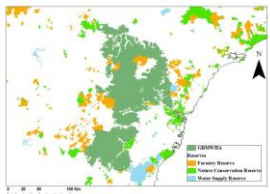



UNSW
 "Managing Ecosystem Change in the Greater Blue Mountains World Heritage Area" - Research Forum, Blue Mountains



Large scale fauna modelling – applications for management
 Gilad Bino
 PhD candidate, Prof Richard Kingsford and Dr Daniel Ramp

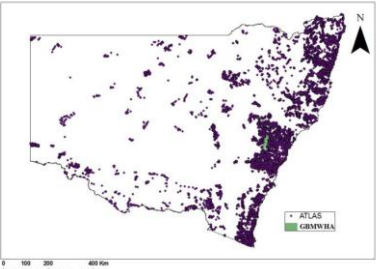
Data and management



Data
 Single species
 Surrogacy
 Diversity
 Monitoring
 Community

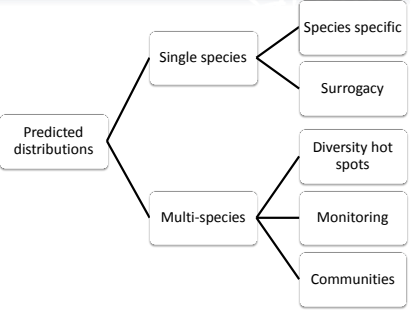
Data

➤ ATLAS dataset contains state-wide systematic and incidental records of 63 native mammal species



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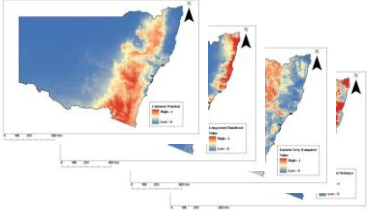
Analysis



Data
 Single species
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Species specific

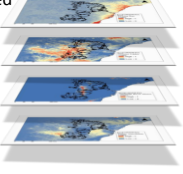
➤ Identify areas of high importance based on a single target species



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Surrogacy

➤ By examine the spatial assemblages of closely related species and species with similar functional traits we are able to test the feasibility of using surrogate species.
 ➤ e.g., the use of closely related common and rare species

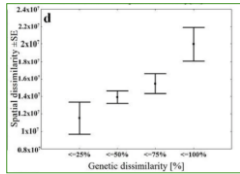


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Surrogacy

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- Genetic relatedness is the strongest predictor for the spatial co-occurrence of species
- Functional resemblance is not



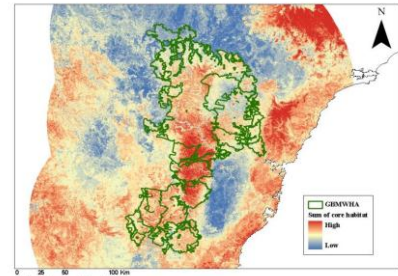
Parameter	β	Std. Error	Wald Chi-Square	df	p
(Intercept)	1.098E ³	3.200x10 ⁰	11.780	1	0.001
Genetic	1.134E ³	3.878x10 ⁰	8.555	1	0.003
Functional	4.151E ³	4.114x10 ⁰	1.018	1	0.313
Environment	-7.749E ³	3.277x10 ⁰	5.592	1	0.018

Community
Monitoring
Diversity
Surrogacy

Biodiversity

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- Identify areas of potential high species diversity within and around the GBMWHA

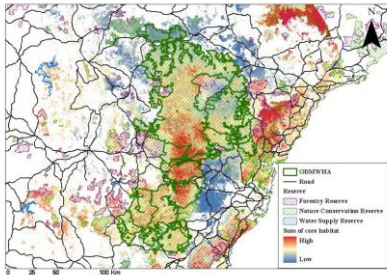


Community
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Surrogacy

Biodiversity

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Community

- Increase reliability by excluding areas based on land use (e.g., grazing, cropping, urban, and roads)

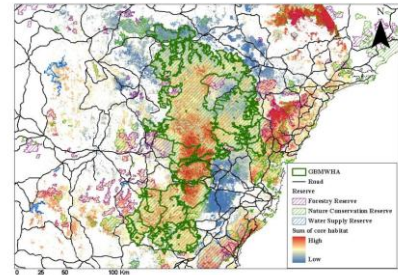


Community
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Surrogacy

Biodiversity

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- Identify areas of high importance for both diversity and complementarity of species



Community
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Surrogacy

Monitoring

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- Species can be detected using a range of monitoring techniques
- When targeting a range of species, identifying optimal combinations can assist in reducing monitoring costs

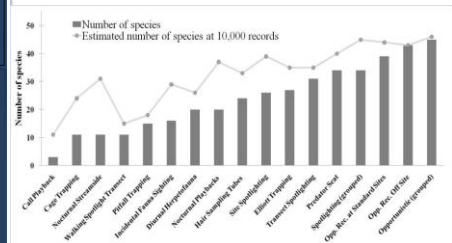


Community
Monitoring
Diversity
Surrogacy

Monitoring

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- Large variability in the total number of species detected using each method

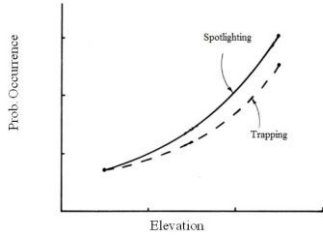


Community
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Monitoring

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- Incorporating survey methods as a factor in the model provides a way of ranking them to detect each species

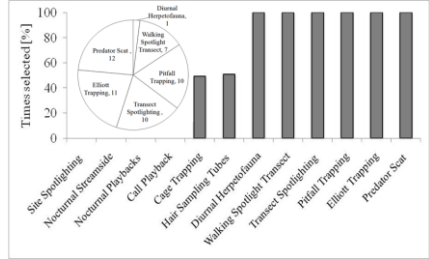


Community
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Monitoring

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- Optimal combination of survey techniques to detect all mammal species across NSW

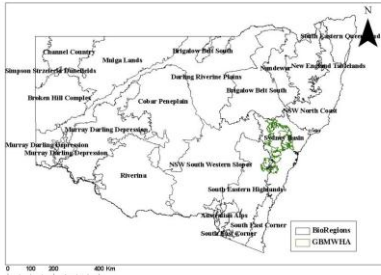


Community
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- Based on species inventories, optimal combinations can be identified for each bioregion



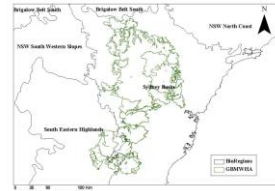
Community
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- Within the GBMWHA, mammal monitoring can be achieved using four techniques

Bioregion	Transect	Predator	Pitfall	Elliott
	Spotlighting	Scat	Trapping	Trapping
South Eastern Highlands	100	100	39	100
Sydney Basin	100	100	100	100

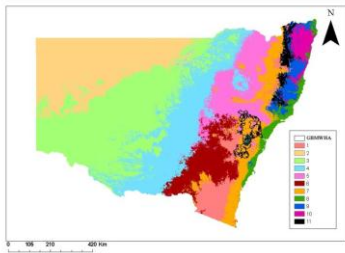


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Community

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- Currently working on identifying species assemblages and exploring implications for management under change



Community
Monitoring
Diversity
Surrogacy

Message from Gilad

- Sorry I couldn't make it, please feel free to contact me if you wish to further discuss (gilad.bino@student.unsw.edu.au)