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Monitoring the grasslands of Western Australia

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MONITORING THE GRASSLANDS of Western Australia

RANGELAND MONITORING

DEPARTMENT OF AGRICULTURE
WESTERN AUSTRALIA

CATTLE INDUSTRY COMPENSATION FUND

RANGELAND MONITORING

A MANAGEMENT DECISION AID FOR PASTORALISTS

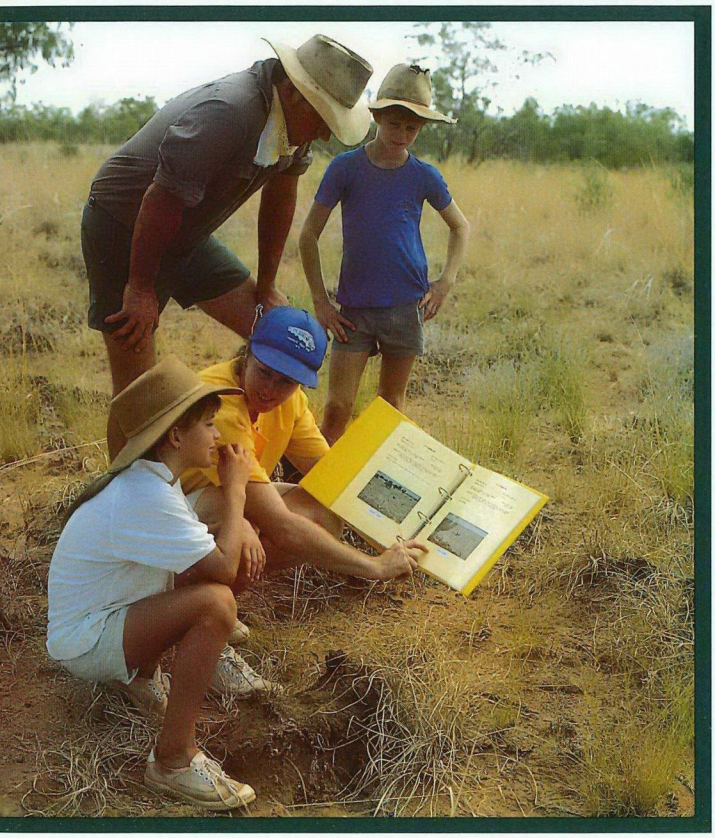
Station owners are encouraged to install networks of monitoring sites on their properties.

Monitoring takes the guesswork out of remembering how the land is changing. An understanding of the changes to pasture and soil is vital for successful management of the rangeland.

Rangeland monitoring

- *helps pastoralists manage natural rangeland resources towards sustainability*

Broome Land Conservation District members discussing site locations.



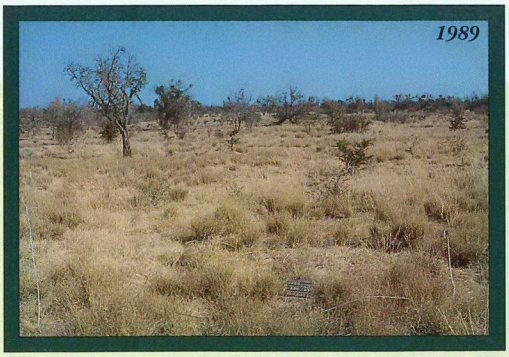
Rob and Judy Shrimp and family, Myroodah Station, looking at a monitoring site

- *helps pastoralists improve their management and understanding of perennial pastures*
- *demonstrates to the wider community that the industry is a responsible land manager of rangeland resources*
- *provides a record of pasture condition to aid decision making*
- *provides a record of seasonal conditions*
- *provides a record of pasture management on a station*

PASTORALISTS' PHOTOGRAPHIC RECORDS

The pastoralists' monitoring system is based on photographic records. Station managers are encouraged to install permanently marked sites and photograph them each year.

A network of sites can be installed across a station to cover major pasture and soil types. Management of paddocks can be adjusted according to results from monitoring sites.



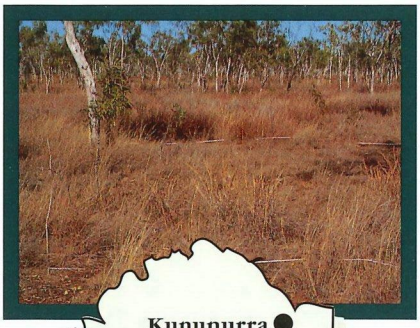
Monitoring provides a record of changes in pasture condition.

