

Dr. M. Murphy Westwood

Director of Global Tree Conservation
The Morton Arboretum
4100 Illinois Route 53
Lisle, IL 60532, USA
mwestwood@mortonarb.org

Global Tree Conservation Officer
Botanic Gardens Conservation International
Descanso House, 199 Kew Road
Richmond, Surrey, SW9 3BW
UK

EDUCATION

PhD in Plant Developmental Biology (2009), University of Cambridge (UK)

Supervisor: Prof. Beverley Glover; Co-Advisors: Dr. Paula Rudall, Prof. Vincent Savolainen

Thesis: *Evolution of the beetle daisy (Gorteria diffusa) petal spot*

MS (honors) in Advanced Methods in Taxonomy and Biodiversity (2003), Imperial College London (UK)

Supervisor: Dr. Nancy Garwood; Co-Advisors: Dr. Bill Baker, Prof. Richard Bateman

Thesis: *Systematics and conservation of the threatened neotropical palm genus Chamaedorea*

BS (honors) in Environmental Policy and Behavior (2002), University of Michigan (Ann Arbor, MI)

EMPLOYMENT

- 2017 – present Director of Global Tree Conservation at The Morton Arboretum (Lisle, IL)
2013 – 2016 Tree Conservation Specialist at The Morton Arboretum (Lisle, IL)
2012 – 2013 Scientist at Chromatin, Inc. (Chicago, IL)
2011 – 2012 Instructor of College First at the Chicago Botanic Garden (Glencoe, IL)
2009 – 2011 Postdoctoral Researcher at the University of Cambridge, Dept. of Plant Sciences (Cambridge, UK) and the Royal Botanic Gardens, Kew (London, UK)
2004 – 2005 Researcher in Monocots at the Natural History Museum, Dept. of Botany (London, UK)
2003 – 2004 Research Assistant at the Natural History Museum, Dept. of Botany (London, UK)

SELECTED AFFILIATIONS, AWARDS, AND PROFESSIONAL APPOINTMENTS

- 2021 – present Member, International Dendrology Society
2019 – present Lead, Global Conservation Consortium for Oak
2019 – present Board of Directors, Polly Hill Arboretum (Martha's Vineyard, USA)
2019 – present Member, Oak Conservation and Research Committee, International Oak Society
2017 – 2019 Chair, Plant Conservation Professional Section of the American Public Garden Association (USA)
2016 – present Co-founder and member, Oaks of the Americas Conservation Network
2015 – 2017 Vice Chair, Plant Conservation Professional Section of the American Public Garden Association (USA)
2014 – present Global Tree Conservation Officer, Botanic Gardens Conservation International (London, UK)
2014 – present Global IUCN Red List Assessor
2014 – present Member, IUCN Global Tree Specialist Group
2011 – 2012 Adjunct Lecturer of the City Colleges of Chicago (Chicago, IL)
2009 – 2011 Leverhulme Trust Research Fellow (UK)
2009 – 2011 Bye Fellow of Murray Edwards College, University of Cambridge (Cambridge, UK)
2005 – 2009 British Biotechnology and Biological Sciences Research Council Doctoral Training Studentship (UK)
2002 James B. Angell Scholar, University of Michigan (Ann Arbor, MI)

