NINAD AVINASH MUNGI

Postdoctoral fellow, Department of Biology, Aarhus University, Denmark Email: shastri.ninad@gmail.com, Phone: (IN) +91-8449614926, (DK) +45 91116708 Pronouns: he/him, Nationality: India, Birth: 5th September 1988









Introduction:

An ecologist with a passion for nature-recovery and megafauna conservation, I bring a unique perspective to the field. For over a decade, I've been using cutting-edge technology such as big data analytics, remote sensing, and biodiversity assessments to drive innovative solutions for global challenges. During my PhD research, I used one of the largest biodiversity datasets to assist ecological restoration in India. This big data based research has become central to restoration policies in India. As a postdoctoral fellow at Aarhus University in Denmark, my research focuses on nature-based solutions for global challenges, with projects ranging from tiger recovery in India to climate change monitoring in the trans-Himalaya, and biodiversity recovery in invaded ecosystems. I have been teaching postgraduate and graduate courses across international and Indian universities on advance quantitative methods, macroecology, conservation biology, and restoration ecology. My goal is to strengthen nature recovery in our changing world through scientific inputs, creative training, and policy rekindling. I'm committed to driving positive change through my work, and excited to see what the future holds for the field of ecology and conservation.

Education:

- PhD (Forestry): Awarded in January 2021, from Forest Research Institute University, Dehradun, India. Topic: Modelling plant invasions in tropical forests of India
- 2. Masters (Geo-informatics): Awarded in July 2011, University of Pune, India.
- Bachelors (Botany): Awarded in June 2009, University of Pune, India.

Professional experience:

- 1st October 2021 30th September 2023: Postdoc, Aarhus university, Denmark 1. Description: Modelling global ecological changes driven by biological invasions and climate change.
- 2. 1st February 2021 – 31st August 2021: Biologist, Wildlife Institute of India (WII), India Description: Modelling biotic resistance of forests to biological invasions across the tropical systems.
- 1st August 2019 December 2023: IPBES Fellow, Multi-national. 3. Description: Global invasive alien species assessment.
- 4. 1st April 2018 – 31st March 2023: Scientific consultant, Ladakh Wildlife Department, India Description: Population assessment of snow leopard, co-predators, prey, and their habitat in the Trans-Himalayan region.
- 25th May 2016 20th September 2016: Fellow, University of British Columbia, Canada. Description: Using satellite remote sensing for mapping invasive plants
- 6th April 2014 22nd August 2019: PhD fellow, Forest Research Institute, India 6. Description: PhD on the topic 'Modelling plant invasions in India'.
- 1st March 2012 31st August 2021: Research fellow, WII, India 7. Description: Developing ecoinformatics applications (MSTrIPES) for assisting patrols, wildlife crime investigation, ecological monitoring, and human-wildlife conflicts.
- 1st March 2012 31st August 2021: Research fellow, Wildlife Institute of India, India 8. Description: National assessment of tigers, co-predators, prey and their habitats in India.
- 1st July 2011 25th February 2012: Research Assistant, Bombay Natural History Society, India 9. Description: Effects of veterinary drugs on decline of three vulture species.

Present project involvements:

1. Modelling emerging novel ecosystems in the Anthropocene (2021-2024)

Funding: VILLUM Investigator project, Aarhus University, Denmark

Collaboration: Prof. Jens-Christian Svenning, Aarhus University, Denmark

2. Recovery of megafauna in India (2018-2025)

Funding: National Tiger Conservation Authority, and WII

Collaboration: Prof. Y.V. Jhala, Retd. Dean, Wildlife Institute of India

3. Restoration of invaded ecosystems in India (2015-2025)

Funding: National Tiger Conservation Authority, and WII

Collaboration: Prof. Qamar Qureshi, Scientist, Wildlife Institute of India

4. Monitoring megafauna, vegetation, and climate in Trans-Himalaya (2018-2025)

Funding: Ladakh Wildlife Department, India

Collaboration: Dr. Pankaj Raina, Ladakh Wildlife Department, India

Peer-reviewed scientific publications:

Google Scholar citation statistics: citations: 190, h-index: 9, Cumulative impact factor: 56.486

