

'Change in Tasmania's Terrestrial Vegetation'

A symposium held as part of the 59th congress of ANZAAS, Hobart 1990

Introductory Remarks

This issue of *Tasforests* contains papers based on presentations on Tasmanian perspectives of the topic, 'Change in Terrestrial Vegetation', delivered at the 59th Congress of the Australian and New Zealand Association for the Advancement of Science at Hobart in February 1990. The authors were encouraged to interpret change in a broad sense so that it might include effects of variable degree, duration, and frequency, with impacts which might range from annihilation to loss of aesthetic appeal and due to processes or agents considered to be natural (e.g. recovery following fire) or alien (e.g. introduction of weeds and pathogens). Summaries of the presentations (including two for which full papers were not prepared) are included in the Congress Abstracts.

Much of Australia's present cover of vegetation is the product of ongoing disturbance of earlier natural plant assemblages following Aboriginal and European occupation. These prehuman natural communities were not unchanging and in stable balance, as those with an Arcadian view of the balance of nature might see it. Rather, the evidence from macrofossil and pollen deposits records continual change in composition and distribution principally in response to spatial and temporal variation in factors of the physical environments. However, the rate of change which has been generated by human activity in this century is almost certainly much greater than ever before.

Tasmania presents opportunities for study of vegetation change probably unrivalled elsewhere in Australia. Its steep gradients of rainfall and temperature on mountainous terrain, significant areas of essentially undisturbed native vegetation (in which both Gondwanan and Australian floristic elements are well represented) and a large number of long-lived plants with well-defined rings of annual growth combine to make a superb field laboratory for ecological research. A considerable literature now details which environmental factors are important in determining the distributions of many plant species and their assemblages. Widely dispersed and diverse deposits of pollen and macrofossils have permitted reconstructions of Tasmania's past vegetation and the changes which it has undergone.

Many areas, particularly in wetter and more rugged parts, have been opened to access and to the chance of introduction of alien plants, animals and pathogenic micro-organisms quite recently so that the effects of these aliens can be studied early in the invasive phases. For similar reasons, Tasmania has provided excellent sites for study of the role of fire in determining the changing mosaic of vegetation types on the landscape.

In the selection of the theme 'Global Change and the Southwest Pacific' and of session topics, the congress organisers recognised the wide scientific and popular interest in the question of recent global warming and the effects it might have upon Australia's climates, its crops, herds and its native vegetation.

In the session from which these papers are drawn, no special attempt was made to relate change in Tasmanian vegetation to global warming for two reasons. The first is that other projected sessions were to present evidence of warming on a wider scale and to include consideration of its wider consequences for vegetation. Secondly, but more importantly, there is virtually no published analysis of reliable information on the degree of warming which might have occurred in Tasmania or of regional patterns of climatic change. It was known, however, that a potentially important record of past climatic change existed in the tree-rings of living endemic conifers and identified fossil deposits in western Tasmania. Since the Congress, it has been established that this resource is of international significance, both for the reconstruction of past climates and for its evidence of recent global warming (E. Cook, pers. comm.). At future congresses, we might expect to hear a more definitive account of the impact of the Greenhouse Effect on Tasmanian vegetation than was possible at Hobart in 1990.

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