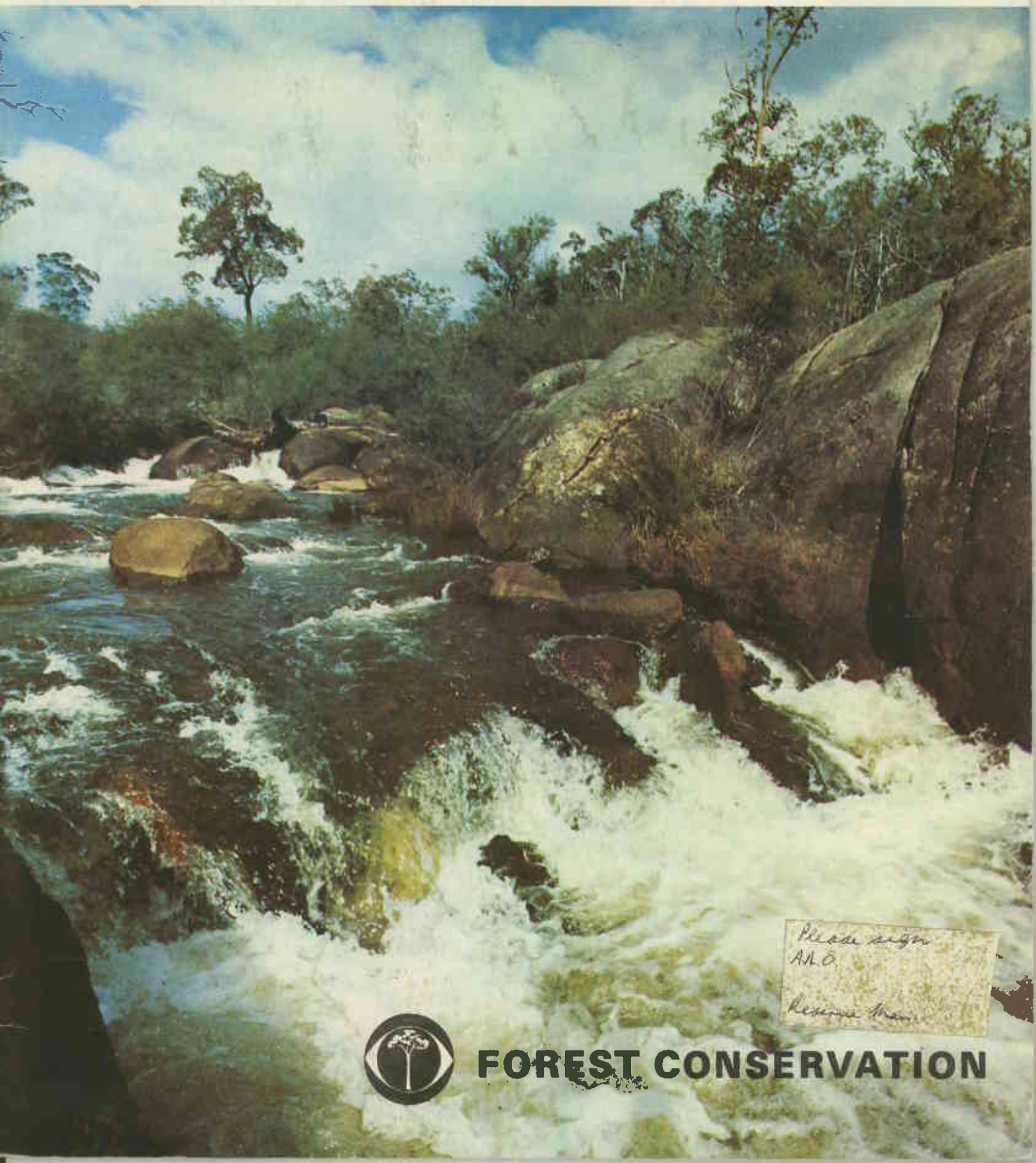
2.

