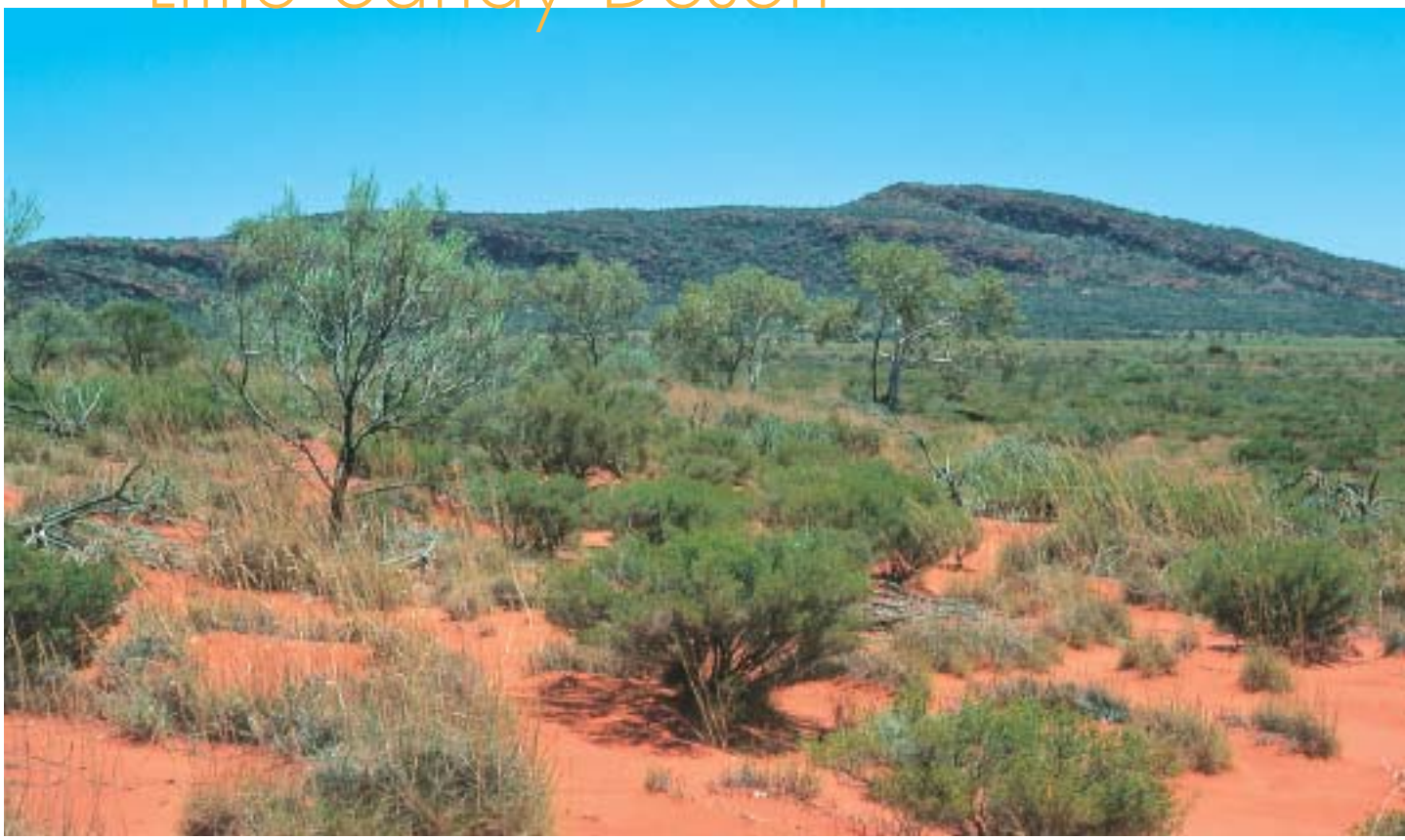
Little Sandy Desert



Low shrubs and hummock grasses on red dune with Carnarvon Ranges in background in the Little Sandy Desert Bioregion, W.A.
Photo: N.L. McKenzie

Description

Bioregional description and biodiversity values

The Little Sandy Desert Bioregion comprises red Quaternary dune fields with abrupt Proterozoic sandstone ranges of Bangemall Basin. It includes the headwaters and course of Rudall River.

A shrub steppe of acacias, *Aluta maisonneuvei* and grevilleas over *Triodia schinzii* hummock grassland occurs on the red sandy surfaces that dominate the desert. There is a shrub-steppe over *Triodia basedowii* on stony hills, with river gum communities and bunch grasslands on alluvial deposits in and associated with ranges.

The climate is arid, with summer rainfall. There are two subregions – Rudall and Trainor.

The region includes Savory Creek and the headwaters of Rudall River, two desert rivers with near permanent wetlands along their courses. Small permanent rockhole wetlands associated with ranges and uplands are locally significant water sources and have high biological and cultural significance. Small artificial wells have been constructed as water sources along the Canning Stock Route.

Land uses, in descending order of extent are unallocated Crown land, conservation and grazing of native pastures.

Overall condition and trend

The bioregion has a continental stress class of six (near pristine), although a high proportion of the original mammal fauna is now extinct or declining, vegetation cover has been reduced as a result of fires and grazing by feral animals such as camels. Weeds such as buffel grass are spreading and feral predators (cats and foxes) are ubiquitous.

Conservation priorities

Feral animal and weed control programs need to be implemented. The status of many species and ecosystems needs to be documented. Major reserves need to be acquired. There is a the need enter into co-management arrangements with local Aboriginal groups.

