

# RABINDRA PARAJULI, PhD

*Postdoctoral Research Associate*

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## EDUCATION

2024 Ph.D. in Geosciences, Florida Atlantic University, Boca Raton, FL.  
Dissertation: Biodiversity, Carbon, and Wildfires in Forest Ecosystems: Examining Dead Wood's Influence by Integrating Meta-analytic, Hierarchical & Simulation Modeling Approaches

2012 Master of Science in Botany, Tribhuvan University, Kathmandu, Nepal.  
Thesis: Facilitative Role of *Berberis mucrifolia* in Maintaining Plant Species Diversity at High-altitude Langtang Valley of Central Nepal

2006 Bachelor of Science (B.Sc.) in Biology, Tribhuvan University, Nepal. Major: Botany; Minors: Zoology, Chemistry and Biostatistics.

## ACADEMIC & RESEARCH EXPERIENCES

2024 July - Odum School of Ecology, University of Georgia, Athens, GA

### **Postdoctoral Research Associate**

- Leading the design of primary ecological (GeoAI) model to forecast vegetation dynamics under varying hydrologic, environmental, and disturbance regimes.
- Utilizing advanced geospatial tools and machine learning to classify plant communities and develop vegetation time-series from a variety of remote sensing Earth observation products and spatial data.
- Leading global systematic review and meta-analysis to synthesize evidence on biodiversity conservation benefits of river floodplain restoration nature-based solutions.

2019- 2024 Department of Geosciences, Florida Atlantic University, Boca Raton, FL

### **Graduate Researcher | Instructor | Research & Teaching Assistant | GIS Lab Coordinator**

- Conducted research broadly in ecological biogeography, including forest ecosystems, community ecology, biodiversity conservation and climate change with advanced geospatial and statistical modeling applications.
- Published five peer-reviewed articles in high-ranked journals, five manuscripts in progress, and nine conference presentations, including two award winning ones.

- Experienced with advanced statistical modeling and machine learning in R; cutting-edge GIS/RS tools and Python programming.
- Conducted wetland vegetation mapping for St. Johns River Water Management District combining World View satellite imagery and LiDAR data and application of geospatial tools, machine learning algorithms and Ensemble analyses. Did field training samples collections, and accuracy assessments as well. (Summer'23 & '24).
- Instructed and assisted 100+ students every academic year from across the GIS/RS, environmental sciences, and physical geography courses for their lab assignments and projects, theoretical concepts, and practical applications.
- Taught an in-person undergraduate level Environment and Society course with 35-40 students (Spring'22 & Fall'23). Prepared teaching materials, delivered lectures, designed evaluation frameworks, submitted final grades to university, and mentored students.

2016 - 2017 **Investigator/Researcher Abroad (Co-PI)** in *Soil microbial communities as mediators of plant-plant interactions* funded by the Spanish National Research Council (CSIS) to Arid Zone Research Stations (EEZA) for research in Spain and Nepal. PI: Prof. Francisco I. Pugnaire (EEZA-CSIC).

- Research experiments setups in Sierra Nevada, Spain, and Nepal Himalayas
- Conducted soil sampling and ecological data collection, supported in data statistical analysis and manuscript writing, review and editing.

2011 - 2015 **Planning, Monitoring and Research Manager** at Rural Development Tuki Association (RDTA), Dolakha, Nepal (a not-for-profit organization).

- Designed and led teams for vegetation analysis, forest resources assessment and quantification, climate change impact assessment and adaptation research.
- Led community development planning process, including community-based natural resources management plans.
- Supervised and mentored junior colleagues and researchers for field research, project goals, and capacity-building.

2010 **Ecological and Environmental Researcher** at RDTA, Dolakha, Nepal

- Conducted vegetation analysis and plant diversity inventory, forest resources assessment and biomass estimation, and identification of major non-timber forest products and their potential uses.
- Experienced with fieldwork in remote mountains, plant identification, statistical analysis, report writing, and presentations.

