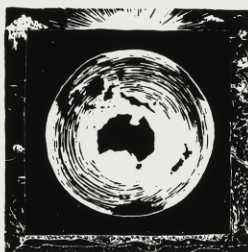


Sustainability of SPECIES and ECOSYSTEMS



We are the guardians of New Zealand's natural heritage of indigenous species and ecosystems. But can this heritage be sustained into the 21st century? And will the resource management law come too late to prevent a new wave of plant and animal extinctions? Forest and Bird conservation officer Mark Bellingham attempts to answer these questions.

NEW ZEALAND IS UNIQUE as the world's largest and most diverse land mass where plants and animals developed without the influence of terrestrial marsupials or mammals, especially humans. Birds and insects occupied the niches and habitats that warm-blooded animals have in other lands. Moa and takahe browsed our forests and giant weta were the mice of the forest floor.

Our country was cast adrift from Gondwanaland 80 million years ago, before marsupials swept across Australia, Antarctica and South America. Some of the distinctive Gondwanaland refugees in New Zealand include kauri, the podocarp trees, kiwi, moa and tuatara. Our wattlebirds (kokako, huia and saddleback), wrens (bush wrens and rifleman) and short-tailed bat have no close affinities with other animal groups. They are New Zealand in origin and may represent local biodiversity on the old Gondwana supercontinent.

Occasional immigrants arrived; some survived and developed their own distinctive New Zealand forms. Our robins and tomtits are probably derived from the Australian scarlet robin family, but once here they radiated out into different forms. The pukeko group arrived at least twice, the earlier invasion leaving us with the takahe and the latter with the pukeko, which is closely related to the cosmopolitan purple gallinule.

But most immigrants would have perished as New Zealand went through biota changes, as land rose and sank, sea levels changed and the climate fluctuated between sub-tropical through to sub-antarctic.

Gradual Change

New Zealand's physical environment and plants and animals have undergone considerable changes since the break off from Gondwanaland. These produced our landforms and New Zealand's indigenous life forms. Cataclysmic changes were usually local, while large scale changes, such as that from a sub-tropical to a sub-antarctic climate,

took 20 million years. The gradualness of this change has allowed the surviving elements of our indigenous biota to avoid extinction.

To the first people who arrived in New Zealand from Polynesia, at least 1000 years ago, the new land had an abundance of wild food (birds, fish, shellfish, marine mammals and forest fruit), even if the climate was fairly poor for growing their traditional staple foods



The remnants of two once numerous New Zealand species which never made it into the 20th Century: the preserved skin and leg of a moa and the skull of a Haast's eagle (Harpagornis moorei). Photo: Rod Morris