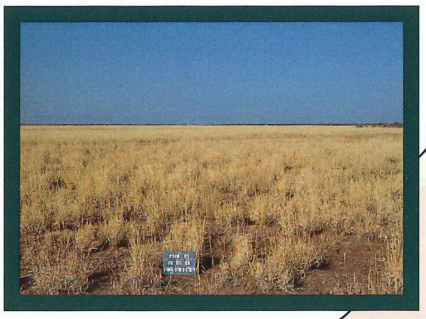
GRASSLANDS OF WESTERN AUSTRALIA

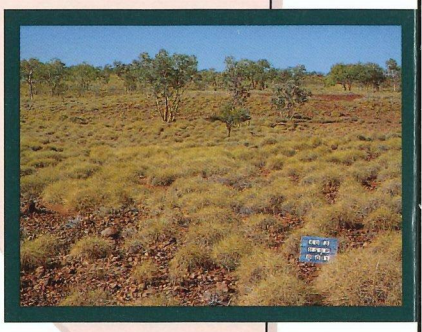
Vast areas of Western Australia are covered by grasslands. Although parts of the grasslands are included in pastoral leases, large areas of grasslands are in unpopulated desert areas, national parks, vacant crown land and reserves.

The grasslands are divided into three broad types:

- *Hummock grass*
- *Tussock grass*
- *Tall grass*







HUMMOCK GRASS

Hummock grasses are dominated by spinifex species, for example, Triodia *species. They are easily recognized by the characteristic domed or hummock shape of individual grass plants. Hummock grasses dominate the low rainfall areas of northern Western Australia.*

TUSSOCK GRASS

Tussock grasses have an erect growth habit. They form a large solid tussock that is well rooted. Found on fertile soils, tussock grasses are generally productive pastures for grazing.

TALL GRASS

Tall grasses dominate the high rainfall areas of the State. They are generally in areas that receive over 800 mm of rain a year. Tall grass species produce abundant growth - pasture swards are often over one metre high. These pastures are generally of low feed value.

As part of a statewide commitment to rangeland monitoring, a primary objective of the Department of Agriculture is to provide land management information to pastoralists. The monitoring system, using techniques that have been exhaustively tested, is a vital part of this information. Ongoing research programs are evaluating the use of satellite imagery and methods of data interpretation.

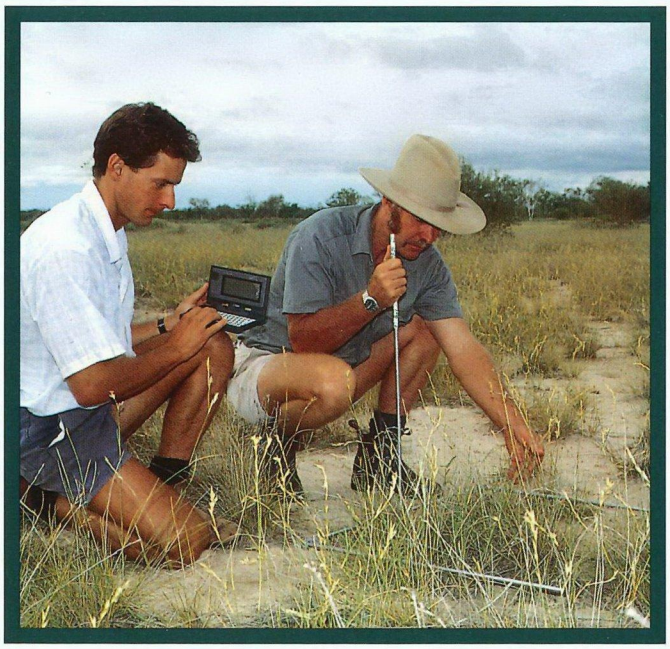
The Cattle Industry Compensation Fund has provided financial support to develop a grassland monitoring system for Western Australia. This brochure has been prepared as part of that project.

RANGELAND MONITORING

RECORDING CHANGE IN THE LANDSCAPE

The Department of Agriculture is establishing and maintaining an additional statewide network of monitoring sites.

These sites are used to record and analyse changes to the landscape at a regional and statewide level.