- 1. **Mungi NA***, Jhala YV, Qureshi Q, Le Roux E & Svenning JC (2023, in press) Megaherbivores provide biotic resistance against plant invasions. *Nature Ecology & Evolution*. (*Impact factor: 19.1, Significance:* A collaborative research that I led during my postdoc tenure to
 - establish a novel function of megaherbivores in controlling plant at global scale)
- 2. **Mungi NA***, Qureshi Q & Jhala YV (2023, accepted) Distribution, drivers and restoration priorities of plant invasions in India. *Journal of Applied Ecology*.
 - (*Impact factor: 6.86, Significance:* Paper reporting my PhD research on mapping plant invasions and prioritizing biodiversity restoration across India)
- 3. Shameer TT, **Mungi NA**, Ramesh B, Kumar SV & Easa PS (2023) Distribution and conservation status of the endemic Nilgiri marten (*Martes gwatkinsii*). *Mammalia*.
 - (*Impact factor: 1.3, Significance*: study models the distribution and conservation status of an endemic mammal in tropical forests of the Western Ghats)
- 4. **Mungi NA**, Qureshi Q & Jhala YV (2021) Role of species richness and human impacts in resisting invasive species in tropical forests. *Journal of Ecology* 109 (9): 3308-3321. https://doi.org/10.1111/1365-2745.13751
 - (*Impact factor: 6.38, Citations: 5, Significance*: My PhD research highlighting importance of protecting forests to resist alien species; validating biotic resistance hypothesis)
- 5. Patil MD, Patil VK & **Mungi NA** (2021) Spatiotemporal movement pattern of Asian elephants in Sindhudurg district, Maharashtra, India. *Journal of Threatened Taxa* 5573(2):1-13. https://doi.org/10.11609/jott.5573.13.5.18099-18109
 - (*Impact factor: 0.2, Citations: 1, Significance:* study developed quantitative models to evaluate conflict caused by a novel colonization of elephants in India)
- 6. Vashistha G, **Mungi NA**, Lang JW, Ranjan V, Dhakate PM, Khudsar FA & Kothamasi D (2021) Gharial nesting in a reservoir is limited by reduced river flow and by increased bank vegetation. *Scientific reports* 11(1):1-2. https://doi.org/10.1038/s41598-021-84143-7
 - (*Impact factor: 4.99, Citations: 7, Significance*: study developed remote sensing based models for evaluating changes in riverine habitat of an endangered reptile *Gavialis gangeticus*)
- 7. Mahar N, **Mungi NA** & Lahiri S (2021) Beyond Nationality: Opportunities for Trans-Boundary Wildlife Conservation. Dialogue: Science, Scientist and Society 3:1-9 (*Significance*: this perspective piece highlights conservation opportunities for declaring peace parks on the India-Pakistan border)

