

Daniel Falster

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EDUCATION

PhD (submitted), Towards a general theory of plant trait diversity, <u>Supervisor:</u> Prof. Mark Westoby, Macquarie University, Australia	2006-curr
Masters in Science (Honours I), Plant height strategies <u>Supervisor:</u> Prof. Mark Westoby, Macquarie University, Australia	2002-2003
Bachelor of Science, University of NSW, Australia Ecology and Environmental Science,	1996-2000

RESEARCH AND PROFESSIONAL EXPERIENCE

Research Assistant, ARC-NZ Research Network for Vegetation Function (100%) <u>Supervisor:</u> Prof. Mark Westoby, Macquarie University, Australia	2010-curr
Summer Scholar, International Institute for Applied Systems Analysis, (0.25 yr, 100%) <u>Supervisors:</u> Dr Ulf Dieckmann, Dr Åke Brännström, IIASA, Austria	2006
IT & web support, ARC-NZ Research Network for Vegetation Function (2.5yr, 10%) Macquarie University, Australia	2006-2009
Research Assistant, ARC-NZ Research Network for Vegetation Function (0.66 yr, 80%) <u>Supervisor:</u> Prof. Mark Westoby, Macquarie University, Australia	2005-2006
Research Assistant, Centre for Ecological and Evolutionary Synthesis (0.5 yr, 50%) <u>Supervisor:</u> Prof. Nils Chr. Stenseth, University of Oslo, Norway	2004-2005
Research Assistant, Cancer Genetics (0.75 yr, 50%) <u>Supervisor:</u> Assoc. Prof. Jarle Breivik, University of Oslo, Norway	2004-2005
Visiting Researcher, Plant Ecology (0.16 yr, 100%) <u>Supervisor:</u> Prof. Göran Ågren, Swedish Agricultural University, Sweden	2004
Research Assistant / MSc student, Plant Ecology (4 yr, 100%) <u>Supervisor:</u> Prof. Mark Westoby, Macquarie University, Australia	2000-2004
Summer Student (0.25 yr, 100%) <u>Supervisor:</u> Dr Brad Murray, CSIRO Plant Industry (CPBR), Australia	1999-2000

AWARDS AND SCHOLARSHIPS

'Outstanding student presentation' (book) 6th Biennial Meeting of the Australasian Evolution Society, ANU, Canberra	2009
Postgraduate Research Fund (\$4000), including VC's commendation (\$500) Macquarie University, Australia	2009
UNSW EERC prize for 'outstanding presentation in evolutionary ecology' (\$250) Ecological Society of Australia Conference, University of Sydney, Australia	2008
1 of 16 invited participants for Fresh Science Media Course Science in Public, Australia	2008
Aurelio Peccei Award for 'outstanding scientific achievement' during Summer Program (€7000) International Institute of Applied Systems Analysis, Austria	2006

Vice-Chancellor's Commendation for MSc Thesis "Plant Height Strategies" Macquarie University, Australia	2004
Postgraduate Research Fund (\$3800) Macquarie University, Australia	2002
Summer Student Research Scholarship (\$5000) Centre for Plant Biodiversity, CSIRO Plant Industry, Australia	1999
Students in Free Enterprise (\$2500) National runners up (UNSW team), Australia	2000

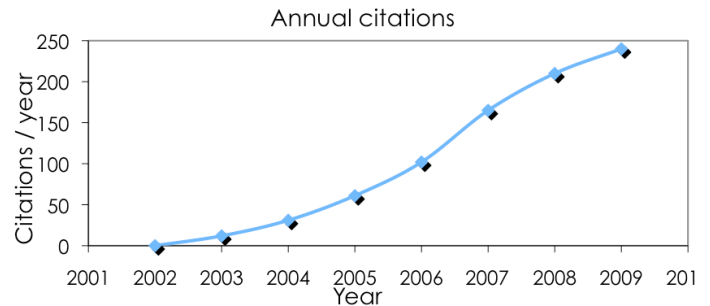
CITATION IMPACT

Publications: 20 total (17 International refereed articles, 2 reviews, 2 commentaries, 1 popular press)

Total Citations: 836 total (180 1st authored)

h-index: 10 (= 10 citations cited at ≥ 10 times)

