

# MARGARITA M. FERNÁNDEZ

Postdoctoral Scientist.  
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## RESEARCH INTERESTS

I am an ecologist using forestry and soil ecology tools to understand how anthropic disturbance impact woodland ecosystems. My current research focuses on carbon sequestration and the co-benefits of climate-smart forestry practices in Pennsylvania's private forests. I develop collaborative research and outreach materials with stakeholders in both English and Spanish to engage landowners and promote sustainable forest management.

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## EDUCATION

- Ph.D. 2023. Pennsylvania State University, Inter College Graduate Program in Ecology.  
*Graduation:* May 2023. Dissertation Title: [“Impacts of Anthropic disturbance on microarthropods: Implications for sustainable management in Patagonian woodlands”](#)
- B.S. 2015. School of Forestry, Universidad Nacional de Misiones (U.Na.M., Argentina)  
Forest Engineering, *Summa Cum Laude*

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## SKILLS AND SOFTWARE KNOWLEDGE

ArcGIS (Intermediate), Coding and Data Analysis in R (Proficient), Forestry Biometrics (proficient).

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## RELEVANT COURSEWORK

Soil Ecology | Microarthropods Ecology and Taxonomy. | Community Ecology|

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## RESEARCH APPOINTMENTS

- FALL 23-*present* Postdoctoral Fellow in Climate Smart Forestry Assessment and Policy,  
Environmental Policy Goddard Chair Group, The Pennsylvania State University
- Summer 2023 Postdoctoral Fellow in Forest Dynamics, The Pennsylvania State University  
McIntire-Stennis project 2022-2024: “Carbon and Climate Adaptation in Pennsylvania Forests.”
- Summer 2022 Research Fellow in Forest Ecology, The Pennsylvania State University  
McIntire-Stennis project: “Carbon and Climate Adaptation in Pennsylvania Forests.”  
*Activities:* Led plantation of tree species, laboratory management, and forest inventories.  
Advisor: Margot W. Kaye, Ph.D.

- 2019–23 Ph.D. in Ecology, The Pennsylvania State University,  
Advisors: David M. Eissenstat, Ph.D; Margot W. Kaye, Ph.D.
- 2016-18 Research Fellow, Universidad Nacional de Río Negro (UNRN, Argentina),  
Advisors: Lucas A. Garibaldi, Ph.D.; José C. Bedano, Ph.D.
- 2014-15 Undergraduate RA in Forest Pests and Entomology, INTA-SENASA (Argentina),  
Advisor: Edgar Eskiviski, Mg. Sc.
- 2013-15 Undergraduate RA in Silviculture, UNaM (Argentina),  
Advisor: Domingo Maiocco, Mg. Sc.

## TEACHING APPOINTMENTS

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- FALL 24 **Forest Ecology (FOR 308)**, Pennsylvania State University  
Full Instructor. Delivered lectures and laboratories on Forest Ecology topics for undergraduate students in the Forest Resources Management and the Wildlife programs.
- FALL 24 **Restauración de Bosques Nativos: Construyendo la Resiliencia del Paisaje**, Universidad Nacional de Misiones (Argentina)  
Invited Lecturer (Undergraduate Course).  
Delivered a Module on: Introducción a la cuantificación y proyectos de carbono
- SP 24 **WEF Nexus, FOR 597**. Invited Lecturer (Graduate Course).  
Delivered a lecture on: “ Climate Governance, Forests and Carbon”.
- FALL 22 **Forest Ecology (FOR 308)**, Pennsylvania State University  
Full Instructor. Delivered lectures and laboratories on Forest Ecology topics for undergraduate students in the Forest Resources Management and the Wildlife programs.
- 2021 **Ecology (ECO 602)** Supervised Teaching, Pennsylvania State University  
FOR 308: Developed a lecture and laboratory guide on Forest Ecosystem Services.  
Assisted instructor with grading and laboratory classes. Provided weekly personal tutoring.
- 2017-19 **Plant Nurseries I**, Universidad Nacional de Río Negro (Argentina)  
Developed a lecture and a field class on forest soils and nutrient enrichment. Assisted instructor in laboratory classes.

