Brooke Byerley Best, Ph.D.
Botanical Research Institute of Texas (BRIT) at Fort Worth Botanic Garden (FWBG)
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EDUCATION:

PhD, Botany – Colorado State University, Fort Collins, Colorado. Dissertation: Patterns and consequences of floral formula variation in *Phlox* (Polemoniaceae). Advisor: David A. Steingraeber. 2006

BS, Biology – Southwestern University, Georgetown, Texas. Chemistry Minor. Beta Beta Beta Biological Honor Society. Thesis: Reproductive consequences of mixed pollen loads in *Phlox cuspidata* and *Phlox drummondii*. Advisor: Damon E. Waitt. 2000.

PROFESSIONAL APPOINTMENTS:

Current
Director of Texas Plant Conservation, BRIT-FWBG, 2023–current
Institutional Conservation Officer, Center for Plant Conservation, 2023–current
Acting Vice President of Research, FWBG (*when VP is unavailable), 2016–current
Living Roof Coordinator, FWBG, 2010–current
Associate Graduate Faculty, Texas Christian University, 2017–current

Previous
Director of Research Programs, BRIT, 2019–2023
Education-Research Liaison, BRIT, 2013–2019
Botanist & Editor, BRIT Press, 2012–2019
Managing Editor, *Journal of the Botanical Research Institute of Texas,* 2012–2019
Editorial Advisory Board, BRIT Press, 2012–2019
Senior Editor, *Ethnobotany Research and Applications*, 2012–2015
Research Associate, Texas Christian University, 2011–2014, 2017–2020
Associate Texas Botanist, BRIT, 2010–2012
Assistant Editor of BRIT Press, BRIT, 2009–2010
Herbarium Data Coordinator, BRIT, 2008–2009
Publications Assistant, BRIT, 2007–2008
Herbarium Technician, BRIT, 2007
Biology Lab Coordinator, Colorado State University, 2005–2007
Research Assistant and Lab Instructor, Colorado State University, 2006
Testing Administrator, Licensing Assessments for Colorado Educators, 2003–2007
Graduate Teaching Assistant, Biology Department, Colorado State University, 2000–2005
Lab Assistant, Biology Department, Southwestern University, 1998–2000

RESEARCH INTERESTS & SPECIALIZATIONS

My research skills center broadly around plant ecology. I am currently interested in Texas floristics and rare species, particularly edaphic rather than geographic communities. I have specialized research experience in floral morphology & evolution, pollination biology, plant hybridization/reproduction/breeding systems, invasives/competitive theory (e.g., ant-plant interactions), and pollinator systems and behavior.

RESEARCH & PROJECT MANAGEMENT ACTIVITIES

Texas Plant Conservation. Program director. Program mission is to prevent plant extinction in Texas by supporting and maintaining viable, self-supporting, and genetically diverse populations of all Texas plants in their natural habitat, and to collect, store, and manage conservation seed collections for use in research and restoration of rare Texas plants. Oversees administration of the BRIT Conservation Seed Bank.

Living roofs in North Central Texas. Principal investigator. An ongoing project to monitor and document the performance and viability of a biomimicry-based roof design. Conduct research to assess health, monitor

volunteer plant species, assess survival and mortality of planted species, compare the roof vegetation composition to native prairies, inventory arthropods. 2010–present.

Flora of Scurry County, Texas. Principal investigator. An ongoing project to catalog subregion vascular flora. 2009–present.

Ferns & Lycophytes of Texas. Project manager. Created digital content to complement *The Ferns and Lycophytes of Texas* (a BRIT Press book product). Managed georeferencing of BRIT fern collection by volunteers and produced a multi-access visual key. www.FernsOfTexas.org. 2011–2016.

Texas Wetlands Project. Co-principal investigator. Collected throughout Texas plants from the US Army Corps of Engineers' National Wetland Plant List. Described wetland plant communities, made vouchers, obtained live images, and sampled DNA material from members of the Cyperaceae. Collected and inventoried wetland plants in Texas, with a particular concentration on sedges (Cyperaceae) to produce herbarium vouchers with accompanying tissue collections of vouchered individuals and members of the sampled population for future DNA Analysis; collected and analyzed data to describe plant community types2012.

High-Throughput Workflow for Computer-Assisted Human Parsing of Biological Specimen Label Data. Researcher. Coordinated use of herbarium specimen data in project piloting new methods for rapid label digitization. 2009–2010.

Floral formula variation in *Phlox* (Polemoniaceae). Principal investigator. Investigated natural and artificial variation, reproductive fitness, and selection relative to floral morphology. 2002–2006.

