

Seminar

Sensory Ecology at the Human-Animal Interface: Unravelling Conflict and Zoonotic Risks

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At the Tata Institute of Fundamental Research, Hyderabad, I will present my research on how sensory ecology shapes inter- and intraspecific interactions and zoonotic disease dynamics at the human-animal interface in tropical megacities like Delhi. In such heterogeneously developed landscapes, practices such as garbage disposal and ritual feeding of street dogs, kites, monkeys etc. create unique ecological niches that tie animal and human ecologies. Since 2012, I have been conducting a longitudinal study across 32 stratified, randomly dispersed plots, capturing diverse urban configurations—from densely built-up areas to peri-urban zones. In addition to telemetry, I assess behavioural responses to sensory cues, including visual (colour variations associated with food), auditory (conspecific and heterospecific vocalisations), and olfactory (territorial scent marks), all linked to spatiotemporal patterns of anthropogenic food subsidies. Demographic data are gathered through population surveys to contextualise behavioural feedback for integrative biology in dynamic landscapes.

Contrary to traditional binary models, my findings reveal that commensals exhibit dynamic assessment of neophobia and neophilia, mediated by sex, age, and life history traits such as foraging strategy (avian, arboreal, terrestrial) and residency or migratory status. For instance, juvenile individuals displayed heightened neophilia toward novel resources, while adults balanced exploration with avoidance, influenced by prior experience. Ecological traps, often considered spatial, emerged as cognitive phenomena tied to individual plasticity, driving maladaptive foraging behaviours that escalate human-wildlife conflict and disease risks, such as rabies, tuberculosis (including anti-microbial resistance) and canine distemper. I will discuss how sensory ecology, amplified by cultural practices, shapes these dynamics, offering new insights about eco-evolutionary responses in life forms against the backdrop of rapid environmental changes. Finally, I will propose interdisciplinary strategies integrating sensory and cognitive ecology to mitigate conflict and disease transmission, fostering sustainable coexistence in human-altered ecosystems.

Tuesday, Jul 15th 2025

11:30 Hrs (Tea / Coffee 11:15 Hrs)

Auditorium, TIFRH