Manager and community perceptions of camp management

Kaye Currey and Dr Pia Lentini

Project collaborators: Dr Dave Kendal, A/Prof Rodney van der Ree, Dr Justin Welbergen, Dr David Westcott, A/Prof Kath Williams, Prof Brendan Wintle

How should we manage flying-foxes into the future?

Australian Government

Australian Research Council

University of Western Sydney

CSIRO

THE UNIVERSITY OF MELBOURNE

VICTORIA State Government | Environment, Land, Water and Planning

Sunshine Coast COUNCIL

Hunter Joint Organisation of Councils

Queensland Government

Department of Environment and Heritage Protection

LOGAN CITY COUNCIL

Parks VICTORIA

EAST GIPPSLAND

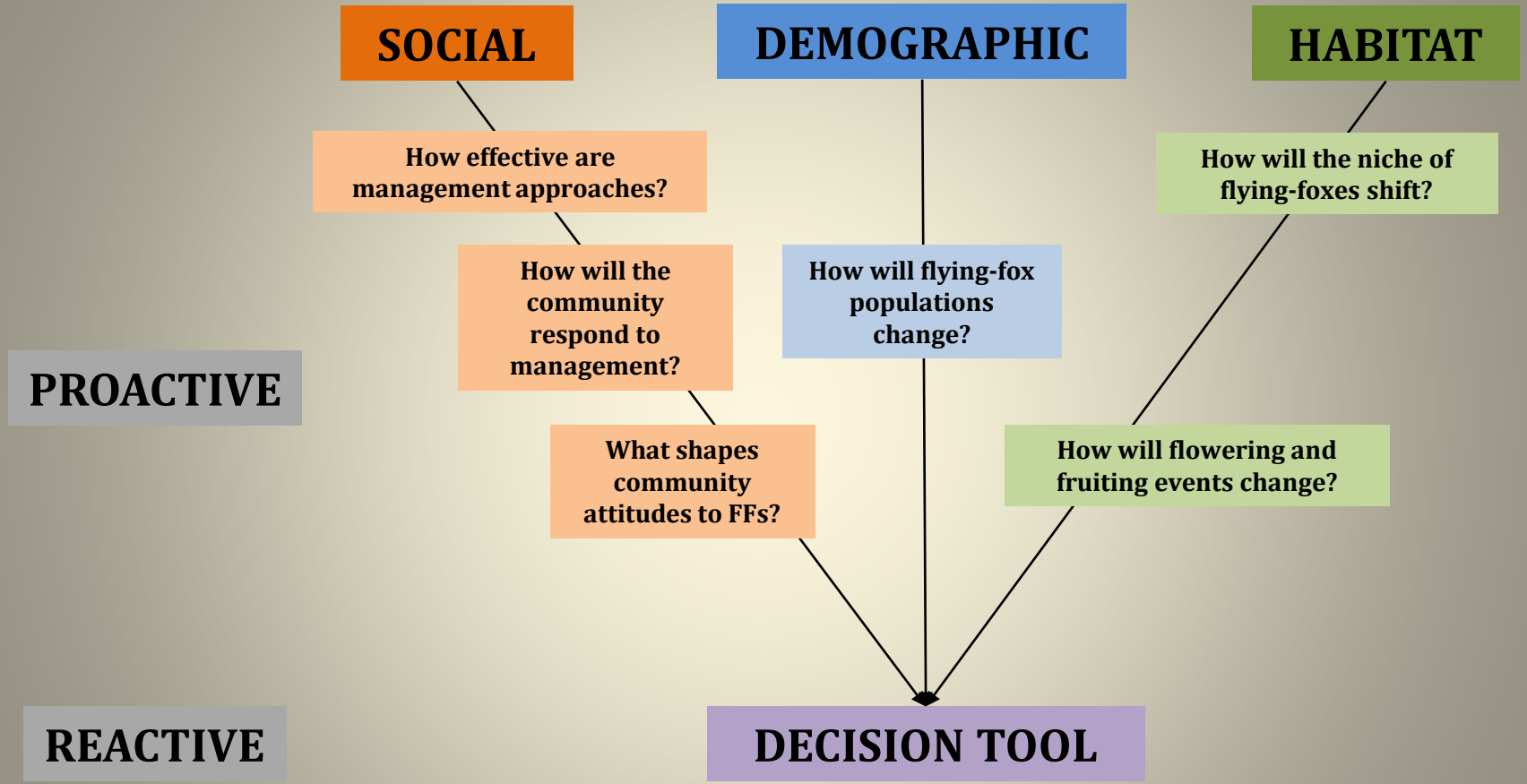
ROYAL BOTANIC GARDENS VICTORIA

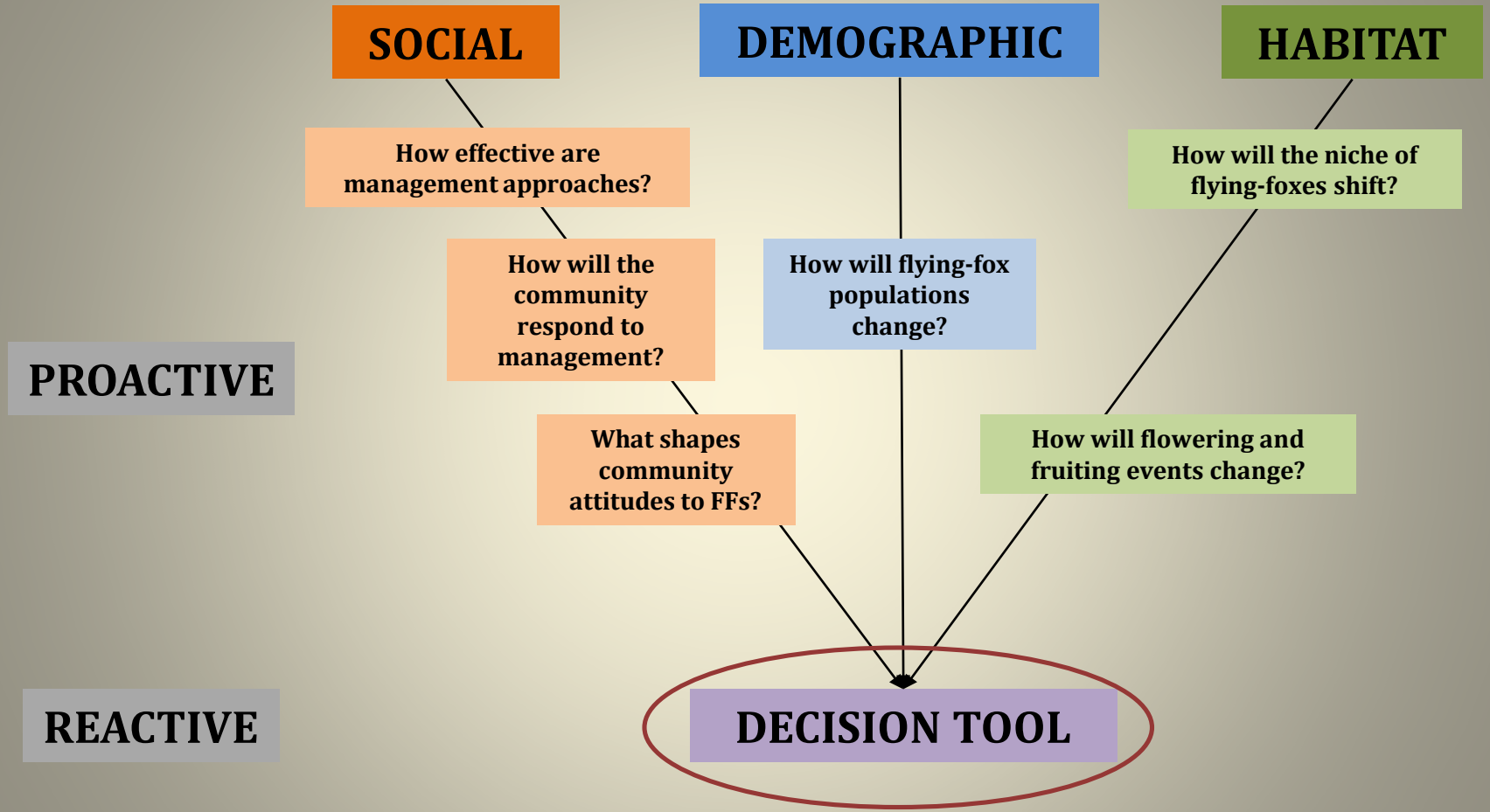
The Royal Botanic Gardens

A project in two parts:

1. **Proactive**: Can we try and predict where flying-foxes will move to, when, and how people will respond to them?

2. **Reactive**: Once they have arrived, can we use this social and ecological knowledge in a structured way to aid decision making?


SOCIAL
DEMOGRAPHIC
HABITAT
How effective are management approaches?
How will the community respond to management?
What shapes community attitudes to FFs?
How will flying-fox populations change?
How will the niche of flying-foxes shift?