(Source: Scopus, 18th Jan 2010; self-citations excluded)



PUBLICATIONS

INTERNATIONAL REFEREEED JOURNAL ARTICLES

- Zanne, AE, M Westoby, **DS Falster**, DD Ackerly, SR Loarie, SE Arnold & DA Coomes (2010) Angiosperm wood structure: Global patterns in vessel anatomy and their relation to wood density and potential conductivity. *American Journal of Botany*: in press
- Reich, PB, **DS Falster**, DS Ellsworth, IJ Wright, M Westoby, J Oleksyn & TD Lee (2009) Controls on declining carbon balance with leaf age among 10 woody species in Australian woodland: do leaves have zero daily net carbon balances when they die? *New Phytologist*: 183:153-166.
- Westoby M, AT Moles, & **DS Falster** (2009) Evolutionary coordination between offspring size at independence and adult size. *Journal of Ecology*: 97:23-26.
- **Falster, DS**, AT Moles & M Westoby (2008) A general model for the scaling of offspring size and adult size. *The American Naturalist* 172: 299-317.
- Lusk, CH, **DS Falster**, CK Jara-Vergara, M Jimenez-Castillo, A Saldaña-Mendoza (2008) Ontogenetic Variation in Light Requirements of Juvenile Rainforest Evergreens. *Functional Ecology* 22: 454-459.
- Wright, IJ, **DS Falster**, M Westoby & M Pickup (2006) Cross-species patterns in the coordination between leaf and stem traits, and their implications for plant hydraulics. *Physiologia Plantarum* 127: 445-456
- Lusk, CH, **DS Falster**, M Pérezmillaqueo & A Saldaña (2006) Ontogenetic variation in light interception, self-shading and biomass distribution of seedlings of the conifer *Araucaria araucana* (Molina) K. Koch. *Revista Chilena de Historia Natural* 79: 321-328
- Warton, DW, IJ Wright, **DS Falster** & M Westoby (2006) Bivariate line fitting methods for allometry. *Biological Reviews* 81: 259-291
- **Falster, DS** & M Westoby (2005) Tradeoffs between height growth rate, stem persistence and maximum height among plant species in a post-fire succession. *Oikos* 111: 57-66
- **Falster, DS** & M Westoby (2005) Alternative height strategies among 45 dicot rain forest species from tropical Queensland, Australia. *Journal of Ecology* 93:521-535.
- Wright, IJ, PB Reich, JHC Cornelissen, **DS Falster**, E Garnier, K Hikosaka, BB Lamont, W Lee, J Oleksyn, N Osada, H Poorter, R Villar, DI Warton & M Westoby (2005) Assessing the generality of global leaf trait relationships. *New Phytologist* 166: 485-496

- Wright, IJ, PB Reich, JHC Cornelissen, **DS Falster**, PK Groom, K Hikosaka, W Lee, CH Lusk, Ü Niinemets, J Oleksyn, N Osada, H Poorter, DI Warton & M Westoby (2005) Modulation of leaf economic traits and trait relationships by climate. *Global Ecology & Biogeography Letters* 14: 411–421
- Moles, AT, **DS Falster**, M Leishman, & M Westoby (2004) Small-seeded species produce more seeds per square metre of canopy per year, but not per individual per lifetime. *Journal of Ecology* 92: 372-383
- **Falster, DS** & M Westoby (2003) Plant height and evolutionary games. *Trends in Ecology and Evolution* 18: 337-343
- **Falster, DS** & M Westoby (2003) Leaf size and angle vary widely across species: what consequences for light interception? *New Phytologist* 158(3): 509-525
- Westoby, M, **DS Falster**, AT Moles, PA Vesk & IJ Wright (2002) Plant ecological strategies: Some leading dimensions of variation between species. *Annual Review of Ecology and Systematics* 33: 125-159
- **Falster, DS**, B Murray & B Lepschi (2001) Linking abundance, occupancy and spatial structure: an empirical test of a neutral model in an open-forest woody plant community in eastern Australia. *Journal of Biogeography* 28: 317-323

NON-REFEREED JOURNAL ARTICLES

- Zanne, AE & **DS Falster** (2010) Plant functional traits - linkages between stem anatomy, plant performance, and life history. *New Phytologist*: 185: 348-351.
- **Falster, DS** (2006) Sapling strength and safety: The importance of wood density in tropical forests. *New Phytologist* 171: 237-239

POPULAR SCIENCE ARTICLES

- **Falster, DS** (2009) Small families and big babies. *Australasian Science* May issue.

