

William D. Pearse
Utah State University
Email: william.pearse@usu.edu

Education

PhD, Imperial College London, 2013.
Major: Evolutionary ecology
Dissertation Title: Phylogenetic perspectives on community change

MS, Imperial College London, 2009.
Major: Ecology, Evolution & Conservation
Dissertation Title: The community phylogenetics of Silwood Park

MA, University of Cambridge, 2008.
Major: Zoology
Supporting Areas of Emphasis: Natural Sciences
Dissertation Title: "Beetles and bird's nest ferns: baskets of biomass?" and "Crabbing's impact on crabs: the cause, the effect, and the solution"

Professional Positions

Assistant Professor, Utah State University. (August 2016 - Present).

Other

Post-doctoral research fellow, McGill University. (January 4, 2015 - June 30, 2016).

Professional

Post-doctoral research fellow, University of Minnesota. (January 4, 2013 - January 3, 2015).

ACADEMIC INSTRUCTION

Teaching Experience

Utah State University

BIOL 2988, Introduce to Data Science, 1 course.
BIOL 4750, 6750, Topics in Biology, 1 course.
BIOL 6750, Statistical Espresso for Biologists: Applied Machine Learning, 1 course.
BIOL 6750/4750, Programming for Biologists, 1 course.

Non-Credit Instruction

Seminar, 10 participants. (January 2017 - Present).

Course, 30 participants. (May 2017 - June 2017).

Directed Student Learning

Supervised Research/URF. (October 2017 - Present).
Advised: Jake Stachewicz

Dissertation Defense Committee Member. (September 2017 - Present).
Advised: Jesse Walker

Dissertation Committee Chair. (August 2017 - Present).
Advised: Elizabeth Simpson

Post-Doc Mentor, Biology. (August 2017 - Present).
Advised: Daniel Johnson

Undergraduate Honors Thesis/Project, Biology. (August 2017 - Present).
Advised: Michael Gudmundson

Supervised Research/URF. (June 2017 - Present).
Advised: Bodie Weedop

Supervised Research/URF. (June 2017 - Present).
Advised: Elizabeth Holland

Dissertation Committee Member. (February 2017 - Present).
Advised: Marley Haupt

Undergraduate Honors Thesis/Project, "Macro-ecological and macro-evolution patterns in demography," Civil & Environmental Engineering. (January 16, 2017 - Present).
Advised: Mark Sneddon

Dissertation Committee Member. (January 2017 - Present).
Advised: Mallory Hagadorn

Dissertation Committee Member. (January 2017 - Present).
Advised: Sylvia Kinosian

Undergraduate Honors Thesis/Project, "Analysis of microbial beta-diversity," Biology. (January 16, 2017 - May 2017).
Advised: Bodie Weedop

Awards and Honors

Faculty Award for Demonstrating and Tutoring, Imperial College London. (June 2010).

RESEARCH & OTHER CREATIVE ACTIVITIES

Published Intellectual Contributions

Book Chapters

Book, Chapter in Scholarly Book (Published)

Pearse, W., Purvis, A., Cavender-Bares, J., Helmus, M. R. (2014). Metrics and models of community phylogenetics. *Modern Phylogenetic Comparative Methods and Their Application in Evolutionary Biology* (pp. 451–464). Springer Berlin Heidelberg.

Refereed Journal Articles

Journal Article, Academic Journal (Accepted)

Pearse, W., Davis, C. C., Inouye, D. W., Primack, R. B., Davies, T. J. (2017). A statistical estimator for determining the limits of contemporary and historic phenology. *Nature Ecology & Evolution*.

Journal Article, Academic Journal (Published)

Pearse, W. (2017). Animating and exploring phylogenies with fibre plots. *F1000 Research*, 5, 2790.

Journal Article, Academic Journal (Published)

Morales-Castilla, I., Davies, T. J., Pearse, W., Peres-Neto, P. (2017). Combining phylogeny and co-occurrence to improve single species distribution models. *Global Ecology and Biogeography*.