How will flowering and fruiting events change?
PROACTIVE
REACTIVE
DECISION TOOL


SOCIAL
DEMOGRAPHIC
HABITAT
How effective are management approaches?
How will the community respond to management?
What shapes community attitudes to FFs?
How will flying-fox populations change?
How will the niche of flying-foxes shift?
How will flowering and fruiting events change?
PROACTIVE
REACTIVE
DECISION TOOL

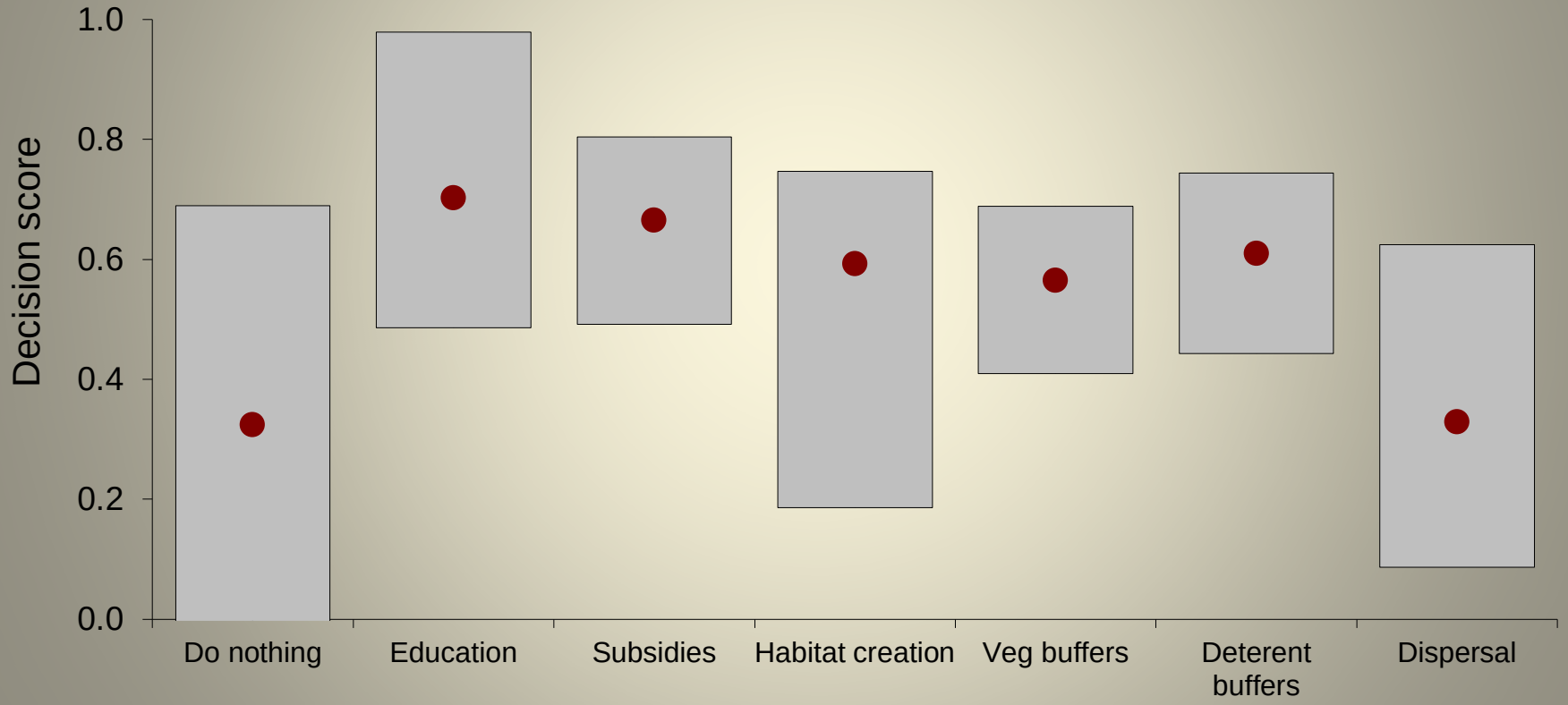
If we can articulate what our objectives are, and measures of these will respond to management actions…

	Do nothing			Education & awareness			Subsidies			Habitat creation		
	low	nom	upp	low	nom	upp	low	nom	upp	low	nom	upp
FF persistence (Probability of extinction)	0.6	0.7	0.8	0.7	0.8	0.9	0.7	0.8	0.9	0.8	0.9	0.9
Community understanding (No people reached)	0	5	10	50	500	2000	0	30	60	0	50	100
Cost ($k)	0	5	10	50	250	500	50	150	300	1000	2000	4000
Wellbeing (No complaints)	100	500	1000	50	100	200	50	100	200	80	200	500
Natural values (Veg condition: BioMetric)	30	50	70	30	50	70	30	50	70	40	60	80

And how much we care about each objective…

	rank	weight
FF persistence (Probability of extinction)	2	80
Community understanding (No people reached)	4	60
Cost ($k)	3	70
Wellbeing (No complaints)	1	100
Natural values (Veg condition: BioMetric)	5	20