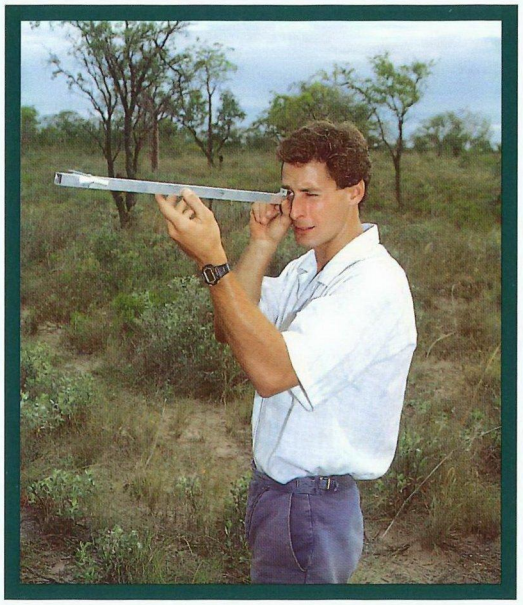
Plant population is described and recorded. Species frequency data is collected at each site.

Range trends are assessed by detailed data collection and interpretation.

Data collected includes:

- *a photographic record*
- *the plant population (frequency of species)*
- *soil surface condition*
- *soil erosion status*
- *shrub cover*

Site data is aggregated to determine change on a vegetation and soil type basis at a catchment, regional or statewide level.



Shrub cover is recorded using the Bitterlich Gauge.

Aggregated data will be available to groups such as:

- *the Pastoral Board*
- *the Commissioner of Soil and Land Conservation*
- *government agencies*
- *Parliament*
- *the wider community*

These monitoring sites will also be useful in allowing pastoralists to make comparisons with their own photographic monitoring sites.

Soil surface condition is assessed in quadrat samples.

MANAGING PERENNIAL PASTURES

THE KEY TO SUCCESSFUL RANGELAND MANAGEMENT

Successful rangeland management encourages the spread and protection of perennial grasses.

Perennial grasses are deep rooted. The large root mass helps protect the soil against erosion.

PERENNIAL GRASSES PROTECT THE SOIL

Perennial grasses live for many years. They form large tussocks or hummocks from which they re-grow, following rain.

Conserving perennial plants also conserves the soil. Perennial plants:

- *bind the soil*
- *stabilise the soil surface*
- *recycle scarce nutrients*
- *provide forage in recurrent dry seasons when annual herbs and grasses wither and die.*

Stands of perennial grasses protect fragile flood plains, and can trap sediment from flood waters.

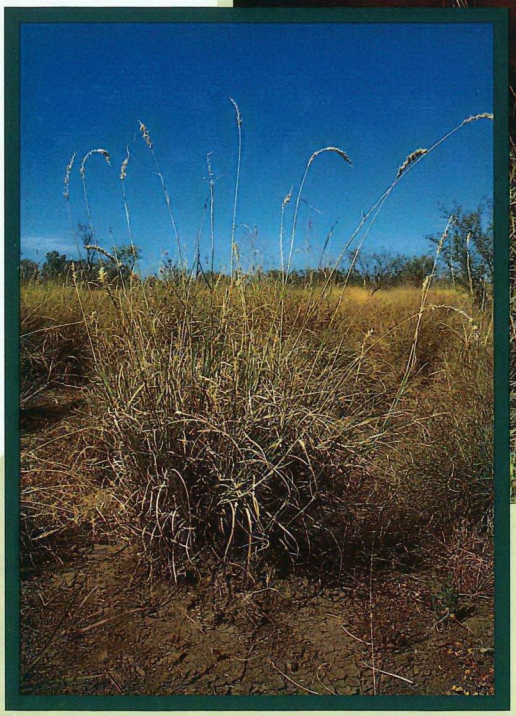
Perennial grasses protect the soil surface from erosion by reducing water run-off and by increasing the infiltration of water into the soil. The plant bases, leaves and stems provide good ground cover, reducing wind and water erosion.

Management that preserves and increases the perennial grass population will improve the rangeland resource.

PERENNIAL GRASSES PROVIDE GOOD FEED

Rangelands have an erratic and often low rainfall. Perennial plants provide standing feed that is critical for livestock grazing in the dry periods.

Annual grasses can provide valuable feed in the wet seasons, but they do not provide feed or soil cover in the dry seasons.



Perennial grasses provide good standing feed.

RANGELAND MONITORING

The monitoring system has been divided into two components:

- *A Pastoralist Management Decision Aid.*
- *A Rangeland Trend Assessment.*

The pastoralist component is designed to help with season-to-season management decisions at a paddock level.

The rangeland trend component will provide aggregated trend information at a catchment, regional or statewide level.

Aims of rangeland monitoring

- *To provide the means for pastoral lessees to obtain information on range trends (change) and so help them in management decisions.*
- *To provide aggregated information to other land managers and community-based interest groups on trends in range condition.*
- *To increase knowledge and awareness of rangeland ecological processes.*
- *To guide and support an ecologically and economically sustainable pastoral industry.*

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