The future of protected areas and threatened species: a cautionary tale

Oscar Venter

Centre of Excellence in Environmental Decisions, Univ Queensland

Aichi Biodiversity Targets, by 2020…

Target 11: effectively managing and expanding protected areas to cover 17% of terrestrial areas

Target 12: prevent the extinction of known threatened species

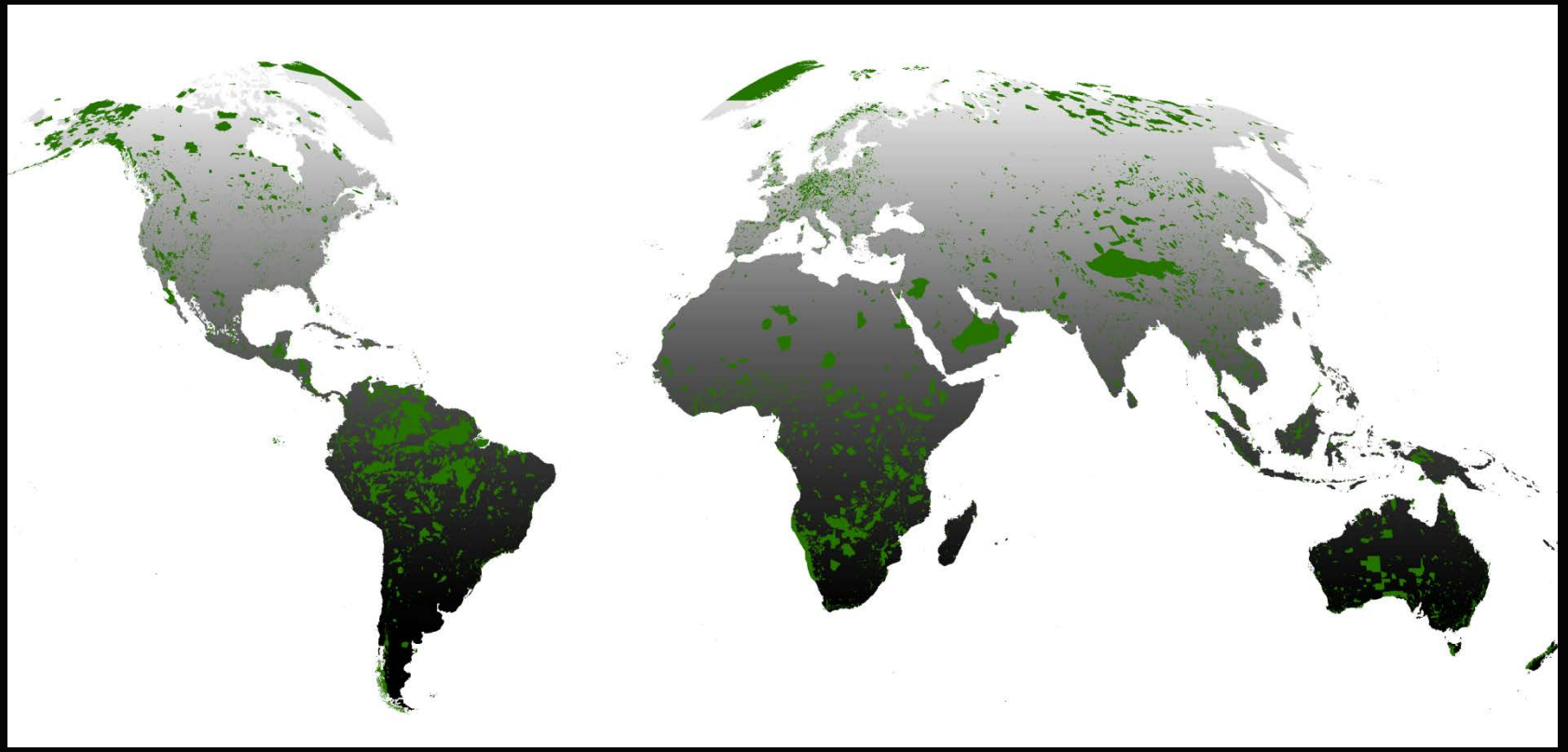
Threatened Birds, Mammals and Amphibians