Myrmecochory and the establishment of invasive weeds in Colorado. Researcher. Conducted field experiments on effects of ant dispersal on native versus invasive thistles. 2005–2006.

Myrmecochory and the displacement of native seed dispersers by invasive Argentine ants. Researcher. Conducted field experiments on effects of native versus invasive ant species on seed dispersal. 2002–2005.

Pollinator behavior and hybridization in *Oxytropis* (Fabaceae). Researcher. Conducted field experiments and observations related to mechanisms of natural hybridization and floral color morphs in *Oxytropis* species. 2001–2002.

PUBLICATIONS (peer-reviewed):

Hargreaves, AL, J Ensing, O Rahn, FMP Oliveira, J Burkiewicz, J Lafond, S Haeussler, **MB Byerley-Best,** K Lazda, HL Slinn, E Martin, ML Carlson, TL Sformo, E Dawson-Glass, MC Chiuffo, YL Vargas-Rodriguez, CI García-Jiménez, IJMT Gomes, S Klemet-N'Guessan, L Paolucci, S Joly, K Mehltreter, J Muñoz, C Buono, JF Brodie, A Rodriguez-Campbell, T Veen, B Freeman, J Lee-Yaw, J Camilo Muñoz, A Paquette, J Butler, E Suaréz. 2023. Latitudinal gradients in predation persist in urban environments. bioRxiv 2023.11.14.566324. https://doi.org/10.1101/2023.11.14.566324

Delang, CO, X Weiyi, **B Byerley,** KP Chun. 2016. The effect of fallow period length on the abundance and diversity of usable plant assemblages in shifting cultivation systems (swidden agriculture) in northern Laos. Polish Journal of Ecology. 64:350–356. http://dx.doi.org/10.3161/15052249PJE2016.64.3.005

Byerley Best, B, RK Swadek, TL Burgess. 2015. Soil-based green roofs. Pp. 139–174 in Green Roof Ecosystems. Edited by R.K. Sutton. Springer, New York, U.S.A. http://dx.doi.org/10.1007/978-3-319-14983-7_6

Dvorak, B, **MB Byerley,** A Volder. 2013. Plant species survival on three water conserving green roofs in a hot humid subtropical climate. Journal of Living Architecture 1(1):39–53. https://goo.gl/BJrfMh

Dvorak, B, **MB Byerley,** A Volder. 2012. Plant species findings from three water conserving green roofs in Texas. Proceedings of CitiesAlive 2012, 10th Annual Green Roof and Wall Conference. 17–20 October, Chicago, Illinois, U.S.A.

Swadek, RK, & **MB Byerley.** 2012. Prairie glades and barrens as ecological models for living roof systems: A case study. Contributed Oral Papers: Annual meeting of Ecological Society of America. 6–11 Aug, Portland, Oregon. https://goo.gl/tHZkNo

Diggs, GM Jr, BL Lipscomb, **MB Byerley.** 2011. Ferns and lycophytes of Texas: a 55-year update. Abstract for poster presentation. Botany 2011. Annual meeting of the Botanical Society of America. 9–13 Jul, St. Louis, Missouri.

Neill, AK, JH Best, JP Janovec, MA Tobler, WE Moen, TF Franklin, **MB Byerley.** 2009. Recording and sharing annotations during two stages of museum specimen digitization: Apiary and Atrium. In Proceedings of TDWG 2009, 9–13 Nov, Montpellier, France. www.tdwg.org/fileadmin/2009conference/documents/PreProceedings2009.pdf.

Halward, TM, DA Steingraeber, **MB Byerley.** 2007. Principles of Plant Biology: A lab manual, 2nd ed., Thompson Brooks/Cole.

Halward, TM, D Weedman, **MB Byerley.** 2007. Biology of Organisms: A lab manual, 3rd ed., Thompson Brooks/Cole.