- 8. Shameer TT, **Mungi NA**, Ramesh B, Kumar SV & Easa PS (2021) How can spatio-temporal overlap in mammals assist in maximizing biodiversity conservation? A case study of Periyar Tiger Reserve. *Biologia*: 1-11. https://doi.org/10.2478/s11756-020-00645-1
 - (*Impact factor: 1.65, Citations: 3, Significance*: study reporting mammalian biodiversity patterns in tropical forests in Western Ghats)
- 9. Lahiri S & **Mungi NA** (2020) India's canine conundrum, a case of cognitive dissonance? SocArXiv 10.31235/osf.io/dcrbg
 - (*Significance*: this social survey study highlights the conundrum in academicians about impacts of free ranging dogs in India)
- 10. **Mungi NA**, Qureshi Q & Jhala YV (2020) Expanding niche and degrading forests: Key to the successful global invasion of *Lantana camara* (sensu lato). *Global Ecology and Conservation* 4:e01080. https://doi.org/10.1016/j.gecco.2020.e01080
 - (*Impact factor: 3.969, Citations: 15, Significance*: this big-data based study established the invasion magnitude of *Lantana camara* in India and was used for initiating policies on management of biological invasions)
- 11. Bhattacharyya S, **Mungi NA**, Kawamichi T, Rawat GS, Adhikari BS & Wilkening JL (2019) Insights from present distribution of an alpine mammal Royle's pika (*Ochotona roylei*) to predict future climate change impacts in the Himalaya. *Regional Environmental Change* 19(8):2423-35. https://doi.org/10.1007/s10113-019-01556-x
 - (*Impact factor: 4.704, Citations: 7, Significance*: This collaborative study found that climatic changes had already reduced the range of a Himalayan lagomorph in last few decades, and would likely reduce further in the coming decades)
- 12. Wilkening J, Pearson-Prestera W, **Mungi NA** & Bhattacharyya S (2019) Endangered species management and climate change: When habitat conservation becomes a moving target. *Wildlife Society Bulletin* 43(1):11-20. https://doi.org/10.1002/wsb.944
 - (*Impact factor: 0.967, Citations: 15, Significance*: study found present protected areas to be insufficient to protect an endangered rodent in the scenario of climate change)
- 13. **Mungi NA***, Kaushik M, Mohanty NM, Rastogi R, Johnson JA & Qureshi Q (2018) Identifying knowledge gaps in research and management of high concern invasive species in India. *Biologia* 74 (6), 623-629. https://doi.org/10.2478/s11756-018-00186-8
 - (*Impact factor: 1.65, Citations: 15, Significance*: this study was result of a consultation workshop that prioritized invasive species for management in India)
- 14. Mungi NA* & Qureshi Q (2018) On the history, politics and science of invasion ecology. *Dialogue: Science, Scientist and Society* 1:1-13. https://doi.org/10.29195/DSSS.01.01.0009
 (*Citations: 6, Significance*: this perspective piece offers a philosophical discourse on biological invasions through a lens of social and political discourses)
- 15. **Mungi NA***, Coops NC, Ramesh K & Rawat GS (2018) How global climate change and regional disturbance can expand the invasion risk? Case study of *Lantana camara* invasion in the Himalaya. *Biological Invasions* 20(7):1849-1863. https://doi.org/10.1007/s10530-018-1666-7 (*Impact factor: 3.605, Citations: 33, Significance*: This study highlights the interactive effect of climatic changes and anthropogenic pressure on spread of an invasive plant in Himalaya. This collaborative study was supported by Queen Elizabeth Scholarship)
- 16. Kaushik M & **Mungi NA** (2015) Human-wildlife interactions and management of invasive species. *Current Science* 108(6):1039-1040
 - (*Impact factor: 1.102, Citations: 5, Significance*: study reporting key points of a consultation workshop on human-wildlife conflict and invasions by Ministry of Environment, Forests and Climate Change and Wildlife Institute of India)

Technical reports that resulted in effective ground actions

- Mungi NA, Rastogi R, Qureshi Q, Jhala YV (2023) Plant invasions and restoration priorities in India.
 In, Qureshi Q, Jhala YV, Malick A and Yadav SP (Eds) Status of Tigers Co-predators & Prey in India: 2023. National Tiger Conservation Authority, New Delhi and Wildlife Institute of India, Dehradun. ISBN No: 81-85496-92-7
 - (*Significance*: First ever report on the status of invasive plants in India and a model to restore invaded ecosystems across protected areas. A Standard Operating Protocol (SOP) will soon be launched based on this report, paving a way for drafting India's restoration policy)
- Jhala YV, Bora JK, Chauhan JS, Deshmukh AV, Goswami S, Vishnuvardhan, Yellapu S, Jhala H, Mungi NA, Kumar U, Singh SK (2022). Feasibility Study and Action Plan for Wild Buffalo Reintroduction in Kanha Tiger Reserve. Forest Department, Government of Madhya Pradesh, Bhopal and Wildlife Institute of India, Dehradun. ISBN No. 81-85496-78-1
- 3. Jhala YV, Qureshi Q and Nayak A (2021) Status of leopards, co-predators, and megaherbivores in India, 2018. National Tiger Conservation Authority, Government of India, New Delhi & Wildlife Institute of India, Dehradun. ISBN 81-85496-56-0 (Contributed to all 31 chapters)
- 4. Jhala YV, Qureshi Q and Nayak A (2020) Status of tigers, co-predators, and their prey in India 2018. National Tiger Conservation Authority, Government of India, New Delhi & Wildlife Institute of India, Dehradun. ISBN 81-85496-50-1 (Contributed to 19 chapters)
- 5. Jhala YV, Qureshi Q, **Mungi NA** et al. (2019) MSTrIPES Ver 2: Development and Implementation. National Tiger Conservation Authority, Government of India, New Delhi & Wildlife Institute of India, Dehradun.
- 6. Mathur VB, Kaushik M, Bist SS, **Mungi NA**, Qureshi Q (2016) Management of human-wildlife interaction and invasive alien species in India. Wildlife Institute of India, Dehradun. TR 2015/004
- 7. Jhala YV, Qureshi Q and Gopal R (2015) The status of tigers, co-predators and their prey in India 2014. National Tiger Conservation Authority, Government of India, New Delhi & Wildlife Institute of India, Dehradun. TR 2015/021 (Contributed to 4 chapters)
- 8. Jhala YV, Qureshi Q, **Mungi NA** et al. (2014) MSTrIPES Ver 1: Development and Implementation. National Tiger Conservation Authority, Government of India, New Delhi & Wildlife Institute of India, Dehradun.
- 9. **Mungi NA**, Qureshi Q, Jhala YV & Gopal R (2013) Presence of invasive plants in the tiger forests of India. National Tiger Conservation Authority, Government of India, New Delhi & Wildlife Institute of India, Dehradun.
- 10. Shah N, Roy A, **Mungi NA**, Qureshi Q, et al. (2012) The of use of the non-steroidal anti-inflammatory drug and its effects on three vulture species distribution in India. Bombay Natural History Society, New Delhi & Wildlife Institute of India, Dehradun.

