To help mark the *Ecos* centenary, five senior CSIRO scientists discuss Australia's environmental challenges, past and present and future.

Wildlife and Ecology divisional fellow, **Doug Cocks**, laments the slackening of our environmental defences.



Did anyone mention the environment?

Can remember clearly the interest and enthusiasm with which scientists at the Division of Land Use Research greeted the first issue of *Ecos* in 1974. At that time we were in the process of expanding our research interests beyond agricultural production and northern development. Environmental issues such as urban climates, land degradation, water as a resource and balanced land use were beginning to attract our attention.

Mike Austin and I were leading a regional land use study called the South Coast Project (involving more than 30 scientists from the newly established Centre for Resource and Environmental studies at ANU) and we were delighted when *Ecos* devoted an issue to that study's findings.

That is all a long time ago now and, while not neglecting to congratulate *Ecas* on 25 years of sterling service to the environment, I prefer to look forward rather than back.

The environment has come and gone as an issue in recent years. While it is an issue



that regularly scores well in polls to identify public perceptions of matters for concern, it is not high on any political agendas. This is illustrated by the fact that both main parties fought the last federal election with barely a mention of the environment.

Another example of this loss of profile was the Australia Unlimited conference organised by *The Australian* newspaper in May this year. It was a showcase for elite opinion on how we should manage our future as a society and economy. It revealed general support for a strategy of trying to clamber aboard the globalisation train before it Above and below: Dryland salinisation and weed invasion are land degradation problems for which we have only token defences. The picture below shows bridal creeper, a major environmental weed in southern Australia, smothering native vegetation.

Left: Doug Cocks (right) and Senator Nick MInchin at the launch of Cocks's book Future Makers Future Takers. The book evaluates alternative scenarios for Australia's future.



accelerated, but managed to avoid mentioning the environment, except in passing.

This indifference in the corridors of power may reflect a view abroad that we can safely turn our attention from the environment to other pressing problems because 'The resources required to tackle major environmental problems with any hope of success are vast relative to the size of government budgets.'



Above and bottom: Many environmental programs, such as efforts to control cane toads and rabbits, are small in comparison to the size of problem they address.

Below: Healthy mangrove communities are vital to many of Australia's coastal ecosystems. Their degradation can lead to biodiversity loss and soil acidification. Doug Cocks believes children must be helped to recognise the difference between high and low-quality environments, 'because what humans have never known they never miss, not enough to fight for anyway'.



governments have implemented a number of environmental programs addressing issues ranging from biodiversity and landcare to air and water quality. But that is not the picture that emerged at a series of expert workshops on Environmental Futures run by CSIRO Wildlife and Ecology in late 1995. One general conclusion from the soil experts was that prospects for soil and landscape quality are grim, not only in the agricultural and inland areas, but in coastal and urban areas as well. Prospects for future air quality are not so uniformly grim, according to participants at the workshop. Improvements in inland and farming areas are foreseeable, but not in coastal and urban areas. The experts' bestcase scenario for water quality is that it might hold up in urban and inland areas, but not in farming, coastal and marine areas.

As for biodiversity, it is difficult, the experts say, to see anything other than further decline in and around the big cities and in the coastal/marine zone. Biological controls for weeds and feral animals and the cessation of clearing offer some hope of improving biodiversity in the farming and inland areas. But if these improvements do not eventuate, the outlook remains bleak.

Token defences

These gloomy prognoses by people who study environmental issues professionally assume that Australian society continues to muddle along in 'business as usual' mode. One implication of that assumption is that if society valued the protection of natural capital more highly, the resources to improve environmental quality would be found.

But that is doubtful for two reasons. One is that we just do not really know with any confidence what to do about many environmental problems. The other is that the resources required to tackle major environmental problems with any hope of success are vast relative to the size of government budgets. That is why the wide range of government-backed environ-





materials extraction

1991

1986



2000

mental programs can give a misleading impression. Most are just very small relative to the size of the problems they address.

1956

1961

1966

Yea

1971

1946

1951

Examples include weeds research (rubber vine is taking over coastal rainforest in Cape York and Mimosa pigra is taking over much of the coastal plains of the Northern Territory) feral animal research, dryland salinisation and the major unrecognised problem of soil acidification. None of these have more than a token program to understand and combat the threat

While there are many specific reasons for the long-term degradation of natural capital, there is also one general reason and that is the ever-increasing use of energy. Historically, energy throughput has been strongly correlated with both economic growth and environmental impact. Putting this another way, environmental impact is the collateral damage accompanying our drive for economic growth.

As we move from a goods economy to a services economy, the impact of economic growth on the environment may stabilise because energy consumption is stabilising, but this is far from certain. Similarly, the environmental impact of energy use will probably decline as we make the transition from fossil to alternative energy.

1981

1976

Looking to be proactive, the most basic principle to be followed if we want to reduce the rate of loss of Australia's natural capital is to reduce the quantities of energy and virgin raw materials that we use. If and how this principle will be implemented, I do not know. I am pessimistic about it happening as a result of deliberate political choice.

Meanwhile, monitoring environmental quality remains fundamentally important. Unless you keep measuring how environmental quality is changing, you sometimes do not notice just how bad things have become. This is because humans are very adaptable and can learn to tolerate stressful conditions provided the stress doesn't build up too quickly. Remember the parable of the frog being gently heated in a beaker of water. He didn't notice he was slowly cooking till it was too late. The frog would have fared better if he'd been monitoring the situation with his pocket thermometer.

Beyond that, children are our best hope. We have to show them the difference between high quality and low quality environments because what humans have never known they never miss, not enough to fight for anyway. If we can do that, they will do the rest.

For the rest of us, the basic strategy for defending environmental quality has to be for each community to work at taking control of local land and resource use and management. We have to use every trick in the book to force the development of participatory institutions in which people have a powerful say in all decisions which affect their lives. Good luck folks!