Michiel Pillet
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November 15, 2023

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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*
- **IUCN CPSG Ex Situ Conservation Assessment Training** — ConservationTraining.org
  Certificate of Achievement — *2023*
- **IUCN Red List Assessor Training** — ConservationTraining.org
  Certificate of Achievement — *2023*
- **Key Biodiversity Areas Advanced Practitioner** — ConservationTraining.org
  Certificate of Completion with Distinction — *2023*
- **Planning for Conservation: Using the Conservation Standards** — ConservationTraining.org
  Certificate of Completion — *2023*
- **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*

Skills

- **Ecology and evolution**: ecosystem & climate modeling, population, community & landscape ecology, taxonomy, physiological ecology, conservation genetics, conservation ecology, conservation planning, trait ecology, phylogenetics
- **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 10 years of tutoring and teaching 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
- **Field techniques**: species identification and surveys, experience with common technology (e.g. GPS)
- **Design**: Adobe InDesign
- **Wide knowledge of supporting sciences**: GIS (R/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
- **Languages**: English, Dutch, French, Spanish

Experience

Program Officer for IUCN SSC Cactus and Succulent Plants Specialist Group 2023-
hosted by the Desert Botanical Garden, Phoenix, AZ . . . . . .
Conservation Committee Member of Cactus and Succulent Society of America 2023-
Field instructor for the Science Research Initiative at University of Utah 2023
Member of IUCN SSC Cactus and Succulent Plants Specialist Group 2022-
Owner of Prickly Prospects Cactus Nursery (ex-situ conservation nursery) 2021-
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

Workshops

- **Planning Workshop for the Integrated Conservation of the Genus Copiapoa** Zoom
  Participant and coauthor for species assessments *2022-2023*
- **Integral Projection Modeling Workshop** Barcelona, Spain
  Participant *2016*
- **State-and-Transition Modeling Workshop** Fort Collins, CO
  Participant *2014*

Awards, Grants & Honors

William A. Calder III Memorial Scholarship (Ph.D.) 2023
College of Science Galileo Circle Scholarship (Ph.D.) 2023
Faculty Opinions - top 20 influential conservation papers of 2022 2023
College of Science Galileo Circle Scholarship (Ph.D.) 2022
William A. Calder III Memorial 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

- Villlalobo, A., Pena, C., Varas-Myrik, A., Pillet, M., Jahnsen, P., Pliscoff, P., Goettsch, B., Guerrero, P., in review. **Under Siege: Trade and poaching pressure amplify extinction risks for iconic cacti in the fog-dependent coastal Atacama Desert**. *Conservation Biology*.
- Pillet, M., in press. **Cactus conservation in a changing world – what can you do?**. *Succulenta*.
- Davis, T. and Pillet, M., 2023. **Don't tell me, show me: the importance of maintaining data in cultivated plants**. *Cactus and Succulent Journal*.
- Villlalobo, A., Pena, C., Varas-Myrik, Goettsch, B., Pillet, M., Jahnsen, P., Pliscoff, P., Guerrero, P., 2023. **Impulsores antropogenicos y abioticos del aumento del riesgo de extinción de *Copiapoa* (Cactaceae).** *Master's thesis, Universidad de Concepción, Chile*.
- Pillet, M., 2023. **Prickly prospects for cacti under climate change**. *TheScienceBreaker*. doi: 10.25250/thescbr.brk715.
- Pillet, M., 2022. **Prickly prospects for cacti under climate change**. *British Cactus and Succulent Society December 2022 eNews*.
- 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**: Acta Botanica Brasilica, 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*.

Presentations and media

- **Climate Change Conversations: Common Sense Cactus Conservation in the 21st Century**. Presented for *Tucson Botanical Gardens*, November 2023.
- **Prickly Prospects for Cacti in the 21st Century**. Presented for *The University of Arizona Galileo Circle Scholars Celebration*, October 2023.
- **Assessing Climate Change Impacts on Cacti: Challenges and Opportunities**. Presented for *U.S. Fish and Wildlife Service Southwest Region*, October 2023.
- **Assessing Climate Change Impacts on Cacti: Challenges and Opportunities**. Presented for *The Huntington Library, Art Museum, and Botanical Gardens*, September 2023.
- **Common-sense cactus conservation in the 21st century**. Presented for *Maricopa County Master Naturalists*, August 2023.
- **Common-sense cactus conservation in the 21st century**. Presented for *Tucson Cactus and Succulent Society*, July 2023.
- **Common-sense cactus conservation in the 21st century**. Presented for *Central Arizona Cactus and Succulent Society*, June 2023.
- **Common-sense cactus conservation in the 21st century**. Presented for *Cactus and Succulenty Society of America*, May 2023.
- **Elevated extinction risk of cacti under climate change**. Presented for *International Cactaceae Academic Network*, September 2022.
- **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, Swedish Television, TRT World, Yale Climate Connections*, 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

- **Dr. Brian Enquist**, The University of Arizona and Santa Fe Institute: *benquist@arizona.edu*
- **Dr. Barbara Goettsch**, IUCN SSC Cactus and Succulent Plants Specialist Group and The Biodiversity Consultancy: *cssg.barbara@gmail.com*
- **Dr. Lucas Majure**, IUCN SSC Cactus and Succulent Plants Specialist Group and University of Florida: *lmajure@floridamuseum.ufl.edu*
- **Tristan Davis**, University of Kansas: *minime8484@hotmail.com*