INDONESIA: WINNING BACK LAND

Environmental expertise from Western Australia is helping to overcome serious land degradation problems in Indonesia.

A three-year forestry research project to grow Australian trees on badly degraded land in Timor was recently extended for a further three years. Research began in 1987 to test potentially useful Australian tree species such as eucalypts, acacias and casuarinas in Indonesia's eastern islands, and to research techniques for culturing and establishing sandalwood. Scientists from the Department of Conservation and Land Management (CALM) and Curtin University have since travelled to Indonesia to contribute forest management, agroforestry and watershed management expertise.

Timor is one of the poorest islands in Indonesia, and many of its people still practise `slash and burn' agriculture. Dr Frank McKinnell (CALM) said that forests were being destroyed because of intense pressure to use land for agriculture, and because of over-grazing and uncontrolled fire.

`Far greater use of trees, both for reforestation of erosion-prone soils and as part of more sustainable agricultural systems, is essential,' he said.

The research is aimed at selecting suitable trees for the Timor environment: trees that are legumes - capable of improving the soil - and could also be used for fodder and firewood, Dr McKinnell said.

Consideration is being given to a new project which would focus on overall watershed rehabilitation.

`Watershed rehabilitation is not just a matter of reafforestion. It requires carefully developed, integrated land use planning, anthropological research to find successful ways of working with Timorese farmers, and a rehabilitation program which involves the cooperation of several Indonesian government departments. It also involves more land management research towards the goal of sustainable land use.'

Young trees stand little chance of survival as they are trampled and eaten by cattle.

Curtin University Associate Professor John Fox leads sandalwood research for the ACIAR project. Sandalwood is used to produce oil by distillation, most of it going to Paris for the perfume trade; some of the wood is carved in

continued opposite ☞

BARROW UNDER SCRUTINY

One of the most ambitious ecological studies ever undertaken in Australia has begun on Barrow Island in Western Australia's North West. The island is one of Australia's most important nature reserves, and is refuge to 13 native mammal species - four of which have either declined or become extinct on the mainland.

Research scientists have been granted $240 000 by the Australian Research Council for a three-year study. The study will gather ecological data on a range of mammal, bird and reptile species and investigate how each species interacts with its semi-arid environment. West Australian Petroleum (WAPET) has committed resources worth $25 000 a year to the project.

Because of its diverse fauna and lack of introduced plants and animals, Barrow Island is one of the few places in WA where such a study is possible. Ecologists, biologists and physiologists from the University of Western Australia (UWA), the Department of Conservation and Land Management (CALM), Murdoch University and Sydney University will work side by side on the project.

In October, CALM successfully completed the first stage of an operation to protect Barrow Island's rare mammals from an introduced rodent - the black rat. After eradicating black rats from all but one nearby island, CALM staff had discovered them on the southernmost part of Barrow Island, which was previously thought to be rat-free. After an extensive trapping program by CALM and WAPET on Barrow Island in August, scientists estimated that the rat population could number up to 1000.

Because of the threat to native mammals, birds and reptiles, CALM began a program in late September 1990 to rid the island of the rodents. Pindone-impregnated oats, a pesticide registered for rodent control that is used by the Agricultural Protection Board, were laid as bait. The oats were placed on raised platforms, inaccessible to non-climbing native mammals such as the golden bandicoot, spectacled hare-wallaby and the boodie.

Two species able to reach the baits, the northern brush-tailed possum and the western chestnut mouse, are susceptible to the poison. CALM senior research scientist Keith Morris said that there had been a few deaths of these species in the baited area, but this had not affected their overall conservation status, as they occurred in large numbers throughout the island. He said that native species would recolonise from adjacent parts of the island once the baiting program was complete. Leaving the rats to spread would have been a far greater risk to Barrow Island's native inhabitants.

The first stage of the eradication program was successful, creating a 170-ha buffer between areas yet to be baited, and areas of Barrow Island with no rats. Baiting finished in mid-October and will resume early in 1991.