Journal Article, Academic Journal (Accepted)

Pearse, W., Cavender-Bares, J., Hobbie, S. E., Avolio, M., Bettez, N., Chowdhury, R. R., Groffman, P. M., Grove, M., Hall, S. J., Heffernan, J. B., others (2017). Ecological homogenisation in North American urban yards: vegetation diversity, composition, and structure. *Ecosphere*, 061937.

Journal Article, Academic Journal (Published)

Gnanadesikan, G., Pearse, W., Shaw, A. K. (2017). Evolution of mammalian migrations for refuge, breeding, and food. *Ecology & Evolution*.

Journal Article, Academic Journal (Published)

Rubio de Casas, Rafael, Willis, C. G., Pearse, W., Baskin, C. C., Baskin, J. M., Cavender-Bares, J. (2017). Global biogeography of seed dormancy is determined by seasonality and seed size: a case study in the legumes. *New Phytologist*.

Journal Article, Academic Journal (Accepted)

Fountain-Jones, N. M., Pearse, W., Escobar, L. E., Alba-Casals, A., Carver, S., Davies, T. J., Kraberger, S., Papes, M., Vandegrift, K., Worsley-Tonks, K., Craft, M. E. (2017). Towards an eco-phylogenetic framework for infectious disease ecology. *Bioical Reviews*.

Journal Article, Academic Journal (Published)

Nelson, E. J., Helmus, M. R., Cavender-Bares, J., Polasky, S., Lasky, J. R., Zanne, A. E., Pearse, W., Kraft, N. J., Miteva, D. A., Fagan, W. F. (2016). Commercial Plant Production and Consumption Still Follow the Latitudinal Gradient in Species Diversity despite Economic Globalization. *PloS one*, 11(10), e0163002.

Journal Article, Academic Journal (Published)

Hall, S. J., Learned, J., Ruddell, B., Larson, K. L., Cavender-Bares, J., Bettez, N., Groffman, P. M., Grove, J. M., Heffernan, J. B., Hobbie, S. E., Pearse, W., others (2016). Convergence of microclimate in residential landscapes across diverse cities in the United States. *Landscape Ecology*, 31(1), 101–117.

Journal Article, Academic Journal (Published)

Barak, R. S., Hipp, A. L., Cavender-Bares, J., Pearse, W., Hotchkiss, S. C., Lynch, E. A., Callaway, J. C., Calcote, R., Larkin, D. J. (2016). Taking the long view: integrating recorded, archeological, paleoecological, and evolutionary data into ecological restoration. *International Journal of Plant Sciences*, 177(1), 90–102.

Journal Article, Academic Journal (Published)

Brooks, S. J., Self, A., Powney, G. D., Pearse, W., Penn, M., Paterson, G. L. (2016). The influence of life history traits on the phenological response of British butterflies to climate variability since the late-19th century. *Ecography*.

Journal Article, Academic Journal (Published)

Pearse, W., Chase, M., Crawley, M., Dolphin, K., Fay, M., Joseph, J., Powney, G., Preston, C., Rapacciuolo, G., Roy, D., others (2015). Beyond the EDGE with EDAM: Prioritising British

Plant Species According to Evolutionary Distinctiveness, and Accuracy and Magnitude of Decline. *PLoS one*, 10(5), e0126524–e0126524.

Journal Article, Academic Journal (Published)

Pearse, W., Cadotte, M. W., Cavender-Bares, J., Ives, A. R., Tucker, C. M., Walker, S. C., Helmus, M. R. (2015). pez: phylogenetics for the environmental sciences. *Bioinformatics*, 31(17), 2888–2890.

Journal Article, Academic Journal (Published)

Banks-Leite, C., Pardini, R., Tambosi, L. R., Pearse, W., Bueno, A. A., Bruscagin, R. T., Condez, T. H., Dixo, M., Igari, A. T., Martensen, A. C., others (2014). Conserving Brazil's Atlantic forests—Response. *Science*, 346(6214), 1193–1193.

