

# BRENDAN A. WINTLE

## PERSONAL DETAILS

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## QUALIFICATIONS

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**PhD Spatial Ecological Modelling**  
Conferred 2004, University of Melbourne

**Bachelor of Forest Science (Hons)**  
University of Melbourne, 1990 – 1994

## PROFESSIONAL SUMMARY

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### Research

- Deputy Director, Commonwealth Environment Research Facility: Applied Environmental Decision Analysis
- Over 5.5 million dollars in research funding and awards, including CERF, ARC Discovery (Fellowship), ARC Linkage, Land & Water and AFFA young scientist awards
- Highly cited international journal publications (average of 36 citations/paper publications prior to 2006, *h*-index = 10), 2 international journal editorial board memberships and several guest editing positions
- Ongoing international, domestic, and agency collaborations
- Currently supervising 8 postdoctoral and 10 postgraduate researchers. Engaged in undergraduate and professional teaching and training courses for the Ecological Society and CSIRO
- Invited to international research working groups (NCEAS and IUCN) on climate change adaptation, optimal monitoring, and conservation priorities
- Invited speaker at international symposia (ESA, Intecol, Place and Purpose, CSIC)
- Active in the Ecological Society of Australia
- Consultant to the Hunter Region Organization of Councils, the Canadian Forest Service, and numerous State Agencies

### Impact

- Member of the Commonwealth *Caring for Country Monitoring, Evaluation, Reporting and Improvement* (MERI) reference committee
- Expert advice to DEWHA and DAFF via AGLC, AGNRM, EPBC, ERIN, and the Water Holder on issues including Caring for Country merit assessment, optimal e-flows allocation, the natural heritage assessment tool, and EPBC Act strategic assessments.
- Member Forest Stewardship Council and Australian Forestry Standard reference committees
- Member of the Victorian Sustainable Waterfowl Harvesting Reference Group
- Advised glider, forest owl and Mallee Fowl threatened species recovery teams
- Expert advice to the Victorian Government: DSE's *Montreal indicators* and *Actions for Biodiversity Conservation* programs, and Parks Victoria's *Signs of Healthy Parks* program
- Development of forest codes of practice and RFA policy: Queensland DNR

## RESEARCH

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### Overview

*I develop methods for dealing with uncertainty in environmental decision-making. I derive satisfaction from finding the simplest solution to complex problems and from developing leading-edge techniques where they are required. I've published on technical and policy issues around biodiversity conservation and natural resource management, including optimal monitoring and adaptive management, systematic conservation planning, population viability analysis, habitat modelling, Bayesian statistics, and decision theory.*

- 2007 - present    **Deputy Director, Commonwealth Environment Research Facility: Applied Decision Analysis - Research Leader, Melbourne Node**  
Fostering world-leading research in environmental decision making. The Hub (Directed by Possingham) brings together leading researchers in spatial analysis, monitoring design, decision theory, population modelling, risk assessment, and social science. The Hub provides advice to all levels of Government, NRM bodies, and ENGOs, about environmental policy and resource allocation.
- 2007 - present    **ARC Fellow (ARC Discovery), Senior Research Fellow, University of Melbourne**  
Environmental monitoring under severe uncertainty; efficient design and allocation of resources to monitoring for decision making under uncertainty.
- 2004 - 2006        **Research Fellow, University of Melbourne (ARC Linkage)**  
Practical, powerful and cost effective monitoring of biodiversity
- 2003 - 2004        **Research Fellow, Canadian Forest Service/University of Melbourne**  
Dynamic Landscape models for evaluating forest management strategies
- 1998 - 2003        **PhD, School of Botany, University of Melbourne**  
Improved spatial models of wildlife habitat for managing forest landscapes

## TEACHING

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- 2003 - present    Two day professional workshops on Bayesian statistics for ecologists
- 2008 - present    University of Melbourne Masters; Global environmental change
- 2001 - present    University of Melbourne Undergraduate (guest); Cons. Biol, Risk Assess't
- 2007                Guest presenter, conservation planning course, Port Elizabeth, S. Africa
- 2008                Guest presenter, Ecological Society postgraduate day, Sydney
- 2003 - 2006        Guest lecturer RMIT and Deakin: Environmental Processes; Conservation Biology

