allocasuarina littoralis	Black She-oak	8 x 5	1	2	2	1	0	2	4 months (June - September)	1	0	0
Allocasuarina verticillata	Drooping She-oak	8 x 6	1	2	2	1	0	2	4 months (June - September)	1	0	0
Callistemon salignus	Willow Bottlebrush	6 x 4	2	1	3	2	0	3	3 months (September - November)	0	0	0
Callistemon viminalis	Weeping Bottlebrush	6 x 6	2	1	3	2	0	3	3 months (October - December)	0	0	0
Corymbia eximia	Yellow Bloodwood	10 x 8	2	2	2	3	0	3	3 months (August - October)	1	0	0
Eucalyptus scoparia	Wallangarra Gum	10 x 8	2	2	2	3*	0	2	6 months (September - February)	3	0	2
Melaleuca ericifolia	Swamp Paperbark	8 x 5	1	2	1	2*	0	3	2 months (October - November)	3	0	1
Melaleuca linariifolia	Snow in Summer	8 x 6	1	2	1	2*	0	3	4 months (November - February)	3	0	3
Melaleuca styphelioides	Prickly-leaved Paperbark	8 x 6	1	2	1	2	0	2	6 months (September - February)	3	0	1
Myoporum insulare	Common Boobialla	6 x 6	2	3	2	1*	2*	2	5 months (September - January)	0	0	0
Tristaniopsis laurina	Water Gum	10 x 6	2	2	2	2	0	2	2 months (January - February)	0	0	0
< 5m												
Angophora hispida	Dwarf Apple	5 x 5	2	2	2	2	0	3	One month (January)	1	0	0
Banksia marginata	Silver Banksia	5 x 4	1	2	1	3	0	3	6 months (February - July)	1	0	0
Hakea laurina	Pincushion Hakea	5 x 4	1	1	1	2*	0	3	6 months (March - August)	0	0	0
Hakea salicifolia	Willow-leaf Hakea	5 x 4	1	1	1	1	0	2	6 months (June - November)	0	0	0
Viminaria juncea	Golden Spray	4 x 1.5	2	1	1	1*	0	2	5 months (October - Feburary)	0	0	0
DECIDUOUS TREES												
> 10m												
Acer campestre	Hedge Maple	12 x 10	3	2	1	1	0	1	2 months (September - October)	3	0	0
Acer truncatum x Acer platanoides 'Norwegian Sunset'	Norwegian Sunset Maple	11 x 8	3	2	1	1	0	1	3 months (September - November)	3	0	2
Jacaranda mimosifolia	Jacaranada	12 x 10	1	3	1	1	0	3	3 months (October - December)	3	0	0
Liriodendron tulipifera	Tulip Tree	20 x 15	2	1	1	2*	0	2	3 months (December - February)	2	0	0
Platanus orientalis	Oriental Plane	25 x 20	2	3	1	0	0	0	3 months (September - November)	3	0	0
Platanus x Acerifolia	London Plane	20 x 15	2	3	1	0	0	0	3 months (September - November)	3	0	0
Pyrus calleryana	Callery Pear	12 x 8	2	1	1	1	3	2	3 months (September - November)	3	3	3
Pyrus ussuriensis	Manchurian Pears	12 x 10	2	2	1	1	3	2	3 months (September - November)	3	0	0
Quercus canariensis	Algerian Oak	18 x 15	3	3	1	0	0	0	1 month (February)	3	3	2
Quercus robur	English Oak	15 x 15	3	3	1	0	0	0	6 months (March - May & September - November)	3	3	2
Quercus rubra	Red Oak	18 x 15	3	3	1	0	0	0	6 months (March - May & September - November)	3	3	2
Zelkova serrata 'Green Vase'	Green Vase Zelkova	20 x 16	3	3	1	0	0	0	3 months (September - November)	0	2	0
5-10m												
Acer buergerianum	Trident Maple	8 x 6	3	2	1	1	0	1	3 months (September - November)	3	0	3
Ginkgo biloba	Maidenhair Tree	10 x 5	2	2	1	0	0	0	3 months (September - November)	2	0	0