

**NAME AND CONTACT DETAILS:**

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**PROFESSIONAL QUALIFICATIONS**

PhD, School of Botany, The University of Melbourne (2002) (fields: statistics, ecology)  
BAgrSc (Hons), School of Agriculture and Forestry, The University of Melbourne (1977)

**PROFESSIONAL EXPERIENCE (current and previous appointments in last 10 years)**

2002-current: Research Associate, School of Botany, The University of Melbourne  
1996-current: Consultant on various modelling / ecological / conservation projects as detailed in publications  
1992-1995 Tutor, School of Agriculture and Forestry, The University of Melbourne  
2006-2008 Member, NCEAS working group on machine learning methods for ecology National Center for Ecological Analysis and Synthesis, Santa Barbara, Calif.  
2002-2005 Member, NCEAS working group on methods for modelling distributions from presence-only data. National Center for Ecological Analysis and Synthesis, Santa Barbara, Calif. 2002-2005

**PROFESSIONAL CONTRIBUTIONS**

2007-current Subject Editor, Ecography  
2002-current Reviewer for journals including Ecography, J. Applied Ecology, Perspectives in Plant Ecology, Evolution and Systematics, Ecology Letters, Ecology, Journal of Plant Nutrition and Soil Science, Diversity and Distributions, Biological Conservation, Journal of Biogeography, Ecological Modelling, Global Ecology and Biogeography/  
1996-current Member, Ecological Society of Australia

**RECENT SEMINAR AND CONFERENCE PRESENTATIONS**

- "Dealing with collinearity in data: machine learning methods" – invited presentation, workshop on Statistical remedies for collinearity in ecological studies, Germany 2007
- "Model responses to climate change for alpine herb species" – invited presentation, ITEX conference, Falls Creek. 2007
- "Species modelling with boosted regression trees" – Invited presentation, workshop on Advances in statistical modelling of faunal distribution", Germany, 2006
- "Recent advances in species modelling methods" – at workshop on Climate Change and species modelling (led by Lesley Hughes), Macquarie University, NSW. 2006.
- "Boosted regression trees" ESA Conference, 2005, Brisbane.
- "Modelling species' distributions with museum and herbarium data" - Invited presentation, Predictive Modelling of Species' Distributions workshop, Spain, 2005
- "Habitat modelling" - invited teaching (1 day workshop), Helsinki, Finland, 2004
- "Error and uncertainty in habitat models" Invited presentation, workshop on species modeling Switzerland, 2004
- "Model Uncertainty" ESA Conference, Cairns, 2002.
- "Model evaluation methods" Invited presentation, workshop on "Advances in GLM/GAM Modeling" Switzerland, 2001

- “Validation for predictive models” ESA Conference, Melbourne, 2000.
- “Predictions and their validation”. Conference on “Predicting Species Occurrences: Issues of Scale and Accuracy”. Utah, 1999.
- “Predicting the distribution of rare plants”. Intecol, Florence, 1998.
- “Predicting plant distribution”. ESA Conference, Albury, 1997.

