



Kasia Ziemińska

kasia.s.zieminska@gmail.com
www.kasiazieminska.com/science
+44 7460976902, White Waltham, UK

Keywords

tropical and temperate forests, plant ecology and physiology, structure and function, wood anatomy, wood density, interdisciplinary research, Harvard Uni, Oxford Uni, Macquarie Uni, Kew Gardens, graphic design, curiosity, creativity, open mind

Work experience

- 2018-present • Postdoc, Forest Dynamics Research Unit at the Swiss Federal Institute for Forest, Snow and Landscape Research (WSL), Birmensdorf, Switzerland
- 2016-2018 • Independent Postdoctoral Putnam Fellow at the Arnold Arboretum of Harvard University, Boston, USA
- 2015-2016 • Postdoctoral researcher, Ecosystems Laboratory, Oxford University, Oxford, UK; supervisor: Prof. Yadvinder Malhi
- 2009 • Research assistant, Comparative Ecology Lab, Macquarie University, Sydney, Australia; supervisor: Prof. Mark Westoby
- 2008 • Plant anatomist and database manager, Jodrell Laboratory, Royal Botanic Gardens, Kew, UK; supervisor: Dr. Peter Gasson

Education

- 2010-2014 • PhD, Comparative Ecology Lab, Macquarie University, Sydney, Australia; supervisors: Prof. Mark Westoby and Prof. Ian Wright. Thesis title: Anatomical variation in twig wood across Australian angiosperms. Doctor of Philosophy qualified: 03.06.2014, conferred: 23.09.2014
- 2005-2007 • MSc, Mickiewicz University, Poznań, Poland. Thesis title: Leaflet anatomy of two *Encephalartos* Lehm. species.
- 2002-2005 • BSc, Mickiewicz University, Poznań, Poland. Thesis title: Genera and species of cycads in the Poznań Greenhouse.
- 2004 • Erasmus student exchange program, Masaryk University, Brno, Czech Republic

Skills and hands on experience

- Highly skilled in wood anatomy, as well as measuring a variety of other traits: leaf anatomy, physiology (leaf/stem water potential, capacitance), soft traits (wood density, leaf area, etc.)
- Field work in remote areas from humid tropical rainforest to semi-arid woodlands (Australia), and in temperate regions (North-East USA)
- Microscopy (light, SEM), image analysis (ImagePro Plus, ImageJ), image manipulation + graphic design (Photoshop, Illustrator, InDesign), mechanical performance tests (Instron Materials Testing Machine)
- Statistical analysis (R, Sigmaplot)

Grants and awards

- 2016-2018 • Independent Postdoctoral Putnam Fellowship, Arnold Arboretum of Harvard University (\$50,000/year + ~10,000 research budget)
- 2010-2014 • Macquarie University Research Excellence Scholarship (\$25,000/year)
- 2013 • My AoB PLANTS paper has been selected as 'Editor's Choice'
- 2012 • Daintree Rainforest Observatory Research Student Grant awarded by

- 2012 ● James Cook University (\$6000)
- 2012 ● Travel grant to the annual meeting of the Ecological Society of Australia (Melbourne) awarded by the society (\$200)
- 2011 ● Travel grant to the International Botanical Congress, Melbourne, awarded by the Australian Society of Plant Scientists (\$400)

Publications ●

- 2018 ● Morris H, Gillingham MAF, Plavcová L, Gleason SM, Olson ME, Coomes DA, Fichtler E, Klepsch MM, Martínez-Cabrera HI, McGlinn DJ, Wheeler EA, Zheng J, **Ziemińska K**, Jansen S. *Vessel diameter is related to amount and spatial arrangement of axial parenchyma in woody angiosperms*. *Plant, Cell & Environment* 41:245–260.
- 2016 ● Morris H, Plavcová L, Cvecko P, Fichtler E, Gillingham MAF, Martínez-Cabrera HI, McGlinn DJ, Wheeler E, Zheng J, **Ziemińska K** and S Jansen. *A global analysis of parenchyma tissue fractions in secondary xylem of seed plants*. *New Phytologist* 209(4): 1553-1565.
- 2015 ● **Ziemińska K**, Westoby M, Wright IJ. *Broad anatomical variation within a narrow wood density range – a study of twig wood across 69 Australian angiosperms*. *PLoS ONE* 10(4): e0124892
- 2014 ● **Ziemińska K**. *Anatomical variation in twig wood across Australian angiosperms*. PhD thesis. Macquarie University, Sydney, Australia.
- 2013 ● **Ziemińska K**, Butler DW, Gleason SM, Wright IJ and M Westoby (2013) *Fibre wall and lumen fractions drive wood density variation across 24 Australian angiosperms*. *AoB PLANTS*, Volume 5, plt046
- 2012 ● Gleason SM, Butler DW, **Ziemińska K**, Waryszak P and M Westoby. *Stem xylem conductivity is key to plant water balance across Australian angiosperm species*. *Functional Ecology* 26 (2): 343-352.
- 2010 ● Gasson P, Miller R, Stekel DJ, Whinder F and **K Ziemińska**. *Wood identification of Dalbergia nigra (CITES Appendix I) using quantitative wood anatomy, principal components analysis and naïve Bayes classification*. *Annals of Botany* 105 (1): 45-56.