2009 - 2010 **Team Leader (PI)** “Positive Interactions in the Alpine Plant Community: Implications for Conservation in Langtang National Park, Nepal” research project funded by **The Rufford Small Grants Foundation, U.K.**

- Led the team for grant proposal writing, ecological research planning, fieldwork, workshop among policymakers, and awareness campaigns for local peoples.
- Experienced with field data collection, plant identification, data curation, statistical data analysis, manuscript writing, publications, and conference presentations.

## PUBLICATIONS

### *Refereed Journal Articles*

**Parajuli** R, Paudel, A. & Markwith S.H. (2025). Integrating the physical harvesting of dead wood into fuel treatments to reduce wildfire hazards and enhance carbon benefits. *Journal of Environmental Management*, 376, 124535. [Full text](#)

Noble et al. (2025) The promise of community-driven preprints in ecology and evolution. *Proceedings B*, 292(2039), 20241487. [Full text](#)

Neupane, G., Sharma, R., **Parajuli, R.**, Matthews, A. & Khalili H. (2024). Cardiac Papillary Fibroelastoma and Cerebrovascular Events: A Systematic Review. *CJC Open*. [Full text](#)

**Parajuli, R.** & Markwith, S.H. (2023). Quantity is foremost but quality matters: a global meta-analysis of correlations of dead wood volume and biodiversity in forest ecosystems. *Biological Conservation*, 283, 110100. [Full text](#)

Mainali, J., Chang, H., & **Parajuli, R.** (2023). Stream distance-based geographically weighted regression for exploring watershed characteristics and water quality relationships. *Annals of the American Association of Geographers*, 113(2), 390-408. [Full text](#)

Bhattarai, P., Timilsina, B., **Parajuli, R.**, Chen, Y., Gao, J., & Zhang, Y. (2022). Distinct response of high-latitude ecosystem and high-altitude alpine ecosystem to temperature and precipitation dynamics: A meta-analysis of experimental manipulation studies. *Progress in Physical Geography: Earth and Environment*, 46(6), 909-921. [Full text](#)

**Parajuli, R.**, O'Brien, M. J., Timilsina, B., Pugnaire, F. I., Schoeb, C., & Ghimire, S. K. (2021). Facilitation by a dwarf shrub enhances plant diversity of human-valued species at high elevations in the Himalayas of Nepal. *Basic and Applied Ecology*, 54, 23-36. [Full text](#)

Kikvidze, Z., Brooker, R.W., Butterfield, B.J., Callaway, R.M., Cavieres, L.A., Cook, B.J., Lortie, C.J., Michalet, R., Pugnaire, F.I., Xiao, S., Anthelme, F., Björk, R.G., Gavilán, R., Kanka, R., Maalouf, J.-P., Mark, A.F., Noroozi, J., **Parajuli, R.**, Phoenix, G.K., Reid, A.M., Rixen, C. & Schöb, C. (2015). The effects of foundation species on community assembly: a global study on alpine cushion plant communities. *Ecology*, **96**(8), 2064-2068. [Full text](#)

Cavieres, L.A., Brooker, R.W., Butterfield, B.J., Cook, B.J., Kikvidze, Z., Lortie, C.J., Michalet, R., Pugnaire, F.I., Schöb, C., Xiao, S., Anthelme, F., Björk, R.G., Dickinson, K.J.M., Cranston, B.H., Gavilán, R., Gutiérrez-Girón, A., Kanka, R., Maalouf, J.-P., Mark, A.F., Noroozi, J., **Parajuli, R.**, Phoenix, G.K., Reid, A.M., Ridenour, W.M., Rixen, C., Wipf, S., Zhao, L., Escudero, A., Zaitchek, Liguna, E., B.F., Aschehoug, E.T. & Callaway, R.M. (2014). Facilitative plant interactions and climate simultaneously drive alpine plant diversity. *Ecology Letters*, **17**(2), 193-202. [Full text](#)

Butterfield, B.J., Cavieres, L.A., Callaway, R.M., Cook, B.J., Kikvidze, Z., Lortie, C.J., Michalet, R., Pugnaire, F.I., Schöb, C., Xiao, S., Zaitchek, B., Anthelme, F., Björk, R.G., Dickinson, K., Gavilán, R., Kanka, R., Maalouf, J.-P., Noroozi, J., **Parajuli, R.**, Phoenix, G.K., Reid, A., Ridenour, W., Rixen, C., Wipf, S., Zhao, L. & Brooker, R.W. (2013). Alpine cushion plants inhibit the loss of phylogenetic diversity in severe environments. *Ecology Letters*, **16**(4), 478-486. [Full text](#)