PUBLICATIONS

- Alvarez-Clare, S., E. Beckman, A. Byrne, C. Carrero, S. Paist, **M. Westwood**, S. Valencia-Avalos. 2020. Propagar para conservar: Una estrategia del consorcio mundial para la conservacion de encinos. In: *Manual para la propagación de Quercus: Una guía fácil y rápida para cultivar encinos en México y América Central*. Jardín Botánico Universitario Benemérita Universidad Autónoma de Puebla (Puebla, Pue. México).
- Carrero, C., Jerome, D., Beckman, E., Byrne, A., Coombes, A. J., Deng, M., González-Rodríguez, A., Hoang, V. S., Khoo, E., Nguyen, N., Robiansyah, I., Rodríguez-Correa, H., Sang, J., Song, Y-G., Strijk, J. S., Sugau, J., Sun, W. B., Valencia-Ávalos, S., and **Westwood, M.** 2020. *The Red List of Oaks 2020*. The Morton Arboretum. Lisle, IL.
- **Westwood, M.**, Cavender, N., Meyer A., Smith, P. 2020. Botanic garden solutions to the plant extinction crisis. *Plants, People, Planet*. 2020;00:1-11.
- Hoban, S., Callicrate, T., Clark, J., Deans, S., Dosmann, M., Fant, J., Gailing, G., Havens, K., Hipp, A.L., Kadav, P., Kramer, A.T., Lobdell, M., Magellan, T., Meerow, A.W., Meyer, A., Pooler, M., Sanchez, V., Spence, E., Thompson, P., Toppila, R., Walsh, S., **Westwood, M.**, Wood, J., Griffith, M.P. 2020. Taxonomic similarity does not predict necessary sample size for *ex situ* conservation: a comparison among five genera. *Proceedings of the Royal Society B*. **287**: 20200102.
- Griffith, M.P., E. Beckman, T. Callicrate, J. Clark, T. Clase, S. Deans, M. Dosmann, J. Fant, X. Gratacos, K. Havens, S. Hoban, M. Lobdell, F. Jiménez-Rodríguez, A. Kramer, R. Lacy, T. Magellan, J. Maschinski, A.W. Meerow, A. Meyer, V. Sanchez, E. Spence, P. Toribio, S. Walsh, **M. Westwood**, J. Wood. 2019. Toward the Metacollection: Safeguarding plant diversity and coordinating conservation collections. Botanic Gardens Conservation International-US (San Marino, USA).
- Beckman, E., A. Meyer, A. Denvir, D. Gill, G. Man, D. Pivorunas, K. Shaw, **M. Westwood**. 2019. *Conservation Gap Analysis of Native U.S. Oaks*. The Morton Arboretum, Lisle, IL, USA.
- Denvir, A., S. Alvarez-Clare, **M. Westwood**. 2019. The Morton Arboretum's oak conservation efforts in Latin America. *International Oaks* 30: 317–323.
- Pence, V., **M. Westwood**, J. Maschinski, C. Powell, N. Sugii, D. Fish, J. McGuinness, P. Raven, J. Duval, T. Herrera-Mishler, A. Love, C. Walters, C. Horn, M. Taylor, T. Ott, S. Koehler, M. Horning. 2018. Collecting and maintaining exceptional species in tissue culture and cryopreservation. *CPC Best Plant Conservation Practices to Support Species Survival in the Wild*. Center for Plant Conservation, San Diego, CA, USA.
- Maschinski, J., **M. Westwood**, K. Havens, S. Hoban, S. Anderson, S. Walsh. 2018. Field genebanks or inter situ collection. *CPC Best Plant Conservation Practices to Support Species Survival in the Wild*. Center for Plant Conservation, San Diego, CA, USA.
- Barstow, M., S. Oldfield, **M. Westwood**, D. Jerome, E. Beech, M. Rivers. 2018. *The Red List of Fraxinus*. Botanic Gardens Conservation International, Richmond, Surrey, UK.
- Denvir, A., **M. Westwood**, A. Coombes, A. Hipp. 2018. The Oaks of the Americas Conservation Network. *International Oaks* 29: 91-98.
- **Westwood, M.**, A. Frances, G. Man, D. Pivorunas, K. Potter. 2017. Coordinating the IUCN Red List of North American tree species. In Snieszko, Richard A.; Man, Gary; Hipkins, Valerie; Woeste, Keith; Gwaze, David; Kliejunas, John T.; McTeague, Brianna A., tech. cords. 2017. Gene conservation of tree species—banking on the future. Proceedings of a workshop. Gen. Tech. Rep. PNW-GTR-963. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station: 12-23.
- Moyroud, E., T. Wenzel, R. Middleton, P. Rudall, H. Banks, A. Reed, G. Mellers, P. Killoran, **M. Westwood**, U. Steiner, S. Vignolini, B. Glover. 2017. Disorder in convergent floral nanostructures enhances signalling to bees. *Nature* 550: 469-474.
- Brennan, A., V. Pence, M. Taylor, B. Trader, **M. Westwood**. 2017. Tissue culture using mature material for the conservation of oaks. *HortTechnology* 27(5): 644-649.
- Jerome, D., E. Beckman, L. Kenny, K. Wenzell, C.S. Kua, **M. Westwood**. 2017. *The Red List of US Oaks*. The Morton Arboretum, Lisle, IL.

