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KEYWORDS

plant structure and function, wood anatomy, wood density, tropical and temperate forests, plant ecology and physiology, interdisciplinary research, Harvard Uni, Oxford Uni, Macquarie Uni, Kew Gardens, WSL

WORK EXPERIENCE

- 2018-2019 • Postdoctoral researcher, Forest Dynamics Research Unit at the Swiss Federal Institute for Forest, Snow and Landscape Research (WSL), Birmensdorf, Switzerland (part-time); supervisors: Dr. Roman Zweifel and Dr. Sophia Etzold
- 2016-2018 • Independent Postdoctoral Putnam Fellow at the Arnold Arboretum of Harvard University, Boston, USA
- 2015-2016 • Postdoctoral researcher, Ecosystems Laboratory, Oxford University, UK; supervisor: Prof. Yadvinder Malhi (initially part-time, advanced to full-time)
- 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: Anatomical variation in twig wood across Australian angiosperms.
- 2005-2007 • MSc, Mickiewicz University, Poznań, Poland. Thesis: Leaflet anatomy of two *Encephalartos* Lehm. species.
- 2002-2005 • BSc, Mickiewicz University, Poznań, Poland. Thesis: Genera and species of cycads in the Poznań Greenhouse.
- 2004 • Erasmus student exchange program, Masaryk University, Brno, Czech Republic

SKILLS/EXPERIENCE

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

PUBLICATIONS

- 2019 • Aguirre Gutiérrez J, Oliveras I, Rifai S, Fauset S, Adu-Bredu S, Affum-Baffoe K, Baker T, Feldpausch TR, Gvozevaite A, Hubau W, Kraft NJB, Lewis SL, Moore S, Ninemets Ü, Peprah T, Phillips OL, **Ziemińska K**, Enquist B, Malhi Y. *Shifts in forest traits along an African forest transect in response to long-term drought*. Ecology Letters. [PDF](#)
- 2019 • Etzold S, **Ziemińska K**, Rohner B, Bottero A, Bose AK, Rühr NK, Zingg A, Rigling A. *One century of forest monitoring data in Switzerland reveals species-specific trends of climate induced tree mortality*. Frontiers in Plant Science, 10. [PDF](#)
- 2018 • Morris H, Gillingham MAF, Plavcová L, Gleason SM, Olson ME, Coomes DA, Fichtler E, Klepsch MM, Martínez-Cabrera HI, McGlenn 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. [PDF](#)
- 2016 • Morris H, Plavcová L, Cvecko P, Fichtler E, Gillingham MAF, Martínez-Cabrera HI, McGlenn DJ, Wheeler E, Zheng J, **Ziemińska K**, Jansen S. *A global analysis of parenchyma tissue fractions in secondary xylem of seed plants*. New Phytologist 209(4): 1553-1565. [PDF](#)
- 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. [PDF](#)
- 2014 • **Ziemińska K**. *Anatomical variation in twig wood across Australian angiosperms*. PhD thesis. Macquarie University, Sydney, Australia. [PDF](#)
- 2013 • **Ziemińska K**, Butler DW, Gleason SM, Wright IJ, Westoby M (2013) *Fibre wall and lumen fractions drive wood density variation across 24 Australian angiosperms*.

2012 • AoB PLANTS, Volume 5, plt046. [PDF](#)
Gleason SM, Butler DW, **Ziemińska K**, Waryszak P, Westoby M. *Stem xylem conductivity is key to plant water balance across Australian angiosperm species*. *Functional Ecology* 26 (2): 343-352. [PDF](#)

2010 • Gasson P, Miller R, Stekel DJ, Whinder F, **Ziemińska K**. *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. [PDF](#)

ongoing • I have reviewed multiple manuscripts for: *New Phytologist*, *Functional Ecology*, *Trees – Structure and Function*, and *Annals of Botany*

MANUSCRIPTS

2019 • **Ziemińska K**, Rosa E, 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 • Roddy A, **Ziemińska K**. *Upscaling plant physiology to community and ecosystem processes depends on understanding structure-function relationships*. Technical Comment on Bartlett et al. 2019. *Ecology Letters*. **In revision** for *Ecology Letters*.

2019 • Gvozdevaite A, Oliveras I, Blonder B, **Ziemińska K**, Peprah T, Boakye M, Afriyie L, Martini D, Jodra M, Adu-Bredu S, Malhi Y. *Water availability drives venation architecture along a tropical rainfall gradient in West Africa*. **Submitted** to *Functional Ecology*.

2019 • Aguirre Gutiérrez J, Malhi Y, Adu-Bredu S, Affum-Baffoe K, Baker T, Fauset S, Gvozdevaite A, Hubau W, Moore S, Peprah T, **Ziemińska K**, Phillips OL, Oliveras I. *Drier tropical forests may become more functionally, taxonomically and phylogenetically homogenous than wetter forests after a long-term drought*.