Byerley, MB. 2006. Patterns and consequences of floral formula variation in *Phlox* (Polemoniaceae). PhD Dissertation. Colorado State University, Fort Collins, Colorado, USA. http://goo.gl/bJ5stq

Carney, SE, **MB Byerley,** DA Holway. 2003. Invasive Argentine ants (*Linepithema humile*) do not replace native ants as seed dispersers of *Dendromecon rigida* (Papaveraceae) in California, USA. Oecologia 135:576–582. http://dx.doi.org/10.1007/s00442-003-1200-0

PUBLICATIONS (popular):

2020. Book Review: The Saguaro Cactus A Natural History. J. Bot. Res. Inst. Texas 14(2):434. https://journals.brit.org/jbrit/article/view/1035

2018. B. Byerley Best. What is This Thing? Bur oak acorn cap. Phytophilia: Blog of the Botanical Research Institute of Texas. 10 May. http://brit.org/what-thing/what-thing-bur-oak-acorn-cap

2018. B. Byerley Best. What is This Thing? Oenothera triloba fruit. Phytophilia: Blog of the Botanical Research Institute of Texas. 23 Feb. http://brit.org/what-thing/what-thing-oenothera-triloba-fruit

2017. B. Byerley Best. Book Review: Montana's Pioneer Botanists. J. Bot. Res. Inst. Texas 11(2):288. https://www.mtnativeplants.org/wp-content/uploads/2018/07/MPB-BRIT-review.pdf

2017. B. Byerley Best. Recycling Rocks! Phytophilia: Blog of the Botanical Research Institute of Texas. 14 Apr. http://brit.org/phytophilia/recycling-rocks

2015. A 54-Year Celebration. Phytophilia: Blog of the Botanical Research Institute of Texas. 21 Nov. http://brit.org/phytophilia/54-year-celebration

2016. B. Byerley Best. Best. Paper. Ever. Phytophilia: Blog of the Botanical Research Institute of Texas. 05 May. http://brit.org/phytophilia/best-paper-ever

2010. M.B. Byerley. Book Review—Chicle: The Chewing Gum of the Americas, From the Ancient Maya to William Wrigley. J. Bot. Res. Inst. Texas 4(1):496. https://biodiversitylibrary.org/page/48586555

2009. M.B. Byerley. Insert Clever Title Here. Iridos 20(2):18. http://brit.org/phytophilia/insert-clever-title-here

2008. M.B. Byerley. Book Review—Natural Remedies of Arabia. J. Bot. Res. Inst. Texas 2(1):432. https://biodiversitylibrary.org/page/41650440

2007. M.B. Byerley. Book Review—Invasive Plants: Guide to Identification and Impacts and Control of Common North American Species. J. Bot. Res. Inst. Texas 1(2):846. https://biodiversitylibrary.org/page/34483122

EDITED WORKS:

Works for which editorial guidance was provided, including any or all of the following: botanical editing, technical editing, line editing, copy editing, figure processing and production, and page layout. All titles were published by BRIT Press unless otherwise noted.

2020. Flora of Oregon. Volume 2: Dicots A–F. S.C. Meyers, T. Jaster, K.E. Mitchell, T. Harvey & L.K. Hardison. 978-1-889878-61-4

2020. Report on the terrestrial expedition to the Revillagigedo Archipelago (2017). S.E. Vanderplank, M.A. Wall & E. Ezcurra, eds. Proceedings of the San Diego Society of Natural History, #48. San Diego Society of Natural History. San Diego, CA. 978-0-578-67579-4

2019. Guide to the Vascular Flora of Picture Creek Diabase Barrens, Granville County, North Carolina, U.S.A. J.S. Stanley, A. Krings, J.M. Stucky & R.R. Braham. 978-1-889878-52-2

2018. Flowering Plants of Trans-Pecos Texas and Adjacent Areas. A.M. Powell & R.D. Worthington. 978-1-889878-59-1

2017. Plantas y animales únicos de las islas del Pacifico de Baja California - Unique plants and animals of the Baja California Pacific Islands. S. Vanderplank, A.P. García, J.H. Valdez Villavicencio, C.A. de la Rosa. 978-1-889878-51-5

2017. A Systematic Vademecum to the Vascular Plants of Sint Eustatius. F.S. Axelrod. 978-1-889878-57-7

2017. Historia del Jardín Botánico de Lancetilla, Honduras / The History of Lancetilla Botanical Garden, Honduras. D.L. Hazlett. 978-1-889878-53-9

