



The genus *Carex* (Cyperaceae) in New Zealand: a southern hemisphere diversity hotspot in a boreotemperate genus.

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Carex is a megadiverse genus with about 2000 species of cosmopolitan distribution, which is especially diversified in temperate and cold regions of the Northern Hemisphere. In New Zealand, however, it is remarkably the second largest angiosperm genus with 115 native species (c. 85% endemic), but has received comparatively little attention. We provide a general revision of the natural history of *Carex* in New Zealand, including systematic, biogeographic, ecological, morphological and evolutionary aspects. In the context of the latest dated phylogeny of *Carex*, New Zealand has been recurrently colonized by multiple lineages via long distance dispersal. Two lineages (sects. *Echinochlaenae* and *Uncinia*) which concentrate most species diversity (>70%) could have undergone evolutionary radiation processes. A wide array of disjunction patterns are revealed by the distribution of non-endemic taxa. On the other hand, restricted endemics shed light on putatively important areas for *Carex* speciation. Some morphological features are remarkable, including the unique presence of red-leaved species in four different lineages, a feature that could have evolved as a possible adaptation to escape herbivory by the extinct moas. Our revision remarks the extraordinary multidisciplinary interest of the study of New Zealand *Carex*, and paves the road for future specific research on this group.

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