

## Education, certificates and test scores

- **The University of Arizona** Tucson, AZ  
*Ph.D. candidate in Ecology and Evolutionary Biology* 2016-
- **Montana State University** Bozeman, MT  
*BSc Biology (highest honors; GPA: 4.0 upper division/graduate coursework)* 2008 - 2014
- **Johns Hopkins University** Coursera  
*Data Science Specialization (with honors)* 2015
- **GRE**  
*167 Verbal (97th %ile), 168 Quantitative (95th %ile), 5.0 Writing (93rd %ile)* 2014
- **Integral Projection Modeling Workshop** Barcelona, Spain  
*Participant* 2016
- **State-and-Transition Modeling Workshop** Fort Collins, CO  
*Participant* 2014

## Skills

- **Ecology and evolution:** ecosystem & climate modeling, population, community & landscape ecology, taxonomy, physiological ecology, conservation genetics, conservation ecology
- **Outreach and education:** workshop assistant for Software Carpentry, author of series of educational apps in ecology (e.g. <https://mdpillet.shinyapps.io/LogisticModel>), instructor for lecture series on ecology in Montana, over 5 years of tutoring experience
- **Statistics:** theoretical and practical experience in topics ranging from spatial statistics to machine learning and Bayesian methods
- **Programming and IT:** R, Python, Matlab, Java/C++, web development, databases (SQL/XML), Git, Linux, working on clusters
- **Wide knowledge of supporting sciences:** GIS (ArcGIS/QGIS), biogeochemistry, physics, soil science, hydrology, remote sensing, physiology
- **Mathematics:** strong background in numerical analysis, dynamical systems, traditional calculus, algorithms, with an emphasis on the use of mathematical models in ecology
- **Field techniques:** species identification and surveys, experience with common technology (e.g. GPS)
- **Languages:** English, Dutch, French, Spanish

## Experience

Owner of Prickly Prospects Cactus Nursery (ex-situ conservation nursery) . . . . .	2021-
Member of IUCN SSC Cactus and Succulent Plants Specialist Group . . . . .	2022-
Instructor at at Univ. of Arizona . . . . .	2020-
Nursery worker at Arid Lands Greenhouses . . . . .	2019-2021
Researcher in Enquist Lab at Univ. of Arizona . . . . .	2017-
Researcher in Evans Lab at Univ. of Arizona . . . . .	2016-2018
Workshop assistant for Software Carpentry . . . . .	2016
Research scientist in Poulter Ecosystem Dynamics Lab at Montana State Univ. . . . .	2015-2016
Volunteer for Red Cross Disaster Action Team . . . . .	2015-2016
Research scientist in Hansen Landscape Biodiversity Lab at Montana State Univ. . . . .	2014
Volunteer greenhouse manager for succulent plants at Montana State Univ. . . . .	2014
University & private tutor in sciences . . . . .	2012-
Researcher and crew chief at Museum of the Rockies Paleontology Department . . . . .	2008-2014

## Awards, Grants & Honors

College of Science Galileo Circle Scholarship (Ph.D.) . . . . .	2022
NSF Graduate Research Fellowship (NSF GRFP; Ph.D.) . . . . .	2017-2022
Graduate Access Fellowship (Ph.D.) . . . . .	2016-2017
GPSC Travel Grant (Ph.D.) . . . . .	2016
Presidential Scholarship (BSc) . . . . .	2008-2014
Undergraduate Scholars Program (BSc) . . . . .	2009-2010
Dean's & President's List (BSc): 6 times . . . . .	2008-2014

## Publications and reviews

- Pillet, M., Goettsch, B., Merow, C., Maitner, B., Feng, X., Roehrdanz, P., Enquist, B., 2022. **Elevated extinction risk of cacti under climate change.** *Nature Plants*. doi: 10.1038/s41477-022-01130-0.
- Feng, X., et al., 2022. **A review of the heterogeneous landscape of biodiversity databases: opportunities and challenges for a synthesized biodiversity knowledge base.** *Global Ecology and Biogeography*. doi: 10.1111/geb.13497.
- Schultz, E., Hulsmann, L., Pillet, M., Hartig, F., Breshears, D., Record, S., Shaw, J., DeRose, J., Zuidema, P., Evans, M., 2021. **Climate-driven, but dynamic and complex? A reconciliation of competing hypotheses for species' distributions.** *Ecology Letters*. doi:10.1111/ele.13902.
- Enquist, B., et al., 2019. **The commonness of rarity: Global and future distribution of rarity across land plants.** *Science Advances*. doi:10.1126/sciadv.aaz0414.
- Pillet, M., Joetzjer, E., Belmin, C., Chave, J., Ciais, P., Dourdain, A., Evans, M., Herault, B., Luyssaert, S., Poulter, B., 2018. **Disentangling competitive versus climatic effects on tropical forest mortality.** *Journal of Ecology*. doi:10.1111/1365-2745.12876.