Building scenarios

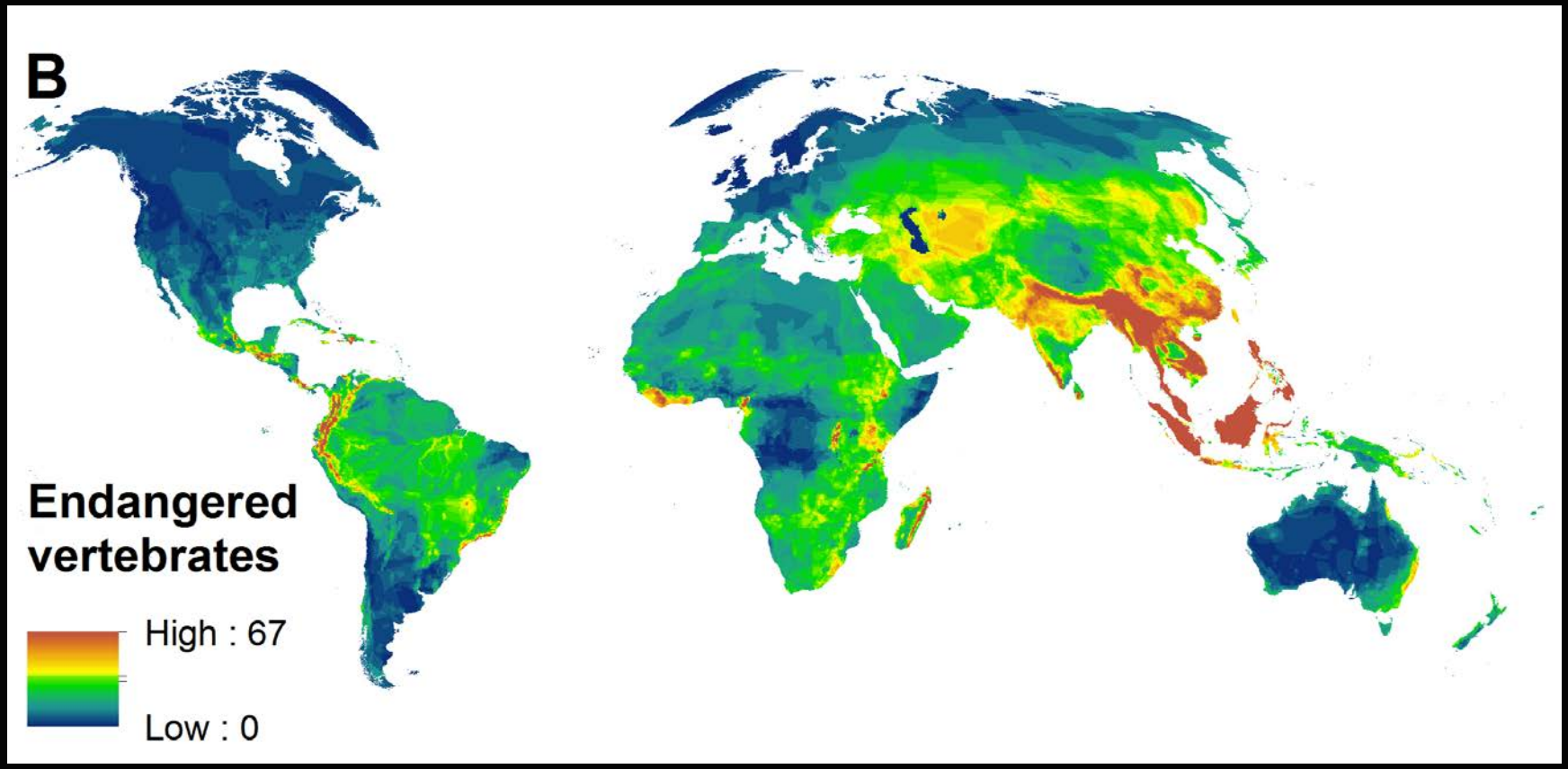
1. Create optimized visions or scenarios

2. Projecting past trends

Projecting past trends:
What explains the location of existing PAs?



Threatened vertebrates?



Conservation templates?