Journal Article, Academic Journal (Published)

Banks-Leite, C., Pardini, R., Tambosi, L. R., Pearse, W., Bueno, A. A., Bruscagin, R. T., Condez, T. H., Dixo, M., Igari, A. T., Martensen, A. C., others (2014). Using ecological thresholds to evaluate the costs and benefits of set-asides in a biodiversity hotspot. *Science*, 345(6200), 1041–1045.

Journal Article, Academic Journal (Published)

Pearse, W., Jones, F. A., Purvis, A. (2013). Barro Colorado Island's phylogenetic assemblage structure across fine spatial scales and among clades of different ages. *Ecology*, 94(12), 2861–2872.

Journal Article, Academic Journal (Published)

Díaz, S., Purvis, A., Cornelissen, J. H., Mace, G. M., Donoghue, M. J., Ewers, R. M., Jordano, P., Pearse, W. (2013). Functional traits, the phylogeny of function, and ecosystem service vulnerability. *Ecology and Evolution*, 3(9), 2958–2975.

Journal Article, Academic Journal (Published)

Pearse, W., Purvis, A. (2013). phyloGenerator: an automated phylogeny generation tool for ecologists. *Methods in Ecology and Evolution*, 4(7), 692–698.

Journal Article, Academic Journal (Published)

Ewers, R., Didham, R., Pearse, W., V. L., Rosa, I., Carreiras, j., Lucas, R., Reuman, D. (2013). Using landscape history to predict biodiversity patterns in fragmented landscapes. *Ecology Letters*, 16(10), 1221–1233.

Journal Article, Academic Journal (Published)

Pearse, W. (2010). Effects of community invasion across multiple spatial scales. *Frontiers in Biogeography*, 2(1), 3–4.

Journal Article, Academic Journal (Published)

Todd, V. L., Pearse, W., Tregenza, N. C., Lepper, P. A., Todd, I. B. (2009). Diel echolocation activity of harbour porpoises (*Phocoena phocoena*) around North Sea offshore gas installations. *ICES Journal of Marine Science: Journal du Conseil*.

Non-Refereed Journal Articles

Journal Article, Academic Journal (Published)

Pearse, W., Green, H. K., Aldridge, D. (2014). Catching crabs: a case study in local-scale English conservation. *arXiv preprint arXiv:1404.0290*.

Journal Article, Academic Journal (Published)

Pearse, W., Purvis, A., Roy, D. B., Stamatakis, A. (2014). Modelling ecological communities as if they were DNA. *arXiv preprint arXiv:1403.7668*.

Other Intellectual Contributions

Software (Published)

Orme, D., Freckleton, R., Thomas, G., Petzoldt, T., Fritz, S., Isaac, N., Pearse, W. (2013). *caper: Comparative Analyses of Phylogenetics and Evolution in R*.

Ph.D. Thesis (Published)

Pearse, W. (2013). *The phylogenetic structure of ecological communities under change*. Imperial College London.

Presentations Given

Pearse, W., Ecological Society of America 2017, "Mapping phylogenetic diversity on to ecosystem function and service: Case studies and challenges," Portland, Oregon, USA. (August 2017).

Pearse, W., "Evolutionary ecology and conservation: the power of models," Stirling University, Stirling, Scotland. (August 2016).

Pearse, W., "Linking phylogeny and ecology: beyond summary statistics," City College of New York, New York, New York. (January 2016).

Pearse, W., "Linking process and pattern in ecology and evolution," Washington University at St Louis, St Louis. (August 2015).

Pearse, W., Phylogenetics and Biodiversity, "Variation in ecological structure among clades," Temple University, Philadelphia, USA. (June 1, 2015).

Pearse, W., Botany 2014, "New methods to rapidly quantify (leaf) shape and model its evolution," Botanical Society of America, Boise, Idaho. (April 1, 2014).

Pearse, W., Ecological Restoration's 2013 World Conference, "40 years of oak savanna restoration: species ecology in the context of evolutionary history," Ecological Restoration, Wisconsin, USA. (October 1, 2013).

Pearse, W., ESA, "Niche conservatism, niche evolution, and species coexistence in butterflies and plants," Ecological Society of America, Minneapolis, Minnesota. (August 2013).