## GRANTS AND CONSULTANCIES (\$5.44M)

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- 2009 - 2013        ARC Linkage; Robust prediction and decision strategies for managing extinction risks under climate change. \$750K (Wintle, Keith, *et al.*)
- 2009 - 2012        ARC Linkage; Designing fauna-friendly cities and towns. \$450K (Wintle, Van Der Ree, *et al.*)
- 2007 - 2010        Commonwealth Environment Research Facility: Applied Environmental Decision Analysis, Melbourne Node. \$2.1M (Wintle, McCarthy, Burgman)
- 2009 - 2010        AWRC (DAFF); Predicting ecosystem invasibility. \$100K (Wintle, Vesk, Catford)
- 2009 - 2010        Victorian DSE; Adaptive management of vegetation restoration. \$110K (Wintle, Vesk, Rumpff)

2007 - 2010	ARC Fellowship and ARC Discovery Grant, Optimal environmental monitoring under severe uncertainty. \$350K (Wintle & McCarthy)
2008 - 2011	ARC Linkage Grant, Biodiversity planning on the urban fringe. \$550K (Bekessy, McCarthy, Wintle)
2004 - 2007	ARC Linkage Grant, Re-imagining the Australian Suburbs: Biodiversity planning in urban fringe landscapes. \$497K (Bekessy, McCarthy, Wintle)
2004 - 2007	ARC Linkage Grant, Optimal monitoring for biodiversity conservation. \$380K (Burgman <i>et al.</i> )
2002 - 2003	1) Wildlife habitat models for urban planning, Hunter Region Organization of Councils, \$120K (Wintle, Elith). 2) Detectability of arboreal marsupials and large forest owls, State Forests of NSW. \$40K (Wintle & Burgman)

#### AWARDS AND SCHOLARSHIPS

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2007 - 2010	ARC Fellowship
2003	Land & Water Australia, Traveling Fellowship
2001	Agriculture Fisheries and Forestry Australia, Young Scientist Award
2000	Holsworth Scholarship

#### ACHEIVEMENTS AND IMPACTS

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- Member of the Editorial Boards of *Diversity and Distributions* and *Journal of Applied Ecology* and Guest Editor for *Conservation Biology*
- Manuscript reviewer for *Ecology*, *Conservation Biology*, *Austral Ecology*, *Biological Conservation*, *Ecological Applications*, *Acta Oecologia*, *Oryx*, *Journal of Animal Ecology*, *Journal of Herpetology*
- Member of the Ecological Society of Australia, The Society for Conservation biology, The Wildlife Society of America, and the Ecological Society of America
- Program reviewer for the Australian Research Council and the EarthWatch
- Presenter at numerous international conferences and plenary speaker at two forums

#### OTHER PROFESSIONAL HISTORY

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| 2002 - 2003 | <b>Habitat Mapping Consultant: Hunter Councils</b>   |
|             | <ul style="list-style-type: none"> <li>▪ Develop and test wildlife habitat models and maps for use in local government planning and development zoning in the Hunter Region. Provide advice on priority conservation areas.</li> </ul> |
| 1996 - 1998 | <b>Senior Policy Officer, QLD Department of Natural Resources</b>  |
|             | <ul style="list-style-type: none"> <li>▪ Coordinator for the assessment of the Ecologically Sustainable Forest Management (ESFM) for the Regional Forest Agreement, develop codes of practice for forest management.</li> </ul>        |

#### PUBLICATIONS

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##### Summary

- 32 peer reviewed publications (30 since 2005)
- *h*-index = 10
- Average of 36 citations/paper for papers published during 2005/2006

##### Publications list

McDonald-Madden E., A. Gordon, B. A. Wintle, H. Grantham, S. Walker, S. Carvalho, M. Bottrill, L. Joseph, and H. P. Possingham. 2009. Reporting on 'true' conservation progress. *Science* **323**:43-44.