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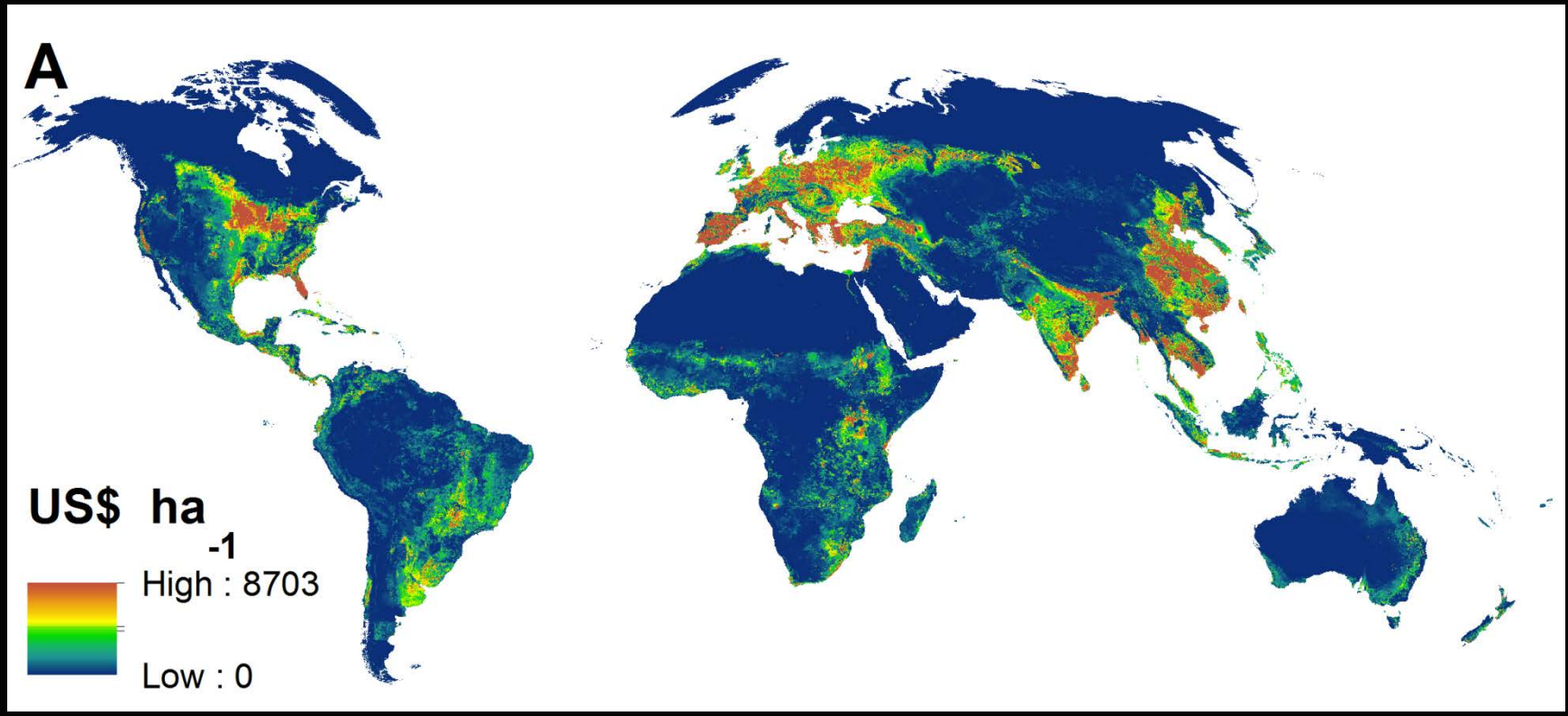
Agricultural opportunity cost?



