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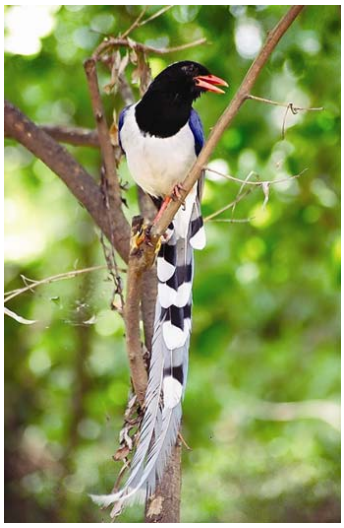
Habitat enrichment and its impact on avian diversity

One of the most striking man-made environmental changes is as a result of ongoing expansion of urban areas as cities that are expanding worldwide. Urbanization increases biological homogenization, causing the extirpation of native species and promoting the establishment of non-native, urban-adaptable species that are becoming increasingly widespread and locally abundant across the planet. It is now well known that increased infrastructure development (roads, buildings, etc.) and expansion of cropland, clear-cuts, etc. into wilderness areas may increase species richness and diversity by increasing habitat heterogeneity in a landscape. Understanding of the effects of urbanization in regions of high avian diversity is still rudimentary. Palita *et al.* (**page 1681**) attempt to understand the influence of environmental enrichment through landscape heterogeneity, on avian diversity and distribution in a suburban habitat (human habitat) versus forest–open areas (non-human habitat) and examine avian frugivore diversity and their nesting patterns during the summer fruiting season. The study was conducted in G.B. Pant Institute of Himalayan Environment and Development (GBPIHED) Campus at Kosi-Katarmal, Almora, Uttarakhand. Line transect method was carried out for studying avian diversity, whereas for frugivore–plant interaction stationary point count method was adopted. The study revealed that small suburban habitat amidst natural habitat (pine forest and open exposed shrub land) had higher avian species richness and the highest density of human adaptable species (Mynas, House Sparrow, Rock Pigeon and Red-billed Blue Magpie), which may be due to availability of high feeding and nesting opportunities. Abundant population of human associated species shows trends of progressive urbanization. Further, similarity between the species composition of two



habitats indicates minimum human interference on the avifaunal diversity because of low-density housing area with minimum human population (<300) in suburban area and landscape heterogeneity was a result of introduced plantation of a large number of fruit and ornamental trees. The author opines that if the human disturbance increases in future then there would be the danger of avian species homogenization and recommends preventing increase in human interference so as to maintain species diversity and composition.

Protein chaperones and non-protein substrates

Chaperonins are a group of molecular chaperones that form large multi subunit structures, enclosing cavities for the substrate proteins to bind. Encoded by the *groEL* and *groES* genes, prokaryotic chaperonins are required for appropriate folding of many cellular proteins. A significant number of bacterial species is known to express multiple copies of chaperonin genes, possibly to confer redundancy of GroEL function in these species. It is also likely that the paralogous GroELs might be undergoing diversification of function as a consequence of gene duplication. In addition, several recent studies have demonstrated atypical oligomeric forms and consequently altered substrate preferences in certain GroEL homologues. These studies have expanded the substrate spectrum of GroEL from protein substrates to non-protein substrates such as chitins and nucleic acids. However, a direct correlation between oligomeric status and the substrate preference has not been established. Santosh Kumar and Shekhar Mande (**page 1646**) argue that the said GroEL homologues might be discriminating between the globular protein and linear non-protein substrates owing to the oligomeric status. Globular proteins are recognized by the ring forming heptameric and tetradecameric forms, whereas the linear non-protein substrates are recognized by the monomeric and dimeric forms. Moreover, GroEL might be evolved to aid the host organism in adapting to the ecological niche and different copies of GroEL might be involved in distinct biochemical functions, some of which are modulated by the oligomeric status. Therefore, a better understanding on the regulation of oligomerization is required to comprehend the basis of altered substrate preference and its biological significance.