2019 • Zweifel R, **Ziemińska K**, Etzold S et al. *When do trees grow? - growth patterns of nine European species from seasonal to hourly resolution*.

CURRENT PROJECTS

• Anatomical drivers of wood mechanical properties. In collaboration with Prof. Lorna Gibson, MIT.

• Anatomy of ring-porous versus diffuse-porous woods in 30 tree species – moving beyond vessel differences.

GRANTS/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 James Cook University (\$6,000)

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)

MEETINGS

*invited

2018 • **Ziemińska K*** *The future of wood anatomy as an integral part of plant sciences*. Botany 2018, MN, USA. Oral presentation ([link](#)).

2018 • **Ziemińska K**, Rosa E and SM Gleason. *Where does capacitance water come from?* New Phytologist Symposium "The biology of wood: from cell to trees", CA, USA. Poster ([link](#)).

2018 • **Ziemińska K**, Rosa E and SM Gleason. *Where does capacitance water come from?* Gordon Research Conference "Multiscale Plant Vascular Biology", VT, USA. Poster (as above) + 1 min oral poster pitch.

2017 • **Ziemińska K** and SM Gleason. *Wood anatomy and water storage in temperate angiosperms*. Botany 2017, TX, USA. Oral presentation.

2016 • **Ziemińska K***. *Wood anatomy and ecological strategies*. Arnold Arboretum of Harvard University, Boston, MA, USA. Oral presentation.

2016 • **Ziemińska K***. *Patterns in wood anatomy in the GEM trait campaigns*. Queralbs, Spain. Meeting: "Traits and ecosystem function along tropical environmental gradients" organized by Dr. I Oliveras and Prof. Y Malhi. Oral presentation.

2015 • **Ziemińska K***. *Wood density, anatomy and ecological strategies in Australian angiosperms*. Oxford University, UK. Oral presentation.

2013 • **Ziemińska K***. *The myriad ways plants build their wood*. Ulm University, 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, 2011, 2010 • **Ziemińska K**, Wright IJ and M Westoby. PhD research talks. Annual postgraduate conference at the Department of Biological Sciences, Macquarie University. Oral presentation.
- 2012, 2009 • Two-day Genes to Geoscience Outlook, talks and discussions on future research ideas, Macquarie University, Sydney, Australia.
- 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, Australia. Poster presentation.
- 2010 • One-day Postgraduate Day at the annual conference of the Ecological Society of Australia, Canberra.
- 2009 • International Congress of Ecology (Intecol), Brisbane, Australia.
- 2008 • Annual conference of the Ecological Society of Australia, Sydney.
- 2008 • “Wood matters” the joint meeting of IAWA, IAWS and The Linnean Society, London, UK.

- WORKSHOPS** • Since 2007, I have participated in a variety of workshops/courses: science writing, R programming, evolutionary divergence analysis, mechanical properties of biological materials, negotiations, and team building.

- SUPERVISING /TEACHING** • I have supervised four students at Oxford (Natascha Luijken, Karabi Prathak) and Harvard Universities (Emily Rosa, Emily Brown) in years 2015-2018, who all finished their projects on time (you can read Emily Rosa’s impressions about her internship [here](#)). Throughout my entire career since 2008, I have trained multiple students in wood anatomy (Palasiah Jotan, Paweł Waryszak, Henrique Fürstenau Togashi, Zhou Shuangxi, Ian MacLachlan, Daniel Oakley, Frances Whinder, Alisa Zhiteneva).

- WORK EXPERIENCE NON-ACADEMIC** •
- 2015 • Freelance researcher and graphic designer at [the Hoverbike](#) (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 diverse skills (jobs: teacher at children camps, cook, barista, kitchen hand, elderly care, children hippotherapy; skills: team work, clear communication, work under pressure).

- EXTRACURRICULAR /OUTREACH** •
- 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). Selected works can be found [here](#).
- 2018 • I have designed a graphic and wrote a popular science piece about wood anatomy for “Arnoldia”, the Arnold Arboretum’s quarterly magazine. Check it out [here](#).
- 2018 • I have created a wood anatomy tour of the Arnold Arboretum treesW. It can be viewed [here](#) under Featured Tours tab.
- 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.
- 2017 • I created a t-shirt [design](#) celebrating Lilac Sunday 2017 at the Arnold Arboretum.
- 2014, 2015 • I participated in the infographic/dataviz competition organized by Information Is Beautiful and Kantar. 2014 [entry](#) and 2015 [entry](#).
- 2012 • I competed in the “Three minutes thesis” competition where the task was to present my PhD project in max three minutes to an intelligent but not necessarily scientific audience. One powerpoint slide was allowed ([link](#)).
- 2010 • My photograph titled “Plants are watching us” was highly commended in the photographic competition celebrating Macquarie University Arboretum ([link](#)).
- ongoing • My photographs can be found [here](#) and [here](#).