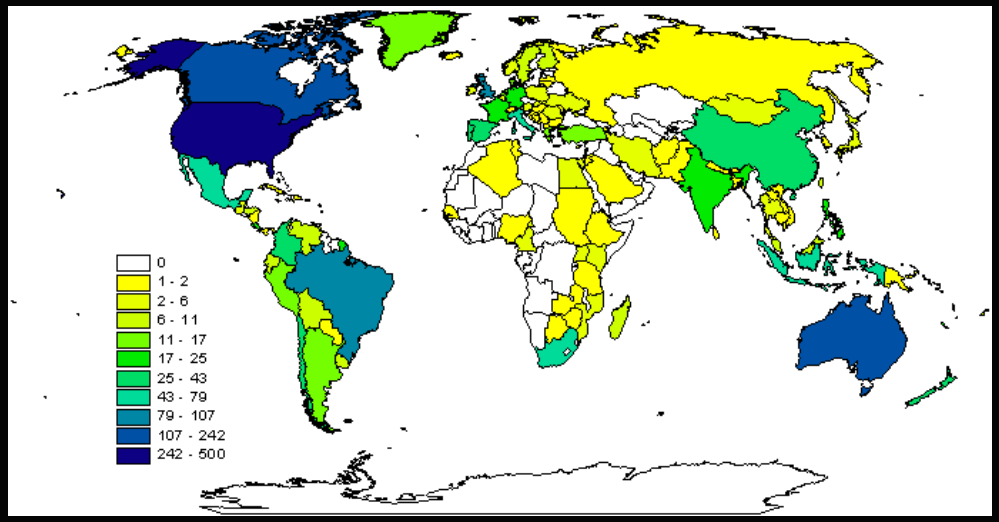
Effect	Estimate (± SE)	P value
Cost	-0.75 (±0.02)	<0.0001
Number of templates	0.26 (±0.01)	<0.0001
Species count	-0.22 (±0.01)	<0.0001

What does this mean for future protected area expansion?

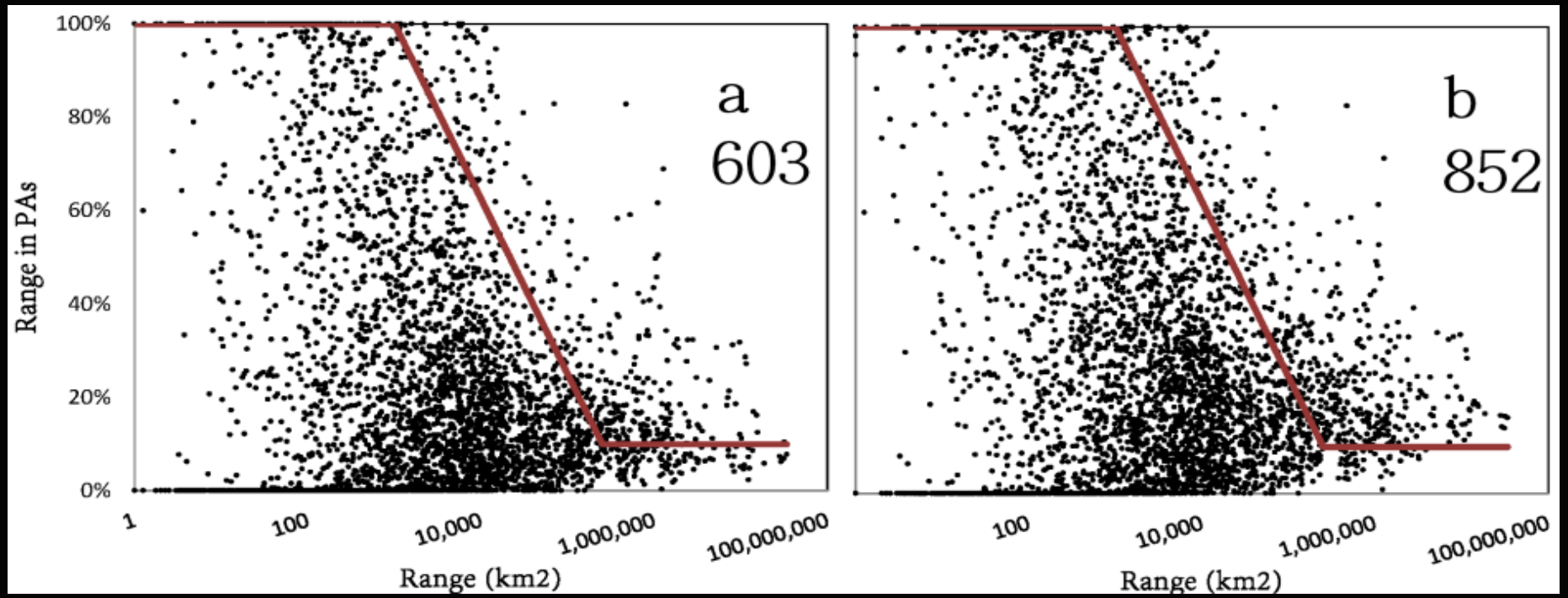
Target 11: effectively managing and expanding protected areas to cover 17% of terrestrial areas

