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Plan for the Pilbara

Department of Agriculture, Western Australia

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A DOUBLE-BARRELLED plan for pasture regeneration and vermin control put into action by the Department of Agriculture this year gives promise for the rehabilitation of the run-down pastoral country in the rugged Pilbara region of Western Australia.

With recently-announced plans for exploitation of untapped mineral wealth this could bring a new era of prosperity to the region after many years of decline.

Rise and Fall of the Pastoral Industry
The pastoral history of the Pilbara started nearly a century ago, when the first sheep were landed at the old port of Cossack in 1863.

The first pastoral leases were taken up about this time on the better country near the coast and along the banks of the big rivers. This has been the pick of the Pilbara grazing country ever since.

Sheep did well in the early days of settlement and gave the district a good name as wool growing country. It was largely because of this reputation that big areas of lower quality pastoral land were taken up towards the end of the century. Much of this was rough, with shallow soils carrying unpalatable plants of low nutritive value. It is now realised that some of it should never have been settled.

The worst of the poorer country was naturally the last to be taken up, just about the turn of the century. It contained only odd pockets of better class land—and these pockets were the only areas carrying forage good enough to support breeding ewes and their lambs.

It was not long before this country began to decline. Under continuous grazing the sheep concentrated on the pockets of good land, and these were soon eaten out.

This process was accelerated by the euros and kangaroos, which increased rapidly as the settlers improved the water supplies for their sheep.

With the best of their country denuded of worthwhile vegetation these leases no longer had forage good enough to support breeding ewes. Because they then had no breeding country there were no lambs for flock replacements and their sheep numbers declined.

Eventually, in 1946, seven of these stations were abandoned. Most of these were abandoned because, despite a run of good seasons, they ran out of sheep.

Even the better stations on the good country first settled did not escape damage. Under the early system of shepherding flocks near the natural water supplies, and later fencing off new tracts of virgin country as it was needed (it was used first as breeding country) much of the best land became denuded.

Once again, the euros and kangaroos took a major part in this process.

These better stations were never badly run down, and with the aid of chequerboard ploughing, the establishment of buffel grass (Cenchrus ciliaris) and deferred grazing techniques damaged country is being reclaimed. These stations should have a good future. Some of them, thanks
THE PILBARA PASTORAL REGION

A. GOOD PASTORAL LAND
B. ABANDONED LEASES
C. "MARGINAL" STATIONS
D. USELESS - NEVER OCCUPIED

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to buffel grass and good management, are better than ever and still improving.

These techniques were introduced, tested and advocated by officers of the North-West Division of the Department of Agriculture, after some years of study at Abydos Pastoral Research Station. They have been enthusiastically adopted by many pastoralists in the district.

There remains a third group of stations in the Pilbara which, while better than those abandoned 16 years ago, are still not paying their way.

These carry mainly soft spinifex and associated grasses, with some better country along the watercourses. They have a greater depth of soil and less waste country —useless hard spinifex—than the abandoned leases, but they are suffering from the same troubles that caused abandonment of other stations in the district.

Their stock numbers are falling because ewes are unable to raise lambs on the forage available at the time most of the lambs are dropped. Lambing percentages of 25 or 30 per cent. are common—and this is not enough to maintain flock numbers.

These are the stations with most to gain from the plan for rehabilitation of the Pilbara pastoral industry.

Research work by North-West Regional Adviser H. Suijdendorp and others over the past 10 years has shown that soft spinifex country can be made quite productive by better management techniques. By applying the knowledge gained these stations will be able to greatly improve the quality of their pastures, and by breeding up and restocking they will be able to raise their stock numbers to profitable levels.

Recommendations for improving this country follow three main lines. These are—

(1) Summer burning, to raise the value of soft spinifex and encourage germination of useful grasses.

(2) Deferred grazing of burnt areas to allow the seedling stands to establish and thicken.

(3) Better flock management to increase lambing percentages so that sheep numbers can be built up and maintained.

Grazing Management

Overgrown soft spinifex is little use to sheep because it becomes virtually dormant and unpalatable, as well as low in nutritive value.

It is common practice to burn such areas to encourage germination and growth of young seedlings after the next rains. If winter rain falls on burnt country many useless plants become established and may stop growth of better plants which would otherwise germinate after the summer rains. It is therefore recommended that the soft spinifex should be burnt just before the normal summer rains are expected in about December.

The resulting first crop of seedlings does not produce much forage. In the first year production may be as low as 100 lb. of dry matter per acre—and one sheep can eat this much in a month.

It is therefore recommended that grazing of this seedling stand should be deferred for about six weeks to allow the plants to mature and shed their seed. Unless this is done there is a danger that the better plants will be eliminated in the first summer.

Deferred grazing makes use of the forage produced in the first year after burning but preserves the seed (trampled in during grazing) for the next year.