2016. Guide to the Vascular Plants of Kitty Hawk Woods, Dare County, North Carolina. R.K. Clark, A. Krings, J.M. Stucky, H.J. Kleiss. 978-1-889878-50-8
2016. Arroyo la Junta: Una joya de biodiversidad en la Reserva de la Biosfera Sierra La Laguna / A biodiversity jewel in the Sierra La Laguna Biosphere Reserve. S. Vanderplank, B.T. Wilder, E. Ezcurra. 978-1-889878-48-5
2015. Flora of Colorado. J. Ackerfield. 978-1-889878-45-4
2015. Flora of Oregon. Volume 1: Pteridophytes, Gymnosperms, and Monocots. S.C. Meyers, T. Jaster, K.E. Mitchell, L.K. Hardison. 978-1-889878-46-1
2015. Plant Guide: Maritime Succulent Scrub Region, Northwest Baja California, Mexico. J. Riley, J. Rebman, S. Vanderplank. 978-1-889878-44-7
2015. Guide to the Vascular Plants of Howell Woods, Johnston County, North Carolina, U.S.A. K.M. Hines, A. Krings, J.M. Stucky. 978-1-889878-47-8
2014. Uncovering the Dryland Biodiversity of the Cabo Pulmo Region (Descubriendo la Biodiversidad Terrestre en la Región de Cabo pulmo). S. Vanderplank, B.T. Wilder, E. Ezcurra. 978-1-889878-43-0

STUDENT MENTORING: * denotes co-mentored student

Erica Almance, 2023–current, University of Texas Arlington (M.S. Chemistry). Graduate committee member.
Sonya Jones, Summer and Fall 2023, University of Illinois Springfield (M.S., Environmental Science)
*Jade Affleck, Summer 2023, University of North Texas (post-baccalaureate). Co-mentored with Tiana F. Rehman.
*Kate Morton, Summer 2023, Texas A&M University (undergraduate). Co-mentored with Tiana F. Rehman.
*Gabrielle M. Perez, Summer 2023, Oklahoma State University (undergraduate). Co-mentored with Tiana F. Rehman.
*Gabriela P. Wolfe, Summer 2023, University of Texas A&M (post-baccalaureate).
*Lezlie Dominguez, Summer 2022, University of North Texas (undergraduate). Co-mentored with Tiana F. Rehman.
*Basil Gaffney, Summer 2022, Louisiana State University (undergraduate). Co-mentored with Tiana F. Rehman.
*Ulysses Oles, Summer 2022, Texas Christian University (post-baccalaureate). Co-mentored with Tiana F. Rehman.
Edward Bickett, Summer 2019, University of Texas Arlington (undergraduate).
P. Childress, Summer 2018, Fort Worth Country Day School (high school). Youngken Ethnobotanical Collection.
J. Reed, Summer 2018, Fort Worth Country Day School (high school). Carlquist Microscope Slide Collection.
Kelly Carroll, Summer 2018, Trinity University (undergraduate).
Sydney Jackson, Summer 2017, Austin College (undergraduate).
Haley Rylander, Fall 2016, Texas Christian University (undergraduate).
P. Boyce, Summer 2016, All Saints Episcopal School (high school). Videography and editing of research presentations and other BRIT footage. https://youtu.be/Xnk0qr4b0Tk || https://youtu.be/lOCckfg0S50 || https://youtu.be/J4Nl71aTThY
Kyle McBride, Fall 2012, El Centro College (undergraduate).
Devin Spencer, Fall 2012, Texas Christian University (undergraduate).
Adam Ulissey, Summer 2012-Summer 2013, El Centro College (undergraduate).

STUDENT POSTERS & PRESENTATIONS:

Affleck, J, K Morton, GM Perez, GP Wolfe, **MB Byerley,** TF Rehman. 2023. Preserving biodiversity amidst urbanization: A floristic study of Silphium Prairie at Rock Creek Ranch Park. Poster presentation at Texas Society for Ecological Restoration 26th Annual Conference, 12–14 Oct 2023, El Paso, Texas, USA.

Affleck, J, K Morton, GM Perez, GP Wolfe, **MB Byerley,** TF Rehman. 2023. Preserving biodiversity amidst urbanization: A floristic study of Silphium Prairie at Rock Creek Ranch Park. Poster presentation at Texas Plant Conservation Conference, 14–15 Aug 2023. https://osf.io/p2cqz/

Dominguez, L, TF Rehman, **B Byerley Best.** 2022. Warmer temperatures relate to earlier flowering in giant ragweed (*Ambrosia trifida*). Poster presentation at Annual Meeting of TORCH (Texas-Oklahoma Regional Consortium of Herbaria), 10 Aug 2022, Fort Worth Botanic Garden, Fort Worth, Texas, USA

Gaffney, B, TF Rehman, **B Byerley Best.** 2022. Exploration of Texas *Streptanthus* phenology using herbarium specimens. Poster presentation at Annual Meeting of TORCH (Texas-Oklahoma Regional Consortium of Herbaria), 10 Aug 2022, Fort Worth Botanic Garden, Fort Worth, Texas, USA.