Software development:

- MSTrIPES Windows software: Open-access GUI for retrieving, archiving, analysing and reporting
 information on protection, ecological monitoring and human-wildlife conflict in protected areas. Used
 by >1000 forest managers for analysing biodiversity data
 (https://mstripes.wii.gov.in/softwares/)
- 2. **MSTrIPES Android apps:** Open-access android apps for using in mobile handsets for recording information during routine patrolling, ecological monitoring and cases of human-wildlife conflict. Used by >8000 forest managers and staff for collecting biodiversity information (https://mstripes.wii.gov.in/)

Magazine and popular articles:

- Mungi NA (2023) Alien plants growing together threatening tiger habitats: Study. Down to Earth https://www.downtoearth.org.in/news/wildlife-biodiversity/alien-plants-growing-together-threatening-tiger-habitats-study-87247
- 2. **Mungi NA** (2021) Protecting forests reinforces biotic resistance to invasive species. Journal of Ecology Blog. https://jecologyblog.com/2021/11/16/protecting-forests-reinforces-biotic-resistance-to-invasive-species/
- 3. **Mungi NA** Banerjee K & others (2021) India's green warriors. How frontline forest staff protected wildlife during the 2020 nationwide lockdown. STRIPES: A quarterly journal of the National Tiger Conservation Authority (Vol 11). https://ntca.gov.in/assets/uploads/stripes/Vol11_Issue1_2021.pdf
- 4. **Mungi NA** & Kumar U (2021) Forest staff are unrecognized warriors of the lockdown. Down to Earth. https://www.downtoearth.org.in/blog/wildlife-biodiversity/frontline-forest-workers-heroes-in-the-strife-of-the-covid-19-lockdown-77594
- 5. **Mungi NA**, Mahar N & Lahiri S (2020) Greening a desert invites locust swarms. Mongabay. https://india.mongabay.com/2020/05/commentary-greening-a-desert-invites-locust-swarms/
- 6. **Mungi NA**, Mahar N & Lahiri S (2020) When you green a desert, you invite locust swarms. The Wire. https://science.thewire.in/environment/when-you-green-a-desert-you-invite-locust-swarms/
- 7. Lahiri S, Mahar N & **Mungi NA** (2019) Dogged concerns: who let the dogs eat? Saevus. https://www.magzter.com/stories/Animals-and-Pets/Saevus/Dogged-Concerns-Who-Let-The-Dogs-Eat

Teaching and supervising experience:

- 1. Conservation biology (2023): 6 hrs teaching postgraduate course, Wildlife Institute of India (WII)
- 2. **Invasion ecology (2015-2019):** 60 hrs teaching in the habitat ecology and habitat management modules to postgraduate course in Wildlife Sciences, WII
- 3. **Spatial ecology (2019-2020):** 93 hrs teaching in the advance statistics module to postgraduate course in Wildlife Sciences, WII, IN
- 4. **Ecoinformatics (2014-2019):** 132 hrs teaching in the ecological monitoring and conservation techniques to Diploma and Certificate course, WII
- 5. Meta-analysis (2017): 6 hrs teaching to postgraduate course in Wildlife Sciences, WII
- 6. Habitat ecology (2023): 6 hrs guest lecture to postgraduate course in Wildlife Sciences, WII
- 7. Habitat ecology (2023): 6 hrs guest lecture to postgraduate course in Wildlife Sciences, WII
- 8. **Megafauna ecology and restoration (2022):** 2 hrs guest lecture to PhD course at Department of Biology, Aarhus University, Denmark
- 9. **Biogeography and Macroecology (2022):** 1 hr guest lecture to master's course at Department of Biology, Aarhus University, Denmark
- 10. Dissertation (2020): 60 hrs co-supervision for 1 postgraduate thesis, WII
- 11. Dissertation (2023): 40 hrs co-supervision for 4 postgraduate students, Aarhus University, Denmark

Fellowships, awards, and grants:

- 1. India Bioscience Travel award (2023): Young Investigator Meeting 2023, Gandhi Nagar, India
- 2. **Postdoctoral fellowship (2021-2023):** Department of Biology, Aarhus University, Denmark
- 3. **IPBES fellowship (2019-2024):** A fellowship for 4 years by IPBES
- 4. ICCB travel award (2019): An award by Society for Conservation Biology, Malaysia
- 5. Forestry travel award (2019): An award by FAO and IFSA, Thailand
- 6. Best presentation award (2018) at Annual Research Seminar, Wildlife Institute of India
- 7. **Department of Science, Govt. of India (2018):** Travel award; declined.

- 8. Conservation Asia (2018): An award by Society for Conservation Biology -Asia, Kyrgyzstan
- 9. Research fellowship (2016-2021): Wildlife Institute of India, India
- 10. Queen Elizabeth Scholarship (2016): University British Columbia, Canada.
- 11. Travel award (2014): An award by National Trust for Nature Conservation, Nepal
- 12. Research fellowship (2012-2016): A monthly fellowship by Wildlife Institute of India
- 13. Research fellowship (2011-2012): A monthly fellowship by Bombay Natural History Society

Organization of scientific seminars, workshops, and panel discussions:

I have delivered keynote speeches and invited talks at universities, international seminars, and symposiums. I have **organized more than 20 workshops** for training >2000 forest managers, officers and staff on biodiversity assessment, use of ecoinformatics tools for protected area management and habitat management.

- Guest lecture at Department of Biology, Aarhus University, for advanced-level course in Biogeography & Macroecology (September 2022)
- 2. Invited talk at BIOCHANGE symposium, Aarhus University, on Novel tropical ecosystems (September 2022)
- 3. Guest lecture, Ambedkar University, New Delhi, biological invasions in India (January 2022)
- 4. Seminar talk to the Tiger team Wildlife Institute of India (WII), on *macroecology of biological invasions* (2022)
- 5. Workshop, National Tiger Conservation Authority (NTCA), Tiger population assessment (2021)
- 6. Workshop at NTCA & WII on Ecoinformatics mobile applications for biodiversity monitoring (2021)
- 7. Keynote talk at the College of Forestry, Akola, India on biogeography of India (2020)
- 8. Workshop at NTCA & WII on Ecoinformatics mobile applications for biodiversity monitoring (2020)
- 9. Workshop at NTCA & WII on Ecoinformatics mobile applications for biodiversity monitoring (2019)
- 10. Workshop at NTCA & WII on Ecoinformatics mobile applications for biodiversity monitoring (2018)
- 11. Three workshops at NTCA & WII on Tiger population assessment (2017)
- 12. Seven workshops at NTCA & WII on *Ecoinformatics mobile applications for biodiversity monitoring* (2017)
- 13. Guest lecture, University of British Columbia, Vancouver, on biogeography of India (2016)
- 14. Three workshops at NTCA & WII on *Ecoinformatics mobile applications for biodiversity monitoring* (2016)
- 15. Workshop at the YETI conference, New Delhi, on open-source GIS applications (2016)
- 16. Two workshops at NTCA & WII on *Ecoinformatics mobile applications for biodiversity monitoring* (2015)
- 17. Panel Discussion at WII & Ministry of Environment, Forests and Climate Change (MoEFCC) on *Status of knowledge on biological invasions in India* (2015)

