

# MBG FOCUS TALK

Wednesday 12 June 2024 at 10:00 – 10:45  
1870-716



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### A macrogenomic view of mammalian population dynamics, ecology and life history

Our planet is currently facing a threat to biodiversity comparable in size to the five major extinction events of the past 450 million years. To tackle the ongoing biodiversity crisis, we need a comprehensive understanding of the determinants of species' population dynamics and life history. Given the rapid pace of current sequencing efforts, genomes from more than a million species are expected to become available in the coming decade. These data have the potential to provide unprecedented insights into biodiversity dynamics, yet they remain severely underutilized. I will present a study of the largest dataset of mammalian whole-genome diversity to date, encompassing 550 species that span various phylogenetic orders, biogeographical regions and ecological niches. Using this macrogenomic dataset, I first investigate the determinants of population dynamics in megafauna (large-bodied mammals), which are keystone species in most ecosystems. I show that human expansion has been the primary driver of megafauna decline for at least 50,000 years, with more than one billion megafauna individuals lost globally. Additionally, I find that population decline is a general trend across all mass categories, highlighting the urgent need to intensify global conservation efforts for mammalian communities. Finally, to further elucidate the relationship between population dynamics and life history, I will present a causal analysis of phenotypic trait variation across the mammalian phylogeny.