FOREST FOCUS



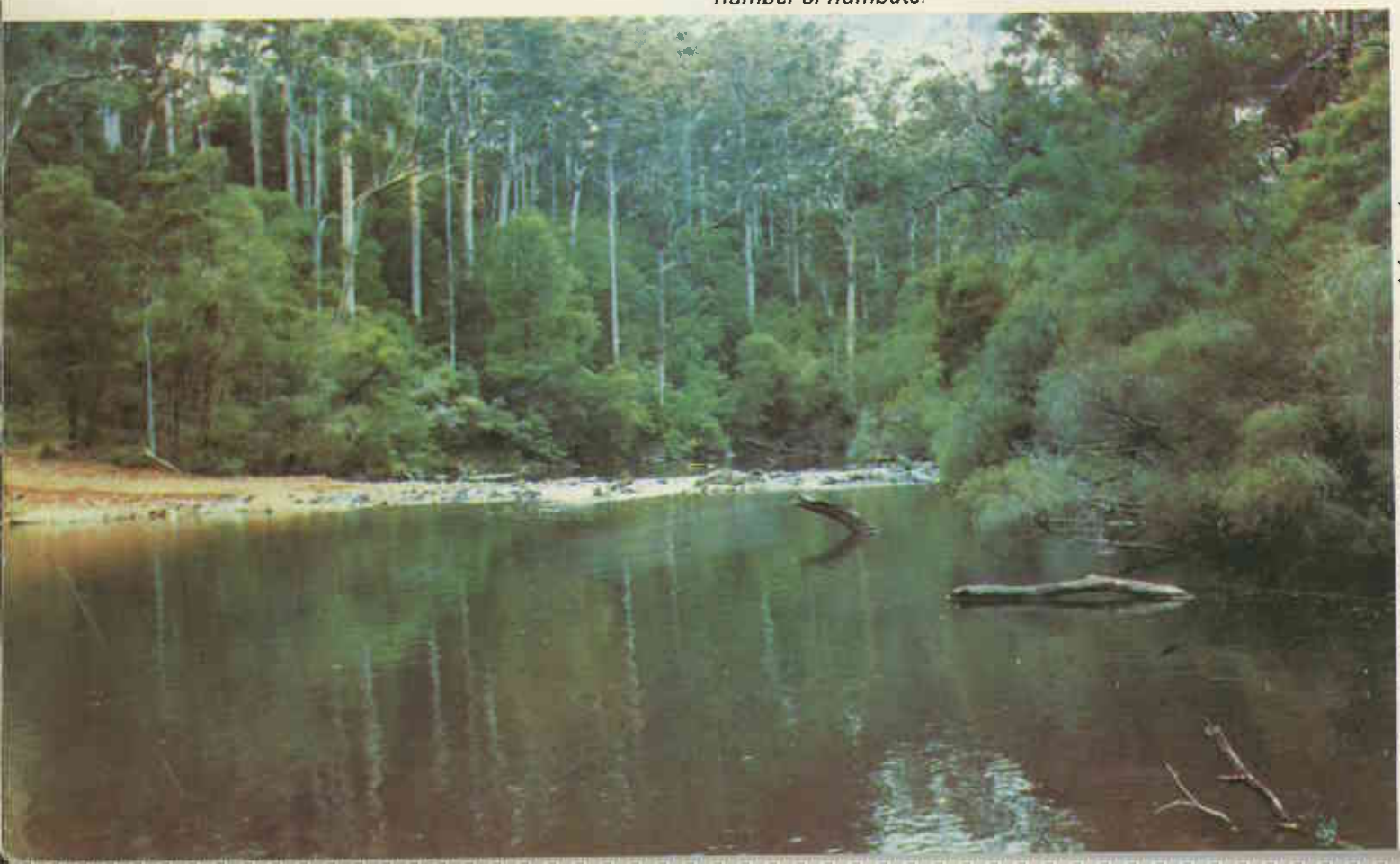
FOREST CONSERVATION

Red-winged Wren (Malurus elegans) *near Albany. In the background is the Albany Bottlebrush* (Callistemon speciosus).

Short-nosed Bandicoot (Isoodon obesulus) *photographed at night near Roleystone while feeding on bread.*

Numbat, or Banded Anteater (Myrmecobius fasciatus) *searching for termites at Dryandra.*

This Powderbark Wandoo (E. accedens) *stand in the State Forest at Dryandra supports an increasing number of numbats.*



Towering karri forest and the Warren River. A forest's indirect values are not widely appreciated.