## HONORS & AWARDS

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De La Torre Scholar (2021–22), Pennsylvania State University. Advisor: Dr. Buechler Stephanie.  
College of Ag. Sciences Graduate Competitive Grants (2020-21), The Pennsylvania State University  
Robert W. Graham Award (2019), The Pennsylvania State University  
Graduate Fulbright Scholarship (Argentina, 2019-21), The Pennsylvania State University  
Beca Inicial de Doctorado (Argentina, 2016-2019), Agencia de Promoción Científico Tecnológica  
Fulbright Scholarship, *Future Leaders Program* (Argentina, 2015), University of Texas at Austin  
CIN Undergraduate RA Scholarship (Argentina, 2013-15), Universidad Nacional de Misiones  
Fundación Carolina de Argentina Undergraduate Award (2010-12), Universidad Nacional de Misiones

## ACTIVITIES AND SERVICES DEPARTMENTAL SERVICE

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- 2024-present Member, IDEA Committee. ESM Ecology Program Committee for Diversity, Equity, and Inclusion
- SP 2022 Service Assistant, PSU Ecosystem Science and Management Department
- 2021-22 Member, ESM Ecology Program Committee for Diversity, Equity, and Inclusion
- 2020-21 Member, ESM Diversity, Equity, and Inclusion Graduate Sub-Committee

#### UNIVERSITY GRADUATE ASSOCIATIONS

- 2023-2024 Board Member, Graduate and Professional Outdoor Club (GPOC)
- 2023-2024 Board Member, Penn State Postdoctoral Society (PSP)
- 2021-22 Board Member, PSU Latin American Graduate Students Association (LAGraSA)
- 2019-present Member, PSU Latin American Graduate Students Association (LAGraSA)

#### ECOLOGY PROGRAM-HUCK INSTITUTES

- SP 2023 Service Assistant, Ecology Program Diversity, Equity, and Inclusion Representative Coordinator, Ecology Peer Mentoring Program

#### PROFESSIONAL DEVELOPMENT

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- 2023 Forest Vegetation Simulator Workshop (50 hs.), Rocky Mountain Research Station, US Forest Service
- 2022 BEST Extension Training, ESM Department, PSU
- 2021 Inclusive and Critical Mentor Training & Workshop, PSU Ecology
- 2021 Creating an Inclusive Culture in Environmental Fields, PSU Ecology
- 2020 Antiracism in Ecology and Conservation, PSU Ecology
- 2014 Silviculture and Management of Subtropical Forests. Workshop (60 hs.). FCF, UNaM.

#### PUBLICATIONS

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##### PEER-REVIEWED

**MM Fernández;** M. Kreye & CA Scott. (2025, *in preparation*). “Global threats to long-term carbon stocks in terrestrial ecosystems: a meta-analysis”. *Journal: Carbon Management*.

**MM Fernández;** B. Lockwood & M.Kaye. (2025, *in preparation*). Quantifying IFM potential for forest carbon sequestration and additionality in the eastern US: a synthesis. *Journal: Forest Ecology and Management*.

**MM Fernández;** MW Kaye; DM Eissenstat; R. Manzo; LA Garibaldi (2025, *in preparation*). Divergent microarthropod community responses to macronutrients in soil and litter after nutrient enrichment. *Journal: Applied Soil Ecology*.

B Lockwood; MW Kaye, Maynard-Bean E., **MM Fernández**. (2025, *in press*) “Impacts of timber harvesting on ecosystem service capacity in a northeastern U.S. Appalachian Forest”. *Journal: Canadian Journal of Forestry*.

**MM Fernández;** MW Kaye; DM Eissenstat; N Pérez-Méndez; LA Garibaldi (2025). Nutrient addition hinder microarthropod-driven leaf litter decomposition in Patagonian woodlands. *S120: Mediterranean Ecosystems. Plant and Soil*. <https://doi.org/10.1007/s11104-025-07281-1>

Garibaldi, L. A., Zermoglio, P. F., Agüero, J. I., Nacif, M. E., Goldenberg, M. G., Fioroni, F.,