- Joetzjer, E., Pillet, M., Ciais, P., Barbier, N., Chave, J., Schlund, M., Maignan, F., Barichivich, J., Luyssaert, S., Herault, B., von Poncet, F., Poulter, B., 2017. **Assimilating satellite-based canopy height within an ecosystem model to derive above ground forest biomass.** *Geophysical Research Letters*. doi:10.1002/2017GL074150.
- Hansen, A., Ireland, K., Legg, K., Keane, R., Barge, E., Jenkins, M., Pillet, M., 2016. **Complex challenges of maintaining whitebark pine in Greater Yellowstone under climate change: A call for innovative research, management, and policy approaches.** *Forests*. doi:10.3390/f7030054.
- **Reviewer for:** American Journal of Botany, Plant Ecology, PLOS ONE

## Abstracts and posters

- Pillet, M., Enquist, B., Feng, X., Goettsch, B., Maitner, B., Merow, C. **Prickly prospects for cacti under climate change: An analysis of uncertainty in range forecasts.** Presented at *Ecological Society of America 2020 Annual Meeting*.
- Enquist, B., et al. **The commonness of rarity: Global and future distribution of rarity across land plants.** Abstract at *Ecological Society of America 2020 Annual Meeting*.
- Enquist, B., Merow, C., Hannah, L., et al. **Forecasting future global biodiversity: Predicting current and future global plant distributions, community structure, and ecosystem function.** Abstract at *American Geophysical Union 2019 Fall Meeting*.
- Schultz, E., Huelsmann, L., Pillet, M., Breshears, D., Zuidema, P., Hartig, F., DeRose, J., Shaw, J., Evans, M. **Demographic range modeling reveals that climate and competition are insufficient to explain a species distribution.** Abstract at *Ecological Society of America 2019 Annual Meeting*.
- Evans, M., Huelsmann, L., Pillet, M., Breshears, D., Hartig, F., Record, S., Shaw, J., Zuidema, P., DeRose, J., 2018. **A demographic perspective on the ecological niche and the geographic distribution: a range-wide analysis of climate and competition as factors limiting vital rates of *Pinus edulis*.** Abstract at *MtnClim 2018*.
- Pillet, M., DeRose, J., Record, S., Shaw, J., Evans, M., 2018. **Demographic range modeling reveals that climate is insufficient to explain species distributions.** Abstract at *Ecological Society of America 2018 Annual Meeting*.
- Poulter, B., Pederson, N., Ciais, P., Pillet, M., Joetzjer, E., Calle, L., Luyssaert, S., 2017. **Implementing forest age- and size-structured dynamics within Earth system models.** Abstract at *Ecological Society of America 2017 Annual Meeting*.
- Evans, M., DeRose, J., Arizpe, A., Aragon, J., Grey, A., Pillet, M., Shaw, J., Klesse, S., Dietze, M., 2017. **Assimilation of FIA tree-ring and remeasurement data to quantify multiple influences on tree growth - an analysis of *Pinus ponderosa* in northern Arizona.** Abstract at *2017 FIA Stakeholder Science Meeting*.
- Evans, M., DeRose, J., Arizpe, A., Aragon, J., Grey, A., Pillet, M., Shaw, J., Klesse, S., Dietze, M., 2017. **Assimilation of tree-ring and forest inventory data to understand the influences of climate, tree size, and stand density on tree growth - a regional analysis of *Pinus ponderosa* in northern Arizona.** Abstract at *Ecological Society of America 2017 Annual Meeting*.

- Poulter, B., Ballantyne, A., Bastos, A., Calle, L., Chatterjee, A., Canadell, P., Ciais, P., Frank, D., Ott, L., Pillet, M., Sitch, S., 2017. **Enabling teleconnection-based seasonal forecasts of global terrestrial carbon cycle dynamics**. Poster at *10th International Carbon Dioxide Conference*.
- Poulter, B., Ciais, P., Joetzjer, E., Luyssaert, S., Maignan, F., Pillet, M., 2015. **Reducing uncertainty for estimating forest carbon stocks and dynamics using integrated remote sensing, forest inventory and process-based modeling**. Poster at *American Geophysical Union 2015 Fall Meeting*.

## Outreach

- **Species distribution models for *Copiapoa* spp. under climate change**. Presented for *Planning Workshop for the Integrated Conservation of the Genus Copiapoa*, August 2022.
- **Planning for Uncertainty: Conserving Cacti in a World of Change**. Presented for *Tucson Cactus and Succulent Society*, August 2022.
- **Prickly prospects for cacti under climate change**. Presented for *Arizona Senior Academy*, August 2022.
- **Elevated extinction risk of cacti under climate change**. Interviewed for various media outlets, including *The New York Times*, *CBS*, *ABC*, *NBC*, April 2022.
- **Sowing Cacti: where Art and Science meet**. Presented for *Tucson Cactus and Succulent Society*, June 2018.
- **Prickly prospects for cacti under climate change**. Presented for *Tucson Chapter of Arizona Native Plant Society*, May 2018.
- **Prickly prospects for cacti under climate change**. Presented for *Tucson Cactus and Succulent Society*, May 2017.

## References

- **Brian Enquist**, ecologist at The University of Arizona and Santa Fe Institute: *benquist@email.arizona.edu*
- **Barbara Goettsch**, plant conservation ecologist at IUCN SSC Cactus and Succulent Plants Specialist Group and The Biodiversity Consultancy: *cssg.barbara@gmail.com*
- **Tristan Davis**, succulent plant botanist: *minime8484@hotmail.com*