

Effect of artificial light on wildlife use of underpasses

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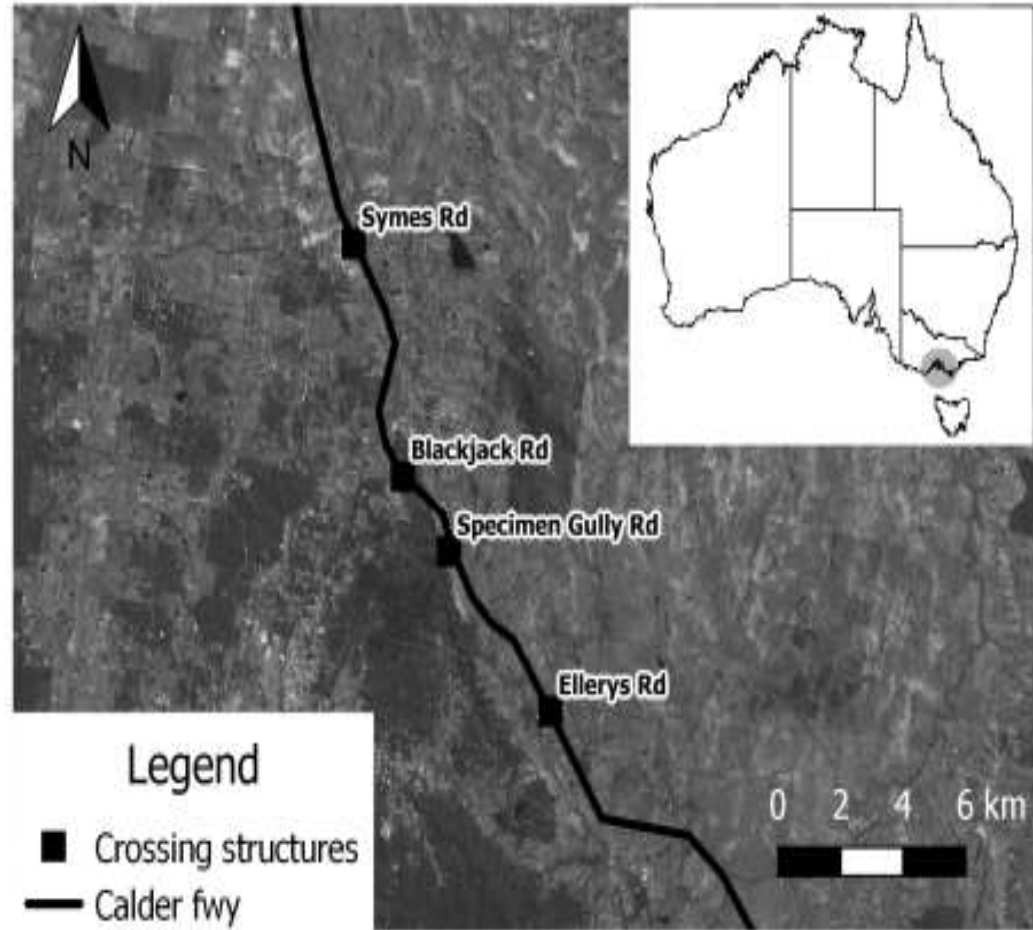


Co-use of wildlife crossing structures



How does lighting wildlife
crossing structures
influence their use by
wildlife?

Study area



Equipment and setup

Reconyx HC600
HyperFire™

4 cameras/underpass

2 reference
cameras/site



Not
to
scale!