Then we can see what we should we do under the best, most likely, and worst case scenarios in a transparent and repeatable fashion

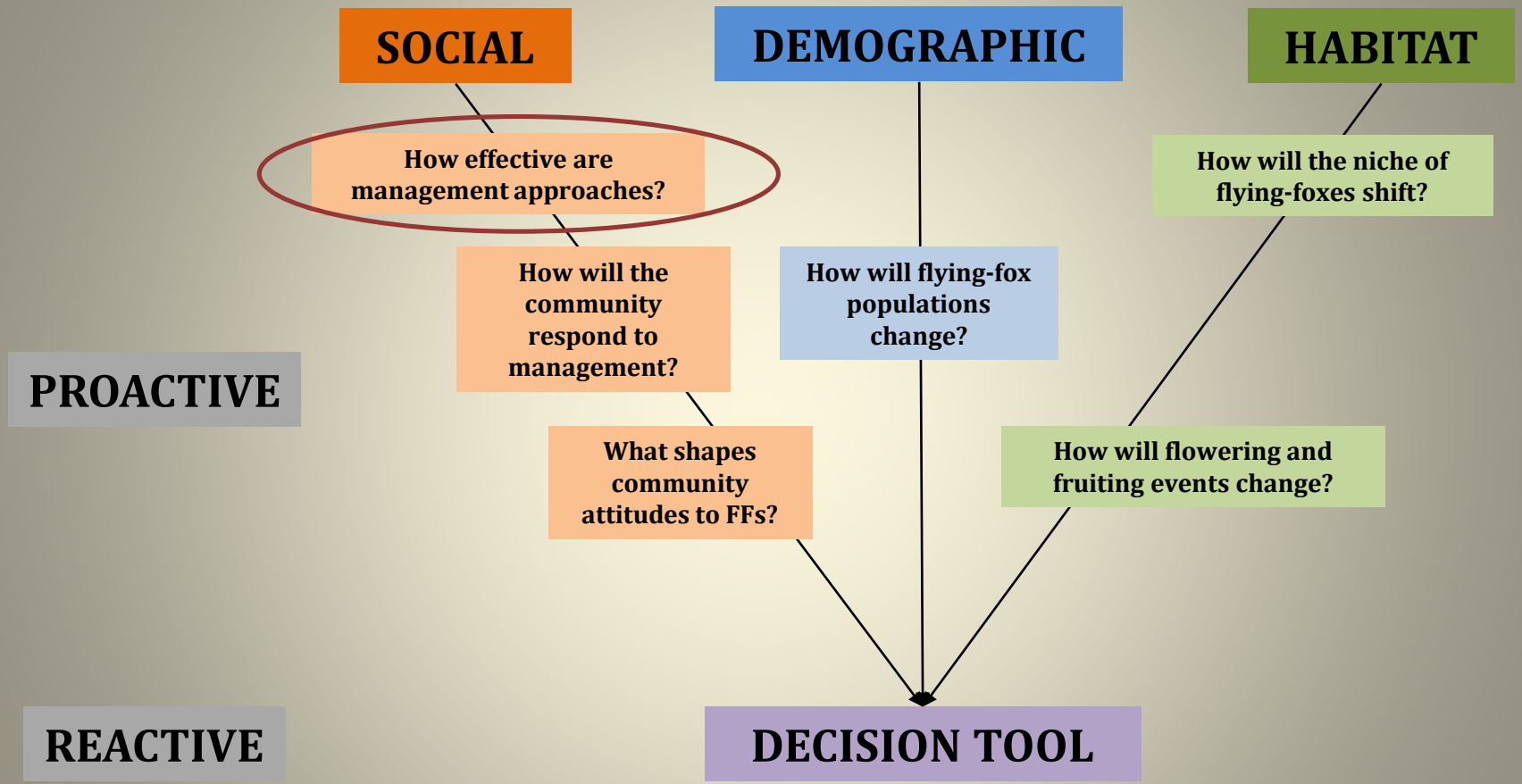


If we can articulate what our objectives are, and how we think measures will respond to management actions…

	Do nothing			Education & awareness			Subsidies			Habitat creation		
	low	nom	upp	low	nom	upp	low	nom	upp	low	nom	upp
FF persistence (Probability of extinction)	0.6	0.7	0.8	0.7	0.8	0.9	0.7	0.8	0.9	0.8	0.9	0.9
Community understanding (No people reached)	0	5	10	50	500	2000	0	30	60	0	50	100
Cost ($k)	0	5	10	50	250	500	50	150	300	1000	2000	4000
Wellbeing (No complaints)	100	500	1000	50	100	200	50	100	200	80	200	500
Natural values (Veg condition: BioMetric)	30	50	70	30	50	70	30	50	70	40	60	80

And how much we care about each objective…

	rank	weight
FF persistence (Probability of extinction)	2	80
Community understanding (No people reached)	4	60
Cost ($k)	3	70
Wellbeing (No complaints)	1	100
Natural values (Veg condition: BioMetric)	5	20