Marxan planning framework

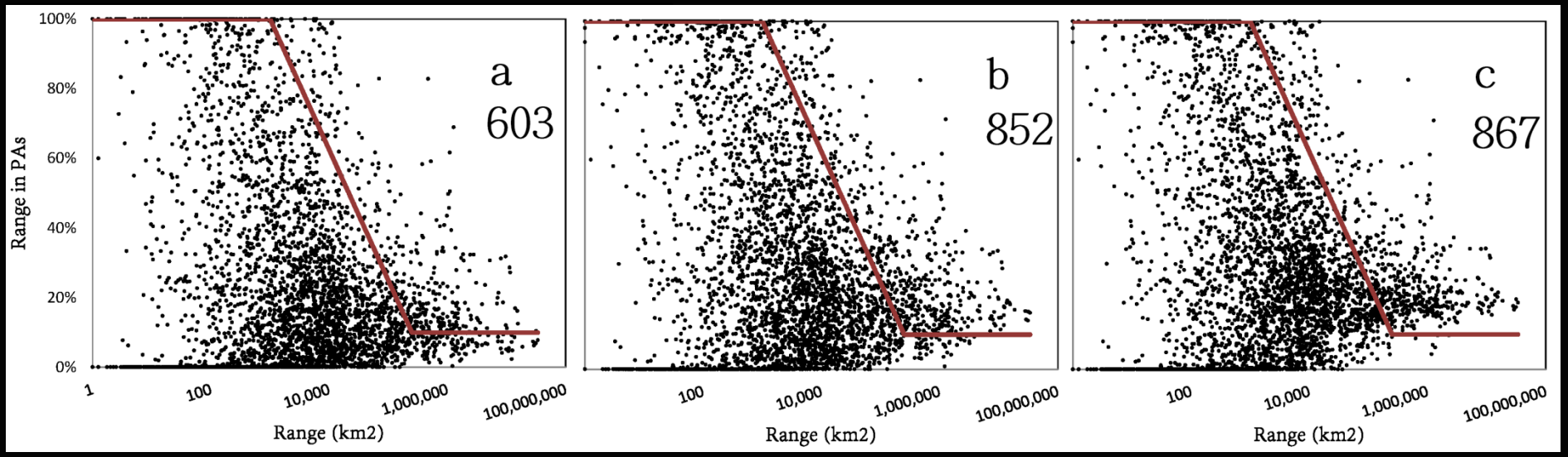
- Meets defined planning targets
- Minimizes the costs of meeting these targets
- All targets are national level
- Threatened Birds, Mammals and amphibians