Pearse, W., "Incorporating phylogeny into ecology," University of Sheffield, Sheffield, UK. (June 2013).

Pearse, W., "Incorporating phylogeny into ecology," University of Minnesota, St Paul, Minnesota. (January 2013).

Pearse, W., "Incorporating phylogeny into ecology," Centre for Ecology & Hydrology Wallingford, Wallingford, England. (December 2012).

Contracts, Grants and Sponsored Research

Grant

Pearse, William (Principal), Davies, T Jonathan (Co-Principal), "Building up biogeography: process to pattern," Sponsored by International Biogeography Society, Private, \$6,000.00. (January 2017 - February 2017).

Pearse, William (Principal), Cavender-Bares, Jeannine (Co-Principal), "Synthesising Trait Evolution in Plants," Sponsored by sDIV, Other, \$30,000.00. (June 2015 - July 2015).

Other

Pearse, William, "EDGE2: Workshop," Sponsored by Zoological Society of London - EDGE of Existence Program, Private, \$30,000.00. (March 2017).

Awards and Honors

Robert May Award, British Ecological Society. (December 2013).

Southwood Prize, Imperial College London. (August 2009).

Intellectual Contributions in Submission

Book Chapters

Isaac, N. J. B., Pearse, W. Phylogenetic diversity and conservation. *The use of Evolutionary Distinct Globally Endangered (EDGE) measures to evaluate taxa for conservation.*

Refereed Journal Articles

Mazel, F., Pennell, M. W., Cadotte, M. W., Diaz, S., Dalla Riva, G. V., Grenyer, R., Leprieur, F., Mooers, A. O., Mouillot, D., Tucker, C. M., Pearse, W. Phylogenetic diversity is a surrogate for functional diversity across clades and space. *PNAS.*

Trammell, T., Pataki, D. E., Still, C. J., Ehleringer, J. R., Avolio, M. L., Battez, N., Cavender-Bares, J., Groffman, P. M., Grove, M., Hall, S., Heffernan, J., Hobbie, S. E., Morse, J. L., Neill, C., Nelson, K. C., O'Neil-Dunne, J., Pearse, W., Chowdhury, R. R., Steele, M., Wheeler, M. M. Biophysical and social factors control the distribution of C4 plants in residential lawns across seven U.S. cities. *Global Ecology and Biogeography.*

Pearse, W., Barbosa, A. M., Fritz, S. A., Keith, S. A., Harmon, L. J., Harte, J., Silvestro, D., Xiao, X., Davies, T. J. Building up biogeography: pattern to process. *Journal of Biogeography.*

Locke, D. H., Avolio, M., Trammel, T., Chowdhury, R. R., Grove, J. M., Rogan, J., Martin, D. G., Bettez, N., Cavender-Bares, J., Groffman, P. M., Hall, S. J., Heffernan, J. B., Hobbie, S. E., Larson, K. L., Morse, J. L., Neill, C., Nelson, K. C., Ogden, L. A., O'Neil-Dunne, J., Pataki, D., Pearse, W., Polsky, C., Wheeler, M. M. Testing the Landscape Mullets Concept with Plots and Parcels. *Landscape and Urban Planning.*

Tucker, C., Davies, T. J., Cadotte, M. W., Pearse, W. On the relationship between phylogenetic diversity and trait diversity. *Ecology.*

Pearse, W., Morales-Castilla, I., James, L. S., Farrell, M., Boivin, F., Davies, T. J. Global macroevolution and macroecology of passerine song. *Evolution.*

SERVICE

General Service

College

Computing needs survey, March 2017.

Department

Workshop Organizer, Biological Programming Group, January 27, 2017 - Present.

Long-range faculty planning committee, January 2017 - Present.

Professional/Public

Editor, Associate Editor, *Methods in Ecology & Evolution* (Journal). April 2016 - Present.

Utah State University

Program Organizer, Native American Summer Mentorship Program, March 2017 - Present.

Awards and Honors

Service, Professional

Associate Editor, *Methods in Ecology & Evolution*. (November 2015).