FOREST FOCUS
Number 2, August, 1970

Published by the Forests Department of Western Australia under the direction of the Conservator, Mr. W. R. Wallace.

Compiled by **Dale Watkins**

FOCUS on Forest Conservation

Front Cover: *Fed by crystal clear streams in its jarrah forest catchment area, the South Dandalup River cascades to the plains below. By 1973 this river will be feeding a water supply reservoir of 45,800 million gallons—6,800 million larger than Serpentine Dam. (Photographed seven miles north-west of Dwellingup.)*

As years go by the world's population is becoming increasingly dependent on forests and forest products. Basic requirements such as timber, plywood, paper, poles and honey are no less important than the more sophisticated requirements of a modern world such as cellulose plastics, rayon and associated synthetics, film, explosives and a growing range of other products derived from wood by chemical or mechanical means.

However, to provide these forest products is only one function of forests. Broadly, there are four main functions of forests, and these could be classified as: productive, protective, recreational and social (see Forest Conservation article).

The forest recreation pictorial (centre colour pages) in this issue of *FOREST FOCUS* has been produced separately as a folder, and is available from the Forests Department, and the Tourist Development Authority.

Back cover: *Pine seedlings, Hamel forest nursery (see page 14). Some of the nine million pines produced by the Forests Department for this year's planting.*

The renown of the goldfields water scheme has long since spread further than the borders of Western Australia. The pumping of water from Mundaring Weir to early mining towns such as Kalgoorlie, 350 miles from the reservoir, an engineering feat of no small magnitude, made life bearable in arid towns where beer was cheaper than water in the early days.

Those who promoted and executed the scheme were no doubt most efficient engineers, however, they were not trained in forestry.

When the weir was nearing completion in 1903, fears—which later experience proved to be groundless—were held that the supply of water would not be sufficient to fill the reservoir.

As a result, it was rashly decided to destroy the forest cover in the immediate neighbourhood of the weir by ringbarking to gain increased water run-off from the slopes.

"Experience in other parts of the world was confirmed in this case. There was a tremendous rush of water causing a big overflow in winter, but many of the creeks which previously ran continuously dried up in the summer, and the water level fell in summer," according to an article in the August, 1920 issue of the *Australian Forestry Journal* by Mr. S. L. Kessell, who a year later was to become Acting Conservator and then Conservator of Forests in Western Australia.

An even more serious effect of this wholesale slaughtering of forest growth was "the increase in salinity of the water flowing into the reservoir, which caused much trouble and anxiety".

The economic loss to the community resulting from the ringbarking of 20,000 acres of jarrah and marri forest should have been in itself sufficient to deter those responsible for the misguided action.

The regrowth of young trees was magnificent, and had there been a forester in Western Australia in the succeeding years the position might have been partially retrieved. However, the regeneration, together with the accumulation of debris, provided ideal conditions for a disastrous blaze and the whole of the 20,000 acres of potential forest was ruined.

The necessity for an abundant supply of pure water for this vast artificial lake indicated the care and control of the Mundaring watershed as one of the first problems to be faced by future foresters.

The present (1969/70) average daily consumption of water in Perth Metropolitan Area is 85 million gallons. This daily consumption rate rises by four to five million gallons each year—so that in 10 years the daily consumption rate will probably be in the vicinity of 130 million gallons.

The Metropolitan Water Supply Department checks water supply reservoirs each day for total salt content, pH value, appearance, etc., and twice a year carries out complete and detailed analyses of water samples.

Concern has been voiced recently from various quarters about the effect the mining boom will have on water supplies. Nobody is prepared to guess just yet what will be the end result of bauxite mining on catchment areas.

The jarrah forest near Jarrahdale has been logged by sawmillers for 100 years, and in addition has supplied poles, piles, fence posts and firewood. The vigorous young pole crop pictured represents efficient forest management in the area.

Values of Forest Conservation

The direct advantages of forests to a nation are fairly well recognised by the majority of people—but their indirect values are not so widely appreciated. In fact some of the most important aspects are of a quality which are understood and appreciated only by those who have devoted long and patient study to the subject.

The values of forests can be broadly grouped into four principal functions in the interests of the community: protective, productive, recreational and social.