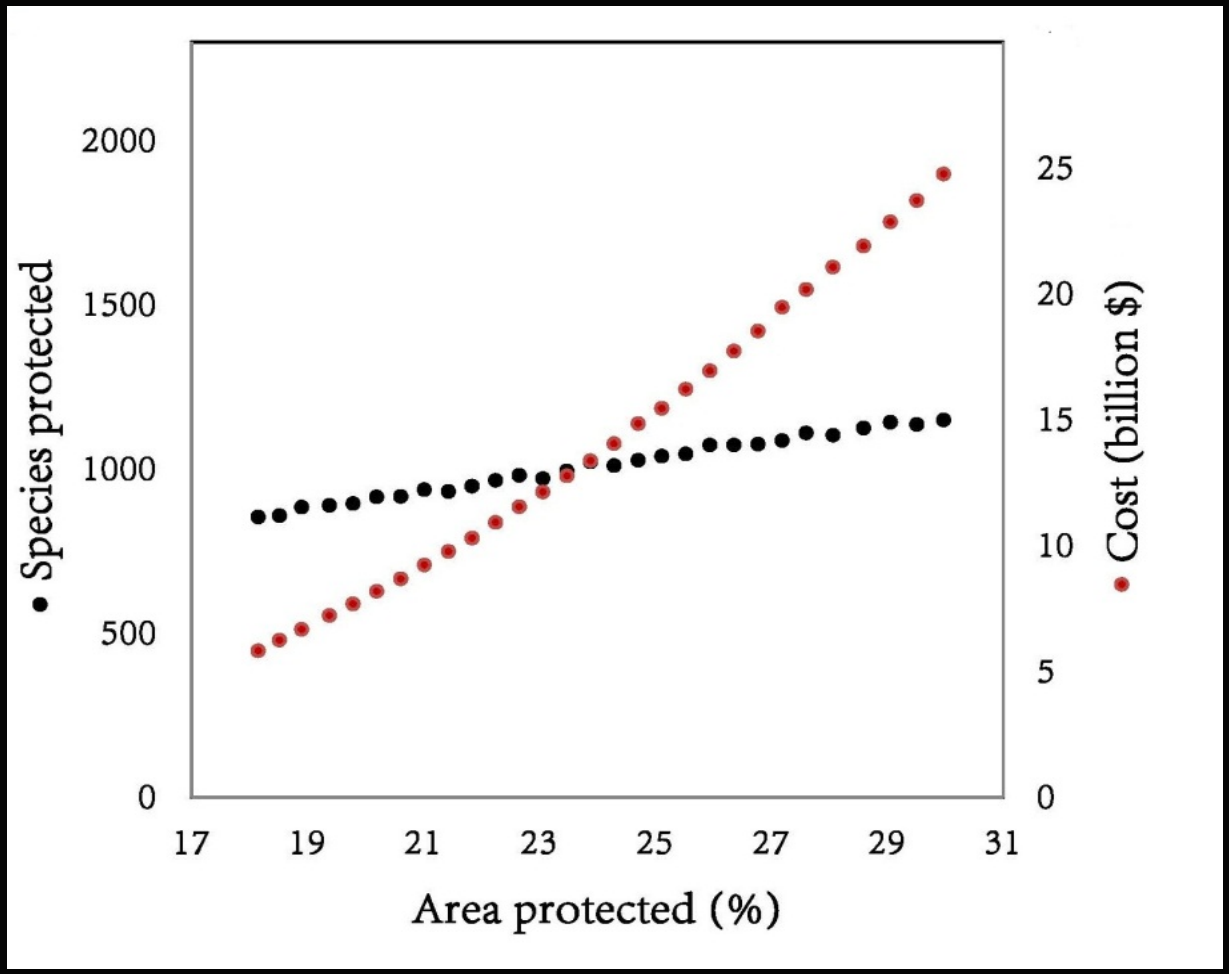
Business-as-usual scenario
$4.9 billion annually