- Fernández, MM.** & Puntieri, J. G. (2024). Designing multifunctional forest systems in Northern Patagonia, Argentina. *Frontiers in Sustainable Food Systems*, 8, 1357904. <https://doi.org/10.3389/fsufs.2024.1357904>
- Fioroni, F., Fernández, N., **Fernández, MM.**, & Garibaldi, L. (2022). La disponibilidad de luz limita la producción frutícola del calafate en un matorral mixto nativo (Río Negro, Argentina). *Ecología Austral*, 32(3), 984-989. <https://doi.org/10.25260/EA.22.32.3.0.1952>
- Fernández MM.**, Casas, C., Bedano, J. C., Eissenstat, D. M., Kaye, M. W., García, I. M., & Garibaldi, L. A. (2022). Mite density, not diversity, declines with biomass removal in Patagonian woodlands. *Applied Soil Ecology*, 169, 104242. <https://doi.org/10.1016/j.apsoil.2021.104242>
- Pérez-Méndez, N., **Fernández, MM.**, van Doorn, L., Català-Forner, M. M., Martínez, L., & Garibaldi, L. A. (2021). Bottom-up effects of woodland eutrophication: Interacting limiting nutrients determine herbivory frequency in northwestern Patagonia. *Science of The Total Environment*, 151608. <https://doi.org/10.1016/j.scitotenv.2021.151608>
- Eskiviski, E. R., Schapovaloff, M. E., Dummel, D. M., **Fernandez, MM.**, & Aguirre, F. L. (2018). Susceptibility of eucalyptus species and hybrids to the gall wasp *Leptocybe invasa* (Hymenoptera: Eulophidae) in northern Misiones, Argentina. *Forest Systems*, 27(1), eSC01-eSC01. <https://doi.org/10.5424/fs/2018271-11573>

#### EXTENSION ARTICLES AND PRODUCTION OF OUTREACH MATERIALS

- MM Fernández** (2024). Climate-smart forestry: Mitigating climate change and enhancing resilience in Pennsylvania. IEE Blog. URL: <https://iee.psu.edu/news/blog/climate-smart-forestry-mitigating-climate-change-and-enhancing-resilience-pennsylvania>
- MM Fernández & M Kreye** (2024). Valoración del carbono en la actividad forestal: conectando el manejo forestal con los mercados de carbono. *Argentina Forestal*. URL: <https://www.argentinaforestal.com/2024/02/21/valoracion-del-carbono-en-la-actividad-forestal/>
- MM Fernández, Fragni S. & M Kreye** (2024). Perspectivas del mercado voluntario de carbono tras la experiencia de un propietario de bosque y una consultora argentina. *Argentina Forestal*. URL: <https://www.argentinaforestal.com/2024/05/08/perspectivas-del-mercado-voluntario-de-carbono/>
- MM Fernández & M Kreye** (2024). El carbono forestal ¿dónde encontramos los reservorios? *Argentina Forestal*. URL: <https://www.argentinaforestal.com/2024/01/19/el-carbono-forestal-donde-encontramos-los-reservorios/>

#### PRESENTATIONS AT CONFERENCES AND SCIENTIFIC EVENTS

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- MM Fernández** (2024). “Forest Rich, Carbon Strong: unleashing carbon stewardship for PA and beyond”. Penn State's 17th Annual Postdoctoral Symposium. (Oral). *Speaker:* MM Fernández.
- MM Fernández;** & CA Scott (2024). “Forest Carbon is an Essential Part of the Global Climate Solution” Millenium Café Series. The Pennsylvania State University. (Oral). *Speaker:* MM Fernández.
- MM Fernández;** B. Lockwood & M. Kaye. (2024). “Quantifying IFM potential for forest carbon sequestration and additionality in the eastern US: a synthesis.” 2024 *Society of American Foresters National Convention*. (Oral). *Speaker:* MM Fernández.

**MM Fernández;** N Pérez-Méndez; L van Doorn; F Fioroni; L Martínez; DM Eissenstat; MW Kaye; H Marrero; LA Garibaldi (2024). “From roots to leaves: multifunctional outcomes of nutrient enrichment in Patagonian woodlands”. (Oral). 2024 *Ecological Society of America Meeting*. *Speaker:* MM Fernández.

**Fernández, MM** (2023). More carbon sequestration or less carbon release? Climate-Smart Forestry strategies and forest carbon additionality in Pennsylvania. Penn State's 16th Annual Postdoctoral Symposium. (Póster).