This management system maintains the desirable grass-spinifex mixture much longer than is otherwise possible. The mixture of native perennial grasses (such as Eragrostis, Eriachne and Chrysopogon species) with young soft spinifex gives sheep a palatable and nutritious diet for the first three years after the burn. This should be used as breeding country.

That sheep can be bred successfully on this country was demonstrated by experiments on pure stands of young soft spinifex at Abydos, on which ewes dropped 80 per cent. lambs.

After the first three years the quality of this forage starts to fall as the spinifex matures, and for the next few years it should be used for wethers. By the end of six years it will carry another fire, which begins a new six-year cycle.
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In this second cycle there is likely to be a better stand of grass, giving a big improvement over the first cycle.

**Lambing Time**

The next objective is to improve lamb marking percentages by mating ewes to drop their lambs when the forage is near its most nutritious stage.

The region is one of summer rainfall, with only sporadic and comparatively useless rains in the winter. The main flush of feed is therefore expected in February and March. This is followed by a decline in feed quality during winter until from about September to December the feed available is too poor to maintain body weight in mature sheep.

This means that from a nutritional point of view, summer would be the ideal time for lambing. The drawback to this is that high temperatures cause many lamb deaths shortly after birth, and it appears that the best compromise is to **lamb about May on to paddocks in which grazing has been deferred** so that they still contain high quality feed. Lambs born much later than this face a difficult time due to falling feed quality, and there is also a risk of ewe losses from pregnancy toxaemia.

Fitting this system into the normal station management programme presents difficulties—especially as lambing is likely to clash with the usual shearing time—and some re-organisation may be necessary.

But the fact that—by lambing in May onto soft spinifex-perennial grass mixtures—Abydos Research Station has been able to wean nearly 90 per cent. lambs, suggests that the necessary re-organisation would be well worthwhile.

Work is continuing at Abydos on this and other aspects of mating management and sheep fertility. The promising results being recorded leave no doubt that Pilbara stations will be able to raise and maintain their sheep numbers to more profitable levels.

To help the stations build up their flocks the Government has agreed to give assistance with freight on sheep used for restocking—but only where the country is considered fit to carry the extra sheep.

**THE VERMIN PROBLEM**

The work carried out so far has shown that grazing management of the spinifex pastures will provide half the answer to the problems of the Pilbara pastoral industry.

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* See Article page 936.
But success may depend on vermin control, because—

- Attempts to regenerate the pastures could well fail unless the tremendous numbers of euros feeding on the pastures—especially those which have just been burnt and are being deferred—can be reduced, and
- Many of the extra lambs born as a result of better management and better feed could well be lost unless the flocks are better protected from the dingo packs preying on them.

So Part 2 of the plan for the Pilbara is an attack on the region’s vermin. This involves a co-operative effort on the part of pastoralists and the Agriculture Protection Board.

A plan was drawn up by the Department of Agriculture’s Chief Vermin Control Officer, Mr. A. R. Tomlinson, in consultation with Mr. Suijdendorp and local pastoralists.

The plan involves a £250,000 programme to protect the stations from wild dogs and to control the euros to such an extent that the damage they cause will be of no importance. This programme, arranged by the Agriculture Protection Board, will last five years, during which time the stations should be able to make good progress in regenerating their pastures, raise their sheep numbers, and generally consolidate their position.

As an essential part of the vermin control scheme, a Regional Vermin Control Officer, Mr. S. Keyser, is now stationed at Port Hedland to act as local representative of the Chief Vermin Control Officer. With the help of a local advisory committee, he organises and directs the control campaigns.

Wild Dogs

The ruggedness of the Pilbara country makes the wild dog problem a difficult one. There are big areas of rough, inaccessible country (such as the Hammersley Range) which provides the dogs with a refuge in which they can live and breed freely.

Eradication of the dogs would therefore not be possible, so the programme is designed to contain them in the unsettled areas, preventing their movement to the stations.

Eighteen doggers are at work in the region; eight of them are in remote areas and the rest are working closer in to the stations to give direct protection to the flocks. Each of these doggers is assigned to a group of stations.

In the early stages of the programme the doggers are giving direct help to the stations, to deal with initial troubles. As these are overcome they will move out to the perimeter of the station country to keep the dogs away from the flocks.

The doggers’ work is co-ordinated by an overall plan, which involves some combined drives, and an annual general assault on the dogs in which all stations will take part. Heavy aerial baiting will be done in conjunction with this.

This year no general assault was made on the dogs, partly because of seasonal conditions, but largely because in their first year in the region the doggers’ success was such that the assault was not considered necessary. During this year the doggers destroyed nearly 700 dogs, most of them adults.

