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NORTHERN AUSTRALIA: PROGRESS AND PROSPECTS**Volume 2 - FLOODPLAINS RESEARCH (1988)**

Edited by Wade-Marshall, D. and P. Loveday. Australian National University, North Australia Research Unit, Darwin, pp. x + 100 with two appendices.

In November 1987, the ANU's Research School of Pacific Studies held a conference in Darwin with the expansive title "Northern Australia: Progress and Prospects". Approximately twenty papers were presented to the conference over three days and they have been collected into two volumes: Volume 1, containing fourteen contributions, is concerned with contemporary issues in the development of northern Australia while Volume 2, the subject of this review, contains six papers under the subtitle of "Floodplains Research".

Four of the contributions have been refereed and comprise the text of the book and two additional papers have been included as unrefereed appendices. The refereed papers include studies of (i) changes in mangrove habitats in northern Australia over the last 8000 years (Colin Woodroffe) and (ii) the underlying reasons for those changes (John Chappell); (iii) the ecophysiological manifestations of salinity gradients in the Northern Territory (Marilyn Ball); and (iv) productivity and nutrient dynamics of seasonally inundated floodplains of northern Australia (Max Finlayson). The appendices consists of 'The Alligator Rivers: A mirror to a continental prehistory' by Rhys Jones and 'Changes in Aboriginal exploitation of wetlands in northern Australia' by Betty Meehan.

The volume comprises an essential reference work for any ecologist interested in the evolution and dynamics of wetlands in northern Australia, and provides useful insights into how the aboriginal inhabitants utilised these systems both prehistorically and presently. For example, Woodroffe presents evidence for 'big swamp' phases in several northern Australian (including the South Alligator, Fitzroy, Ord) and one south-east Asian (Baram River, Sarawak) estuarine systems. Chappell complements this with similar evidence from the Daly River. Read in conjunction, these two contributions describe the evolutionary phases involved with the geomorphic dynamics of these systems and how these phases relate to sea level changes and rates of estuarine infill.

The sea level link is perhaps of most interest to the general ecologist; while rising sea levels changed the studied estuaries into 'big swamp' mangrove systems, estuarine infilling has subsequently replaced the 'big swamp' with a channelised system with extensive saltflats and freshwater swamp communities. Given that the historical rates of estuarine infilling were found to be between <5 - 10 cm/100 years, the conclusion drawn (particularly by Chappell) that predicted sealevel rises over the next 30 or so years will cause these systems to revert to 'big swamp' estuaries, seems unavoidable. Chappell concludes (p. 56) that "if it is unacceptable that the tidal river plains will become mangrove and samphire, then planning for their future management and for containment of rising seas should begin now".

The other papers make equally interesting contributions although one suspects that Meehan's paper is a preliminary account, augmented by anecdotal information, of more detailed work yet to be analysed in detail. The ecophysiological contribution by Ball is particularly outstanding for its combination of field ecological data with laboratory derived physiological experimentation. In doing so, it provides a framework into which the leafing and growth strategies of mangroves (previously described - Saenger, 1985; Saenger and Moverley, 1985), can be interpreted.

Overall, the volume makes a substantial contribution to our understanding of northern Australian floodplains, and in this sense reflects the innovative studies being conducted by NARU. Its soft cover and sewn binding ensures the book not only lasts well but provides excellent value for money.

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References:

Saenger, P. (1985) An initial attempt to assess life strategies in Australian mangroves. In : Coasts and Tidal Wetlands of the Australian Monsoon Region, (Eds.) Beardsley, K.N., J.D.S. Davie and C.D. Woodroffe, NARU Mangrove Monographs 1 : 187-200.

Saenger, P. and J. Moverley (1985) Vegetative phenology of mangroves along the Queensland coastline. Proc. Ecol. Soc. Aust. 13 : 257-265.