SP1
2017-03-17 10:23:03 PM M 2/5

RECONYX
17°C

SP2
2017-03-17 10:23:18 PM M 3/5

RECONYX
17°C



SP3

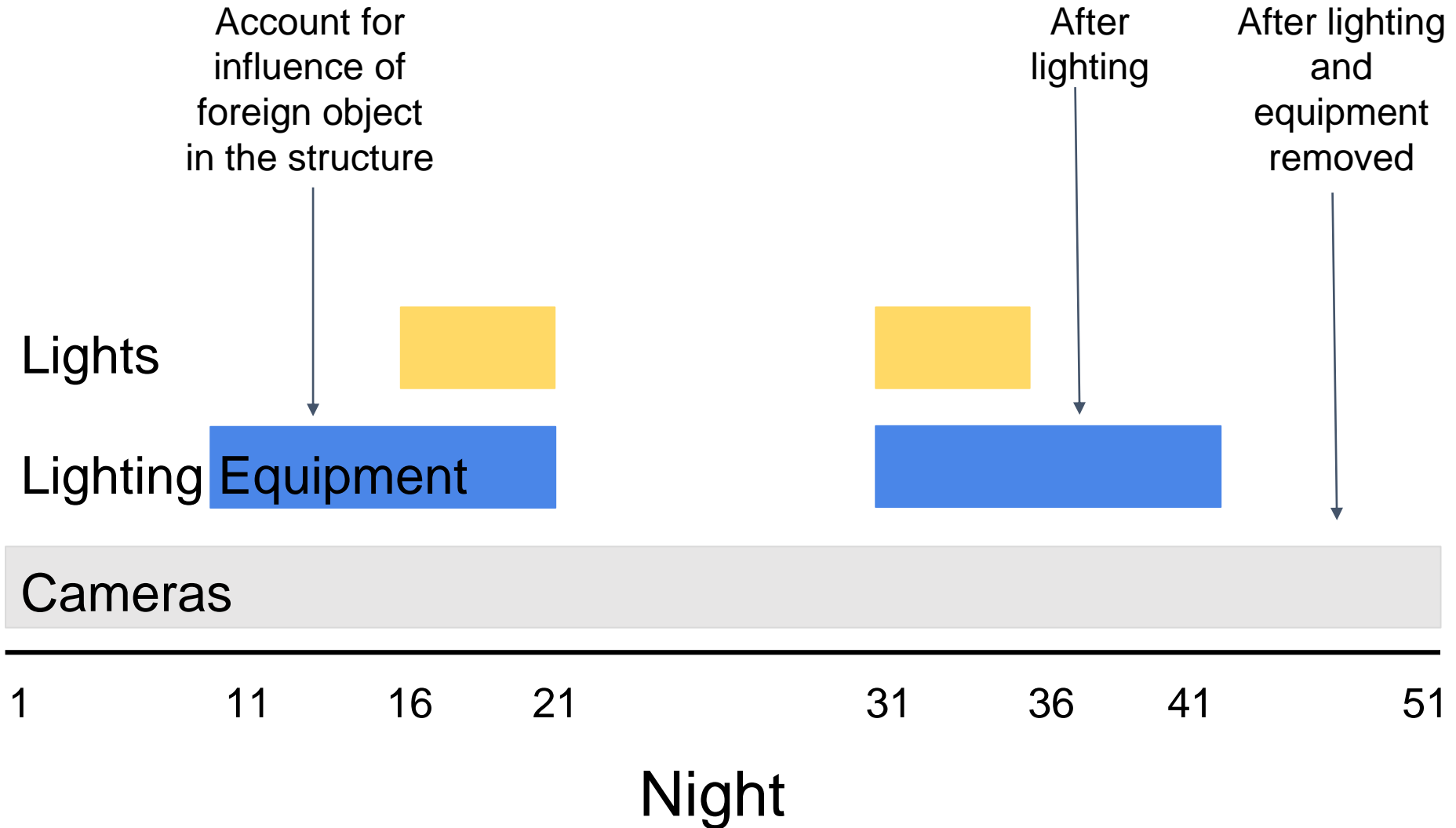
RECONYX

SP4

RECONYX



Study design



Study questions

1. Is there an effect of artificial lighting on the