Abhishek **Kumar**

Senior Research Fellow

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Education

Doctor of Philosophy (Botany/Plant Ecology) *2017 – 2024*

Panjab University, Chandigarh, IN

Master of Science (Botany) *2015 – 2017*

Panjab University, Chandigarh, IN

Bachelor of Science (Botany, Chemistry, Zoology) *2012 – 2015*

Arya PG College, Panipat, IN

Research Interests

- **Macroecology** Patterns and determinants of plant species richness along elevational gradients
- **Population Ecology** Climate-related redistribution of mountain trees (*Pinus*, *Quercus*, and *Rhododendron*)
- **Ecosystem Ecology** Patterns and determinants of litter decomposition in terrestrial ecosystems
- **Restoration Ecology** Ecological restoration of degraded ecosystems and coal mine spoils
- **Research Synthesis** Bibliometrics, systematic reviews, and meta-analysis

Publications

A complete list of publications is available from my ORCID (https://orcid.org/0000-0003-2252-7623)

Journal articles

- **Kumar, A.**, Patil, M., Kumar, P., & Singh, A. N. (2024b). Exploring elevational patterns of plant species richness: Insights from Western Himalayas. *Ecology and Evolution* (accepted)
- **Kumar, A.**, Patil, M., Kumar, P., & Singh, A. N. (2024a). Determinants of plant species richness along elevational gradients: Insights with climate, energy and water-energy dynamics. *Ecological Processes 13*, 86. https://doi.org/10.1186/s13717-024-00563-z
- **Kumar, A.**, Kumar, P., Patil, M., Hussain, S., Yadav, R., Sharma, S., Tokas, D., Singh, S., & Singh, A. N. (2024). Disturbance and vegetational structure in an urban forest of Indian Siwaliks: an ecological assessment. *Environmental Monitoring and Assessment, 196*(8), 691. https://doi.org/10.1007/s10661-024-12801-0
- **Kumar, A.**, Patil, M., Kumar, P., Kumar, M., & Singh, A. N. (2022). Plant ecology in Indian Siwalik range: A systematic map and its bibliometric analysis. *Tropical Ecology, 63*(3), 338–350. https://doi.org/10.1007/s42965-022-00229-x
- Singh, A. N., & **Kumar, A.** (2022b). Comparative soil restoration potential of exotic and native woody plantations on coal mine spoil in a dry tropical environment of India: A case study. *Land Degradation & Development, 33*(12), 1971–1984. https://doi.org/10.1002/ldr.4286
- Singh, A. N., & **Kumar, A.** (2022a). Ecological performances of exotic and native woody species on coal mine spoil in Indian dry tropical region. *Ecological Engineering, 174*, 106470. https://doi.org/10.1016/j.ecoleng.2021.106470
- Patil, M., **Kumar, A.**, Kumar, P., Cheema, N. K., Kaur, R., Bhatti, R., & Singh, A. N. (2020). Comparative litter decomposability traits of selected native and exotic woody species from an urban environment of north-western Siwalik region, India. *Scientific Reports, 10*, 7888. https://doi.org/10.1038/s41598-020-64576-2

Book chapters

- **Kumar, A.**, Patil, M., Kumar, P., & Singh, A. N. (2021). Phosphorus and litter decomposability traits in tropical forest ecosystems under changing environment: A synthesis. In R. K. Chaturvedi, R. Singh, & R. Bhadouria (Eds.), *Tropical Dry Forests: Emerging Features and Ecological Perspectives* (pp. 311–336). Nova Science Publishers, New York.
- **Kumar, A.**, Yadav, R., Patil, M., Kumar, P., Zhang, L., Kaur, A., Sharma, S., Hussain, S., Tokas, D., & Singh, A. N. (2020). Sustainable management of national parks and protected areas for conserving biodiversity in India. In L. Zhang (Ed.), *Advances in Forest Management under Global Change* (pp. 75–91). IntechOpen, London. https://doi.org/10.5772/intechopen.92435

Skills

A full list of accomplishments and certificates is available from my webpage (https://akumar.netlify.app)

- R statistical environment and `RStudio`
- Data analysis and visualization (`ggplot2`, `MuMIn`, `stats`, `tidyverse`)
- Linear and non-linear mixed-effects modelling (`nlme`)
- Spatial data analysis (`bfast`, `MODISTools`, `sf`, `terra`, `tmap`)
- Species distribution modelling (`biomod2`, `MaxEnt`)
- Species diversity and multivariate analysis (`ade4`, `iNEXT`, `vegan`)
- Structural equation modelling (`piecewiseSEM`)
- Systematic reviews and meta-analysis (`bibliometrix`, `metafor`, `revtools`)
- Reproducible research (`git`, `quarto`, `rmarkdown`, `knitr`)

Awards and Distinctions

Young Scientist Award
Punjab Academy of Sciences, Patiala — *2022*

Best Poster Award
National Conference on Climate Change, CSIR-NBRI, Lucknow — *2020*

Junior Research Fellowship
University Grants Commission, New Delhi — *2017*

Professional Memberships

Society of Open, Reliable and Transparent Ecology and Evolutionary Biology (SORTEE) — *Salem, Oregon, US*
Student member (#521) — *2023 – Present*

Punjab Academy of Sciences (PAS) — *Patiala, Punjab, IN*
Life member (#L-1599) — *2022 – Present*

International Association for Vegetation Science (IAVS) — *Bethesda, Maryland, US*
Student member (#67527876) — *2021 – 2025*

Academic Services

Peer-reviewed for (i) *Ecological Engineering*; (ii) *Ecology and Evolution*; (iii) *Ecosphere*; (iv) *Frontiers in Forests and Global Change*; (v) *Oikos*; (vi) *One Ecosystem* and other reputed journals