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EDUCATION & RESEARCH

2006-2008, Duke Population Research Institute Post-doctoral Fellow, Duke University, Durham, USA.

2005-2006, Post-doctoral researcher, Max Planck Institute for Demographic Research, Rostock, Germany.

2002-2005, Imperial College London, UK Ph.D. on "The Evolutionary Demography of Monocarpic Perennials", supervised by Prof. Mark Rees.

2000, University of Oxford, St Hugh's College, UK. B.A. (hons), Biology. First Class.

1996, Lycée Français d'Antananarivo, Madagascar. Baccalauréat S. Mention Très Bien

PUBLICATIONS

Evolutionary demography

- Koons, D.N., **Metcalf, C.J.E.**, & Tuljapurkar, S. Evolution of delayed reproduction in uncertain environments: a life history perspective. *Am. Nat.*
- **Metcalf, C.J.E.**, Rees, M., Rose, K.E., Sheppard, A., & Grubb, P.J. Flowering size thresholds in the context of density dependent environmental fluctuations. *PNAS*
- Pavard, S., **Metcalf, C.J.E.**, & Heyer, E. 2008. Senescence of Reproduction may explain Adaptive Menopause in Humans: a Test of the "Mother" Hypothesis *Am. J. Phys. Anth.*
- Pavard, S., & **Metcalf, C.J.E.** 2007. Negative selection on *BRCA1* susceptibility alleles sheds light on the population genetics of late-onset diseases and aging theory *PLoS-One* **11**, e1206.
- **Metcalf, C.J.E.**, & Pavard, S. 2007. All paths to fitness lead through demography *Trends Ecol. Evol.* **22**, 563-564.
- **Metcalf, C.J.E.**, & Koons, D.N. 2007. Environmental Autocorrelation and the Evolution of Survival *Proc. Roy. Soc. B.* **1622**, 2153-2160.
- **Metcalf, C.J.E.**, & Pavard, S. 2007. Why evolutionary biologists should be demographers *Trends Ecol. Evol.* **22**, 205-212.
- Rees, M., Childs, D.Z., **Metcalf, C.J.E.**, Rose, K.E., Sheppard, A., Grubb, P.J., & Ellner, S.P. 2006. Evolution of seed dormancy and delayed flowering in monocarpic plants: selective interactions in a stochastic environment *Am. Nat.* **168**, E53-E71.
- **Metcalf, C.J.E.**, Rees, M., Alexander, J.M., & Rose, K.E. 2006. Growth-survival trade-offs and allometries in rosette-forming perennials. *Funct. Ecol.* **20**, 217-225.
- **Metcalf, J.C.**, Rose, K., & Rees, M. 2003. Evolutionary demography of monocarpic perennials. *Trends Ecol. Evol.* **18**, 471-480.

Madagascar, herpetology, conservation

- **Metcalf, C.J.E.**, Hampson, K., Gray, A., & Andrianirina, R. 2007. Herpetofaunal assemblages on seven offshore islands of Northwestern Madagascar. *Trop. Zool.* **20**, 151-161.
- **Metcalf, C.J.E.**, Hampson, K., & Koons, D.N. 2007. What happens when density increases? Sudden and gradual influx into refuges and implications for conservation. *Animal Cons.* **10**, 478-486.
- **Metcalf, C.J.E.**, Hampson, K., Andriamizava, A., Andrianirina, R., Cairnes, T., Gray, A., Ramiarisoa, C., & Sondotra, H. 2007. The beaches of Northwest Madagascar: an important nesting habitat for green (*Chelonia mydas*) and hawksbill (*Eretmochelys imbricata*) turtles. *Oryx* **41**, 232-238.
- **Metcalf, C.J.E.**, Bayly, N., Bisoa, M., Rabearivony, J., & Stewart-Jones, A. 2005. Edge effect from paths on two chameleon species in Madagascar *African J. Herp.* **54**, 99-102.
- **Metcalf, C.J.E.**, Bayly, N., Bisoa, M., Rabearivony, J., & Stewart-Jones, A. 2005. *Furcifer oustaleti*, *Furcifer rhinocerotus* (NCN) Density. *Herp. Rev.* **36**, 447.
- **Metcalf, C.J.E.**, Bayly, N., Bisoa, M., Rabearivony, J., & Stewart-Jones, A. 2005. *Furcifer oustaleti*, *Furcifer rhinocerotus* (NCN) Predation. *Herp. Rev.* **36**, 447-448.

Invasive species

- McMahan, S.M., & **Metcalf, C.J.E.** In press. Transient sensitivities of non-indigenous shrub species indicate complicated invasion dynamics *Biol. Inv.*

BOOK CHAPTERS

Buckley, Y.M., & **Metcalf, C.J.E.** 2006. Density dependence in invasive plants: demography, herbivory, spread and evolution in *Conceptual Ecology and Invasions Biology: Reciprocal Approaches to Nature*. Eds. Cadotte, McMahon & Fukami. Springer-Verlag. Dordrecht, The Netherlands.

