

# Matthew Rees

Applied Ecologist

## Curriculum Vitae

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## Profile

I use quantitative methods to improve conservation monitoring, management and decision-making. I specialise in modelling population dynamics and species interactions, focusing on invasive predators. I'm well-versed in field ecology which motivates me to consider what is feasible on-ground and fits within socio-economic constraints. More broadly, I'm passionate about transparent, collaborative science to address real-world conservation problems. I am currently finishing up my PhD with the *Quantitative and Applied Ecology group* while tackling the occasional, related contracting job.

## Skills overview

- Extensive fieldwork experience in rugged and remote environments, leading camera-trapping and small mammal live-trapping surveys. 4WD (manual) and remote first aid qualifications.
- Supervision and training of large fieldwork teams.
- Storing and analysing large ecological datasets
- Spatial analysis in R and QGIS software, integration with Shiny applications.
- Quantitative ecological statistics in R: spatial capture-recapture, multi-species occupancy, generalised additive models and structured decision-making methods.

## Education

2017-present	<b>PhD (Conservation Biology)</b> Interactions between invasive predators and native prey	University of Melbourne
2013-2016	<b>Bachelor of Environmental Science (1st class Honours)</b> Prioritising invasive animal management in the Lake Eyre Basin, Australia	Queensland University of Technology

## Professional Experience

2019-2020	<b>Ecologist (private contractor)</b> Training Indigenous rangers in fauna monitoring protocols and grant writing	Winda-mara Aboriginal Corporation, Treetec
2020-2020	<b>Research assistant</b> Designing fox density field surveys	University of Melbourne
2018-2020	<b>Demonstrator</b> Conservation Biology, Environmental Risk Assessment subjects	University of Melbourne

## Publications

### Peer-reviewed

1. **MW Rees**, J Carwardine, A Reeson and J Firn (2020). Rapidly assessing cobenefits to advance threat-management alliances. *Conservation Biology*. <https://doi.org/10.1111/cobi.13490>
2. **MW Rees**, JH Pascoe, BA Wintle, M Le Pla, EK Birnbaum and BA Hradsky (2019). Unexpectedly high densities of feral cats in a rugged temperate forest. *Biological Conservation*, 239, 108287. <https://doi.org/10.1016/j.biocon.2019.108287>

### In peer-review

1. H Davies, Tiwi Land Rangers, **MW Rees**, D Stokeld, A Miller, G Gillespie and B Murphy. Variation in feral cat density between two large adjacent islands in Australia's monsoon tropics. *Austral Ecology*.
2. M Le Pla, EK Birnbaum, **MW Rees**, BA Hradsky, AR Weeks, A Van Rooyen and JH Pascoe. Genetic sampling and an activity index indicate contrasting lethal control outcomes. *Journal of Wildlife Management*.

### Reports

1. **MW Rees** (2020). Monitoring and managing critical weight range mammals in the indigenous protected areas of the world heritage Budj Bim cultural landscape. *A report prepared for the Victorian Government, Department of Environment, Land, Water and Planning*.

### In preparation for peer-review

1. **MW Rees**, JH Pascoe, BA Wintle, A Robley, M Le Pla, EK Birnbaum and BA Hradsky. Quantifying the mesopredator release hypothesis: invasive red foxes limit feral cat density in temperate forests.
2. **MW Rees**, A Robley, BA Hradsky, BA Wintle, JH Pascoe and N Golding. Modelling spatio-temporal species interactions using generalised additive models.
3. **MW Rees**, BA Hradsky, BA Wintle, JH Pascoe & A Robley. Is the patchy site-occupancy of threatened native mammals driven by invasive predators?
4. J Bourne, A Basu & **MW Rees**. Automating camera-trap study workflows with performance machine learning models: how does accuracy impact ecological inference?

### Grants and awards

2020	University of Melbourne, School of Biosciences, Jasper Loftus-Hills award	\$2.25K
2020	University of Melbourne, School of Biosciences, travel grant	\$2K
2020	Ecological Society of Australia, Hoslworth research endowment	\$7.5K
2019	Ecological Society of Australia, Hoslworth research endowment	\$6.75K
2018	Conservation Ecology Centre student scholarship	\$5K
2017	Victorian Environmental Assessment Council, Bill Borthwick scholarship	\$2K
2017	Victorian Government, Parks Victoria research partners program (co-investigator)	\$20K
2017	Victorian Government, Department of Land, Environment, Land, Water and Planning research grant	\$15K
2017	Victorian Government, Department of Land, Environment, Land, Water and Planning, PhD top-up scholarship	\$15K
2017	Australian federal government, RTP PhD scholarship	\$98K
2016	Commonwealth Scientific and Industrial Research Organisation, honours top-up scholarship	\$10K
2015	University of Wollongong, undergraduate research scholarship	\$7.2K

### Presentations

- International Statistical Ecology Conference (virtual), June 2020. *Using spatial mark-resight and GAMs to infer predator interactions.*
- Guest lecture, University of Melbourne, Australian Wildlife Biology, May 2020, *Invasive mammals in Australia.*
- Ecological Society of Australia, Launceston, November 2019, *Does fox control increase feral cat population density?*
- Wimmera Biodiversity Seminar, Rupanyup, September 2019, *Monitoring predators and prey in south-west VIC.*
- Otway Threatened Species Forum, Geelong, August 2019, *Monitoring predators and prey in the Otways.*
- Victorian Biodiversity Conference, Melbourne, February 2019, *Prioritising invasive animal management in the Lake Eyre Basin to benefit both threatened species and agriculture.*
- Ecological Society of Australia, Brisbane, November 2018, *Modelling invasive predator density in mesic forests.*
- Otway Threatened Species Forum, Geelong, August 2018, *How many feral cats are in the Otway Ranges?*
- Mathematics of Biological Systems Symposium, Melbourne, April 2018, *Integrating co-benefits into the cost-effective prioritisation of conservation strategies.*
- Victorian Biodiversity Conference, Melbourne, February 2018, *How many cats are in the Otways?*
- Environmental Institute of Australia & New Zealand conference, Brisbane, August 2017, *Building alliances between the agriculture and conservation sectors.*

### Media

09/12/2019	Radio interview	ABC Melbourne	Invasive predators interactions
20/09/2019	Television segment feature	TF1 French National News	Invasive animals in Australia
08/08/2019	Radio interview	3AW	Invasive predators in south-west VIC
08/08/2019	Newspaper article (front page)	Geelong Advertiser	Invasive predators in south-west VIC
07/08/2019	Radio interview	ABC South West Victoria	Invasive predators in south-west VIC
13/03/2019	Newspaper article	Colac Herald	Feral cat density in the Otway Ranges
11/03/2019	Radio interview	ABC Melbourne	Feral cat density in the Otway Ranges
11/03/2019	Live TV interview	ABC news	Feral cat density in the Otway Ranges
10/03/2019	Online news article	ABC news	Feral cat density in the Otway Ranges
10/03/2019	Radio interview	ABC Ballarat	Feral cat density in the Otway Ranges

### Service

- **Peer-reviewer**, *Wildlife Research*, *Conservation Biology* and *Austral Ecology* scientific journals (2019-present).
- **Social media manager**, QAECO lab twitter account (2019-present).
- **Award judging panel member**, Ecological Society of Australia (2020).
- **Treasurer**, Biosciences Postgraduate Society (2019-2020).