

Dr J.L. Birch
School of BioSciences
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EMPLOYMENT

Herbarium Curator and Lecturer

The University of Melbourne Herbarium (MELU) June 2016-current
School of Biosciences

Post-Doctoral Fellow

Royal Botanic Gardens Victoria. November 2011-May 2016

Supervisor: Dr Daniel J. Murphy

Project Title: Systematics of Australian tussock grasses (Poaceae tribe *Poeae*)

EDUCATION

Ph.D. Botany Department and Ecology, Evolution, and Conservation Biology, University of Hawaii at Manoa (UHM). August 2011

Advisor: Dr Clifford W. Morden

Dissertation title: *The systematics and historical biogeography of the Asteliaceae* (Asparagales)

Master's Plant Biology, University of Texas at Austin (UTA). August 2004

Advisor: Dr Beryl B. Simpson

Thesis title: *The Gideon Lincecum Herbarium: A Floristic and Ethnobotanic Analysis*

B.S. Plant Biology, University of Texas at Austin. August 2001

B.S. Botany, Victoria University of Wellington. December 1990

RESEARCH

Research Grants (selected): (TOTAL: \$514,000 AUD)

2016 Hermon Slade Foundation (\$81,000 AUD)
2016 Australian Biological Resources Study Post-doctoral Fellowship Grant (\$270,000 AUD)
2015 Australian Biological Resources Study Applied Taxonomy Grant (\$88,000 AUD)
2013 Cuatrecasas Travel Fellowship, Smithsonian Institution (\$700 AUD/\$500 USD)
2011 Association of Plant Taxonomists, IBC Graduate Student Travel Award (\$2800 AUD/\$2,000 USD)
2011 Graduate Student Organization (UHM), Graduate Student Travel Grant ((\$2800 AUD/\$2,000 USD)
2010 Graduate Division (UHM), RCUH Dissertation Completion Award (\$12600 AUD/\$9,000 USD)
2009 National Science Foundation, Doctoral Dissertation Improvement Grant (\$7500 AUD/\$5,350 USD)
2009 Evolution, Ecology, and Conservation Biology Program (UHM), Watson T. Yoshimoto Award (\$4200 AUD/\$3,000 USD)
2009 Women in Science, Graduate Travel Award (\$600 AUD/\$400 USD)
2008 Arts and Sciences Advisory Council Award (UHM) (\$4200 AUD/\$3,000 USD)
2008 Graduate Student Organization (UHM), Graduate Student Research Grant (\$2100 AUD/\$1,475 USD)
2007 Evolution, Ecology, and Conservation Biology Program (UHM), Research Grant (\$3000 AUD/\$2,100 USD)
2007 Botany Department (UHM), Beatrice Krauss Fellowship (\$2800 AUD/\$2,000 USD)
2007 Exploration Fund Award: Explorers Club (\$1400 AUD/\$1,000 USD)
2005 Evolution, Ecology, and Conservation Biology Program (UHM), Research Grant (\$1800 AUD/\$1,300 USD)
2005 American Society for Plant Taxonomists, Graduate Research Award (\$1300 AUD/\$900 USD)
2005 Graduate Student Organization (UHM), Graduate Student Travel Grant (\$700 AUD/\$500 USD)
2005 Grant-in Aid of Research Award: Sigma-Xi (\$600 AUD/\$400 USD)

Achievement Awards: (TOTAL: \$40,290 AUD)

- 2011 Achievement Scholarship: Graduate Division, UHM (\$1400 AUD/\$1,000 USD)
- 2010 Achievement Scholarship: Graduate Division, UHM (\$1400 AUD/\$1,000 USD)
- 2009 Frances Davis Award for Excellence in Undergraduate Teaching: Graduate Division, UHM (\$1,000 USD + \$1,000 registration fee for Hawaii National Great Teachers Seminar)
- 2005 Edward H. Fulling Award, Outstanding Contributed Oral Paper by a Young Professional: Society for Economic Botany meeting, Fort Worth, Texas, USA (\$350 AUD/\$250 USD)
- 2005 Best Student Poster Award: Hawaii Conservation Conference, Honolulu, Hawaii, USA (\$140 AUD/\$100 USD)
- 2003 College of Natural Sciences Dean's Excellence Award: UTA (\$3500AUD/\$2,500 USD)