### ***Manuscript in Progress***

**Parajuli, R.**, Dixon, M., Blalock, A., Fowler, A., Magnuson, K., Sigdel, S., Suedel, B., Crane, D.J., Wenger, S.J., van Rees, C.B. A global systematic review of the biodiversity impacts of hydrological floodplain restoration. *Biological Reviews*.

**Parajuli, R.**, Timilsina, B., Mainali, J., Bhattarai, P., Chhetri, R. & Acharya, K. Community assembly, ecosystem services and biodiversity conservation contributions of a native shrub in the Himalayas. *People and Nature*.

Rijal, S., Banjade, S.S., Rai, N., Mandal, A.K., and Parajuli., R. Improving flood detection in the Himalayas: Evaluating SAR-Optical data fusion with machine learning in a mountainous river basin of Nepal. *Remote Sensing Applications: Society and Environment*.

**Parajuli, R.**, Mandal, A.K. & Markwith, S.H. Disentangling the relative influence of weather, topography, live and dead fuels on exceptionally large wildfires' behavior in the western United

States. *Global Ecology and Biogeography*.

Sharma, L.N., **Parajuli, R.** & Rijal, D.P. Anthropogenic and environmental drivers of fine-scale patterns of tree species diversity in a remnant tropical forest of Nepal's Himalaya. *Environmental Management*.

Morillo, J.A., Michalet, R., **Parajuli, R.**, Pugnaire, F. I. Environmental control of soil microbial communities along an alpine elevation gradient. *Plant and Soil*.

#### **Book Review**

**Parajuli, R.** 2010. Review of "Understanding Climate Change Adaptation: Lessons from community-based approaches". *Nepali Journal of Contemporary Studies*, XX (2): 99-103.

#### **Technical and Academic Reports**

**Parajuli, R.**, & Mainali, J. 2011. *Plant Resources Assessment in Kalinchok Area: Plant Diversity, Productivity and Regeneration Mapping*. Research technical report submitted to Rural Development Tuki Association, Dolakha, Nepal.

Devkota, S., **Parajuli, R.**, Mainali, J., Bhattarai, P., Poudel, S., & Parajuli, R.R. 2011. *Exploration and Potentiality of Truffle Mushrooms in Nepal Himalaya*. Research technical report submitted to TrüffelKontor GmbH, Germany.

**Parajuli, R.** 2009. *Systematic Study of Delphinium L. (Ranunculaceae) of Nepal*. Mini dissertation submitted to Central Department of Botany, Tribhuvan University, Nepal for the partial fulfillment of requirements of MSc. Botany.

### **CONFERENCE & SYMPOSIUM PRESENTATIONS**

#### *Conference Oral Presentations*

**Parajuli, R.**, Mandal, A.K., & Markwith, SH. *Is dead wood the culprit? Disentangling the relative influence of topography, weather, and live and dead fuels on megafire behavior in the Western United States*. To be presented at the **60<sup>th</sup> Annual Meeting of Florida Society of Geographers**, St. Augustine, FL. February 16-18, 2024.

**Parajuli, R.** & Markwith, SH. *Consistently positive relationships of dead wood volume and biodiversity of saproxylic and non-saproxylic species in the forest ecosystems*. Presented on 26 March at the **2023 AAG Annual Meeting**, Denver, CO. March 23-27, 2023.

**Parajuli, R.** & Markwith, SH. *Quantity is foremost but quality matters: a global meta-analysis of correlations of dead wood volume and biodiversity in forest ecosystems*. Presented on Feb 18 at

**59<sup>th</sup> Annual Meeting of Florida Society of Geographers**, St. Augustine, FL. February 17-19, 2023. 2<sup>nd</sup> Best Graduate Presentation Award Winner

**Parajuli, R.** & Ghimire, S.K. *Facilitation by an endemic shrub enhances the diversity of medicinal and useful species in the Himalayas of Nepal.* **57<sup>th</sup> Annual Meeting of Florida Society of Geographers**, FL. Virtually on February 20, 2021.