The effects of agriculture leave little native vegetation.
Photos - Professor John Fox

Bali for fans and ornaments. Dr Fox said that Javanese and Chinese records of the 13th and 14th centuries mention Timor as a source of sandalwood. Little else of tradeable value seems to have been used until the development of a beef cattle industry to Java in the 1910s. The dramatic increase of the cattleherd, together with poor agricultural practices, had led to a dwindling resource of sandalwood.

Dr Fox said research was required on sandalwood to assist in developing effective methods of raising seedlings (sandalwood is a root parasite and requires a host), in planting (it is grazed by cattle), and in selecting trees for preservation of important genetic resources. In Australia, some sandalwood is being grown in the Kimberley, and access to seed from superior trees from Timor will be vital to the project.

ELLENSBROOK

There are many special places in Western Australia, away from the daily hum of city traffic. Ellensbrook, a National Trust home in Leeuwin-Naturaliste National Park near Margaret River, is one such place. Aborigines were attracted to the area by its combination of fresh water and seashore, features that draw us there still. Department of Conservation and Land Management district manager Ian Rotheram is one of many who have discovered its beauty:

`I first visited Ellensbrook when a friend wanted to show me a little-known but special and historical place within Leeuwin-Naturaliste National Park. Our walk of a few kilometres was rewarded when we came upon the old crushed shell and limestone home tucked into the sandhills next to the Ellen Brook.

`Alfred and Ellen Bussell spent a decade of their young lives at Ellensbrook in the mid-1800s. Theirs was a meagre existence, which gradually improved as their one-room hut was built onto and as they managed to sell some of their produce. Unhappily, two of Ellen's children died at Ellensbrook and are buried nearby, and she was apparently glad to move to nearby Wallcliffe.

`Legend has it that long ago another young couple were drawn to the area. Nearby Meekadarabee, or resting place of the moon, is the resting place for two young Aboriginal lovers who eloped there until their families caught and killed them.

`The old sandy track has recently been upgraded to a road, and CALM has built a walk trail to the waterfall at Meekadarabee. Other facilities are proposed to ensure protection of this beautiful spot.

`There is still much to do around the home and in the national park. The Department of Conservation and Land Management (CALM) and the National Trust have to harness the enthusiasm and vision that many people have for Ellensbrook. In years to come it will be a special place for many Western Australians - a unique place in which to contemplate our cultural and natural heritage.'

Ellensbrook is a National Trust home.
Photo - Ian Rotheram

In the central Kimberley, a screw-pine-surrounded creek - just one of the threatened areas in this fragile frontier. Turn to page 22.

LANDSCOPE

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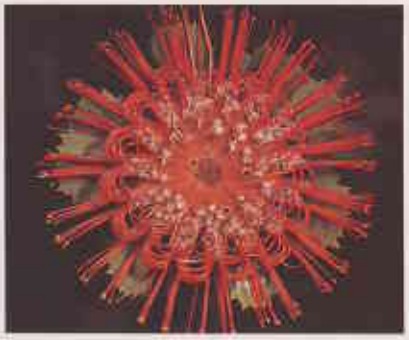

Public awareness and involvement is vital in the conservation of WA's rare and endangered flora. Page 49.

Ten WA mammal species have become extinct in the last 200 years. What can be done to ensure no more are lost forever? Page 28.

Until 1984 more was known about what was underneath the Nullarbor than what was on top. But with such a vast area to study, where do we start? See page 16.

Forests protect our environment. They also provide timber. How do we strike a balance? Turn to page 35.

FEATURES

REGULARS

SPECIALS

COVER

Dolphins and whales are perhaps the best-known inhabitants of Western Australia's coastal waters. But this unique area is also home to an astonishing range of marine flora and fauna, from sea-turtles and coral reefs in the north to sea-grass banks and great white sharks in the south. See page 10.

Illustrated by Martin Thompson.

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