CURRICULUM VITAE

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Education

- Ph.D. in Environmental Sciences from Central University of Jharkhand, Ranchi, India from 2021-2025 July.
- M.Sc. in Biodiversity and Conservation of Natural Resources with a CGPA of 8.95 from Central University of Odisha, Koraput, India (Gold Medallist) in 2020.
- B.Sc. in Zoology (Hons.) with a CGPA of 8.61 from Utkal University, Odisha, India in 2018.

Ph.D. Research Work

- **Title:** *Disturbance Impacts on vegetation dynamics in Palamau Tiger Reserve, Jharkhand, Eastern India*
- **Supervisor:** Dr. Purabi Saikia
- **Objective:** The research focused on assessing the ecological impacts of various disturbances on native tree species and understorey vegetation in Palamau Tiger Reserve. Using field survey, remote sensing and GIS, it quantified the detailed floristic composition and regeneration potential of tree species in different disturbance gradients, identified the existing threats to the plant resources and enlisted rare, endangered, and threatened (RET) species based on population status, invasive species impacts on forest regeneration, and evaluated forest cover change along fragmentation analysis over the three decades (1993-2023). The finding showed an alarming condition of PTR due to the disturbance regimes and increasing population of invasive plant species.

Experience

- Post-Doctoral Associate in National Institute of Advanced Studies (NIAS), Indian Institute of Science Campus Bengaluru, since May 2025.
- Gained hands-on teaching experience during Ph. D. by conducting undergraduate and postgraduate theory and practical sessions, assisting in exam preparation and evaluation processes.

Awards/Achievements

- Qualified-UGC-NET (Ph. D. Category) December 2024 in Environmental Sciences.

- DST INSPIRE Fellowship of Government of India, Department of Science and Technology, Technology Bhawan, New Mehrauli Road New Delhi-110016 in September 2021.

List of Publications (Chapters in Edited Book Volumes and Journal Articles)

List of Journal Articles

- **Patra, S.,** Kishore, B. S. P. C., Kumar, A., & Saikia, P. * (2025). Distribution mapping of major invasive plant species of India and their role in ecosystem alteration: a systematic review. *Discover Forests*, 1(49), 1-33. https://doi.org/10.1007/s44415-025-00047-8
- **Patra, S.,** Saikia, P.* (2025). Invasive plant species and their impact on forest composition and regeneration in tropical deciduous forests of Palamau Tiger Reserve, Eastern India. *New Forests*, 56(2),21. 10.1007/s11056-024-10085-3
- **Patra, S.,** Saikia, P.* (2024). Plant resources of Palamau Tiger Reserve, Eastern India and their utilitarian perspectives. *Vegetos*. https://doi.org/10.1007/s42535-024-00997-y
- Paul, R., **Patra, S.**, & Banerjee, K. (2020). Socio-economic impact on vulnerability of tropical forests of Eastern Ghats using hybrid modelling. *Tropical Ecology*, 61(4), 475-486.

List of Chapters in Edited Book Volumes

- **Patra, S.,** Saikia, P.*, Kumar, A. (2025). Cultural Ecosystem Services of Protected Areas: Considering Community Preferences and Their Socio-economic Conditions. In: Forests for Inclusive and Sustainable Economic Growth, Saikia, P., Kumar, A., Khan, M.L., Lei, X. (eds.), **Chapter: 21**, Elsevier Inc., pp. 307–322. https://doi.org/10.1016/B978-0-443-31406-3.00021-7. **ISBN:9780443314063.**
- **Patra, S.,** Saikia, P. *, Kumar, A., Lei, X., Khan, M.L. (2025). Forests and their role in achieving United Nations sustainable development goals. In: Forests for Inclusive and Sustainable Economic Growth, Saikia, P., Kumar, A., Khan, M.L., Lei, X. (eds.), **Chapter: 1**, Elsevier Inc., pp. 3-14. https://doi.org/10.1016/B978-0-443-31406-3.00001-1. **ISBN:9780443314063.**
- **Patra, S.,** Kumar, A., Saikia, P. * (2024). Modeling Approaches for the Assessment and Mitigation of Agricultural Greenhouse Gas Emissions. In: Agricultural Greenhouse Gas Emissions: Problems and Solutions, Bordoloi, N., Bauddh, K., Baruah, K. (eds.), Springer Nature, Singapore, pp. 103-114. https://doi.org/10.1007/978-981-97-7554-5_5. **ISBN: 9789819775545.**
- **Patra, S.,** Shilky, Kumar, A., Saikia, P.*, Khan, M.L. (2024). Traditional Agroecosystems of Northeast India and Their Role in Climate Change Mitigation. In: Agroforestry, Raj, A., Jhariya, M.K., Banerjee, A., Jha, R.K., Singh, K.P. (eds.), **Chapter: 13**, Scrivener Publishing LLC, Wiley, Beverly,MA, USA, pp. 375-399. https://doi.org/10.1002/9781394231164.ch13. **ISBN: 9781394231133.**
- **Patra, S.,** Anurag, S., Saikia, P.*, Kumar, A., Khan, M.L. (2024). Traditional Ecological Knowledge for the Management of Medicinal Plants with particular emphasis on Northeast India. In: Sustainable Forest Resources Management: Issues and Implications, Bhat, J.A., Shukla, G., Dobriyal, M.J., Chakravarty, S., Arunachalam, A., Bussmann, R.W. (eds.), **Chapter 10,** Apple Academic Press (AAP), CRC Press, Taylor & Francis Group, Boca Raton, USA. **ISBN: 9781774917060**.
- Shilky**, Patra, S.,** Chakraborty, A., Saikia, P. (2024). Role of omics tools in understanding the stress tolerance in legumes. In: Current Omics Advancement in Plant Abiotic Stress Biology, Bhatt, D., Nath, M., Badoni, S., Joshi, R. (eds.), **Chapter 14,** Academic Press, Elsevier Inc., pp. 215-226. Academic Press. https://doi.org/10.1016/B978-0-443-21625-1.00014-2. **ISBN: 9780443216251.**

