

Global dung webs: high trophic generalism of dung beetles along the latitudinal diversity gradient

ABSTRACT

At the global scale, species diversity is known to strongly increase towards the equator for most taxa. According to theory, a higher resource specificity of consumers facilitates the coexistence of a larger number of species and has been suggested as an explanation for the latitudinal diversity gradient. However, only few studies support the predicted increase in specialisation or even showed opposite results. Surprisingly, analyses for detritivores are still missing. Therefore, we performed an analysis on the degree of trophic specialisation of dung beetles. We summarised 45 studies, covering the resource preferences of a total of 994503 individuals, to calculate the dung specificity in each study region. Our results highlighted a significant (4.3-fold) increase in the diversity of beetles attracted to vertebrate dung towards the equator. However, their resource specificity was low, unrelated to diversity and revealed a highly generalistic use of dung resources that remained similar along the latitudinal gradient.