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THE YEAR is 2020 and you're on the holiday of a lifetime. Woken by a chorus of birdsong, you scramble from your sleeping bag, unzip your tent, and tread carefully into . . . Australia's arid zone.

A breathtaking scene lies before you. From a clear blue sky, the sun ignites a shimmering red landscape profuse with perennial herbs and grasses. Bilbies and hare wallabies hop about on their daily business, and red kangaroos drink from a waterhole nearby.

Holidaying in the wilderness is a unique adventure these days. No other country can offer a landscape such as this; a place to imagine what the world was like one million years ago, when *Homo sapiens* evolved in the East African savanna. For most Europeans, 'nature' is an agricultural field surrounded by hedges!

It's little wonder Australia's unspoiled image now attracts 10 million tourists a year (more than 30% of the national population). In fact, ecotourism has for the past 15 years been the country's largest source of export earnings.

Had you stood on the same spot 25 years earlier, the metamorphosis would have seemed impossible. The soil was eroded and dry, the vegetation a batch of homogenous, annual grasses, and the only 'wildlife' a motley collection of cattle, foxes, rabbits, mice and the odd pig or donkey.

Back in 1995, ecotourism didn't even exist as a land-use. But thanks to a range of policies introduced by the Federal Government in 2005, Australia's land resources are now recognised for their natural beauty, as well as for their capacity to produce food and fibre.

The policies support a hierarchical land-use system based on the recognition that Australia is the world's driest continent, with high inter-annual climatic variability and extensive infertile soils.

At the top of the hierarchy are the most reliable and better-watered regions of agricultural land. These areas are identified on a paddock-by-paddock basis and their



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high productive capacity maximised through intensive, yet sustainable farm management practices such as plantation forestry and alley-cropping of native species.

As a result, by 2020 the value of native wildflower, essentials and other oils for pharmaceutical or industrial chemicals exceeds \$12 billion, equal to the value of Australia's wheat exports. This grew from an amount equivalent to about \$330 million in 1995.

And the benefits aren't only economic. The last report of a blue-green algae bloom was in late 2011, the fulfilment of a cherished dream for the Murray Darling Basin Commission.

At the other end of the land-use scale are Australia's least fertile regions. In contrast, their use has been 'extensified'. In the rangelands, for example, sheep and cattle grazing is excluded in the poorest areas. Instead of eking a living from grazing alone, the pastoralists are subsidised in their new role as stewards of the land, working on its renovation and conservation.

Vital to the success of the new land-use ethic has been the support of the Australian community. Society's land-use goals have moved on, from development at all costs, to ecologically-sustainable land management. This perspective is reinforced through the widespread respect shown for land managers as resource stewards on behalf of all. Australia has much to celebrate!

2020 visions

This optimistic view of the future was outlined by CSIRO scientists Dr Dean Graetz and Dr John Williams at the 63rd Australian and New Zealand Association for the Advancement of Science (ANZAAS) Congress hosted by Deakin University at Geelong, Victoria, in September, 1994.

Graetz, an ecologist at the Division of Wildlife and Ecology, and Williams, assistant chief at the Division

of Soils, were two of 12 CSIRO scientists to deliver '2020 Vision' papers at ANZAAS. The speakers had been invited by the organisation's chief executive, Dr John Stocker, to develop scenarios about possible developments in their fields, and their impacts.

The message from Graetz and Williams was that Australia's agricultural and pastoral land-use must change. Critical to that change, they argued, would be the way science and technology was perpetuated by Australian society.

The condition of Australia's land resources is a fundamental determinant of the national quality of life, and land-use and management is critical to future planning, Graetz says. He and Williams agree that in the past 20 years, the environmental awareness of Australians, in line with that of the 'global community', has increased.

Graetz supports this view with a list of international actions, such as United Nations (UN) conferences on the environment and population, and Australia's support of UN conventions on desertification, biodiversity and climate change. Williams points to the important role of the Landcare movement in raising awareness of land degradation among Australian farmers.

To achieve the scientists' vision of 'Beautopia', however, awareness is not enough. Scientifically-based recipes for land-use change, and the means to implement them, are now needed. But on a vast and variable continent, with farming traditions based on European practices entrenched like grime on a Blundstone boot, how do such changes come about? Where do science, technology and the 'national cultural perspective' fit in?

The following stories offer some clues. They look at the role that Landcare has played in mobilising rural communities; at research in Australia's tropical savannas; and at the need for change in Australia's pastoral and agricultural industries.

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