Publications:

- Birch, J.L.**, N.G. Walsh, D.J. Cantrill, G.D. Holmes, D.J. Murphy (in review). Testing efficacy of distance versus tree-based methods for DNA barcoding of grasses (Poaceae tribe *Poeae*) in Australia. *Molecular Ecology Resources*.
- Birch, J.L.** (2015) A revision of infrageneric classification in *Astelia* Banks & Sol. ex R.Br. (Asteliaceae). *PhytoKeys* 52: 105-132. doi: 10.3897/phytokeys.52.4768.
- Birch, J.L.**, F.B. Berwick (student), N.G. Walsh, D.J. Cantrill, D.J. Murphy (2014[2015]). Distribution of morphological diversity within widespread Australian species of *Poa* (Poaceae, tribe *Poeae*) and implications for taxonomy of the genus. (*Invited*) *Australian Systematic Botany ABRs special issue 27*: 333-354.
- Birch, J.L.**, D.J. Cantrill, N.G. Walsh, D.J. Murphy. 2014. Phylogenetic investigation and divergence dating of *Poa* (Poaceae tribe *Poeae* in the Australasian Region. *Botanical Journal of the Linnean Society*:175: 523-552.
- Birch, J.L.**, S.C. Keeley (2013). Dispersal pathways across the Pacific: The historical biogeography of *Astelia s.l.* (Asteliaceae, Asparagales). *Journal of Biogeography* 40: 1914-1927.
- Birch, J.L.**, S.C. Keeley, and C.W. Morden. 2012. Molecular phylogeny and dating of *Asteliaceae* (Asparagales): *Astelia s.l.* evolution provides insight into the Oligocene history of New Zealand. *Molecular Phylogenetics and Evolution* 65: 102-115.
- Birch, J.L.** and C.W. Morden. (in prep.). Comparative analyses of evolution of morphological and ecological traits in *Astelia s.l.* (Asteliaceae). For submission to: *Taxon*.
- Birch, J.L.** and A. Kocyan (in prep.). Adaptive radiation of the astelioid clade (Asparagales): Ecological and morphological diversity generated through iterated evolutionary transitions. For submission to: *New Phytologist*.
- Birch, J. L.** 2011. The systematics and historical biogeography of the Asteliaceae (Asparagales). Doctoral Dissertation, University of Hawaii at Manoa.
- Birch, J.L.** 2009. A comparative analysis of nineteenth century pharmacopoeias in the Southeastern United States: A case study based on the Gideon Linneum Herbarium. *Economic Botany* 63(4):427-440.
- Birch, J. L.** 2004. The Gideon Linneum Herbarium: A Floristic and Ethnobotanic Analysis. Master's Thesis, University of Texas at Austin.

Conference Proceedings (selected)

- Birch, J.L.**, Nipper, R., N.G. Walsh, D.J. Cantrill, D.J. Murphy. 2015. The application of RADseq data to resolve relationships and delimit species within a recent radiation: a case study focusing on Australian *Poa* (Poaceae), Species delimitation in the age of genomics, Centre for Biodiversity Analysis, Canberra, Australia.
- Birch, J.L.**, D.J. Cantrill, N.G. Walsh, D.J. Murphy. 2014. Classical morphology, Sanger and Next-Generation Sequencing to resolve relationships within a recent radiation: a case study focusing on Australian *Poa* (Poaceae), Australasian Systematic Botany Conference, Massey University, Palmerston North, New Zealand.
- Birch, J.L.** 2013 (*invited*). The evolution of the Australasian flora: insights from the Asparagales and Poales, Otago University Botany Departmental Seminar, Dunedin, New Zealand.
- Birch, J.L.**, D.J. Cantrill, N.G. Walsh, D.J. Murphy. 2013. Melbourne Systematics Forum, Melbourne, Australia.
- Birch, J.L.**, D.J. Cantrill, N.G. Walsh, D.J. Murphy. 2013 (*Invited*). DNA barcoding of tussock grasses, BushBlitz Symposium, Canberra, Australia.
- Birch, J.L.**, D.J. Cantrill, N.G. Walsh, D.J. Murphy. 2013. Poaceae, Contributed Papers. Monocots V: 5th International Conference on the Comparative Biology of Monocotyledons, New York, New York, USA.
- Birch, J.L.** and A. Kocyan. 2013 (*Invited*). Geophyte symposium. Monocots V: 5th International Conference on the Comparative Biology of Monocotyledons, New York, New York, USA.