**MM Fernández** (2022). “Unraveling the role of leaf litter on microarthropod response to anthropic disturbance: a Patagonian perspective”. Ecology Mini Symposium- Fall 2022. Penn State. (Oral).

**Fernández, MM.** (Aug. 2021). Is multiple nutrient addition affecting mesofauna-mediated litter decomposition in Patagonian woodlands? 2021 *Ecological Society of America Annual Meeting: “Vital Connection in Ecology”*. Online. (Póster).

LA Garibaldi, JI Agüero, AI Carrón, C. Coulin, **Fernández, MM.** I García., Girotto, Alberto Goldenberg, M., Fontenla, S., Nacif, M., Oddi, F., Pérez Méndez, N., van Doorn, L. (May 2019). Sustainable management of the native mixed forest: aerial and belowground interactions between plants and insects. In *II International Symposium-Mycorrhizal Symbiosis in South America* (Oral).

Abranchuk MF., **Fernández, MM.**, Zurita GA., Gatti MG. (2018). “Almacenamiento de carbono en plantaciones de *Pinus taeda* L. y bosque nativo en la provincia de Misiones” *Jornadas Científico-Tecnológicas UNaM* (Argentina, Oral).

**Fernández, MM.**; Maiocco D.C.; Stehr A.; Dummel C.; Gómez C (2014). Initial growth of *Hovenia* (*Hovenia dulcis* Thunb.) and *Cañafístola* (*Peltophorum dubium* (Spreng.) Taub.) in an enrichment-essay in degraded subtropical forests in Santiago de Liniers, Misiones. XVI *Forest Sciences and Environmental Conference*. FCF-INTA. Eldorado, Misiones. (Póster).

## OUTREACH ACTIVITIES

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A Daigneault; **MM Fernández;** L Kaarakka; G Latta (2025). 2025 Learning Exchange Series. Webinar 2: Additionality. Addressing uncertainties in additionality for forest carbon offsets. **URL:** <https://www.youtube.com/watch?v=upu8P9MPZ3o>. *Role:* Panelist.

M Kreye; C Norman; **MM Fernández;** K Neupane (2024). Professional Training Series: Teaching Forest Owners about Carbon Incentives. FOCCE Live Webinar Series 2024. *Role:* Moderator.

Leopold P.; Muth A.; **MM Fernández;** CA Scott; M Kreye (2024). “Keep Penn's Woods Healthy Workshop”. Organizing Institutions: [NIACS](#), FOCCE, Penn State. *Role:* Organizing Committee and activity Leader. Website: <https://forestadaptation.org/learn/keep-penns-woods-healthy-workshop>

Smith S., Groh T., Wurzbacher S., **Fernández MM.** (August 2022). "Woods and Stream Health" Tour. Extension activity with forest owners and general public. Ag. Progress Days 2022. Penn State Extension. College of Agricultural Sciences, The Pennsylvania State University.

## FUNDED RESEARCH GRANTS

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2024-2026 “Advancing the Co-benefits of Climate-Smart Forestry through Research and Extension in Pennsylvania's Private Forestlands”. CAS McIntire-Stennis Competitive Grants Program, FFY 2025-202. USDA-NIFA. Project. *Role:* CO-Principal Investigator. *Grant prize:* USD

- 100,000 per year.
- 2024-2026 “Augmenting Climate Transition across the Atlantic Transect: Extension-driven solutions to implementing socially responsible, high-integrity forest carbon offsets (ACT-AT Forests)”. Climate Solutions Accelerator Phase II. Institute of Energy and the Environment (IEE), The Pennsylvania State University. *Role*: CO-Principal Investigator. *Grant prize*: USD 100,000 per year.
- 2020-21 College of Agricultural Sciences Graduate Student Competitive Grant (Lead PI): *Do increases in soil fertility increase mesofauna-mediated decomposition of leaf litter?* Grant prize: USD 3000.
- 2018-21 PI 40 B 635 UNRN (Argentina, Project manager): *Soil fertility in Patagonian woodlands: implications for biological interactions and carbon sequestration*. Grant prize: USD 1,022 per year. Lead PI: Dr. Lucas A. Garibaldi.
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