Oles, U, TF Rehman, **B Byerley Best.** 2022. Examining gaps in common methods of recording occurrence data with *Arundo donax*. Poster presentation at Annual Meeting of TORCH (Texas-Oklahoma Regional Consortium of Herbaria), 10 Aug 2022, Fort Worth Botanic Garden, Fort Worth, Texas, USA.

Bickett, E, **B Best,** D Caudle. 2019. "2019 Summer All Saints' Vegetation Survey." BRIT Research Internship presentation. 06 Aug 2019. --- An oral presentation to the public summarizing 2019 project results. Annotated pdf (slides plus notes).

Jackson, S, **B Best,** L Garcia. 2019. Variation in Arthropod Community on a Prairie-Style Green Roof Relative to Vegetation and Slope Position. -- 2019 conference presentation by Sydney Jackson on final roof data (Texas Academy of Science, Brownwood, TX, March 2019). Sydney presented a talk; these are their findings presented in poster form.

Jackson, S, **B Best,** L Garcia. 2019. Variation in Arthropod Community on a Prairie-Style Green Roof. Austin College Biology Seminar, Sherman TX (Oral).

Jackson, S, **B Best,** L Garcia. 2019. Variation in Arthropod Community on a Prairie-Style Green Roof. Ecological Integration Symposium, College Station TX (Poster).

Jackson, S, **B Best,** L Garcia. 2019. Variation in Arthropod Community on a Prairie-Style Green Roof. Austin College Scholarship Conference, Sherman TX (Poster).

Carroll, K, D Caudle, **B Best.** 2018. Vegetation Survey of Local Urban Area Begins Long-term Documentation of Land Use Impacts on Area Biodiversity. Poster presentation for the Texas Plant Conservation Conference, 19–21 Sep 2018, Botanical Research Institute of Texas, Fort Worth, Texas, USA.

Carroll, K, D. Caudle, **B. Best.** 2018. "2018 BRIT Vegetation Survey." BRIT Research Internship presentation. Aug 2018. — An oral presentation by Kelly to the BRIT Research Department summarizing 2018 summer assessment results. Annotated pdf (slides plus notes).

Rylander, H, D Spencer, **B Byerley Best.** 2016. Arthropod Diversity: In situ prairie versus prairie-style green roof -- poster presentation at BRIT Research Showcase by Haley Rylander on preliminary findings.

Ulissey, A & **MB Byerley.** 2013. Arthropod Diversity of a Biomimicry-Based Extensive Green Roof -- poster presentation at BRIT Research Showcase by Adam Ulissey on preliminary findings.

TEACHING EXPERIENCE

Public/Adult Education courses independently developed and taught or co-taught:

- **From Ooze to Orchid: The Evolution of Plants**
- **Botany 101: An Overview of Botany**
- **How to Collect, Press, and Mount Plants**
- **Spring Wildflowers 101**
- **Notebooks, Journals, and Logs: Field Observations in the Modern World**
- **Botanical Latin: A language unto itself**

Undergraduate Education: Laboratory courses independently taught:

- **Basic Concepts of Plant Life** (non-majors)
- **Principles of Plant Biology** (majors)
- **Biology of Organisms**
- **Developmental Biology**
- **Comparative Morphology of Vascular Plants**
- **Plant Identification**

Undergraduate Education: Laboratory courses managed/coordinated:

- **Attributes of Living Systems**
- **Cell Biology**
- **Principles of Animal Biology**
- **Plant Physiology**

SOCIETY MEMBERSHIPS:

Botanical Society of America
Native Plant Society of Texas
Society for the Preservation of Natural History Collections
Society for Ecological Restoration
Society for Herbarium Curators – Lifetime Member
Texas Academy of Science

COMMUNITY INVOLVEMENT:
4-H / FFA Wildlife Management Contest (in conjunction with Fort Worth Stock Show and Rodeo)
4-H / FFA Range and Pasture Plant Identification Competition (in conjunction with Fort Worth Stock Show and Rodeo)
Cross Timbers Urban Forestry Council
Fort Worth Pollinator Ambassadors
Fort Worth Regional Science and Engineering Fair
LLND Group (Living Laboratory Network Development)
Planting Science classroom mentorship program (Botanical Society of America)
Texas Master Composters
Native Prairies Association of Texas
Friends of the Fort Worth Nature Center and Refuge
Friends of Tandy Hills Natural Area

JOURNAL REVIEWER:
Journal of the Botanical Research Institute of Texas, Urban Naturalist, Mojave National Preserve (MNP) Science Newsletter, PLOS ONE