Protective function

Forest vegetation maintained in an effective condition is a vital factor in the regulation of stream flow, in the control of erosion, siltation, salinity and other phenomena closely connected with water conservation. Destruction of forest vegetation on watersheds or the reduction of its effectiveness by wildfire or other agency will jeopardise water supplies and increase soil erosion.

Forests promote infiltration of rainwater into the soil, preventing excess surface run-off. They assist in regulating violent floods and controlling stream flow.

It is agreed by scientific men all over the world, who have given attention to the subject, that trees in masses over large areas exert an influence on temperature, humidity and rainfall. In France the evidence collected on the point is quite conclusive. Historians mention many instances where the destruction of forests has totally altered the climatic conditions by converting what at one time were highly cultivated prosperous regions into something akin to deserts.

Glaring examples of overclearing of natural vegetation which come to mind are the North African coast bordering the Sahara Desert, the Dustbowl of America, and the deserts and barren mountains of the Middle East. Nearer home, examples of over-clearing can be found in the Mallee region of Victoria and some of Western Australia's agricultural areas.

The importance of maintaining forests as sanctuaries for conserving indigenous fauna and flora must also be recognised.

For nearly 50 years the Forests Department of Western Australia has managed one of the State's major flora and fauna reserves (State Forests) without detracting from its prime value as a natural resource. In fact, the title "Conservator of Forests" epitomises the functions of the Department.

By nature of their comprehensive training, foresters are competent to handle problems of forest and range management and protection, park lands, watersheds, and areas for recreation and habitat control for both flora and fauna.

A forester's training is evidenced in all aspects of the multiple use of forested lands.

Fire is a major forest conservation problem, because of the nature of the fuel and the weather conditions experienced over six months of the year in Western Australia. By rotational burning under prescribed conditions based on scientific principles, hazard reduction is carried out to protect the forest, adjoining landholders and small townships.

In addition to protecting native flora and fauna from the ravages of major wildfires, these controlled burns are responsible for regeneration of indigenous wildflowers and other understory species which provide food for native fauna.

Forests also serve as windbreaks, reducing the velocity of air currents at the surface of the earth and protecting adjoining fields from searing winds. They provide shelter for crops, stock and game. In general, forests tend to ameliorate extremes of climate.

Productive function

It is unnecessary to emphasise the importance of timber and other forest products in the general economy of a civilised country. Material produced from trees is encountered on every hand. From newspapers and books to the cardboard carton, through the long range of rayons, plastics and chemicals to the more obvious hardboard, plywood and sawn timber—the basic raw material in each case is wood.

Wood has one outstanding advantage—it is a replaceable asset. Its uses are numerous and ever-changing. With intelligent protection, conservation and renewal of the forest resource, the world can assure itself of continuous supplies of wood products.

Apart from wood, which is the major forest product, forests supply a variety of minor products including edible fruits and seeds, rubber, turpentine, tannins, honey, medicinal oils, charcoal, carbon, etc. In Western Australia, honey collection, tannin extraction, charcoal iron and wood chemicals are examples of industry dependent on the forest.

Recreational function

Forests have a definite value in their contribution to national welfare as recreation grounds. In this country, recreation needs must be catered for, and recognition of the value of public forest land as a place to relax is indicated by the demand for national parks in the different parts of the State.

It is fortunate that the main forest areas are located in close proximity to the major centres of population and are therefore readily available to the general public. These areas are easily accessible and well served by roads, which permits a high degree of usage.

In appreciation of this need for forest recreation, the Forests Department has undertaken projects such as the Rainbow Trail and the Cascades (see centre section of this issue), the wildflower sanctuary at Collie, One-Tree Bridge Reserve on Donelly River, and others.

A pilot survey carried out in the Mundaring and Kelmscott forest divisions by officers of the Forests Department indicated that in 1969 an estimated 237,240 people made use of State Forest areas within 35 miles of Perth.

The survey was designed to obtain information on: (*a*) The number of people using State Forests for picnics, sightseeing and other week-end activities; (*b*) Some indication of the habits, preferences and opinions of forest visitors; and (*c*) The proportion of people observed in certain locations within the forest.

