

PASTORAL RESOURCES AND THEIR MANAGEMENT IN THE PILBARA REGION OF WESTERN AUSTRALIA

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Introduction

This report is a product of the rangeland survey of the Pilbara area of Western Australia which was conducted jointly by the Department of Agriculture and the Department of Land Administration (now Department of Land Information) in 1995-1999. It should be used in conjunction with the full survey report (Van Vreeswyk *et al.* 2004) which provides a more detailed description of the natural resources of the survey area and their condition.

This report is primarily intended to be used to assist pastoralists in station management and to assist others involved with the pastoral industry.

The area concerned covers about 181,723 km² of rangelands in the Pilbara area of Western Australia approximately bounded by 19°30' and 24°S latitudes, and 115°E and 121°30'E longitudes (see Figure 1). The 1:250,000 map sheets covering the area are shown in Figure 2.

The survey area includes all of the De Grey, East Pilbara and Roebourne/Port Hedland Land Conservation Districts, part of the Ashburton Land Conservation District and the towns of Marble Bar, Newman, Nullagine, Onslow, Pannawonica, Port Hedland and Wittenoom. Forty-three leasehold pastoral stations and four Aboriginal reserves fall wholly or partly in the area. The area also includes the Karijini National Park, Millstream-Chichester National Park, Mungaroona Range Nature Reserve and Cane River and Meentheena conservation areas (Figure 3).

Reports are presented for the following 41 pastoral leases: (reports are not presented for the small parts of Bulloo Downs and Mallina stations that fall within the survey area).

Balfour Downs	Kangan	Red Hill
Bonney Downs	Mandora	Roy Hill
Boodarie	Mardie	Strelley
Coolawanyah	Marillana	Sylvania
Coongan	Mt Divide	Walagunya
Corunna Downs	Mt Florance	Wallal Downs
De Grey	Muccan	Wallareenya
Eginbah	Mulga Downs	Wandanya
Ethel Creek	Mundabullangana	Warrawagine
Hamersley	Noreena Downs	Weelarrana
Hillside	Panorama	Yalleen
Hooley	Pardoo	Yarraloola
Indee	Peedamulla	Yarrie
Juna Downs	Pippingarra	

Reports are also included for Yandeyarra and Jigalong aboriginal reserves as both run cattle.

In an appendix to this report, land system summaries, without carrying capacities, have been provided for non-pastoral aboriginal reserves, national parks and nature conservation reserves.

In 1987 a survey of the Roebourne Plains and surrounds was conducted in response to reports of land degradation adjacent to the Pilbara towns of Dampier, Karratha, Roebourne and Wickham (Payne and Tille 1992). This survey covered about 10,200 km² and included reports on the pastoral leases of Karratha, Mallina, Pyramid, Sherlock, Mt Welcome and Warambie. These 6 together with the 41 leases from above constitute the entirety of the pastoral enterprises of the Pilbara.



The role of the rangelands survey team is to map and describe landforms, soils and vegetation, and to provide this information to pastoral, mining, environmental and other interests.

The first chapter of this report describes how rangeland survey information can be used in pastoral management. In Chapter 2 rangelands are described in terms of land types, land systems and pasture types. Chapter 3 describes the climate of the area, particularly in terms of its impact on pastoral management, and Chapter 4 provides a brief summary of current pastoral management practices.

Chapter 5 contains the resource summaries for each of the 41 pastoral stations. A summary of the land types on each station is presented, followed by more detailed information on the land systems and their range condition and recommended carrying capacities. The carrying capacities presented are an estimate of sustainable pastoral productivity for each land system assuming all feral animals and kangaroos are under control. In most years, carrying capacity is primarily determined by the type of country and by seasonal conditions which are characteristically highly variable. The figures suggested in this report are for a 'normal year', to be carried over summer (see Climate chapter of this report).