Nationally important wetlands

There are three nationally listed wetlands. They are in a fair to good condition with two declining in condition (Lake Disappointment and Lake Dora-Rudall River) and a third (Pools of the Durba Hills) static. Threatening processes include grazing pressure (from feral camels, donkeys and rabbits) and exotic weed invasion (buffel grass and date palm). Human disturbance and vandalism of cultural features is also occurring.

Wetlands of regional significance

There are five wetlands of subregional significance. They are of four types – freshwater springs, oases and rock pools, seasonal rivers and streams, and intermittent saline lakes. They are important as the only fresh water for large distances, contain rare and recently described taxa, are significant for the maintenance of ecological processes and have significant historical and cultural values. The condition and trend for four of the wetlands is unknown; the fifth is in fair condition but rapidly declining as a result of feral animals (camels).

Riparian zone

Riparian zone vegetation in the subregion is in fair condition but declining. Buffel grass is common along Savory Creek and Rudall River, and permanent and semi-permanent pools are badly affected by camels. Threatening processes are feral animals (camel, cattle, donkeys and rabbits), weeds (buffel grass) and changed fire regimes.

Ecosystems at risk

No Threatened Ecological Communities are listed for the region under WA State legislation, although six ecosystems are at risk. These ecosystems are:

- semi-permanent pools along rivers and creeks (Rudall catchment),
- rockholes,
- permanent pools (Durba Hills),
- riparian zones (Savory Creek),
- samphire communities (Lake Disappointment) and
- saline lakes.

Most are declining with two considered static in condition. The main threatening processes are feral animals and the associated grazing pressure (rabbit, camel, donkey) and exotic weeds (buffel grass and date palms).

Summary of Species at Risk

Forty per cent of the Little Sandy Desert's original mammal fauna is now regionally extinct.

Under WA State legislation, one critically endangered bird (the night parrot) and three mammals (including both species of marsupial mole) have been declared as endangered. Three mammals, one bird and two reptiles have been declared as vulnerable. Rock-wallaby populations are continuing to decline despite a fox baiting program. The overall condition for vertebrates is fair with a trend declining, although very little is known about the current status of most species.

The threatening processes identified for most of the fauna are feral animals (fox, cat) and changes to the fire regime.

There are no DRF declared in the bioregion.

Management responses

Reserve system

The 558,448 hectares in conservation estate comprise 4.6 per cent of the bioregion and encompass seven of its 32 vegetation associations. The reserve system comprises part of one large national park (Rudall River), and is confined to the Rudall subregion. Its management standard is ranked as poor as it has no management plan and is rarely visited by staff despite having high tourist visitation. Two Aboriginal communities live in the park (Parnngurr and Punmu, with between 200-500 people), two mining communities are relatively close to the park (Nifty and Telfer), and despite having ongoing feral animal problems with camels and occasionally donkeys, no reserve management is undertaken. Formal fire management is absent, although Aboriginal people provide a regular burning regime along the roads.

Twenty vegetation associations are not represented in conservation lands, and have a high priority for acquisition. The level of reservation of the ecosystems at risk is unknown. A further six vegetation associations, while reserved to some small extent, have a high priority for further acquisition. The associations include hummock grasslands, shrublands, woodlands, and samphires.

Constraints on acquiring reserves include competing land uses (such as Aboriginal interests, where reserve acquisition can only proceed under a cooperative management model), mining interests, and limited knowledge of biodiversity values. Reservation of the Carnarvon Ranges was proposed to Government nearly 30 years ago.

Off-reserve conservation for species and ecosystem recovery

It is generally recognised that further work is required to document the status and condition of both individual species and ecosystems in the Little Sandy Desert bioregion. For mammals the main recovery actions are feral animal control and fire management, and translocation programs are relevant.

Habitat protection and retention on lands under both private and State jurisdiction is needed, especially for ecosystems at risk and for threatened bird, reptile and plant species. As a related issue, recreational users of the Canning Stock Route are causing localised degradation of camping areas and tracks.

Integrated natural resource management (NRM)

Almost no natural resource management actions are being undertaken. Threat abatement planning for vegetation and pest management is very limited, while mining industry codes of practice have been useful in requiring some localised biological survey work.

An opportunity for better threat abatement may emerge from co-operative management with desert Aboriginal communities. However, mineral tenements, the Land Administration Act in relation to pastoral lands, and low awareness of biodiversity benefits (environmental services and tourism) among the community at large impose constraints.

Major data gaps and research priorities

Field work is needed to fill data gaps:

- There is no region-wide vegetation, environmental geology or soil mapping at better than 1:250,000 scale for conservation planning.
- The flora and fauna have only been examined in detail in small areas, so there is little data on ecological requirements and life histories of virtually all invertebrate species, plants, persisting critical weight range mammals, uncommon vertebrate and plant species, and ecologically dominant plant species (for example, hummock grasses).
- There is little data to provide a regional context on population trends for ecologically significant species such as native rodents, dasyurids, spinifex reptile communities, termites, ants, camels, foxes and weeds such as buffel grass.
- No data exists on the fauna and flora of small permanent rockhole wetlands or on aquatic environments of the Rudall River and Savory Creek.

- There is no quantitative data on the impact of camels, donkeys and rabbits on aquatic systems or other communities, especially effects on invertebrate and non-vascular plant communities.
- Changes to fire regimes in hummock grasslands and soil organic layers are likely to be having an effect particularly upon vertebrate communities, invertebrate communities, and non-vascular plants but there is no quantitative data on this.