A euro drinking. For efficient poisoning it is important not to interfere with their drinking habits

Euros and Kangaroos

The euro control campaign should be less difficult, thanks to basic research carried out some time ago by Mr. E. H. M.
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Man, in recent years, has made fantastic and almost unbelievable advances in Science and the conquest of Outer Space. Despite such progress there remains the indisputable fact that Man’s greatest invention is the wheel!

History does not record the origin of the wheel, the subject remaining a matter for assumption and conjecture. The generally accepted theory is, however, that “log-rollers” were the first mode of “wheel” transport, being later developed into circular discs or wheels formed of separate planks of wood fastened together and then cut into a circular shape. Such wheels may still be seen in use among primitive peoples today.

Metaphorically, the organisation of Elders may be compared to the wheel, the smooth running of which can be attributed to the carefully maintained Hub of administration. From this Hub the Branches, Sub-Branches and Agents emanate as “spokes” to contribute at all times a well-balanced and practical “rim” of endless service to our clientele.

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Ealey (who was at the time a research officer with the C.S.I.R.O. Wildlife Section) and the Agriculture Protection Board research staff.

Greatly improved poisoning techniques based on the detailed scientific information collected by this group over a number of years in the region guarantee a fair degree of control over the euros—as demonstrated first by local pastoralist Mr. M. Richardson, and later by a group of co-operating stations in the same district.

Plans are being worked out for use of modern water poisoning techniques to progressively reduce euro numbers over sections of the holdings rotationally during three to five year programmes.

Poison and ammunition will be supplied free, and the stations will be helped with watering facilities, fencing and staff where necessary.

As euros are sedentary animals there will be no need to poison over more than a small section of a station at a time, nor to worry about the euros on open country, to give acceptable control. There will, of course, be no danger of exterminating the euros.

The much more mobile red kangaroos and marloos are a more difficult proposition than the euros, and exact control measures for these have not been worked out.

The vermin control project is a practical Government contribution towards restoring and improving the carrying capacities of Pilbara stations. With co-operation from all concerned it is off to a good start, and promises to be a major contribution to the rejuvenation of the Pilbara pastoral industry. But it will be of little benefit unless the stations take advantage of the opportunity it gives them to implement the other steps—better flock and pasture management—which are essential for the success of the overall plan for the Pilbara.

AERIAL SURVEY

The spirit of optimism which followed the success of the research work in the Pilbara prompted suggestions that more leases should be thrown open for settlement in the region.

The area suggested for settlement contained some abandoned stations, and some areas which had never been taken up. Although it was known that this was not first class pastoral land, it was hoped that, if the new management techniques were used, a number of profitable station units could be established.
To investigate the suggestion it was decided to carry out a survey—and since there was a vast area of rough country to cover, it was decided to do the survey from the air.

Key members of the survey team were Mr. Suijdendorp, and Mr. W. G. Henderson of the Department of Lands and Surveys. As this was the first survey of this type, new techniques had to be worked out and tested before it began.

The aircraft used was an Anson, flying at 500 to 700 feet.

Before flying over the country to be surveyed, the aircraft was taken over areas well known to Mr. Suijdendorp, so that he could learn to recognise the types of country and the extent of cover from the air. It was then flown over pre-determined routes in the survey country, and as notes were made on the vegetation a constant check was kept on the aircraft’s position so that the vegetation types could later be plotted.

It was found possible to classify the country in 10-mile strips as the aircraft flew over, recording the vegetation types at one-minute intervals.

After each flight the noted details were transferred to maps of the area, using the times noted from synchronised watches to pinpoint each position.

Using this technique the country was classified into five general classes. These were:

(a) **Perennial Grassland** (excluding Spinifex).
   This could be considered good breeding country, capable of carrying about one sheep to five acres.

(b) **Mixture of Perennial Grasses and Soft Spinifex** (*Triodia pungens* and *Plectrachne schinzii*).
   This also is good breeding country but of lower carrying capacity (one sheep to 10 acres). It needs burning and grazing management to keep it in palatable condition.

(c) **Soft Spinifex** only, not likely to produce anything else except annuals after burning. Needs regular burning to keep the spinifex in a palatable condition. Good for dry stock or drought reserve.

(d) **Hard Spinifex**. Unpalatable except for the flowering stalks during the wet season. Useful for grazing during the wet when better country is deferred. Produces some annuals after burning.

(e) **Tableland Grass Country** (or Crab-hole Country). Produces good feed after abundant rain. Where in small pockets, likely to be degenerated beyond repair. Good breeding country, where areas are large enough.

When these were plotted on the map the result was disappointing. Although some good country was found the areas were not big enough to be incorporated into worthwhile leases. Even with the best management techniques it would not be possible to run profitable flocks on the surveyed area.

So no new areas are likely to be thrown open in the Pilbara region as a result of the survey. Development will depend not on expansion, but on consolidation of the country already settled.
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