

## Climate ex

IN AUSTRALIA'S arid zone, the environmental impact of pastoralism depends on how well climate variability is managed by graziers.

Dr Mark Stafford Smith from CSIRO's Centre for Arid Zone Research at Alice Springs is studying the influence of climatic variability on the productivity of Australia's arid rangelands. He says the way graziers in the arid zone manage climate variability can magnify or minimise the impact of grazing on the landscape.

'If graziers stock their land lightly, it may take a disastrous drought before they have to de-stock,' he says. 'But if they stock heavily they can find themselves in trouble in an average year. The key is to optimise one's management against the pattern of dry, good and average years.'

What makes management challenging is the diversity of climatic regimes in the rangelands, Stafford Smith says. There can be no such thing as a 'homogenised approach'. For example, graziers in the Top End are guaranteed some rain every year, but they don't know when or how much. By March, if there has been no useful rain, they must make a decision on their stocking rate.

In the southern half of the rangelands the climate is dominated by winter rainfall, so graziers can make decisions at the end of winter. But there is a band south of Alice Springs where rain can occur at any time. In these areas,

# Extremes a challenge for pastoralists

climate prediction can be very important, Stafford Smith says.

He says better insights are needed into how climate influences wildlife diversity, and the population density of feral animals that prey upon or compete with native species.

'Drought is an opportune time to control larger feral animals because they have to come to water,' he says. 'But it's also a hard time to motivate graziers to take control measures, and the money may not be available. The ability to forecast drought would enable government agencies to set aside funds for control programs.

'For instance, if there were \$300 000 available over three years, it might be best to spend most of it during a drought year when feral animals are vulnerable. We need to develop our ability to budget more effectively, not just in monetary terms, but in the way we use water and fire in management.'

In the arid zone it's not just year-to-year variability, but decadal variability that is important, Stafford Smith says.

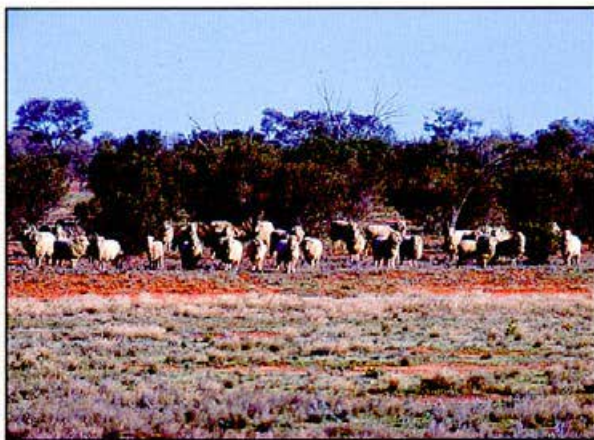
'If you look back at rainfall records for Alice Springs, the mean annual rainfall between 1968/78 was two-and-a-half times that of the preceding decade, the driest on record. Events on that timescale are important because it was during this wet period that we had the huge germination of woody weeds across the eastern half of the continent. Today, the opportunity to control the weeds has passed. We should take our chances when the climate presents them.'

## More about arid lands

Stafford Smith DM (1992) Stocking rate strategies across Australia: or, how do you cope with drought? *Range Management Newsletter* 92(1):1-3.

Stafford Smith DM (1994) A regional framework for managing the variability of production in the rangelands of Australia. *CSIRO/IRIRDC Project Report No. 1*, Alice Springs.

Foran BD Friedel MH MacLeod ND Stafford Smith DM and Wilson AD (1990) *The future of Australia's rangelands*. CSIRO Division of Wildlife and Ecology, Canberra.



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