- **Patra, S.,** Saikia, P.* (2024). Omics tools in understanding environment-induced stresses in plants. In: Biomarkers in Environmental and Human Health Biomonitoring, Madhav, S., Dhaka, R.K., Garg, P. (eds.), **Chapter 11,** Academic Press, Elsevier Inc., pp. 205-213. https://doi.org/10.1016/B978-0-443-13860-7.00017-3. **ISBN: 9780443138607.**
- Shilky**, Patra, S.,** Saikia, P.*, Kumar, A., (2024). Management of aquatic ecosystems and aquatic vegetation for environmental sustainability. In: Aquatic Ecosystems Monitoring, Pandey, P.C., Srivastava, P.K., Srivastava, S.K. (eds.), CRC Press, Taylor & Francis Group, Boca Raton, USA, pp. 205-217. https://doi.org/10.1201/9781003354000. **ISBN: 9781003354000.**
- Ekka, P., **Patra, S.,** Upreti, M., Kumar, G., Kumar, A., Saikia, P.* (2023). Land degradation and its impacts on biodiversity and ecosystem services. In: Land and environmental management through forestry, Raj, A., Jhariya, M.K., Banerjee, A., Nema, S., Bargali, K. (eds.), **Chapter 4,** Scrivener Publishing LLC, pp. 77-101. https://doi.org/10.1002/9781119910527.ch4. **ISBN: 9781119910404**.
- **Patra, S.,** Shilky, Kumar, A., Saikia, P.* (2023)**.** Impact of Land Use Systems and Climate Change on Water Resource: Indian Perspectives. In: Advances in Water Resource Planning and Sustainability, Rai, P.K. (ed.), **Chapter 6,** Springer Nature Singapore Pte Ltd. https://doi.org/10.1007/978-981-99-3660-1_6. **ISBN: 9789819936595**.
- Shilky, **Patra, S.,** Ekka, P., Kumar, A., Saikia, P.*, Khan, M.L. (2023). Climate Change: A Major Challenge to Biodiversity Conservation, Ecological Services, and Sustainable Development. In: Palgrave Handbook of Socio-ecological Resilience in the Face of Climate Change: Contexts from a Developing Country, Nautiyal, S., Gupta, A.K., Goswami, M., Khan, Y.D.I. (eds.), **Chapter 33,** Springer Nature-Palgrave, Macmillan. https://doi.org/10.1007/978-981-99-2206-2_33. **ISBN: 9789819922055**.
- **Patra, S.,** Kumar, A., Saikia P.* (2022). Deforestation and Forests Degradation Impacts on Livelihood Security and climate change: An Indian Initiatives towards its Mitigation. In: Environmental Degradation: Challenges and Strategies for Mitigation; Singh, V.P., Yadav, S., Yadav, K.K., Yadava, R.N. (eds.), **Chapter 18**, Springer Nature, Switzerland, AG, pp. 371-392. https://doi.org/10.1007/978-3-030-95542-7_18. **ISBN: 9783030955410**.
- Kumar, A., Ekka, P., **Patra, S.**, Kumar, G., Kishore, B.S.P.C., Kumar, R., Saikia, P.* (2022). Geospatial Perspectives of Sustainable Forests Management to enhance Ecosystem Services and Livelihood Security. In: Advances in remote sensing for forest Monitoring, Pandey, P.C., Arellano, P. (eds.), **Chapter 2,** John Wiley & Sons, Inc., Hoboken, NJ, USA, pp. 10-42. https://doi.org/10.1002/9781119788157.ch2. **ISBN: 9781119788126.**
- Sheikh, N., **Patra, S.,** Kumar, A., Saikia, P.* (2022). Indian forests: sustainable uses and its role in livelihood security. In: Land Degradation Neutrality: Achieving SDG 15 by Forest Management, Panwar, P., Shukla, G., Bhat, J.A., Chakravarty, S. (eds.), **Chapter 23,** Springer Nature Singapore, Pte Ltd., pp. 437-452. https://doi.org/10.1007/978-981-19-5478-8_23. **ISBN: 9789811954771.**
- Shilky, **Patra, S.,** Harshvardhan, A., Kumar, A., Saikia, P.* (2022). Role of microbes in controlling the geochemical composition of aquatic ecosystems. In: Hydrogeochemistry of Aquatic Ecosystems, Madhav, S., Singh, V.B., Kumar, M., Singh, S. (eds.), **Chapter 12,** Wiley, United Kingdom, pp. 265-281. https://doi.org/10.1002/9781119870562.ch12. **ISBN: 9781119870531.**