Betts, M. G., L. Ganio, M. Huso, B. A. Wintle. 2009. The ecological importance of space in species distribution models: A comment on Dormann et al. *Ecography* 32:1-5.

- Bekessy, S. A., B. A. Wintle, A. Gordon, J. C. Fox, R. Chisholm, B. Brown, N. Mooney, S. Read, and M. A. Burgman. 2009. Modelling human impacts on the Tasmanian wedge-tailed eagle (*Aquila audax fleayi*). *Biological Conservation* online early.
- Hodgson J., C. D. Thomas, B. A. Wintle, and A. Moilanen. 2009. Climate change, connectivity and conservation decision making - back to basics. *Journal of Applied Ecology* online early
- Bode M., and B. A. Wintle. 2009. How to build an efficient conservation fence. *Conservation Biology* online early.
- Burgman M. A., B. A. Wintle, C. A. Thompson, A. Moilanen, M. C. Runge, and Y. Ben-Haim. 2009. Uncertainty analysis for Bayes nets: reconciling cost and environmental benefit in invasive species management. *Risk Analysis* in press.
- Wintle, B.A. & D.B. Lindenmayer. 2008. Adaptive risk management for certifiably sustainable forest management. *Forest Ecology and Management* **256**:1311-1319.
- Wintle, B.A. 2008. Adaptive management, population modeling and uncertainty analysis for assessing the impacts of noise on cetacean populations. *Int. J. Comp. Psy.* **20**:237-249.
- Garrard G.E., S. Bekessy, M. McCarthy & B.A. Wintle. 2008. When have we looked hard enough? A novel method for setting minimum survey effort protocols for flora surveys. *Aust.Ecol.* **33**:986-998.
- Chades, I., E. McDonald-Madden, M. McCarthy, B.A. Wintle & H.P. Possingham. 2008. Save, survey or surrender: management of cryptic threatened species. *Proc. Nat. Acad. Sci.* **105**:13936-.
- Bekessy, S. A., and B. A. Wintle. 2008. Using carbon investment to grow the biodiversity bank. *Conservation Biology* **22**:510-513.
- Bekessy, S. A., B. A. Wintle, A. Gordon, R. Chisholm, L. A. Venier, and J. L. Pearce. 2008. *Dynamic landscape metapopulation models and sustainable forest management*. Pages 473-499 in J. J. Millspaugh and F. R. Thomson, eds. *Models for Planning Wildlife Conservation in Large Landscapes*. Academic Press.
- Duncan, D., and B. A. Wintle. 2008. *Towards adaptive management of native vegetation in regional landscapes*. in C. Pettit, et al., eds. *Landscape Analysis and Visualisation*. Springer - Verlag GmbH, Berlin.
- Ferrier S., and B. A. Wintle. 2008. *Quantitative approaches to spatial conservation prioritization: matching the solution to the need*. In A. Moilanen, et. al., eds. *Quantitative conservation planning*. Elsevier.
- Bode M., T. Rout, C. Hawkins & B. A. Wintle. 2008. Efficiently locating conservation boundaries: Searching for the Tasmanian devil facial tumour disease front. *Biological Conservation*.
- Southwell D.M., A. Lechner, T. Coates & B.A. Wintle. 2008. The sensitivity of PVA to uncertainty about habitat requirements: Implications for the management of the endangered Southern Brown Bandicoot. *Conservation Biology* **22**:1045-1054.
- Gibbons P., C. Zammit, K. Youngtab, et al and B. A. Wintle. 2008. Some practical suggestions for improving engagement between researchers and policy-makers in natural resource management. *Ecological Management and Restoration* **9**: 182-186
- Chisholm R.A., and B.A. Wintle. 2007. Landscape stochasticity in population viability analysis. *Ecological Applications*. **17**:317-322
- Moilanen, A., and B.A. Wintle. 2007. Quantitative reserve network aggregation via the boundary quality penalty. *Conservation Biology*. **21**:355-364
- Fox, D.R., Y. Ben-Haim, K. Hayes, M. A. McCarthy, B. A. Wintle, and P. Dunstan. 2007. An info-gap approach to power and sample size. *Environmetrics* **18**:189-207.
- Venier, L. A., J. L. Pearce, B. A. Wintle, and S. A. Bekessy. 2007. Future forests and indicator species population models. *The Forest Chronicle* **83**:36-40.
- Walshe, T.V., B.A. Wintle, F. Fidler, & M.A. Burgman. 2007. Use of confidence intervals to demonstrate performance against forest management standards. *For. Ecol. & Man.* **247**:237-245.
- Moilanen, A., and B. A. Wintle. 2006. Uncertainty analysis favors selection of spatially aggregated reserve networks. *Biological Conservation* **129**:427-434.