MANUSCRIPTS SUBMITTED

- **Metcalf, C.J.E.**, Rees, M., Louda, S. & Stephens, D. Understanding allocation of resources between vegetative and sexual reproduction: Using Bayesian inference to capture interdependent demography with incomplete observations. *J. Appl. Stat.*
- **Metcalf, C.J.E.**, Clark, J.S., & McMahon, S.M. Modeling tree mortality as a non-parametric function of diameter and growth, with prior weights on mortality of large trees. *Canad. J. Forest. Res.*
- **Metcalf, C.J.E.**, Converse, S., Forester, J.D., Long, G.H., Grocock, K.J., Mahajan, S., Clark, J.S. & Graham, A. Hierarchical Bayesian inference on the regulation of acute-phase malaria parasites in rodent hosts *Ecology*
- Koons, D.N., Pavard, S, Baudisch, A, & **Metcalf, C.J.E.** Is Life-History Buffering or Lability Adaptive in Stochastic Environments? *Oikos*
- **Metcalf, C.J.E.**, Rees, M., Buckley, Y.M., & Sheppard, A.W. Seed predators determine the evolutionarily stable flowering strategy in the invasive plant *Carduus nutans*. *Evol. Ecol.*
- **Metcalf, C.J.E.**, Clark, J.S., Woodall, C., & McMahon, S. Drivers of forest community structure: linking demography, environment, and functional traits in a temperate forest *For: J. Ecol.*

MANUSCRIPTS IN PREPARATION

- **Metcalf, C.J.E.**, Horvitz, C.C., & Tuljapurkar, S. Age-trajectories of tropical tree demography over the entire life-cycle: combining the dynamics of size and light in a new way. *Ecology*
- **Metcalf, C.J.E.** & Clark, J.S. Tree growth inference and prediction when the point of measurement changes: modeling around buttresses in tropical forests. *For: J. Trop. Ecol.*
- Vaupel, J.W., **Metcalf, C.J.E.** & Missov, T. Optimal Semelparity. *For: Theor. Pop. Biol.*
- Tuljapurkar, S., Horvitz, C.C., & **Metcalf, C.J.E.** Life and death by stages *For: Ecol. Lett.*
- Stark, S.C., Chesson, P., & **Metcalf, C.J.E.** Do tree fall gaps give rare species an advantage via the storage effect?

REPRESENTATIVE PRESENTATIONS

- **Metcalf, C.J.E.**, Rees, M., Buckley, Y.M. & Sheppard, A.W. August, 2005. Seed predators determine the ES flowering strategy in the invasive plant *Carduus nutans*. European Society for Evolutionary Biology. Krakow, Poland.
- **Metcalf, C.J.E.**, Rees, M., Stephens, D., Keeler, K. & Louda, S. August, 2005. Evolutionary demography of the wavyleaf thistle: a dual reproductive strategy. Ecological Society of America. Montreal, Canada.
- **Metcalf, C.J.E.**, Rees, M., Sheppard, A.W. Growth-survival tradeoffs in *Carduus nutans*. Oct 2004. Max Planck Institute for Demography workshop on "Vital Age-Trajectories: Realities and Theories." Rostock, Germany.
- **Metcalf, C.J.E.**, Rees, M., Rose, K.E., Childs, D.Z. & Grubb, P. February, 2004 The evolutionary demography of monocarpic plants. Evolution and Ecology seminar series at the University of York, UK.
- **Metcalf, C.J.E.**, Rees, M., & Sheppard, A.W. Sept 2002. *Carduus nutans* as a native and invasive. European Science Foundation Workshop on "Biological Invasions in Terrestrial Systems: an Evolutionary Perspective", Halle, Germany.

GRANTS OBTAINED

I raised funds for three undergraduate expeditions for conservation and scientific research to Madagascar (1998), Borneo (1999), and Madagascar (2000), and received grants including the Henrietta Hutton award, the Royal Geographic society award, the BP conservation award, the Oxford Society grant, and a variety of others. For the last project the total raised was £21000.

TEACHING EXPERIENCE

- Teacher's Assistant on a 4-week undergraduate Animal Behavior course, at the Institute for Tropical Ecology, Panama, September 2002.
- Taught on a 3-week postgraduate statistics course, Imperial, Feb 2003, Feb 2004.
- Demonstrated on computing and statistics courses, 2002 and 2003.
- Taught an ecology field-course for A-Level students, Sep 2003.
- Taught a one day class '*Evolutionarily Stable Strategies in Stochastic Environments*' as part of the Winter Semester Evolutionary Demography Course, Max Planck Institute for Demographic Research, Nov 2006.

INTERNATIONAL RESEARCH MEETINGS ORGANIZED

Evolutionary Demography Workshop, Rostock, Germany, 15-18 August 2005. *What determines qualitative differences in age trajectories?*

Evolutionary Demography Workshop, Duke, USA, 23-25 October 2006. *What determines quantitative differences in age trajectories?*

REVIEWS

I have reviewed papers for: American Naturalist, Ecological Applications, Ecology Letters, Functional Ecology, Genetics, the Journal of Applied Ecology, the Journal of Arid Environments, the Journal of Ecology, the Journal of Evolutionary Biology, and Oecologia. I have reviewed grant proposals for the National Science Foundation.

ADDITIONAL SKILLS

Languages: English (mother tongue); French (fluent); German (conversational).

Computing and Statistics: I attended (and subsequently taught on) a three week course on generalised linear modeling at Imperial College (with Mick Crawley). I also attended courses on Survival Analysis, Matrix Population Modelling (with Hal Caswell), and Bayesian statistics (with Byron Morgan) as part of the European Doctoral School of Demography in Germany. I attended the Duke Summer School In Bayesian statistics run by Alan Gelfand and Jim Clark. I regularly use the statistics package R and Mathematica, and am familiar with Matlab, WinBugs, and C++.