The pilot survey has paved the way for future and more precise surveys which should provide useful information in future planning for recreational use of State Forest areas both for developed and undeveloped sites, sightseeing, etc.

Social function

Socially, forests provide several fields of employment, the total of which is a significant factor in a nation's economy.

Primarily, employment is provided in general administration and forest management. Here are included the staffs of the forest services, and the labour required for raising and tending forest crops, research, fire control, ultilization, etc.

It is estimated that one person could be directly employed for every 25 acres of an intensively managed pine plantation from the time of maturity. Our slower growing natural forest areas do not involve such intensive working as this but employment in these forests is still substantial under proper forest management.

The harvesting of forest produce, an operation including logging, sawmilling, pulping and other industries directly associated with the forest requires further labour. Labour is also necessary to transport produce between the forest and processing centres where a further large number of workers are employed in those industries which convert the raw material into marketable goods.

Possibly the classic example illustrating employment created by forests is that concerned with an intensive afforestation scheme involving the Landes district of France in the 19th century. This area, previously a waste of wind-blown sand, increased its population from 70,000 to over 300,000 in a period of 70 years, during which

time 2,500,000 acres of forest were established and worked.

Need for informed thought

There is a widely awakening interest in conservation among Australians, but for the most part it is not a sufficiently well informed interest to be an effective influence on national policy. One of the most important tasks is to appreciate what conservation means in practice, and what sort of decisions have to be made if the present generation is to leave the land as soundly productive and as attractive as it could and should be.

The need is for informed and clear thought on conservation issues which become matters of public controversy, and which are often debated without adequate appreciation of the background facts. Such subjects are mining in forest belts, the Great Barrier Reef, and kangaroos.

Outside the tall forest regions and in the semi-arid grazing lands, the attention of the conservation-minded public has focused on the kangaroo. Due to a considerable amount of research in the past decade it is now possible to weigh the various arguments on this subject against a background of facts.

Kangaroos are more efficient than sheep or cattle in converting vegetable food to animal protein, and their carcasses provide a considerably higher proportion of edible protein in the form of lean muscle. An animal so efficient in this respect, and in its adaptation to the inland environment, is clearly a natural resource whose utilization needs to be more fully explored—possibly on a basis of sustained yield utilization in the way W.A. State Forests are managed.

Far from being destructive grazers, they are particularly well adapted to live under marginal conditions while causing the minimum of permanent damage to the vegetation on which they depend. In contrast, grazing by sheep and cattle has led to a marked degradation of natural vegetation, particularly in the arid and semi-arid regions, and there is little doubt that continued grazing at the same stocking levels will cause still further deterioration.

This has been known for many years and is steadily getting more serious. The advance of the deserts, as it is called, is here with us in one of the most potentially and actually damaging forms in the world. The ecological balance of these regions has been seriously disrupted by uncontrolled and unwise grazing practices.

The one-time chief grazing resource in some marginal areas—the saltbush association—is rapidly disappearing and has gone from wide areas. The mulga, which was an emergency resource in drought times, is often no longer available due to over use and can no longer adequately regenerate.

The ill-conceived practice of flooding stock back on to the first green shoots after drought is wrecking the whole delicate fabric of plants and animals which once kept this land in balance.

Erosion setting in on overgrazed river flats in the East Kimberley region. The amount of topsoil removal can be seen from the exposed tree roots, left foreground. Overgrazing prevents regeneration of indigenous trees and plants which once kept this land in balance.

Wildlife in pine plantations

At Comaum Forest, in the south-eastern region of South Australia, great interest has been shown by neighbouring residents and many visitors in the obvious fact that kangaroos, wallabies, emus and wombats are thriving on the pine plantation firebreaks—in spite of, or perhaps assisted by, the 1080 poison.

Wombat gates were put in plantation fences by hinging a piece of welded mesh so that it could be opened by pushing inwards or outwards. These are sufficiently heavy to allow wombats to pass while preventing rabbits doing likewise.

For some years these animals have not been molested, and consequently they delay their departure when approached, eventually moving away into cover—more often into young pine plantations than into adjoining scrub.

A problem of current concern is that this lack of molestation may lay the animals open to such ease of shooting that slaughter by vandal shooters could occur.