Grazing & Pastoralism

Pastoralism in the Rangelands

Rangelands are areas where rainfall is too low or unpredictable to sustain intensive agriculture. Pastoralism plays a vital role in the management of the three quarters of Australia that is rangelands. As well as producing food and wool, the pastoral industries assist in the management of feral animals, vegetation change and fire over vast areas.

History

For thousands of years Aboriginal people used fire to manage the country, altering many habitats to suit their needs. After European settlement pastoralism spread quickly into the rangelands.

Many pastoral areas now face declining productivity because of vegetation changes or soil degradation. The challenge is to ensure that the pastoral rangelands are managed so that the productive potential and biological diversity of the resource are maintained.

Tenure and management

Most pastoral lands are leased from the government. Pastoralists obtain a financial benefit from the use of land. In exchange, pastoralists contribute to the national economy and manage vast tracts of the rangelands.

The onus for the management of pastoral lands should rest with the leaseholder. They are in the best position to take quick and responsive action as seasonal conditions change. However, this must be within appropriate government guidelines, formulated and monitored to ensure sustainable resource use.

The landscape

In general rangelands soils are highly weathered and very infertile. Soil fertility is predominantly linked to the underlying rock type. However, the redistribution of soil and nutrients by wind and water results in areas of better soils. Even in a landscape that may appear flat and featureless, water and nutrients concentrate in patches, around bushes and trees, or in gentle depressions.

These water and nutrient rich sites are the key to the productivity of an area. They are very important for native plants and animals as well as the pastoral industry. As these productive areas are easily over-grazed and eroded, special emphasis must be placed on their management.

Major ecological influences operating in the rangelands include:

- irregular rainfall causes sporadic germination and growth
- species composition changes markedly with the amount of rainfall, grazing, fire and season

- long-lived species are often the main elements of stability
- plant growth is determined by the availability of water and nutrients
- water is sparse and unevenly distributed
- fertility is low, yet there are important areas where nutrients are concentrated
- termites and other ground-dwelling insects are important for soil fertility and permeability.

Climate

Rainfall in Australia's rangelands is generally low and highly variable. As plant growth is largely determined by available moisture, biomass production can vary by a factor of 10 from year to year. Plant establishment occurs intermittently, perhaps once every five years or more. Drought is a natural part of this cycle. Successful pastoral management involves coming to terms with this variability.

Pasture composition

Most livestock production in the rangelands will continue to come from native grasses, although some pasture introduction is possible in favoured areas. Pasture composition is largely determined by climate, but is also altered by grazing pressure and fire.

Pasture grasses are either perennial or ephemeral. Perennial grasses produce seed many times and are important in providing stable pastoral production, a quick response to small rainfall events and maintaining ground cover.

Ephemeral species grow quickly after rain, set seed and die, producing transient forage that is not always palatable.

Over-grazing can result in the elimination of palatable perennials and a reduction in the seed reserves of favoured ephemeral species. Deterioration of pastures does not occur in direct proportion to grazing pressure. Pastures may persist until a threshold is reached, before changing to a different and less productive state.

Pests and weeds

The rangelands are home to a number of undesirable and unmanaged grazers, predators and plants. Rabbits, horses, donkeys, camels and goats compete with domestic stock for forage and water and contribute to extensive landscape damage.

Where rabbits are prolific, regenerating woody vegetation does not survive and the remaining trees and shrubs are essentially relicts. Such over-grazing can also assist the spread of less useful plant species, such as wire grass *(Aristida strigosa*).

Fire

Fire is a natural feature of Australia's rangelands. Today the size and incidence of fires is markedly different from that existing prior to European arrival. After heavy rains, grasses, shrubs and trees all germinate, resulting in a build up of fuel and increased chance of wildfire. Often, though, fires are supressed or a fire at this time would kill many of the emerging young trees and shrubs.

Instead of pastoralists actively burning at such times, the chance of fire has been reduced. In some areas, particularly after heavy rains, this has resulted in very large numbers of inedible trees and shrubs becoming established. This reduces the amount of edible grass available for pastoral use.

By using controlled fire the growth of grasses in the place of scrub can be encouraged. At the same time fire breaks are created which protect valuable feed stock and buildings from uncontrolled wildfires.

Rangeland management

As a result of the highly variable climate and the vastness and infertility of the landscape, grazing

pressure and fire are the main tools available to pastoral managers. Managers are learning to use these tools to intervene at the critical times and work with the natural ecological forces of the land to improve the management of the pastoral rangelands.