Mainali, J., **Parajuli, R.**, Limbu, M. & Timilsina, B. *Analysis of climatic trends and their relation to vegetation performance in Gaurishankar Conservation Area, Central Nepal.* **International Conference on Forests, People and Climate: Changing Paradigm**, August 28 to 30, 2013; Pokhara, Nepal.

Mainali, J., Limbu, M., **Parajuli, R.** & Timilsina, B. *Relationship analysis of climate-vegetation performance using MODIS data in eastern Gaurishankar Conservation Area, Nepal.* **The Sixth National Conference on Science and Technology**, September 25-27, 2012. Kathmandu, Nepal.

**Parajuli R.** and Timilsina B. *Positive Interaction in alpine Plant Communities: Implication for Conservation in Langtang National Park, Nepal.* **Research in Protected Areas, Nepal: Interface between Researcher and Managers**, January 2012, Kathmandu, Nepal.

#### ***Symposium Oral Presentation***

**Parajuli, R.** & Ghimire, S.K. *Facilitation by a dwarf shrub enhances the plant diversity in the Himalayas of Nepal.* **Research Day Symposium** organized by Nepali Student Association at Florida Atlantic University, Boca Raton, FL. February 26, 2022.

#### ***Conference Poster Presentations***

**Parajuli, R.**, Mandal, A.K., & Markwith, SH. *Is dead wood the culprit? Disentangling the relative influence of topography, weather, and live and dead fuels on megafire behavior in the Western United States.* To be presented at the **2024 AAG Annual Meeting**, Honolulu, HI. April 16-20, 2024.

**Parajuli, R.** & Markwith, SH. *Quantity is foremost but quality matters: a global meta-analysis of correlations of dead wood volume and biodiversity in forest ecosystems.* Presented at the **14<sup>th</sup> Annual Research Day**, Graduate and Professional Student Association, Florida Atlantic University, Boca Raton, FL. March 29, 2023. 1<sup>st</sup> Place Winner Physical Sciences and Mathematics

Sharma, L.N., **Parajuli, R.** & Rijal, D.P. Anthropogenic and environmental drivers of fine-scale patterns of tree species diversity in a remnant tropical forest of Nepal's Himalaya. **ESA 2022 Annual**

**Meeting (ESA+CSEE Joint Meeting), Canada.** (Abstract accepted for presentation; however, didn't present due to lack of funds to travel to Canada).

**Parajuli, R.**, Timilsina, B., O'Brien, M.J., & Ghimire, S.K. *Facilitation by an endemic shrub promotes alpine plant diversity and composition in the Nepal Himalayas*. **2020 Ecological Society of America (ESA) 105<sup>th</sup> Annual Meeting**, August 03-05, 2020.

Pugnaire, F. I., Michalet, R., **Parajuli, R.**, Morillo, J.A. *Resistance of soil microbial communities to environmental changes in an alpine elevation gradient*. **4<sup>th</sup> Thünen Symposium on Soil Metagenomics: Understanding and Managing Soil Microbiomes**, 11-13 December 2019, Braunschweig, Germany.

#### **SELECTED GRANTS, AWARDS AND FELLOWSHIPS**

2023      **1<sup>st</sup> Place Winner** for the best research presentation in Physical Science and Mathematics category at the **14<sup>th</sup> Annual Research Day** organized by the Graduate and Professional Student Association, Florida Atlantic University, Boca Raton, FL. March 29, 2023. \$500.

2023      **2<sup>nd</sup> Best Graduate Presentation Award** for outstanding conference oral presentation at *59<sup>th</sup> Annual Meeting of Florida Society of Geographers*. St. Augustine, FL. February 17-19, 2023. \$150.

2023 & 2024 **Graduate Student Travel Award**, Graduate and Professional Student Association, Florida Atlantic University, Boca Raton, FL. \$1542.

2021 & 2023 **Geosciences Scholarships**, Department of Geosciences, Florida Atlantic University, Boca Raton, FL. \$1625.