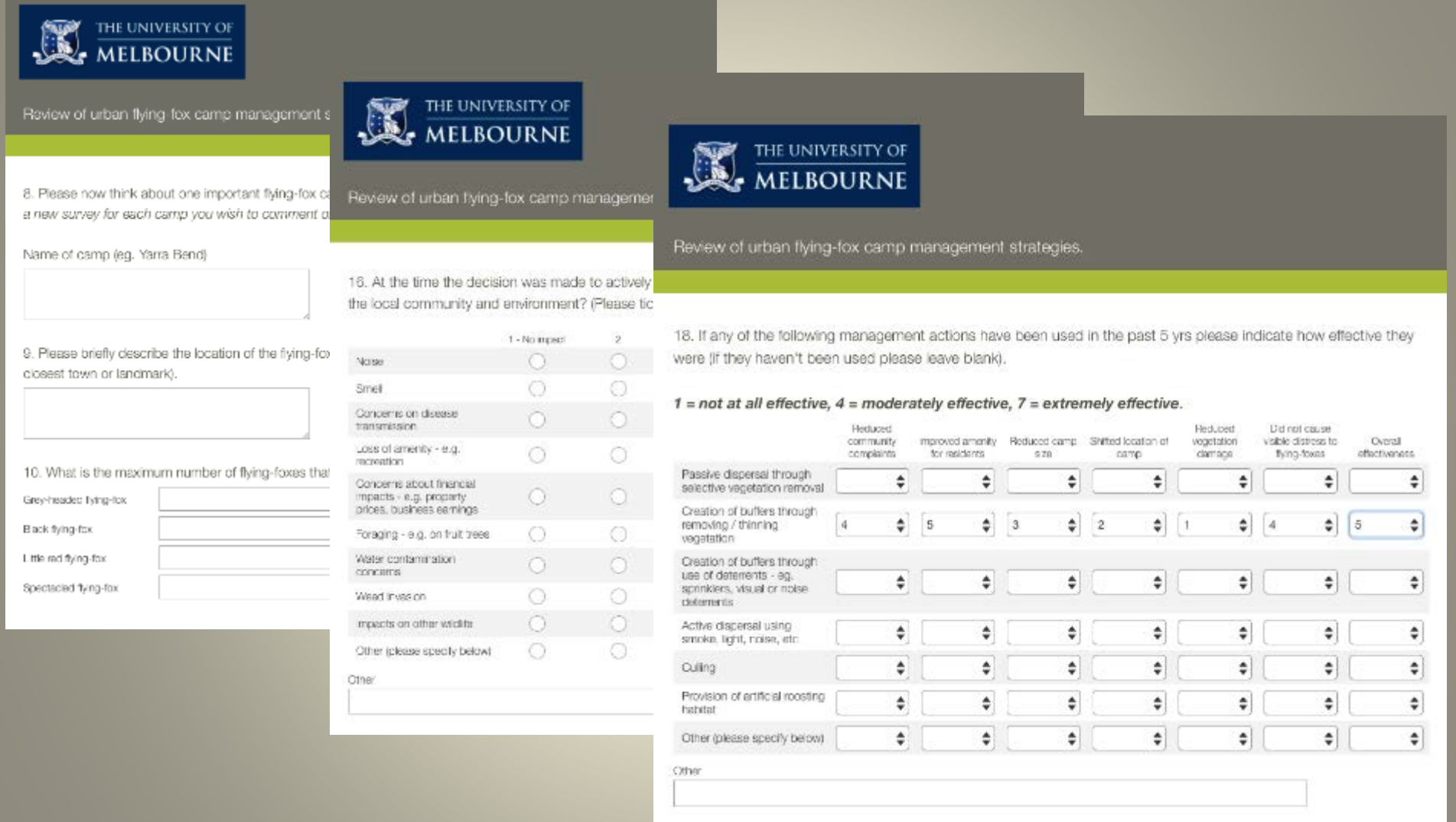

SOCIAL
DEMOGRAPHIC
HABITAT
How effective are management approaches?
How will the community respond to management?
What shapes community attitudes to FFs?
How will flying-fox populations change?
How will the niche of flying-foxes shift?
How will flowering and fruiting events change?
PROACTIVE
REACTIVE
DECISION TOOL

Research Objectives:

- What management approaches are being used to mitigate conflict?
- Manager perceptions of effectiveness - Why/why not?

Study methods:

- Semi-structured interviews (n=15)
- Online survey (n=51)



THE UNIVERSITY OF MELBOURNE

Review of urban flying-fox camp management s

8. Please now think about one important flying-fox c
a new survey for each camp you wish to comment o

Name of camp (eg. Yarra Bend)

9. Please briefly describe the location of the flying-fo
closest town or landmark).

10. What is the maximum number of flying-foxes tha

Grey-headed flying-fox

Black flying-fox

Little red flying-fox

Spectacled flying-fox

THE UNIVERSITY OF MELBOURNE

Review of urban flying-fox camp managemer

16. At the time the decision was made to actively
the local community and environment? (Please tic

	1 - No impact	2
Noise		
Smell		
Concerns on disease transmission		
Loss of amenity - e.g. recreation		
Concerns about financial impacts - e.g. property prices, business earnings		
Foraging - e.g. on fruit trees		
Water contamination concerns		
Weed invasion		
Impacts on other wildlife		
Other (please specify below)		

Other

THE UNIVERSITY OF MELBOURNE

Review of urban flying-fox camp management strategies.

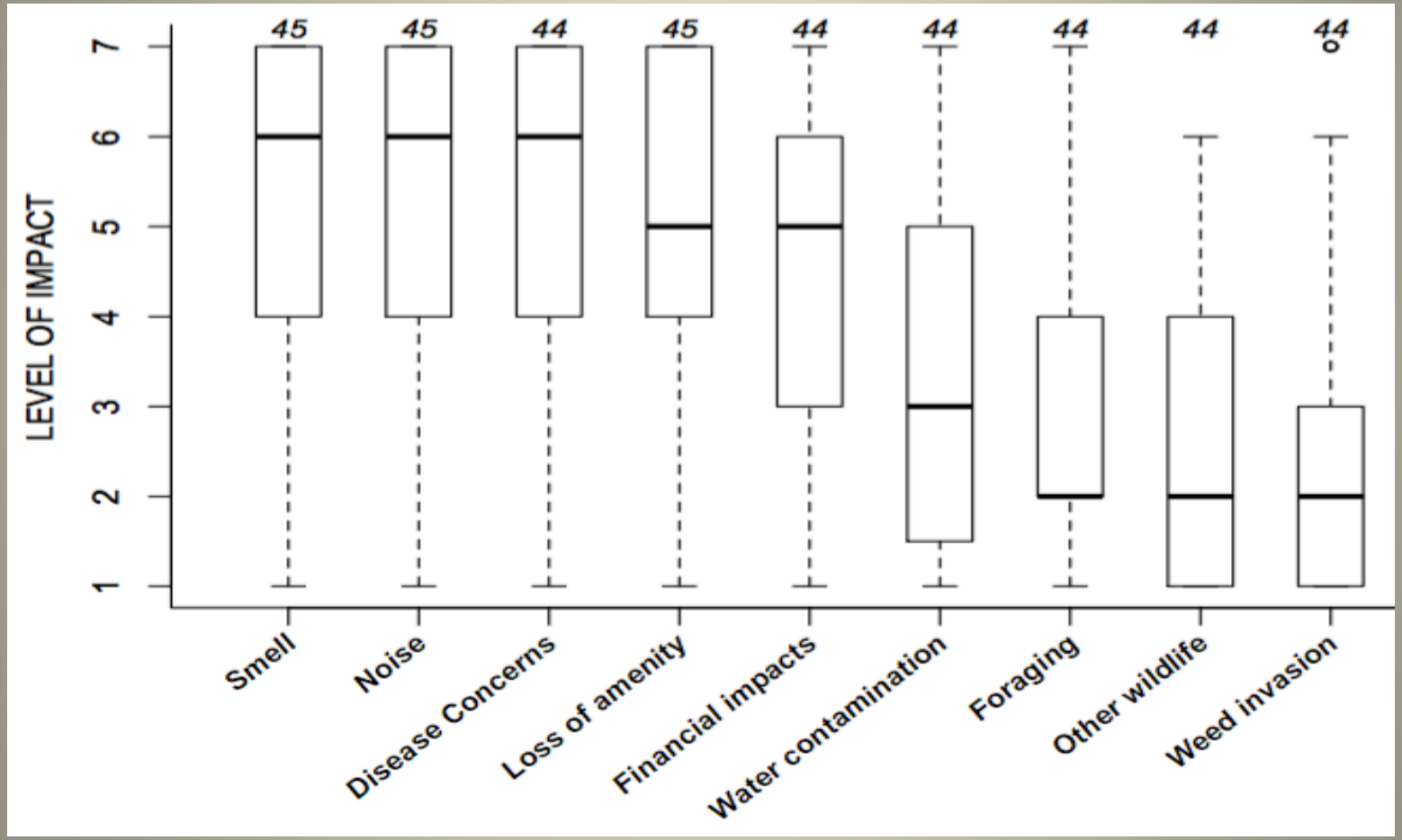
18. If any of the following management actions have been used in the past 5 yrs please indicate how effective they were (if they haven't been used please leave blank).

