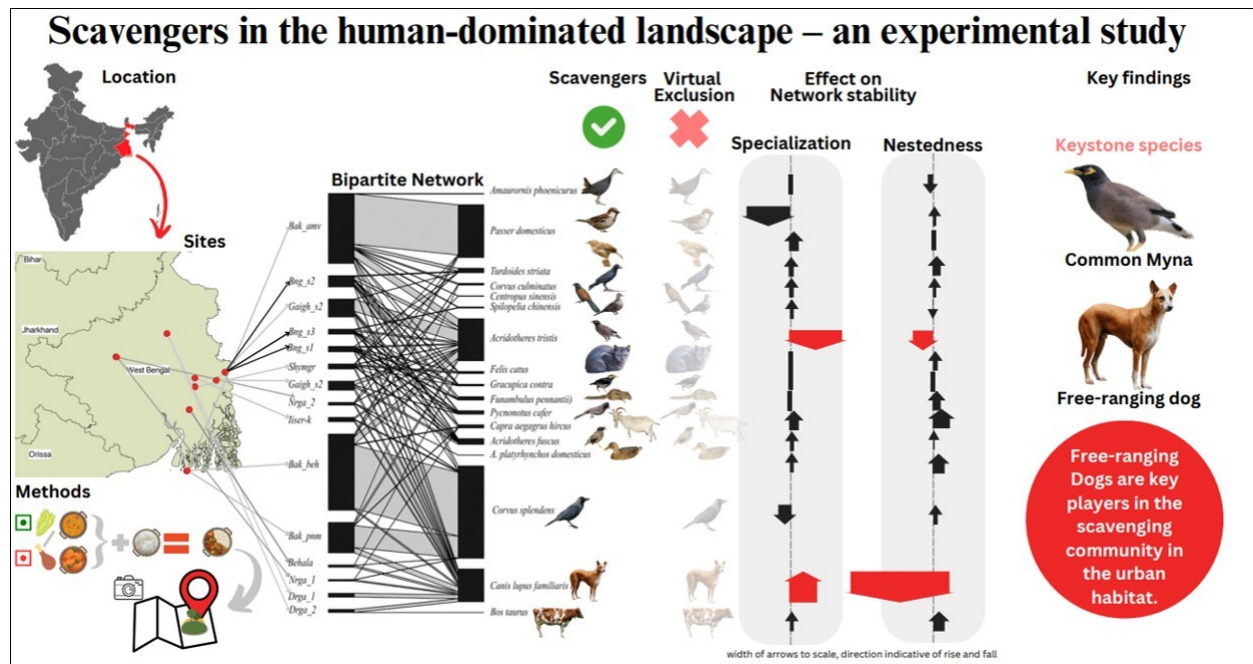# Dogs, Mynahs, Food and a Pandemic Story

Urbanization leading to habitat loss is a major cause of biodiversity in today's world. While many species are unable to cope with the rapidly changing environment, some adapt to the human-dominated habitat, undergoing local adaptations and behavioural modifications. Such species, known as urban adapters, are becoming a focus of ecological studies in the present times, as they can help us to understand how we can make our cities more sustainable and inclusive, as recommended by the Sustainable Development Goals 2030. In the urban ecosystem, scavengers play a crucial role in removing a lot of human-generated waste.

The Dog Lab at the Department of Biological Sciences, IISER Kolkata, has recently published a paper that reports a study conducted to understand which species of animals are scavengers in human-dominated habitats of varying levels of urbanization. This study was published in the highly prestigious Philosophical Transactions of the Royal Society (B), the oldest journal of the Royal Society of London.

The experiments were conducted in 8 different locations in West Bengal, India, during the pandemic. The experiment design was simple – approximately 400 ml volume of cooked plain rice was mixed with any non-vegetarian (fish or meat) or vegetarian (daal or vegetables) gravy and this mixture was dumped on the road side, twice a day, for 10 days. Since the pandemic restricted movement, the experiment was designed such that students could perform them right at their doorsteps. The experimenter video recorded the food and its immediate vicinity for one hour, or until the entire food was consumed. The videos were later decoded to note the different animals that were observed to visit the site and consume the food provided. The time of their arrival and departure were also noted.

A total of 498 trials, of which 240 were with vegetarian food, almost equally in the morning and afternoon sessions. We had a total of 4403 individuals from 17 different species, mostly birds. The most common scavengers were dogs cats, common mynahs and jungle mynahs. Interestingly, when dogs arrived at the food first, the diversity of scavengers in the session reduced, because they consumed most of the available food. Bipartite network analysis, a statistical tool that helps to understand patterns in large data sets, revealed that species did co-feed at the sites, thus making the networks connected. The dog and common mynah emerged as key species in these networks, with the

maximum connectedness with the other species. Virtually excluding these two species from the data led to reduction of network stability. This suggests that these are the two most important species in these networks, thus highlighting their role in the urban ecosystem.

Why should we care? Because, this tells us how even urban spaces have active ecological interactions, and species do not exist in isolation. Such knowledge can help to design inclusive urban spaces for a sustainable future, as envisaged by the SDGs 2030.

Publication: Biswas S, Bhowmik T, Ghosh K, Roy A, Lahiri A, Sarkar S, Bhadra A. 2024 Scavengers in the human-dominated landscape: an experimental study. Phil. Trans. R. Soc. B 379: 20230179. **https://doi.org/10.1098/rstb.2023.0179**

It has also been covered in the media recently: https://www.telegraphindia.com/india/myna-a-surprise-addition-on-urban-scavenger-list-covid-boredom-feeds-iiser-study-in-bengal/cid/2037214

Nature India has also covered this work recently: https://www.nature.com/articles/d44151-24-00124-5