Invited talks at conferences, symposia and seminars:

- 1. Invited talk at BIOCHANGE symposium (September 2022), Aarhus, on Novel tropical ecosystems.
- 2. Nordic Oikos Conference (July 2022), Denmark: Flashtalk on 'Megaherbivores provides biotic resistance to plant invasions'.
- 3. Keynote talk at a conference at College of Forestry (2020), Akola, on biogeography of India.
- 4. Society for Conservation Biology ICCB conference (July 2019), Malaysia: Talk on 'All that is green, is almost invaded: results from world largest invasive plants monitoring'.
- 5. Future of Forests and Forestry Towards 2030 and 2050 by FAO (March 2019), Thailand: Youth outlook on the future of forests.
- 6. Society for Conservation Biology SCB-Asia conference (August 2018), Kyrgyzstan: Talk on 'Tigers, crimes, and mobile apps'.

- 7. Annual Research Seminar of WII (September 2018), India: Talk on 'What makes *Lantana camara* invasion, a success? Degrading forests and adaptive plasticity!'
- 8. Annual Research Seminar of WII (September 2017), India: Talk on 'Digital India for saving tigers: Implication of ecoinformatics tools for managing biodiversity'.
- 9. Integrated Remote Sensing Studio summer symposium (June 2016), Canada: Talk on 'In the name of the tiger: Generating big data on biodiversity for 2 decades'.
- 10. International Conference on Invasive Alien Species Management (March 2014), Nepal: Talk on 'An integrated framework for monitoring plant invasions in tropical India'.
- 11. Young Ecologist Talk and Interact (YETI) conference (November 2013), India: Talk on 'Distribution and drivers of plant invasions in India'.
- 12. Society for Conservation Biology SCB-Asia conference (August 2012), India: Talk on 'Socioecological drivers of plants invasions in India'.

Internationally featured documentary:

National Geographic 'Counting Tigers, A film on the largest wildlife survey in the world to count the most majestic wild animal on earth' 2019 (https://www.natgeotv.com/me/counting-tigers): My team's work on India's national tiger population estimation was featured through a documentary.

Academic services:

- 1. Peer review for academic journals including Biological Invasions, Biodiversity and Conservation, Forest Ecology and Management, Tropical Ecology, Plos one.
- 2. PhD committee: Thesis committee member for PhD students at Wageningen University Netherlands, and Research Advisory committee at Wildlife Institute of India.
- 3. Part of the scientific panel (July 2014) to identify priority invasive species in India, and target management investment, Ministry of Environment, Forests and Climate Change, Govt. of India.

Long-term collaborations:

Prof. Y.V. Jhala

Retd. dean, Wildlife Institute of India, Dehradun, Uttarakhand, India

Email: yvjhala@gmail.com

Prof. Qamar Qureshi

Professor, Wildlife Institute of India, Dehradun, Uttarakhand, India

Email: qnq@wii.gov.in

Prof. Jens-Christian Svenning

Professor, Dept of Biology, Aarhus University, Denmark

Email: svenning@bio.au.dk

Dr. Vinod B. Mathur

Former Chairperson, National Biodiversity Authority of India

Email: vbm.ddn@gmail.com

Prof. Melodie McGeoch

Professor, School of Life Sciences, La Trobe University, Australia

Email: M.McGeoch@latrobe.edu.au

Dr. Sabuj Bhattachayyra

Research ethics and integrity officer, DBT-inStem, India

Email: bhattacharyyasabuj@gmail.com

References:

- 1. Prof. Y.V. Jhala, Retd. dean, Wildlife Institute of India (yvjhala@gmail.com)
- 2. Prof. Jens-Christian Svenning, Aarhus University, Denmark (svenning@bio.au.dk)