- Wintle B.A. & D.B. Bardos. 2006. Modelling species habitat relationships with spatially autocorrelated observation data. *Ecological Applications* **16**:1945-1958.
- Moilanen, A., B.A. Wintle, J. Elith, & M.A. Burgman. 2006. Uncertainty analysis for large-scale reserve selection. *Conservation Biology* **20**:1688-1697.
- Wintle B.A., S.A. Bekessy, J.L. Pearce, L.A. Veneir & R.A. Chisholm. 2005. Dynamic landscape metapopulation models for sustainable forest management. *Conservation Biology* **19**:1930-1943.
- Wintle, B.A., J. Elith, and J. Potts. 2005. Fauna habitat modelling and mapping: A review and case study in the Lower Hunter Central Coast of NSW. *Austral Ecology* **30**:719-738.
- Wintle, B. A., R. P. Kavanagh, M. A. McCarthy, & M. A. Burgman. 2005. Estimating and dealing with detectability in occupancy surveys for forest owls and arboreal marsupials. *J. Wildlife Man.* **69**:905-917.
- Martin, T. G., B. A. Wintle, S. Low Choy, P. Kuhnert, J. M. Rhodes, S. A. Field, and H. P. Possingham. 2005. Zero tolerance ecology: improving ecological inference by modeling the sources of excess zero observations. *Ecology Letters* **8**:1235-1246.
- Moilanen, A., A.M.A. Franco, R.I. Early, R. Fox, B.A. Wintle, and C.D. Thomas. 2005. Prioritizing multiple-use landscapes for conservation: methods for large multi-species planning problems. *Proceedings of the Royal Society B* **272**:1885-1891.
- Wintle, B. A., M. A. McCarthy, K. P. Parris, & M. A. Burgman. 2004. Precision and bias of methods for estimating point survey detection probabilities. *Ecological Applications* **14**:703-712.
- Wintle, B. A., M. A. McCarthy, C. T. Volinsky, & R. P. Kavanagh. 2003. The use of Bayesian Model Averaging to better represent the uncertainty in ecological models. *Conservation Biology* **17**:1579-1590.

#### Reports and other papers

- Bekessy, S. A., and B. A. Wintle. 2006. More than one route to PhD success. *Nature* **443**:720.
- Wintle, B.A. 2008. *A review of biodiversity investment prioritization tools*. A report to the Biodiversity Expert Working Group: *Investment Framework for Environmental Resources*.
- Burgman, M. A., Wilson, K. & Wintle, B. A. 2007. *Review of the Australian Natural Heritage Assessment Tool*. University of Melbourne, Melbourne, Australia.
- Bekessy, S. A., B. A. Wintle, C. Riddington, M. Buxton, and M. White. 2007. *Change and Continuity in Peri-Urban Australia: Trends in Biodiversity and Vegetation*. Land & Water Australia, Canberra.
- Fox, J. C., T. J. Regan, S. A. Bekessy, B. A. Wintle et al. 2004. *Linking landscape ecology and management to population viability analysis*. University of Melbourne, Melbourne.
- Walshe, T. V., and B. A. Wintle. 2006. *Guidelines for communicating performance against standards in forest management*. Forest and Wood Products Research & Development Corporation, Canberra.
- Wintle, B. A., Elith, R. J. Yamada, K. & Burgman, M. A. 2004. Modelling priority species habitat requirements. Lower Hunter & Central Coast Regional Biodiversity Conservation Strategy. Tech Report. Hunter Region Councils, NSW.

#### REFEREES

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