number of crossings (in total and per species)?
2. Does the number of crossings return to baseline levels following the light treatment?

Results

Overview

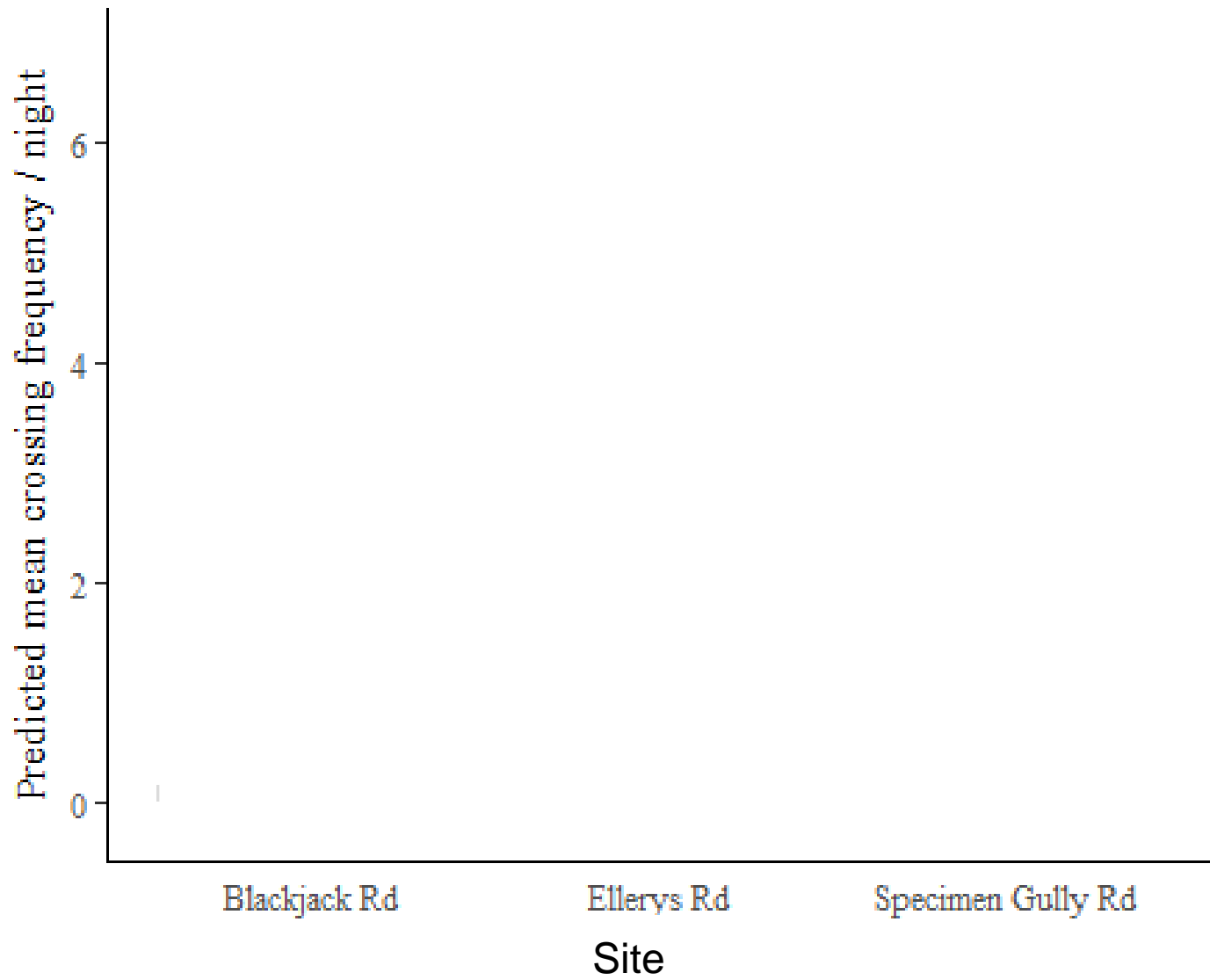
Only species to complete enough crossings to analyze:

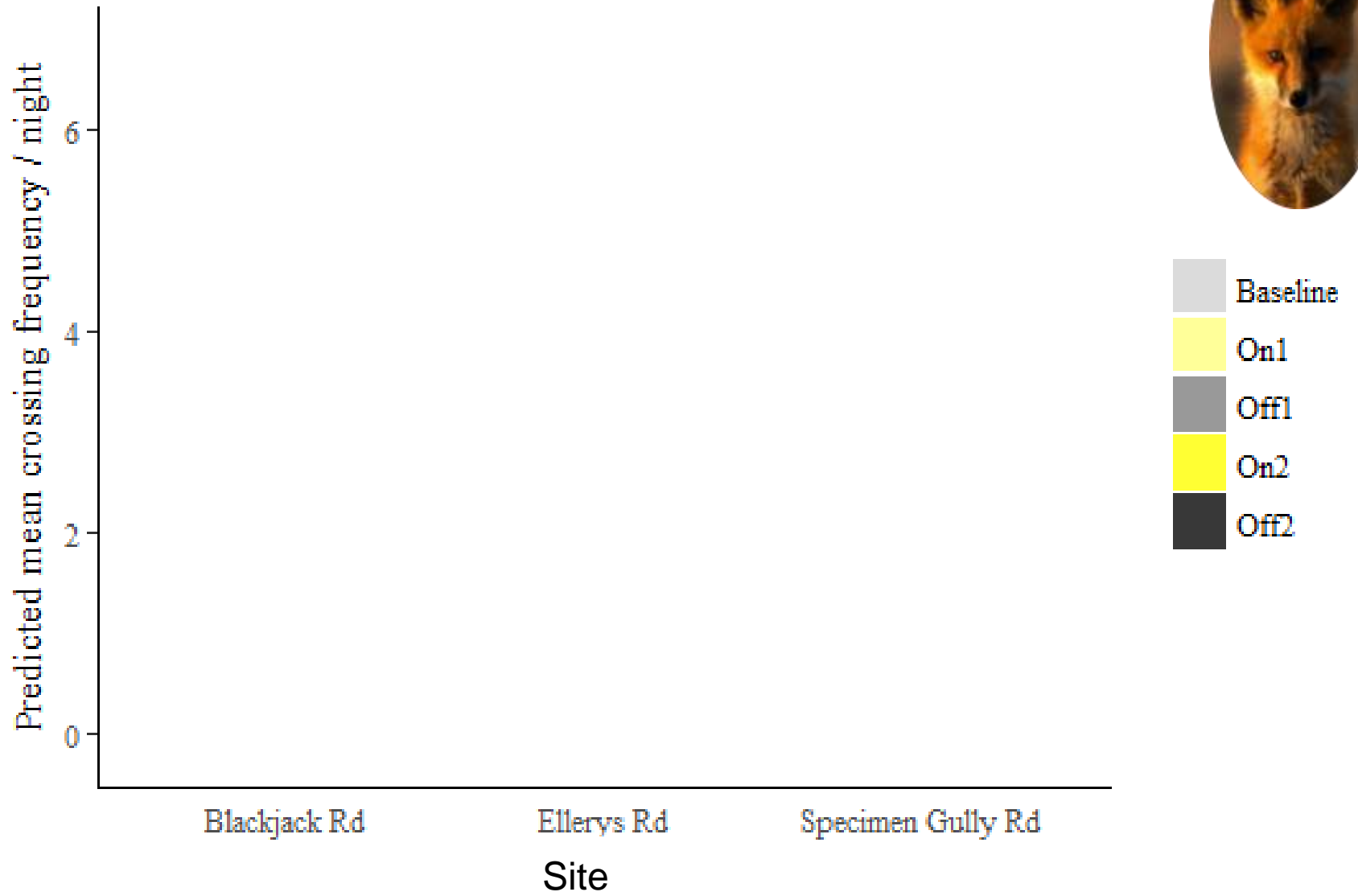
Red Fox

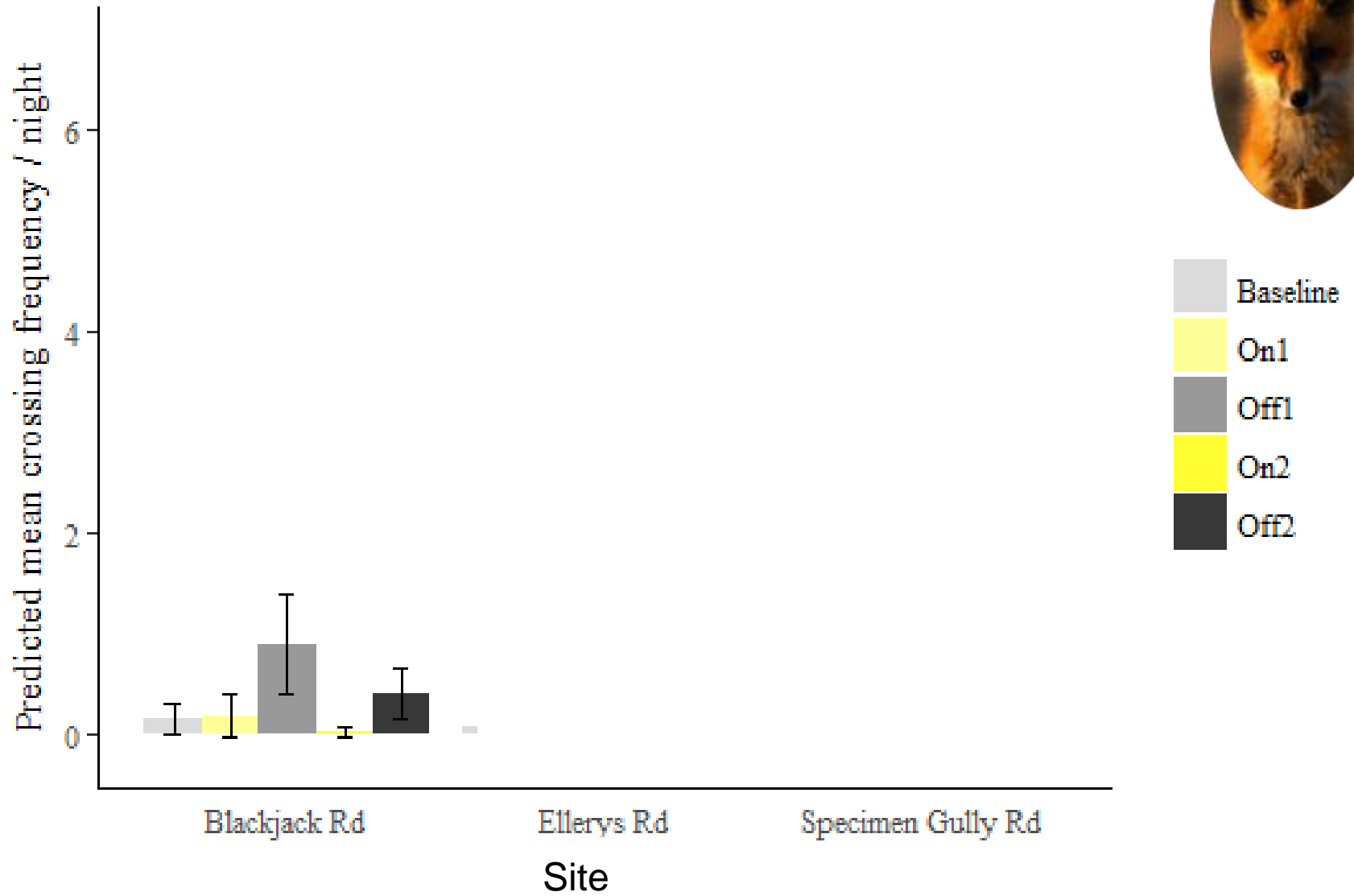
Eastern Grey Kangaroos

Swamp Wallaby