1 = not at all effective, 4 = moderately effective, 7 = extremely effective.

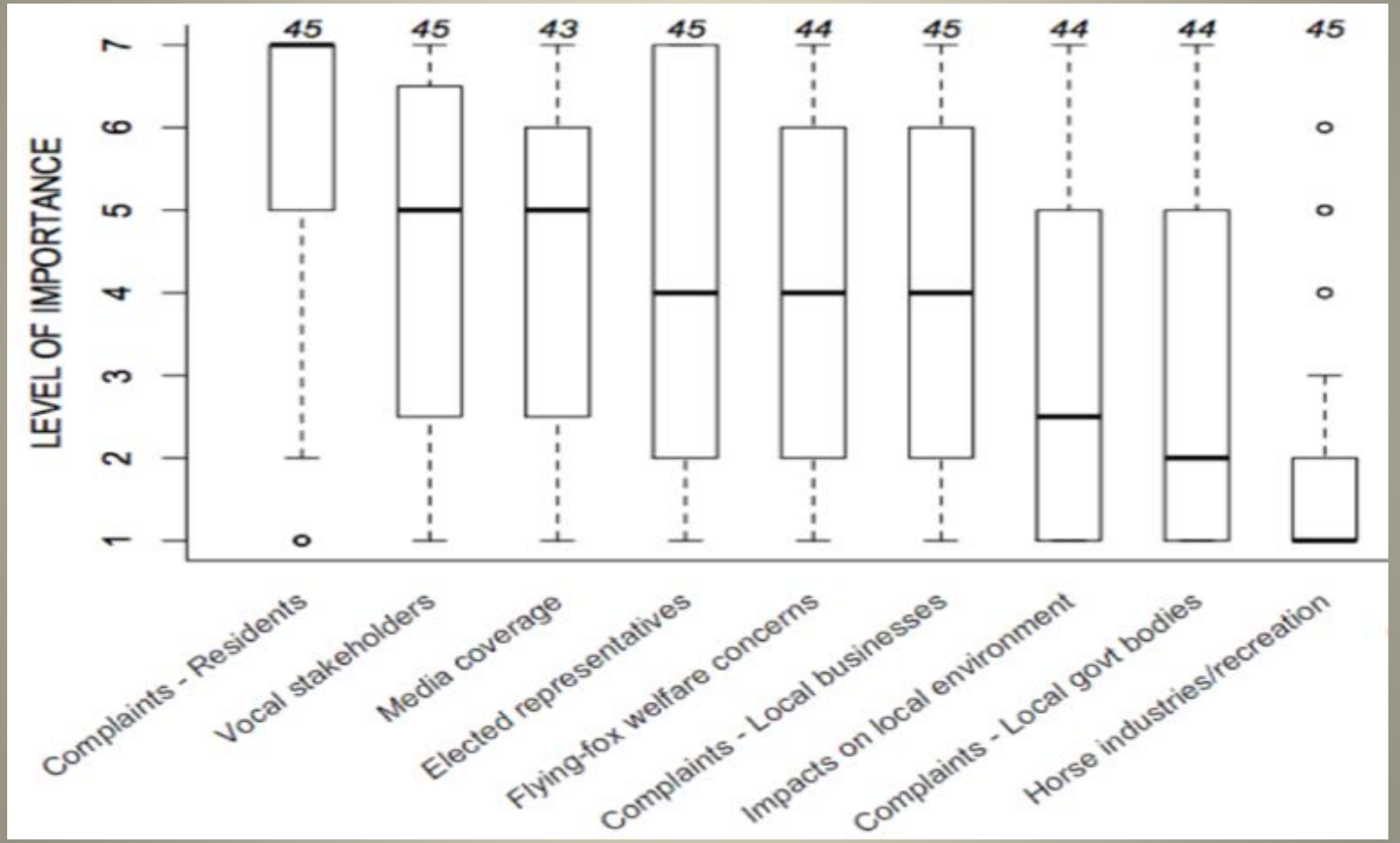
	Reduced community complaints	Improved amenity for residents	Reduced camp size	Shifted location of camp	Reduced vegetation damage	Did not cause visible distress to flying-foxes	Overall effectiveness
Passive dispersal through selective vegetation removal							
Creation of buffers through removing / thinning vegetation	4	5	3	2	1	4	5
Creation of buffers through use of deterrents - eg. sprinklers, visual or noise deterrents							
Active dispersal using smoke, light, noise, etc							
Culling							
Provision of artificial roosting habitat							
Other (please specify below)							

Other

What are the impacts on the local community?



What triggered the decision to undertake management?



Vocal stakeholders

"… the ones that were the loudest and complaining the most about it, they were the minority, most definitely."

"… you can't really get a good idea of what everyone wants because the vocal minority just drowned everyone out.."