- A. Kocyan and **J.L. Birch**. 2013 (*Invited*). Asparagales symposium. Monocots V: 5th International Conference on the Comparative Biology of Monocotyledons, New York, New York, USA.
- Birch, J.L.**, D.J. Murphy, D.J. Cantrill, N.G. Walsh. 2012. Systematic Botany Society Meeting, Perth, Western Australia, Australia.
- Birch, J.L.** and A. Kocyan. 2011 (*Invited*). Austral-Pacific Biogeography symposium, International Botanical Congress, Melbourne, Victoria, Australia.
- Kocyan, A. and **J.L. Birch**. 2011 (*Invited*). Asparagales symposium, International Botanical Congress, Melbourne, Victoria, Australia.
- Birch, J. L.**, S.C. Keeley, and C.W. Morden. 2011. The Evolution of Life on Pacific Islands and Reefs Conference, Honolulu, Hawaii, USA.
- Birch, J. L.** and S.C. Keeley. 2010. Botanical Society of America Annual Meeting, Rhode Island, Providence, USA.
- Birch, J.L.**, S.C. Keeley, and C.W. Morden. 2009. Botanical Society of America Annual Meeting, Snowbird, Utah, USA.
- Birch, J.L.**, S.C. Keeley, and C.W. Morden. 2009. Evolution Meeting, Moscow, Idaho. USA.
- Birch, J.L.** S.C. Keeley, and C.W. Morden. 2009. Tester's Symposium, University of Hawaii at Manoa, Honolulu, Hawaii, USA.
- Birch, J.L.** and B.B. Simpson. 2005. Society for Economic Botany Annual Meeting, Fort Worth, Texas, USA.

TEACHING

Teaching Awards:

- 2009 Frances Davis Award for Excellence in Undergraduate Teaching: Graduate Division, UHM (\$1,000 USD)

Student Supervision:

- 2016-current A.-G. Boxshall (BSc, University of Melbourne), supervisor
- 2015-current K. Peterson (PhD, Monash University), committee member
- 2012-2013 Botany Undergraduate Fellow Supervisor, recruitment and research supervision
- 2011-2014 DNA barcoding laboratory technician, Royal Botanic Gardens Victoria

Courses Taught:

Lecturer, University of Melbourne, Australia (2016-, co-teaching)
BOTA 30002 Plant Evolution

Demonstrator, University of Melbourne, Australia (2015, 2016)
BOTA 20004/90005 Flora of Victoria

Teaching Assistant, University of Hawaii at Manoa (2004-2010)
Bot 661 Hawaiian Vascular Plants (laboratory and field instructor)
Bot 461 Systematics of Vascular Plants (laboratory instructor)
Bot 105L Ethnobotany Laboratory (laboratory instructor)
Bot 101 General Botany (laboratory instructor)

Teaching Assistant, University of Texas at Austin (2001-2004)
Bio 406D Native Plants (laboratory and field instructor)
Bio 301M Ecology, Evolution, and Society (discussion leader)
Bio 124L Survey of the Plant Kingdom Laboratory (laboratory instructor)

Guest Lecture, LaTrobe University, Melbourne, Australia (2015)
Ecology, Evolution and Conservation Dr. S. Hoebee, *Cracking the Grass (bar)Code*