Manuscripts in preparation/review ●

- 2018 ● Aguirre Gutiérrez J, Oliveras I, Rifai S, Gvozevaite A, Fauset S, **Ziemińska K**, Lewis SL, Feldpausch TR, Phillips O, Hubau W, Moore S, Peprah T, Affum-Baffoe K, Swaine MD, Adu-Bredu S, Enquist B, Malhi Y. *Shifts in forest traits along an African forest transect in response to long-term drought*. **Revision submitted** to *Ecology Letters*.
- 2018 ● Etzold S, **Ziemińska K**, Rohner B, Zingg A, Rigling A. *One century of forest monitoring data in Switzerland reveals species-specific trends of climate induced tree mortality*. **Submitted** to the special issue in *Frontiers in Plant Science*
- 2018 ● **Ziemińska K**, Rosa E and Gleason SM. *Wood density and water content, not tissue fractions, drive twig wood day capacitance across 30 temperate angiosperm tree species*.
- 2019 ● **Ziemińska K**, Roddy A. *Comparison of field and laboratory techniques for measurements of sapwood capacitance*.
- 2019 ● **Ziemińska K**, Brown E, Gibson L. *How wood anatomical structure influences stem mechanical strength?*

Peer-review service ●

I have reviewed multiple manuscripts for: *New Phytologist*, *Functional Ecology*, and *Trees – Structure and Function*

Presentations and meetings ●

- *invited
- 2018 ● **Ziemińska K*** *The future of wood anatomy as an integral part of plant sciences*. (oral presentation) *Botany 2018*, Minnesota, USA
- 2018 ● **Ziemińska K**, Rosa E and SM Gleason. *Poster presentation - same as below (2018)*. *New Phytologist Symposium "The biology of wood: from*

- cell to trees", California, USA.
- 2018 ● **Ziemińska K**, Rosa E and SM Gleason. *Where does capacitance water come from?* (poster presentation + 1 minute oral poster pitch). Gordon Research Conference "Multiscale Plant Vascular Biology", Vermont, USA.
- 2017 ● **Ziemińska K** and SM Gleason. *Wood anatomy and water storage in temperate angiosperms*. Botany 2017, Texas, USA (oral presentation)
- 2016 ● **Ziemińska K**. Wood anatomy and ecological strategies. Arnold Arboretum of Harvard University research talks series, Boston, Massachusetts
- 2016 ● **Ziemińska K***. *Patterns in wood anatomy in the GEM trait campaigns*. Queralbs, Spain (oral presentation at the workshop: "Traits and ecosystem function along tropical environmental gradients" organized by Dr. Imma Olivaras and Prof. Yadvinder Malhi).
- 2015 ● **Ziemińska K***. *Wood density, anatomy and ecological strategies in Australian angiosperms*. Ecosystems Lab, Oxford University, Oxford, UK (oral presentation).
- 2013 ● **Ziemińska K***. *The myriad ways plants build their wood*. Ulm University, Ulm, Germany (oral presentation).
- 2012 ● **Ziemińska K**, Butler DW, Gleason SM, Wright IJ and M Westoby. *Wood density and its anatomical components*. Annual conference of the Ecological Society of Australia, Melbourne (oral presentation).
- 2012 ● **Ziemińska K**, Wright IJ and M Westoby. *Anatomical variation independent of wood density*. Annual postgraduate conference at the Department of Biological Sciences, Macquarie University (oral presentation).
- 2012 ● Two-day Genes to Geoscience Outlook, talks and discussions on future research ideas, Macquarie University, Sydney.
- 2011 ● **Ziemińska K**, Wright IJ and M Westoby. *Wood density – what are its underlying components and why does it vary with different climates*. International Botanical Congress, Melbourne (poster)
- 2011 ● **Ziemińska K**, Wright IJ and M Westoby. *The anatomy of wood density*. Annual postgraduate conference at the Department of Biological Sciences, Macquarie University (oral presentation).
- 2011 ● **Ziemińska K**, Wright IJ and M Westoby. *The anatomy of wood density*. Faculty of Science conference, Macquarie University (poster).
- 2010 ● One-day Postgraduate Day at the annual conference of the Ecological Society of Australia, Canberra.
- 2010 ● **Ziemińska K**, Butler DW, Gleason SM, Wright IJ and M Westoby. *Wood density – what is it made of and why are stems denser in drier environments?* Annual postgraduate conference at the Department of Biological Sciences, Macquarie University (oral presentation).
- 2009 ● International Congress of Ecology (Intecol), Brisbane.
- 2009 ● Two-day Genes to Geoscience Outlook, talks and discussions on future research ideas, Macquarie University, Sydney.
- 2008 ● Annual conference of the Ecological Society of Australia, Sydney.
- 2008 ● "Wood matters" the joint meeting of IAWA, IAWS and The Linnean Society, London.