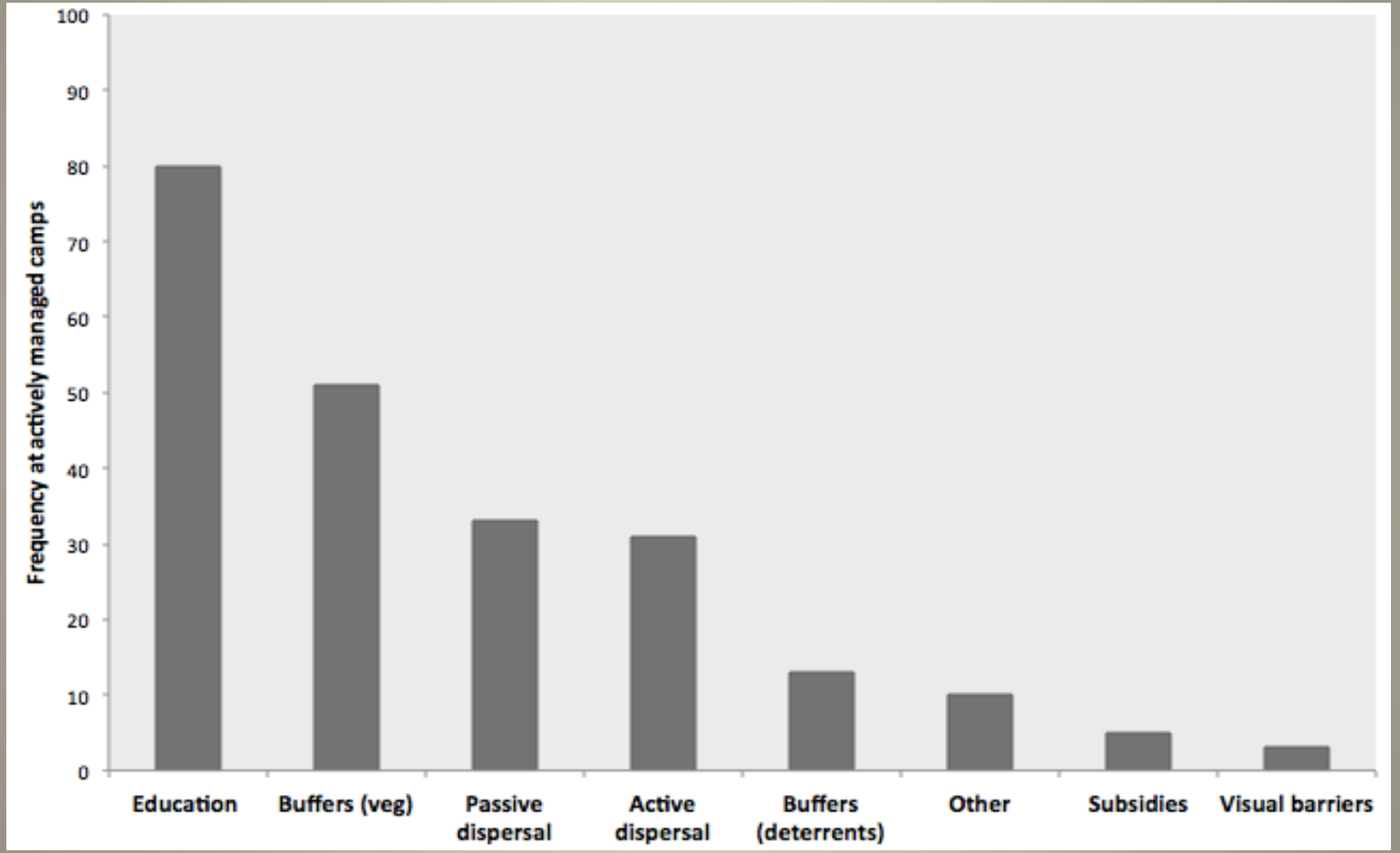
"… there was a very small minority of very very vocal against the bats, a very small minority are really positive about bats, and everyone else is somewhere in the middle…"

Elected representatives and the media

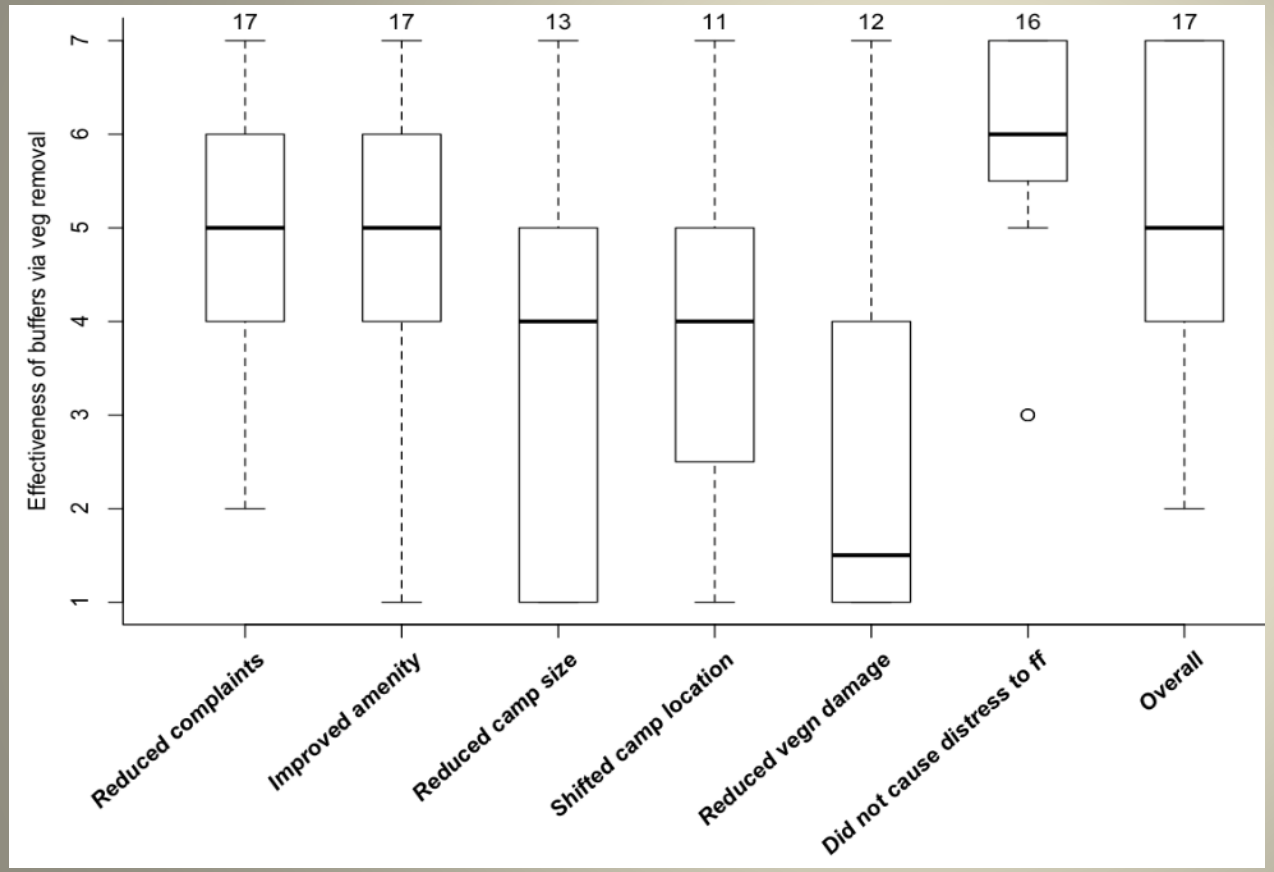
“ … we had a very vocal councillor who was feeding quite a lot of misinformation into the local area.”

“ … you are working against whatever the media's put in, or whatever an adjacent council has done, the expectations that you would do the same thing here..”