Guest Lectures, University of Hawaii at Manoa (2005-2011)
Grant Writing and Your Career in Science (Bot 698) Dr. S. Keeley, *Funding Your Dissertation Research*
Hawaiian Vascular Plants (Bot 661) Dr. C. Morden, *Monocotyledon Diversity*
General Biology (Bio 171) Dr. A. Sherwood, *Evolution*
Ethnobotany (Bot 105L) Dr. T. Ticktin, *Botanic medicine in nineteenth century US frontier communities*
General Botany (Bot 101) Dr. D. Drake, *Bryophyte Diversity*

HERBARIUM CURATION

- 2016-current **The University of Melbourne Herbarium (MELU)**, Curator
- 2011-2016 **National Herbarium of Victoria (MEL)**, Postdoctoral Fellow
- Systematic research on Poaceae tribe *Poeae*
 - Targeted field work to support systematic research and collection development
 - Curate Poaceae specimens, molecular extracts, sequence data, and images
 - Supervise laboratory technicians and undergraduate research interns
- 2011-current **Australian Grass DNA Barcoding Project**, Collaborator
- Generate digital images for 500 Poaceae tribe *Poeae* specimens to GPI standards
 - Coordinate data preparation (sequence, collection, and image data) and upload to International Barcode of Life (iBOL) data repository
- 2004-2011 **Joseph F. Rock Herbarium (HAW)**, University of Hawaii at Manoa, PhD study
- Generate molecular and morphological data for systematic study of Asteliaceae
 - Coordinate loans of Asteliaceae specimens and images from international herbaria
 - Targeted field work to support systematic research and collection development
- 2007 **National Tropical Botanical Garden (PTBG)**, Research Intern in Systematic Botany
- Prepare plant descriptions presenting conservation, ethnobotanic, and taxonomic data for “Meet the Plants” website
- 2005, 2007 **Hawaiian Plant DNA Library (HPDL)**, University of Hawaii at Manoa, Research Assistant
- Targeted field work for collection development
 - Prepare and accession of voucher specimen into the HPDL
 - Extract total genomic DNA from fresh material and accession extractions into the HPDL
- 2004 **Plant Resources Center (TEX-LL)**, University of Texas at Austin, Graduate Research Assistant
- Complete taxonomic determinations of photos contained in the Dexter Collection of Wildflower Images
 - Prepare botanical text and supporting information for species in the Dexter Collection
- 2002-2004 **Plant Resources Center (TEX-LL)**, University of Texas at Austin, Master’s study
- Curate Gideon Lincecum Collection (GLC) on loan from Briscoe Center for American History
 - Extract and analyse ethnobotanic and floristic data from specimens in GLC
 - Generate digital images of 300 specimens accessioned in the GLC
- 2002 **Plant Resources Center (TEX-LL)**, University of Texas at Austin, Flora of Texas Database Assistant
- Data entry for the Flora of Texas Database
- 2000-2001 **Plant Resources Center (TEX-LL)**, University of Texas at Austin, Head Curatorial Assistant

PROFESSIONAL SERVICE

Editorial Board for Applications in Plant Sciences (APPS) (2012-2013)

Editorial Board for American Journal of Botany Primer Notes and Protocols in the Plant Sciences (2011-2012)

Journal Reviewer Annals of Botany, Australian Journal of Botany, Australian Systematic Botany, Botanical Journal of the Linnean Society, Economic Botany, Molecular Phylogenetics and Evolution, Pacific Science, PhytoKeys

Affiliate Teaching Assistant for the Graduate Division/Center for Teaching Excellence, UHM

Graduate Teaching Assistant Training (2007-2010), Preparing Future Faculty Series (2007)

General Assembly Botany Representative, Graduate Student Organization, UHM (2007-2009)

Volunteer Scientist, Ecology, Evolution and Conservation Biology GK-12 program UHM (2007-2009)

Graduate Student Representative, Botany Department, UHM (2005)

Tour Leader/Tour Guide Trainer, Wild Basin Wilderness Preserve, Austin, Texas (2000-2004)

MEMBERSHIPS

American Society of Plant Taxonomists, Australasian Systematic Botany Society, Botanical Society of America, International Biogeography Society