
Little evidence for latitudinal genetic diversity gradients within or between species

Anne-Céline Granjon*¹ and Chloé Schmidt¹

¹German Centre for Integrative Biodiversity Research – Allemagne

Résumé

The latitudinal gradient in biodiversity is a long-observed phenomenon, where many components of global biodiversity, including species richness, phylogenetic diversity, and functional diversity, decrease from the Equator to the Poles. Though nuclear genetic diversity is an important component of biodiversity that underlies species' adaptive potential, whether it also varies latitudinally with other forms of biodiversity is unclear. Additionally, unlike other forms of biodiversity which are typically measured at the species level, genetic diversity has both within- and between-species components that may each be predicted to covary with latitude. Within-species genetic diversity patterns emerge in part from population-level microevolutionary processes, while spatial patterns of between-species genetic diversity are products of species-level variation and species turnover. Together, within- and between-species patterns of genetic diversity can contribute to a more comprehensive understanding of the evolutionary and ecological processes maintaining global biodiversity patterns. The increasing availability of publicly accessible genetic data worldwide allows us to investigate whether a latitudinal gradient also exists in genetic diversity. Here, we use a unique dataset of 67,000 individual genotypes sampled from 112 species and 1697 local populations to investigate latitudinal patterns of neutral nuclear genetic diversity in mammals. Preliminary results suggest that there is no evident latitudinal gradient in genetic diversity either within or across species. We will discuss the lack of genetic latitudinal gradient in light of theories underlying the species richness gradient and their predictions regarding population-level processes.

Mots-Clés: Biodiversity, Genetic diversity, Latitudinal gradient, Macrogenetics, Microsatellites

*Intervenant