**Drowned in lakes and trapped in amber: diverse terrestrial arthropod faunas from Miocene New Zealand**

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Until recently, fossil evidence for pre-Quaternary terrestrial arthropods in New Zealand was virtually unknown; prior to 2007, only six insect fossils were known from the Triassic to Pliocene - a period spanning ~200 million years of New Zealand's geologic and biologic history. However, our research on Cenozoic fossil lagerstätten in Otago and Southland has yielded exquisitely preserved diverse terrestrial floras and faunas that have greatly expanded our biodiversity perspective of ancient terrestrial ecosystems in New Zealand. In particular, laminated sediments from volcanic lakes (maars) and fossilized tree resin (amber) are proving to be exceptional paleontological archives preserving highly diverse arthropod assemblages, often with minute anatomical details that allow taxonomic identification below family level. We have now collected more than 240 specimens of arthropods: they include members of the Araneae, Acari, Pseudoscorpiones, Collembola, Odonata, Plecoptera, Isoptera, Hemiptera, Coleoptera, Hymenoptera, Trichoptera, Diptera and Lepidoptera. These fossils allow a first evaluation of past arthropod diversity in New Zealand and provide potential time-calibrations for phylogenetic studies. They chiefly represent ground–dwelling taxa from forest floor, leaf litter and lake margin palaeohabitats; large-winged taxa with high potential for long-distance dispersal are comparatively rare. Evidence for diverse arthropod-plant-interactions commonly present on the associated flora (e.g. leaf feeding damage, leaf mining, galling, and seed predation) further indicates that arthropods were vital components of Cenozoic forest ecosystems in New Zealand. Key findings of our ongoing study of arthropods from maars and amber are 1), evidence for the antiquity of terrestrial arthropods in New Zealand, with some lineages dating back at least 23 million years, 2), a higher diversity in the Cenozoic than today of some families (e.g. Formicidae), and 3), a high diversity of ground-dwelling and flightless arthropods in the earliest Miocene, coeval with or shortly after maximum marine transgression in Zealandia.