

SUBANTARCTIC SPRINGTAILS: MITOCHONDRIAL AND NUCLEAR DNA REVEALS HIGH LEVELS OF ISOLATION YET COMPARATIVELY EXTRAORDINARY COLONISATION CAPABILITIES

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Throughout the Southern Hemisphere many terrestrial invertebrates have circum-Antarctic distributions. This pattern is generally attributed to ongoing dispersal (by wind, water, or migrating birds), or relict Gondwanan distributions. Many generally show little or no morphological variability, but at a molecular level can contribute to our understanding of Southern Hemisphere dispersal and evolutionary origins. Here we examined mtDNA and ncDNA sequence variation in the subantarctic terrestrial springtails (Collembola) *Cryptopygus* and *Tullbergia*. We examined if the current circum-polar distribution is Gondwanan/vicariance in origin (>28MYA), or if they dispersed more recently (<2 MYA). Sequence divergence was estimated under a maximum likelihood model between individuals from subantarctic islands, Australia, New Zealand, Patagonia, Antarctic Peninsula, and continental Antarctica. Recent dispersal/colonization of *Cryptopygus* and *Tullbergia* species was inferred between some subantarctic islands and there was a close association between estimated times of divergences based on a molecular clock and proposed geological ages of islands. Most lineages generally grouped according to geographic proximity or by inferred dispersal/colonization pathways. In contrast, the deep divergences found throughout the *Cryptopygus* and *Tullbergia* species indicate that they may represent relicts from the break-up of Gondwana.