2022 & 2024 **AAG -BSG Student Travel Award**, American Associations of Geographers (AAG), Washington, DC. \$1015.

2019 & 2020 **Presidential Doctoral Fellowship**, Florida Atlantic University, Boca Raton, FL. \$10,000.

2016      **Scientific Cooperation and Development (i-COOP) Grant** by the Spanish National Research Council, the Spanish Ministry of Education and Science for the project "*Soil Microbial Communities as Mediators of Plant-Plant Interactions*". PI: Prof. Francisco I. Pugnaire; **Co-PI (Investigator Abroad): Rabindra Parajuli**. €15,000.

2009      **The Rufford Small Grant for Nature Conservation**, by The Rufford Small Grants Foundation, U.K. for the research project *Positive Interaction in alpine Plant Communities: Implication for Conservation in Langtang National Park, Nepal*. £4078.

2009 **CNSP Research Grant** - Awarded by Cornell Nepal Study Program (CNSP), Kathmandu (a study abroad program of **Cornell University, Ithaca, New York, USA**) for my MSc. thesis research at Tribhuvan University, Nepal. \$150.

## OTHER PROFESSIONAL EXPERIENCE

2016 - 2019 **Project Manager** at CWIN Nepal, FORUT Norway and RDTA, Dolakha, (a consortium of three not-for-profit organizations).

- Led a multidisciplinary team during Nepal's 2015 mega earthquake crisis for rescue, relief, rehabilitation, and crisis management.
- Led to secure and manage funding of ~4.5 million dollars for the disaster response.
- Designed and implemented monitoring, evaluation, and research, including leading data collection, analysis, and visualization.
- Wrote reports and presented outcomes at local, national, and international meetings and conferences.
- Mentored and trained team members on leadership, communication, coordination, and supervision.

## PROFESSIONAL MEMBERSHIPS & TERMS

### *Associations/Society Memberships*

2021- Present **Member**, The Honor Society of Phi Kappa Phi, Baton Rouge, LA, US

2019- Present **Member**, Ecological Society of America (ESA), Washington DC, US

2021- 2024 **Member**, Florida Society of Geographers (FSG), FL, US

2019- 2024 **Member**, American Association of Geographers (AAG), Washington DC, US

2010-2012 **Member**, British Ecological Society, London, United Kingdom

### *Leadership Terms*

2023 - 2024 **Executive Board Student Representative** (elected), Biogeography Specialty Group of AAG, Washington DC, US

2023- 2024 **Board of Directors Student Representative** (elected), FSG, Florida, US

2023- 2024 **Advisor** Nepali Student Association at Florida Atlantic University, Boca Raton, FL

2022-2023 **President** Nepali Student Association at Florida Atlantic University, Boca Raton, FL

2021-2022 **Advisor** Nepali Student Association at Florida Atlantic University, Boca Raton, FL

2020-2021 **Secretary** Nepali Student Association at Florida Atlantic University, Boca Raton, FL

## REFEREE & SERVICES

### *Journal Peer Reviews*

2025 Discover Forests

2024 Journal of Vegetation Science, Journal of Mountain Science,

2023 Journal of Ecology, Journal of Mountain Science, Journal of Vegetation Science (2)

2022 Annals of Botany, Plant and Soil (3), Journal of Vegetation Science (2), BMC Ecology and Evolution, Ecology and Evolution, Journal of Mountain Science (2)

2021 Ecology and Evolution (2), Journal of Mountain Science (3)

### *Conference Abstracts Reviews*

2023 ESA 2023 Annual Meeting's abstracts review (36 abstracts)

2022 ESA & CSEE Joint Meeting's abstracts review (~60 abstracts)

2021 ESA 2021 Annual Meeting's abstracts review (~30 abstracts)

### *Conference/Seminar Presentations Judge*

2025 Judge of graduate student's oral presentation at 2023 Graduate Student Symposium at Odum School of Ecology, University of Georgia, Athens, GA. January 31 - February 1, 2025.

2021 Judge of Students' Poster and Oral Presentation Competition at **57<sup>th</sup> Annual Meeting of Florida Society of Geographers (FSG)**, FL. February 20, 2021.