No complete crossings at Symes Rd site so removed from further analysis

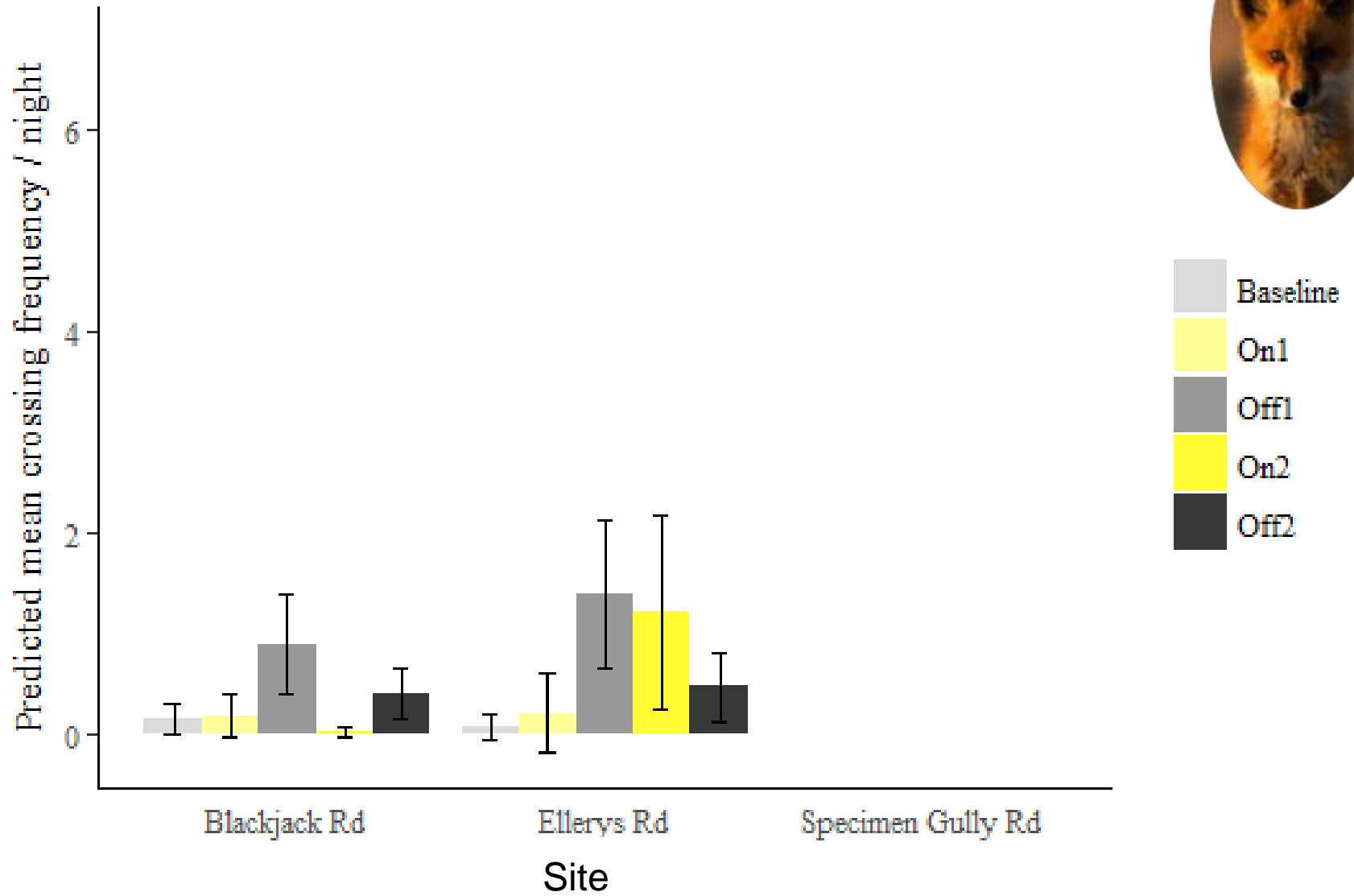






Total number of crossings during trial:

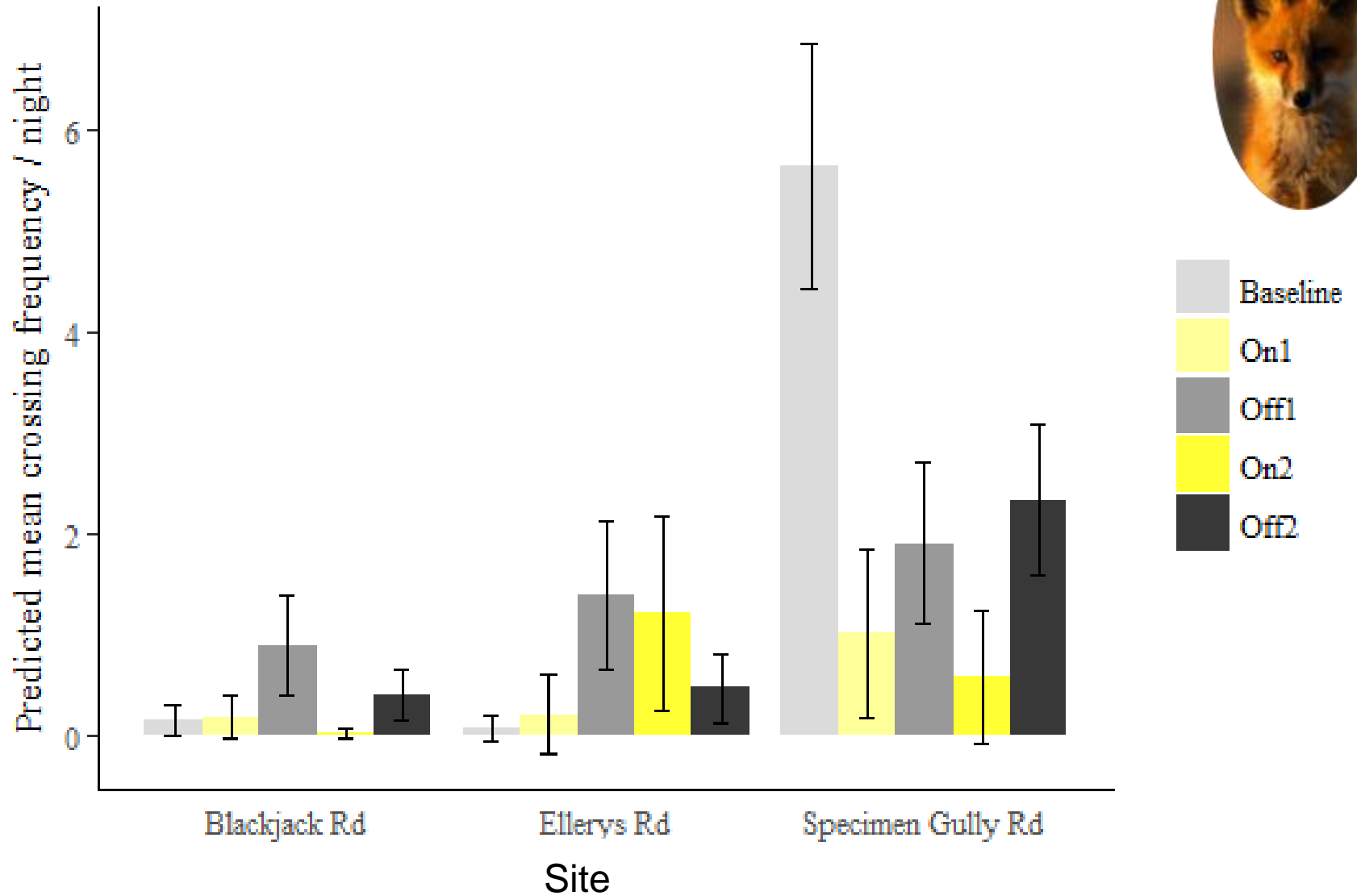
18



18

29

Total number of crossings during trial:



Total number of crossings during trial:

18

29

147

Predicted mean crossing frequency / night

20
15
10
5
0

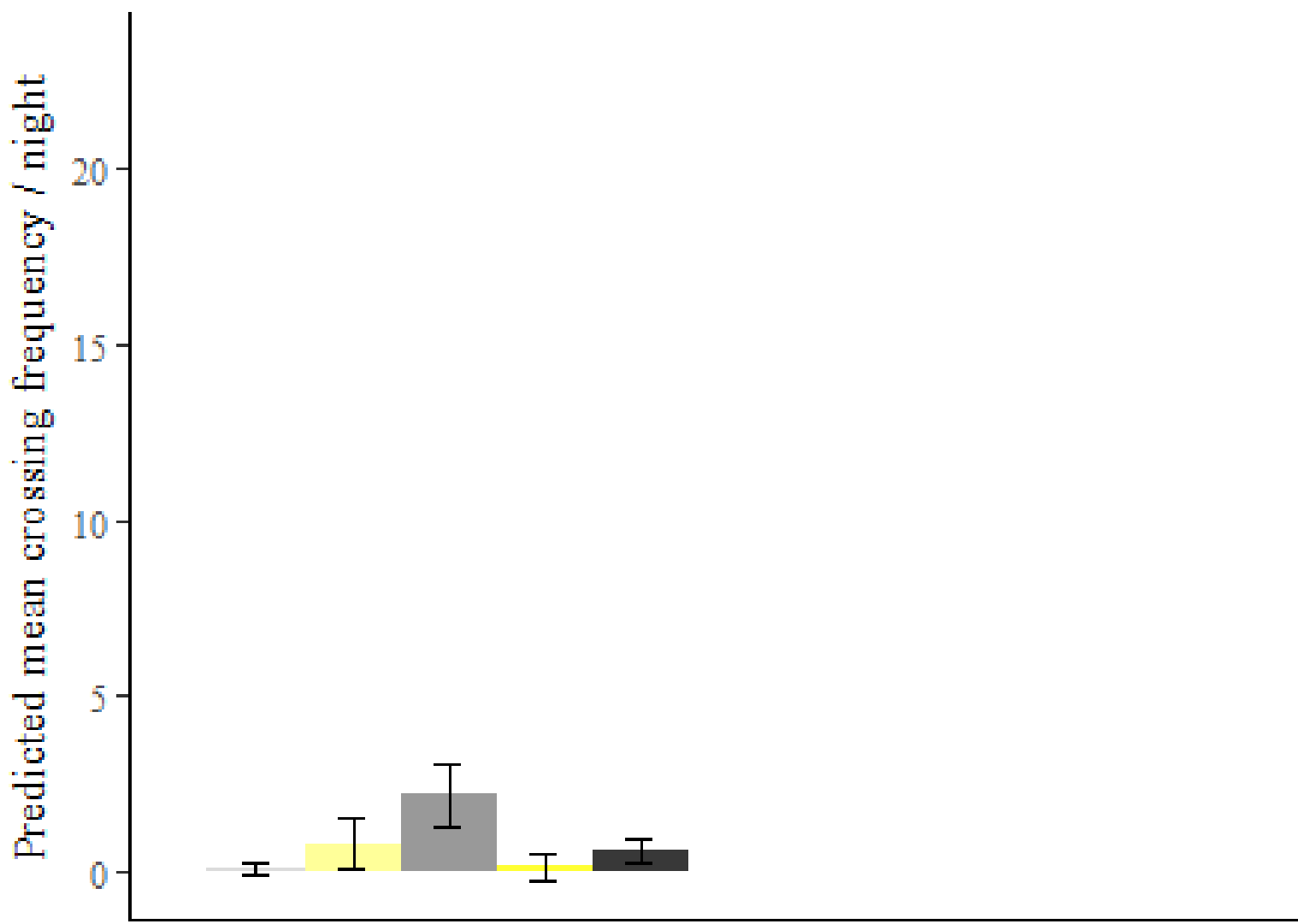
Blackjack Rd

Specimen Gully Rd

Site



- Baseline
- On1
- Off1
- On2
- Off2



- Baseline
- On1
- Off1
- On2
- Off2

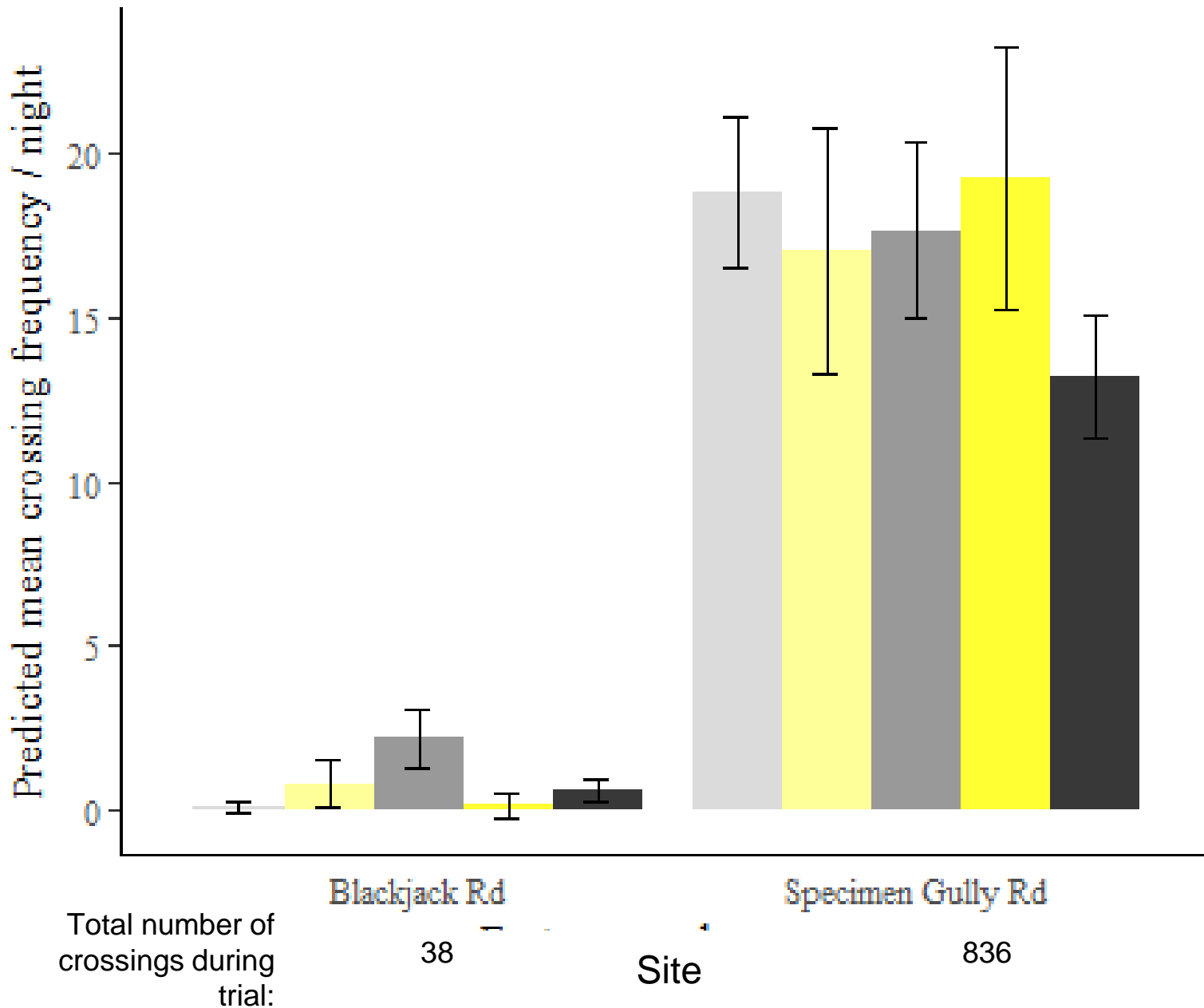
Total number of crossings during trial:

Blackjack Rd

38

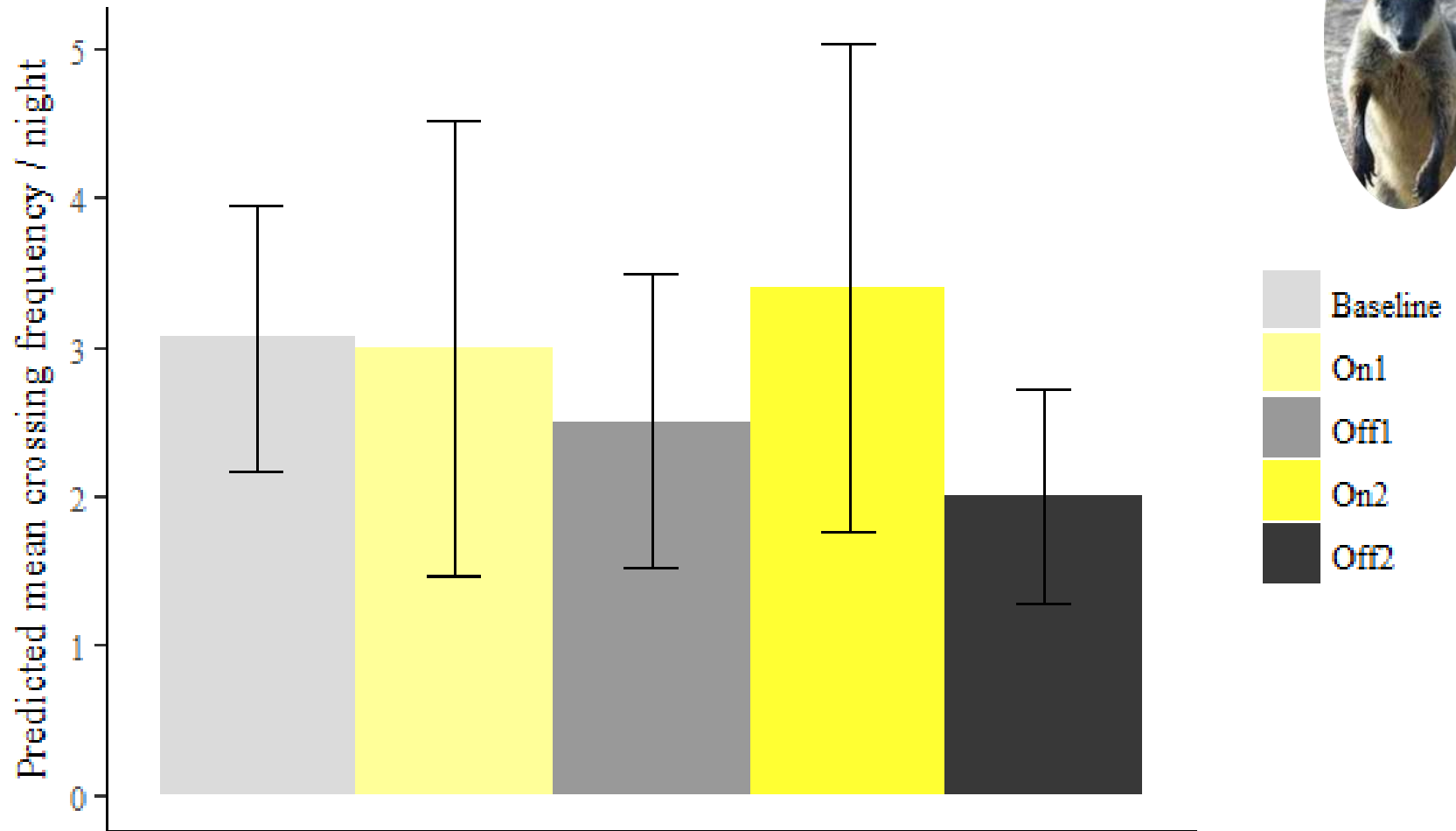
_Site

Soecimen Gully Rd



- Baseline
- On1
- Off1
- On2
- Off2





Blackjack Rd

Site

Total number of
crossings during
trial:

133

Summing up

Light doesn't seem to impact crossing rate

Exception: Red Fox at 1 Site

Probably a reflection of the types of species captured



Additional Result

High variation between sites, low baseline crossing rates by most species

Why aren't crossing structures used more and by more species?

We need continued monitoring and reassessment of sites to make sure they're "working"

Brush-tailed phascogale (*Phascogale tapoatafa*)

2017-04-01 4:27:24 AM M 1/5

6°C



SPW



ARKIVE
www.arkive.org

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Sambar deer (*Rusa unicolor*)

2017-03-21 9:40:28 PM M 2/5

20°C



SP4



Common wombat (*Vombatus ursinus*)

2017-05-06 4:17:02 AM M 1/5

☾ 11°C



SP 1



Some consideration about the structures

Flooding

Vegetation/rocks

Dead ends

Location

Acknowledgements

VicRoads for funding the project & Royal Botanic Gardens Victoria for the camera equipment

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The Department of Zoology at Stockholm University for allowing me to undertake my research project abroad

Thank you all for listening!



Contact Arianna at: arianna983@hotmail.com

Red fox with joey of Eastern grey kangaroo

2017-03-30 3:02:22 AM M 5/5

90 9°C



SPW