- Potter, K.M., R.M. Jetton, A. Bower, D.F. Jacobs, G. Man, V. Hipkins, **M. Westwood**. 2017. Banking on the future: progress, challenges and opportunities for the genetic conservation of forest trees. *New Forests* 48(2): 153-180.
- **Westwood, M.** 2017. A new Red List of Oaks: Informing conservation action and catalysing collaboration. *BG Journal* 14(2): 20-23.
- Xu, J., X.L. Jiang, M. Deng, **M. Westwood**, Y.G. Song, S.S. Zheng. 2016. Conservation genetics of rare trees restricted to subtropical montane cloud forests in southern China: a case study from *Quercus arbutifolia*. *Tree Genetics & Genomes* 12: 90. doi:10.1007/s11295-016-1048-1
- BGCI (Comp.) **contributor**. 2016. North American Botanic Garden Strategy for Plant Conservation, 2016-2020. Botanic Gardens Conservation International, U.S. Illinois, USA
- Kenny, L. and **M. Westwood**. 2016. Launching the Global Oak Conservation Initiative at The Morton Arboretum. *International Oaks* 27: 277-289.
- Sun, W., Z. Zhou, W. Chen, Y. Zhou, L. Cai, **M. Westwood**, J. Turner. 2016. Rescuing plant species with extremely small populations in China: the case of the Xichou oak, *Quercus sichouensis*. *International Oaks* 27: 163-170.
- Walters, C., L. Hill, J. Crane, M. Michalak, X. Ke, J. Carstens, K. Conrad, M. Westwood, A. Colwell, J. Clines, P. Chmielarz. 2016. Preserving oak (*Quercus* sp.) germplasm to promote ex-situ conservation. *International Oaks* 27: 255-266.
- Cavender, N., **M. Westwood**, C. Bechtoldt, G. Donnelly, S. Oldfield, M. Gardner, D. Rae, W. McNamara. 2015. Strengthening the conservation value of *ex situ* tree collections. *Oryx* 49(3): 416-424.
- Xu, J., M. Deng, X. Jiang, **M. Westwood**, Y. Song, R. Turkington. 2015. Phylogeography of *Quercus glauca* (Fagaceae), a dominant tree of East Asian subtropical evergreen forests, based on three chloroplast DNA interspace sequences. *Tree Genetics & Genomes* 11: 805-821.
- **Westwood, M.** 2015. The Global Trees Campaign and ArbNet - Working together to advance professionalism and tree conservation in arboreta. *BG Journal* 12(2): 30-33.
- Brockington, S., R. Alvarez-Fernandez, J.B. Landis, K. Alcorn, R.H. Walker, **M. Thomas**, L. Hileman, B. Glover. 2012. Evolutionary analysis of the MIXTA gene family highlights potential targets for the study of cellular differentiation. *Molecular Biology & Evolution* 30(3): 526-540.
- Vignolini, S., **M. Thomas**, M. Kolle, T. Wenzel, A. Rowland, P. Rudall, J. Baumberg, B. Glover, U. Steiner. 2011. Directional scattering from the glossy flower of *Ranunculus*: how the buttercup lights up your chin. *Journal of The Royal Society Interface* 9(71): 1295-1301.
- Bateman, R., E. Bradshaw, D. Devey, B. Glover, S. Malmgren, G. Sramkó, **M. Thomas**, P. Rudall. 2011. Species arguments: clarifying competing concepts of species delimitation in the pseudo-copulatory orchid genus *Ophrys*. *Botanical Journal of the Linnean Society* 165(4): 336-347.
- Bradshaw, E., P. Rudall, D. Devey, **M. Thomas**, B. Glover, R. Bateman. 2010. Comparative labellum micromorphology of the sexually deceptive temperate orchid genus *Ophrys*: diverse epidermal cell types and multiple origins of structural colour. *Botanical Journal of the Linnean Society* 162(3): 504-540.
- **Thomas, M.**, P. Rudall, A. Ellis, V. Savolainen, B. Glover. 2009. Development of a complex floral trait: the pollinator attracting petal spots of the beetle daisy, *Gorteria diffusa* (Asteraceae). *American Journal of Botany* 96(12): 2184-2196.
- Cibrian-Jaramillo, A., C. Bacon, N. Garwood, R. Bateman, **M. Thomas**, S. Russell, C. Bailey, W. Hahn, S. Bridgewater, R. DeSalle. 2009. Population genetics of the understory fishtail palm *Chamaedorea ernesti-augustii* in Belize: high genetic connectivity with local differentiation. *BMC Genetics* 10:65.
- **Thomas, M.**, N. Garwood, W. Baker, S. Henderson, S. Russell, D. Hodel, R. Bateman. 2006. Molecular phylogeny of the palm genus *Chamaedorea* based on the low-copy nuclear genes PRK and RPB2. *Molecular Phylogenetics & Evolution* 38: 398-415.

TEACHING/SUPERVISING

City Colleges of Chicago (USA): Environmental Studies 101.

University of Cambridge (UK): Part 1A Biology of Cells, Part 1A Evolution and Behaviour, Part 1A Physiology of Organisms, Part 1B Cell and Developmental Biology, Part 1B Plant and Microbial Sciences, Part 2 Plant Sciences Undergraduate Independent Research Project.

CONFERENCE AND WORKSHOP ORGANIZATION

2019: 7th Southeast Asian Botanic Garden Network biennial meeting (Chiang Mai, Thailand)

2018: Workshop on Conservation of Fagaceae in Indochina (Luang Prabang, Lao PDR)*

2017: *Tree Tuesday* at the 6th Global Botanic Gardens Congress (Geneva, Switzerland)

2017: Workshop on Mexican oak taxonomy and conservation (Puebla, Mexico)*

2017: American Public Gardens Association symposium: Partnerships for Protecting Plants and Habitats (Framingham, MA)*

2016: International Workshop on Oak Conservation and founding meeting of the Oaks of the Americas Conservation Network (Morelia, Mexico)

2016: Gene Conservation of Tree Species: Banking on the Future (Chicago, IL)

2016: IUCN Red List workshop at IUCN World Conservation Congress (Honolulu, HI)*

2015: 3rd meeting of the IUCN/SSC Global Tree Specialist Group (Lisle, IL)

2015: 7th International Oak Society Triennial Conference (Lisle, IL)*

**includes an IUCN Red List threat assessment training workshop*