COMPUTER SOFTWARE

- SMATR: Standardised major axis tests and routines, ver 1.0-2.0 [**used in over 30 publications**]
<http://www.bio.mq.edu.au/ecology/SMATR/>

MEDIA COVERAGE

- “Life as a tree a tall order” by J Rowbotham, The Australian HES (11/03/09)
- “Reaching New Heights” by J van den Tillaart, Quest Research Macquarie University (01/09)
- “Small families and bib babies make evolutionary sense”, Radio interviews: ABC QLD with Ingrid Just; ABC Canberra with A Shirley, (10/07/08)
- “Smaller families pose extinction risk” by D Osborne, ABC Science Online / Discovery Channel (11/07/08)
- “Competition favours big only child” Science Alert Australia and New Zealand (11/07/08)

PROFESSIONAL DEVELOPMENT & WORKSHOPS

Research Workshops

- “Approaches to Modelling vegetation”, UWS 25 June 2009
I am an active participant in 3 working groups of ARC-NZ Research Network for Vegetation Function:
 - “Vascular design: comparison of theory strands”, 25-29 August 2005
 - “Vegetation schemes in earth system models” 19-22 September 2006; 10-13 October 2005.
 - “Third-generation models of carbon assimilation and water expenditure”, 1-4 Nov, 2005.

Conference Attendance

- Evolution 2007 (American Society of Naturalists, Society for the Study of Evolution, Society of Systematic Biologists), Christchurch New Zealand, 2007.
- Ecological Society of Australia 2000 (La Trobe, Melbourne), 2001 (Wollongong), 2002 (JCU, Cairns), 2005 (UQ, Brisbane), 2008 (USyd).
- Fragilome: Fragile sites and chromosomal instability, Heidelberg Germany 2005.

Presentations

- Falster, DS, AT Moles & M Westoby. Big babies and small families make evolutionary sense – what implications for ecology? (Ecological Society of Australia, 2007; ORAL)
- Falster, DS, AT Moles & M Westoby. A general model for scaling of offspring size and adult size (Evolution 2007; ORAL)
- Falster, DS & M Westoby. Coordination of height with other traits (Ecological Society of Australia, 2005; ORAL)
- Falster, DS & J Breivik. Whole genome analysis reveals high density of mononucleotide repeats within mismatch repair genes (Fragilome, Germany 2005; POSTER)
- Falster, DS & M Westoby. Plant strategies for light capture: the influence of leaf angle and leaf size (Ecological Society of Australia, 2001; ORAL)
- Falster, DS & M Westoby. Digitising leaf display to compare architectures (Ecological Society of Australia, 2000; ORAL)

Courses

- Media Skills for scientists and others involved in science, EcoConnect Communication, Melbourne June 17-18, 2008.
- Australian postgraduate course in current ecology and evolution 2001 (Wollongong), 2002 (JCU, Cairns), 2005 (UQ, Brisbane), 2008 (USyd).
- Algorithms and Data Structures, Macquarie University 2002
- St Johns Remote First Aid, 2002

SPECIFIC SKILLS

Programming languages: C, C++, R, Matlab

Mathematical modelling: Evolutionary game-theory, Numerical analysis

Data: construction, management and analysis of large datasets. Design and implementation of statistical tests for standardised major axis line fitting.

Plant architecture and growth studies: extensive experience with YPLANT software, 3D plant digitising, hemispherical photography, licor IRGA

Fieldwork: Over 20 weeks experience in remote / local data collection in plant ecology; use of the Australian Canopy Crane Research Facility

Computer: Webpage construction, computer maintenance and support

Languages: English, Norwegian

TEACHING

Introduction to R, Macquarie University Oct 2007, 2hr course.

Advanced Biology Tutorials, Macquarie University 2002, 2005, 2006. Tutorial leader for Game Theory and Plant Architecture to students from years 1-3.

Ecology and Evolution, Macquarie University. Contributions to design and supervision of 3-day group field practical for 30-40 students, 2001-2002