Ecoregional scenario
$25 billion annually



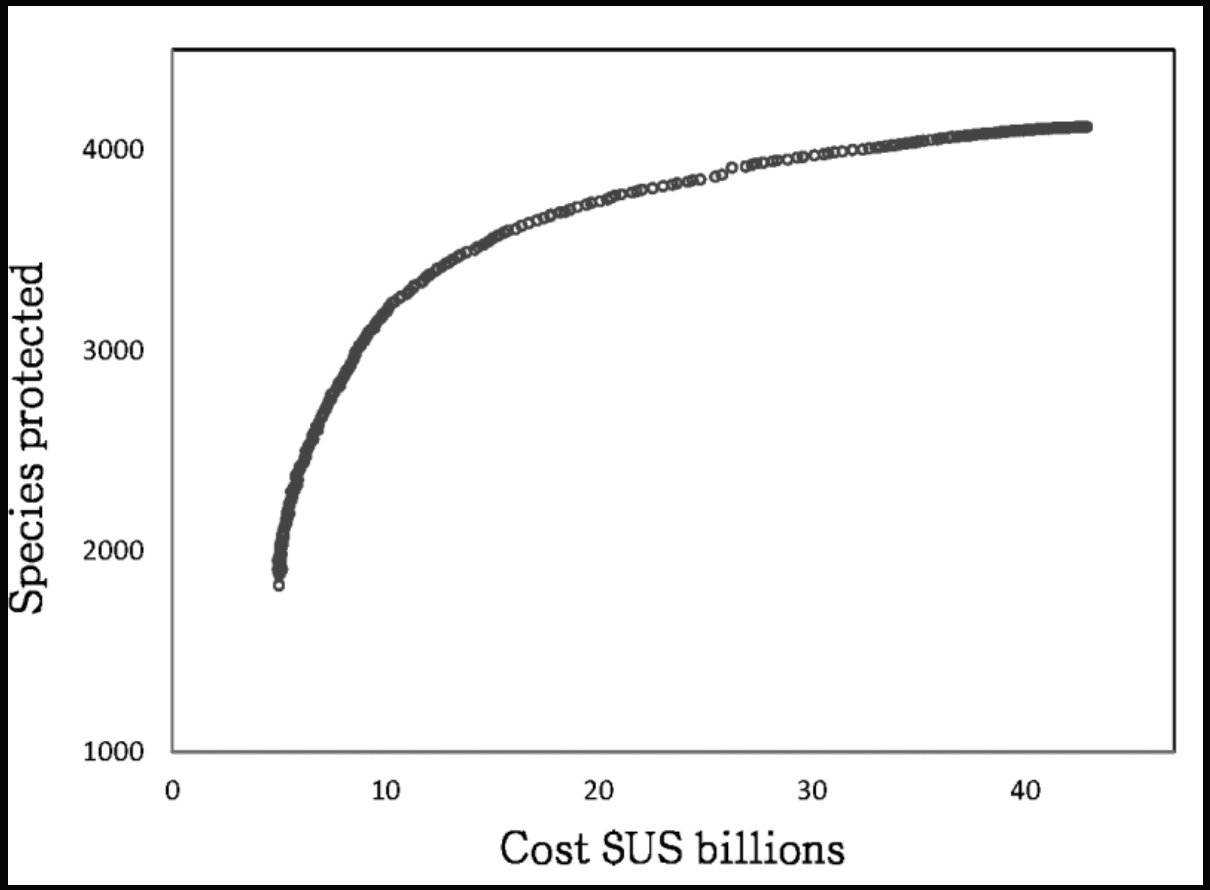
Bussiness-as-usual continued



Conclusion

Past trends in protected areas mean that we can reach 17% protection while failing to capture threatened species

Trade-off between cost and species conservation



Conclusions

We may reach 17% protection while failing to capture threatened species

But it might not be too painful to fix this

Need to explicitly target threatened species

Thanks

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Targeting Global Protected Area Expansion for Imperiled Biodiversity

Oscar Venter[1,2*], Richard A. Fuller[2], Daniel B. Segan[2,3], Josie Carwardine[4], Thomas Brooks[5,6,7], Stuart H. M. Butchart[8], Moreno Di Marco[9], Takuya Iwamura[10], Liana Joseph[2,3], Damien O'Grady[11], Hugh P. Possingham[2,12], Carlo Rondinini[9], Robert J. Smith[13], Michelle Venter[1], James E. M. Watson[3,14]

1 Centre for Tropical Environmental and Sustainability Science and the School of Marine and Tropical Biology, James Cook University, Cairns, Australia, **2** School of Biological Sciences, The University of Queensland, Brisbane, Australia, **3** Global Conservation Program, Wildlife Conservation Society, New York, New York, United States of America, **4** Commonwealth Scientific and Industrial Research Organisation, Ecosystem Sciences, EcoSci Precinct, Dutton Pk, Australia, **5** International Union for Conservation of Nature, Gland, Switzerland, **6** World Agroforestry Center, University of the Philippines Los Baños, Laguna, Philippines, **7** School of Geography and Environmental Studies, University of Tasmania, Hobart, Australia, **8** BirdLife International, Cambridge, United Kingdom, **9** Global Mammal Assessment Program, Department of Biology and Biotechnologies, Sapienza Università di Roma, Rome, Italy, **10** Department of Biology and Department of Environmental Earth System Science, Stanford University, Stanford, California, United States of America, **11** Centre for Tropical Water & Aquatic Ecosystem Research, James Cook University, Cairns, Australia, **12** Department of Life Sciences, Imperial College London, Silwood Park, United Kingdom, **13** Durrell Institute of Conservation and Ecology, School of Anthropology and Conservation, University of Kent, Canterbury, United Kingdom, **14** School of Geography, Planning and Environmental Management, University of Queensland, Brisbane, Australia