Management actions



Buffers (via vegetation removal)

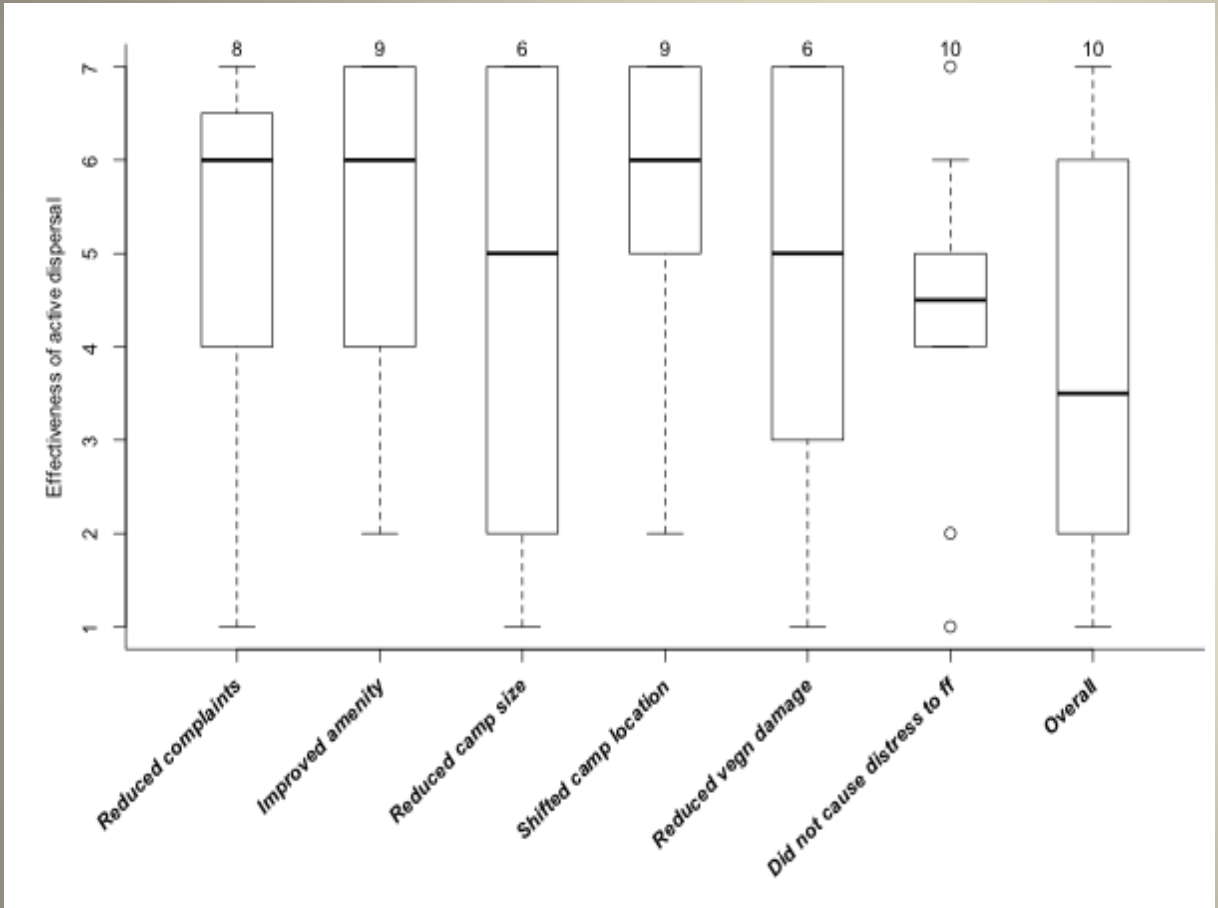


- Longer- term relief from impacts

But:

- Are buffers sufficient?
- Community opposition to vegetation loss
- Cumulative loss of habitat

Active dispersal (via disturbance)



- Mitigates impacts

But:

- Returned to site ~ 80%
- Had done or were considering further dispersals ~ 70%
- Short-term relief only


Cheap and effective
Expensive and effective
Cheap and ineffective
Expensive and ineffective
Passive dispersal (14)
Deterrents (6)
Buffers (20)
Active dispersal (11)
Education (34)
Reducing complaints
Reducing vegetation damage
Reducing distress to bats
Improving attitudes to bats
Effectiveness
1
2
3
4
5
6
7
Cost range
$2M
$0
$20,000
$40,000
$60,000
$80,000
Cost

Stakeholder engagement

*"… it's **on an ad hoc basis** when we get complaints …"*

*"..it hasn't really worked that well, probably **because it was left too late, after community angst was at a high level** …"*

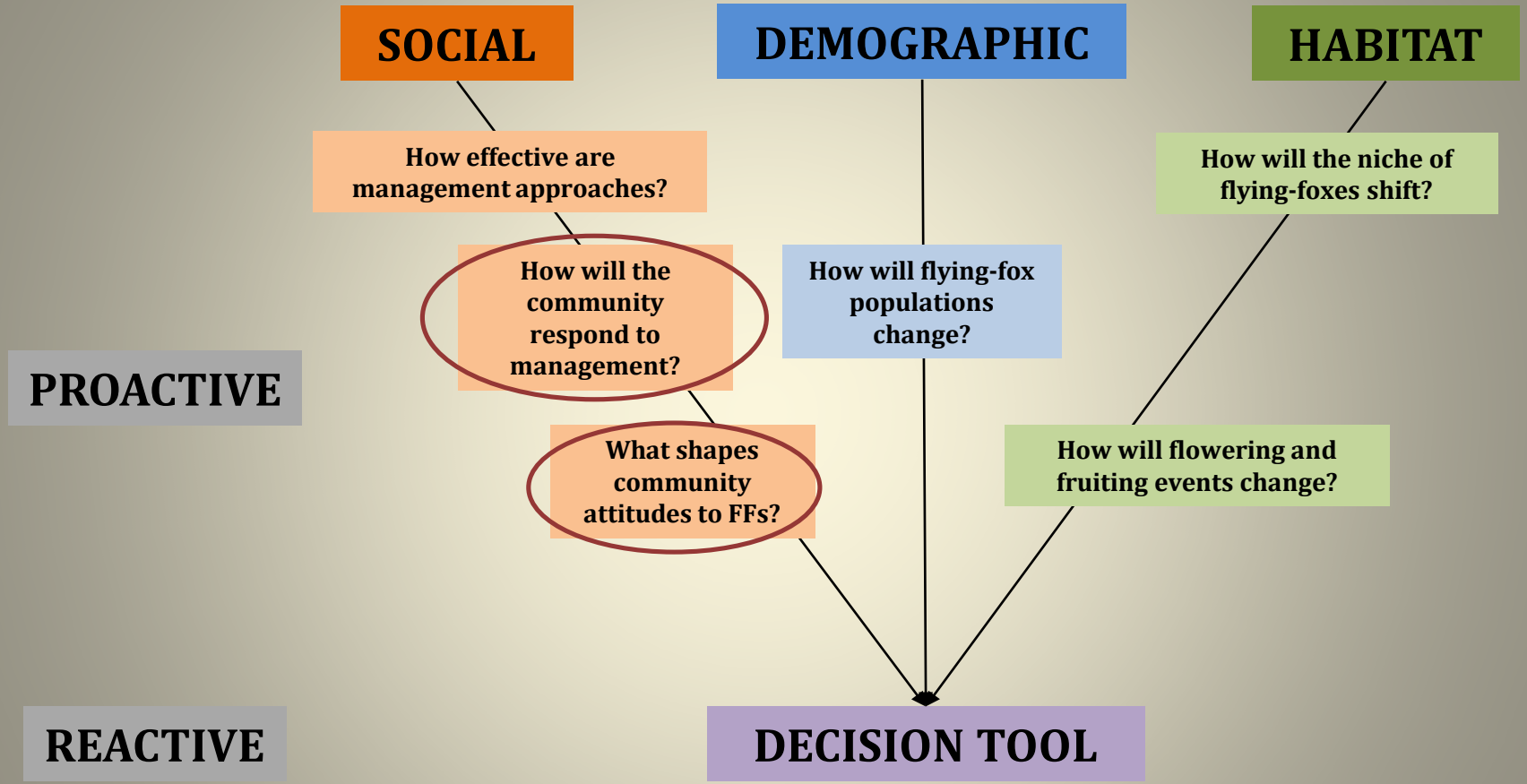
*"they're **not interested** in being educated and they don't care what we do as long as we get rid of them.."*

Stakeholder engagement

“People generally are very, very good and understanding if they’re provided with the appropriate information.”