Workshops ●

- 2012 ● "The science intense writing course", Macquarie University (10 classes x 3hs)
- 2011 ● Three-day workshop on R programming, Genes to Geoscience research enrichment program, Macquarie University
- 2010 ● "Evolutionary divergence analyses", one-day workshop, Genes to Geoscience research enrichment program, Macquarie University
- 2010 ● "Toughness, elasticity and breakage of biological materials", one-day workshop, Genes to Geoscience research enrichment program, Macquarie University
- 2009 ● One-day workshop on plant functional traits, International Congress of Ecology (Intecol), Brisbane
- 2009 ● "Writing for journals", one-day workshop, Genes to Geoscience research enrichment program, Macquarie University

- 2007 • Negotiations workshop, Poznań, Poland.
- 2007 • Team building workshop, Poznań, Poland.

Supervising and teaching

I have supervised students who all finished their projects on time, while under my supervision. I have also trained multiple students in wood anatomy.

- 2017-2018 • Undergraduate interns at the Arnold Arboretum: Emily Rosa and Emily Brown (read Emily Rosa's impressions about the her internship [here](#))
- 2016 • Students at Oxford University: Natascha Luijken, Karabi Prathak, Palasiah Jotan
- 2009-2013 • Students at Macquarie University: Paweł Waryszak, Henrique Fürstenau Togashi, Zhou Shuangxi
- 2008 • Students at Kew Gardens: Ian MacLachlan, Daniel Oakley, Frances Whinder, Alisa Zhiteneva

Work experience – non-academic

- 2015 • Freelance researcher and graphic designer at Malloy Aeronautics Ltd., White Waltham, UK.
- 2002-2007 • Throughout my BSc and MSc I had a variety of jobs which supported me financially, allowed me to explore various aspects of life and gain transferrable skills, such as: team work, work under pressure, clear communication and resourcefulness (teacher at children camps, cook, barista, kitchen hand, elderly care, children hippotherapy).

Extracurricular activities/outreach

- 2018 • I have designed a graphic and wrote a popular science piece about wood anatomy for "Arnoldia", the Arnold Arboretum's quarterly magazine, Fall 2018 issue. Check it out [here](#).
- 2017-2018 • I took evening classes in graphic design at the Rhode Island School of Design (Providence) and School of Museum of Fine Arts (Boston). Some of my output can be seen [here](#). The classes included areas of: illustration, typography, graphic structures and systems, logos and branding, graphic design for three-dimensional structures.
- 2017 • I taught at the Summer Institute organized by the Arnold Arboretum for primary school science teachers.
- 2017 • I wrote a popular science piece about my research for "Silva", a biannual magazine published by the Arnold Arboretum.

Contests

- 2014, 2015 • I participated in infographic/dataviz competition organized by Information Is Beautiful and Kantar. In 2014, I visualised variation in parenchyma fraction from my 2015 PLoS ONE paper ([link](#)). In 2015, I visualised the outcome of parliamentary election in Poland ([link](#)).
- 2012 • I participated in the "Three minutes thesis" competition where the challenge was to present my PhD project in maximum three minutes to an intelligent but not necessarily scientific audience. One powerpoint slide was allowed – you can see my slide [here](#). My talk was titled: "Nuts and bolts of trees and shrubs". Macquarie University, Sydney, Australia.
- 2010 • My photograph titled "Plants are watching us" was highly commended in the photographic competition celebrating Macquarie University Arboretum. Macquarie University, Sydney, Australia ([link](#)).
- 2005 • I won a second prize in Lomography photographic competition (Poznań, Poland). [Here](#) is one of my submitted photos.