## PUBLICATIONS

\*\*\*\*\* FOR UPDATES FROM OCT 07 SEE MY WEBPAGE \*\*\*\*\*

### Refereed publications

- Guisan, A., N. E. Zimmermann, J. Elith, C. H. Graham, S. Phillips, and A. T. Peterson. (accepted). What matters for predicting spatial distributions of trees: techniques, data, or species' characteristics? *Ecological Monographs*
- Graham, C. H., J. Elith, R. Hijmans, A. Guisan, A. T. Peterson, B. A. Loiselle, and NCEAS Modeling Group. (accepted). The influence of spatial errors in species occurrence data used in distribution models. *Journal Applied Ecology*
- Elith, J. & Leathwick, J.R. (2007) Predicting species' distributions from museum and herbarium records using multiresponse models fitted with multivariate adaptive regression splines. *Diversity and Distributions* **13**, 165-176
- Ferrier, S., G. Manion, J. Elith, and K. Richardson. (2007). Using generalised dissimilarity modelling to analyse and predict patterns of beta-diversity in regional biodiversity assessment. *Diversity and Distributions* **13**
- Guisan, A., C. H. Graham, J. Elith, F. Huettmann, and NCEAS Species Distribution Modelling Group. (2007). Sensitivity of predictive species distribution models to change in grain size: insights from a multi-models experiment across five continents. *Diversity and Distributions* **13**
- Leathwick, J.R., Elith, J., & Hastie, T. (2006) Comparative performance of generalized additive models and multivariate adaptive regression splines for statistical modelling of species distributions. *Ecological Modelling* **199**, 188-196.
- Potts, J. & Elith, J. (2006) Comparing species' abundance models. *Ecological Modelling* **199**, 153-163.
- Moilanen, A., Wintle, B., Elith, J., & Burgman, M. (2006) Uncertainty analysis for regional-scale reserve selection. *Conservation Biology* **20**, 1688-1697.
- Moilanen, A., Runge, M.C., Elith, J., Tyre, D., Carmel, Y., Fegraus, E., Wintle, B., Burgman, M., & Ben-Haim, Y. (2006) Planning for robust reserve networks using uncertainty analysis. *Ecological Modelling* **199**, 115-124.
- Leathwick, J.R., Elith, J., Francis, M.P., Hastie, T., & Taylor, P. (2006) Variation in demersal fish species richness in the oceans surrounding New Zealand: an analysis using boosted regression trees. *Marine Ecology Progress Series* **321**, 267-281
- Elith, J., Graham, C.H., et al. (2006) Novel methods improve prediction of species' distributions from occurrence data. *Ecography* **29**, 129-151
- Barry, S.C. & Elith, J. (2006) Error and uncertainty in habitat models. *Journal of Applied Ecology* **43**, 413-423
- Burgman, M., Lindenmayer, D.B., & Elith, J. (2005) Managing landscapes for conservation under uncertainty. *Ecology*, **86**, 2007-2017.
- Elith, J., Ferrier, S., Huettmann, F., & Leathwick, J.R. (2005) The evaluation strip: a new and robust method for plotting predicted responses from species distribution models. *Ecological Modelling*, **186**, 280-289.
- Leathwick, J.R., Rowe, D., Richardson, J., Elith, J., & Hastie, T. (2005) Using multivariate adaptive regression splines to predict the distributions of New Zealand's freshwater diadromous fish. *Freshwater Biology*, **50**, 2034-2052.
- Wilson, K.A., Westphal, M.I., Possingham, H.P., & Elith, J. (2005) Sensitivity of conservation planning to uncertainty associated with predicted species distribution data. *Biological Conservation*, **122**, 99-112.
- Wintle, B.A., Elith, J., & Potts, J. (2005) Fauna habitat modelling and mapping in an urbanising environment: A case study in the Lower Hunter Central Coast region of NSW. *Austral Ecology*, **30**, 729-748.
- Elith, J. & Burgman, M.A. (2003). Chapter 8: Habitat models for PVA. In *Population Viability in Plants* (eds C.A. Brigham & M.W. Schwartz). Springer-Verlag, New York.
- Yamada, K., Elith, J., McCarthy, M.A., & Zenger, A. (2003) Eliciting and integrating expert knowledge for wildlife habitat modelling. *Ecological Modelling*, **165**, 251-264.
- Elith, J. & Burgman, M.A. (2002). Predictions and their validation: rare plants in the Central Highlands, Victoria, Australia. In *Predicting Species Occurrences: Issues of Accuracy and Scale* (eds J.M. Scott, P.J. Heglund, M.L. Morrison, M.G. Raphael, W.A. Wall & F.B. Samson), pp. 303-314. Island Press, Covelo, CA.
- Elith, J., Burgman, M.A., & Regan, H.M. (2002) Mapping epistemic uncertainties and vague concepts in predictions of species distribution. *Ecological Modelling*, **157**, 313-329.
- McCarthy, M.A. & Elith, J. (2002) Species mapping for conservation. *Gap Analysis Bulletin*, **11**, 50-57  
<http://www.gap.uidaho.edu/Bulletins/11/CONTENTS.htm>

**Elith, J.** (2000). Quantitative methods for modeling species habitat: comparative performance and an application to Australian plants. In *Quantitative Methods in Conservation Biology* (eds S. Ferson & M.A. Burgman), pp. 39-58. Springer, New York.

**Articles in review**

**Elith, J.,** Leathwick, J.R., & Hastie, T. (in review) Boosted regression trees - a new technique for modelling ecological data. *Journal of Animal Ecology*.

Leathwick, J.R., **Elith, J.,** Chadderton, L., Rowe, D., & Hastie, T. (in review) Dispersal, disturbance, and the contrasting biogeographies of New Zealand's diadromous and non-diadromous fish species. *Journal of Biogeography*.

Moilanen, A., Leathwick, J.R., & **Elith, J.** (in review) A method for spatial freshwater conservation prioritization. *Freshwater Biology*.

**Contract and Technical Reports and Theses**

**Elith, J.** (2006). Evaluation of the Contribution of API Mapping and Satellite Image Classification to Vegetation Mapping in the Hunter Central Rivers Catchment Management Authority. Consultancy report to Environment Division, Hunter Councils.

**Elith, J. & Bidwell, S.** (2004). Identification and assessment of nationally threatened woodlands - Description of ecological communities: Arid eucalypt woodlands. Consultancy RFT 22/2002 for Environment Australia.

Wintle, B.A., **Elith, J.,** Yamada, K., & Burgman, M. (2004). LHCCREMS Fauna Survey and Mapping Project. Lower Hunter Central Coast Regional Environmental Management Strategy.

**Elith J.** 2002. Predicting the distribution of plants. PhD thesis. School of Botany, The University of Melbourne.

**Elith J.,** Burgman M.A. and Minchin P. 1998. Improved protection strategies for rare plants. Report to Environment Australia, Project FN-NP22. 150 pp.