“The disease fear is an easy one to solve, really - I say to them I'm not a qualified health professional but even just in a 10 minute conversation you can settle a lot of people's minds at ease...”


Cheap and effective
Expensive and effective
Cheap and ineffective
Expensive and ineffective
Passive dispersal (14)
Deterrents (6)
Buffers (20)
Active dispersal (11)
Education (34)
Reducing complaints
Reducing vegetation damage
Reducing distress to bats
Improving attitudes to bats
Effectiveness
1
2
3
4
5
6
7
Cost range
$2M
$0
$20,000
$40,000
$60,000
$80,000
Cost


SOCIAL
DEMOGRAPHIC
HABITAT
How effective are management approaches?
How will the niche of flying-foxes shift?
How will the community respond to management?
How will flying-fox populations change?
PROACTIVE
What shapes community attitudes to FFs?
How will flowering and fruiting events change?
REACTIVE
DECISION TOOL

What should we do at this camp that will satisfy the local community?

Acceptability

Satisfaction

Cost and past success

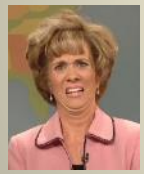
Tolerance to flying-foxes

Trust

Independence

Influence

Competence



Sensitivity to disgust

Situational specifics

Education

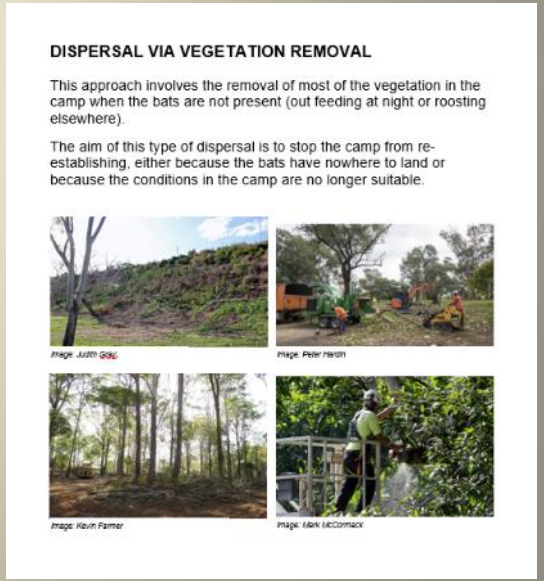
Perceived harm

Values and attitudes

WILDLIFE & SPORT FISH RESTORATION

Community interviews

- Four regions: East Gippsland, south coast NSW, Hunter, Sunshine Coast
- Two camps at each: one contentious, one less-contentious
- 6-10 individuals interviews at each, mix of bat adversaries, advocates, and impartial
    - General perspectives of flying-foxes
    - Perceptions of the camp, its impacts and its management
    - Perceptions of management actions



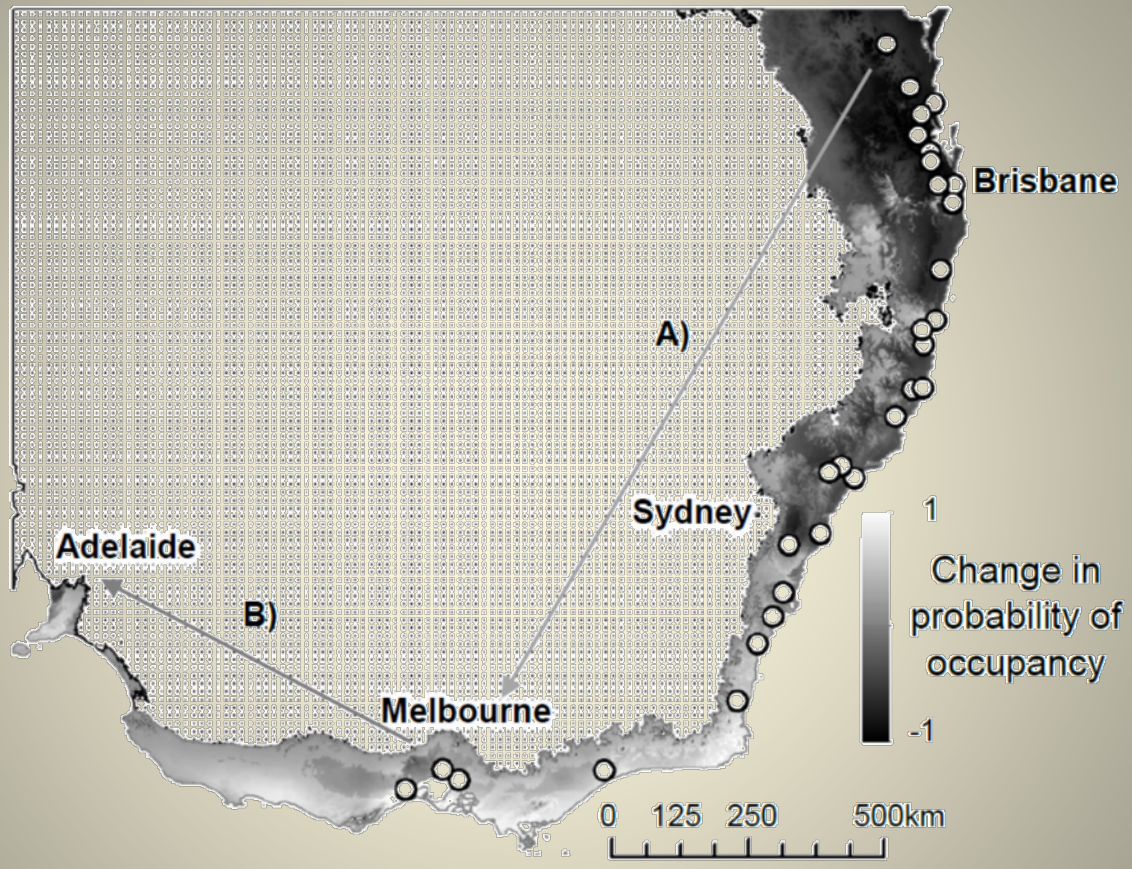
Community surveys

- Across as many locations, capturing as many people near camps as possible
- Informed by the interviews – once we have an idea of which of these are at play





- Quantitative focus
- As a final step, there will be a study of the general public


Brisbane
A)
Sydney
Adelaide
B)
Melbourne
1
Change in probability of occupancy
-1
0 125 250 500km

Thanks – questions?