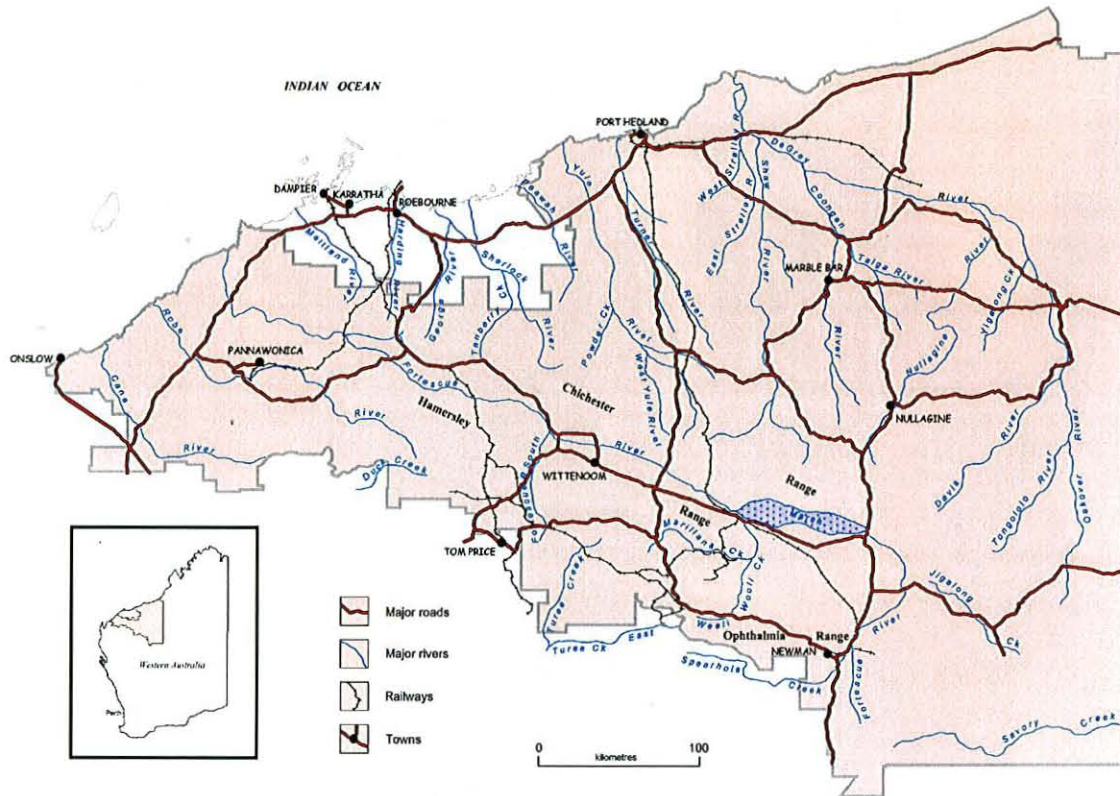


Figure 1. Location map and major features of the Pilbara survey area

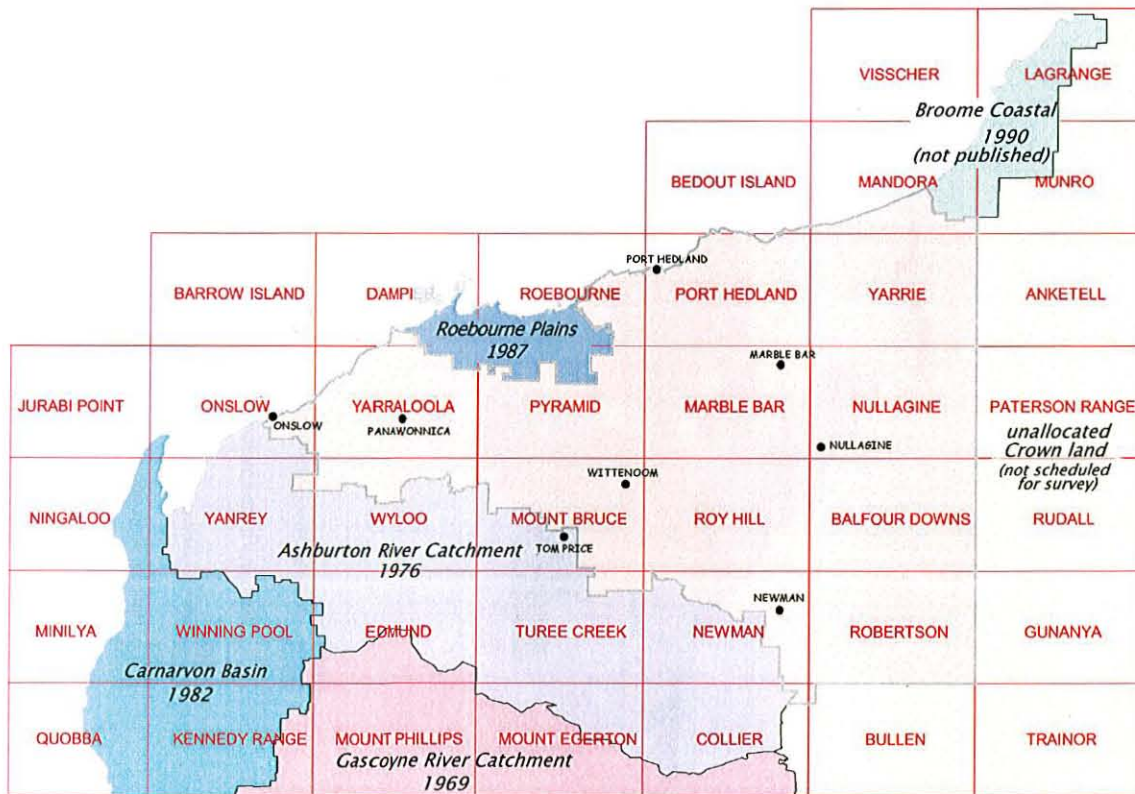


Figure 2. The 1:250,000 map sheets covering the survey area and showing adjacent survey areas (with field work start dates)

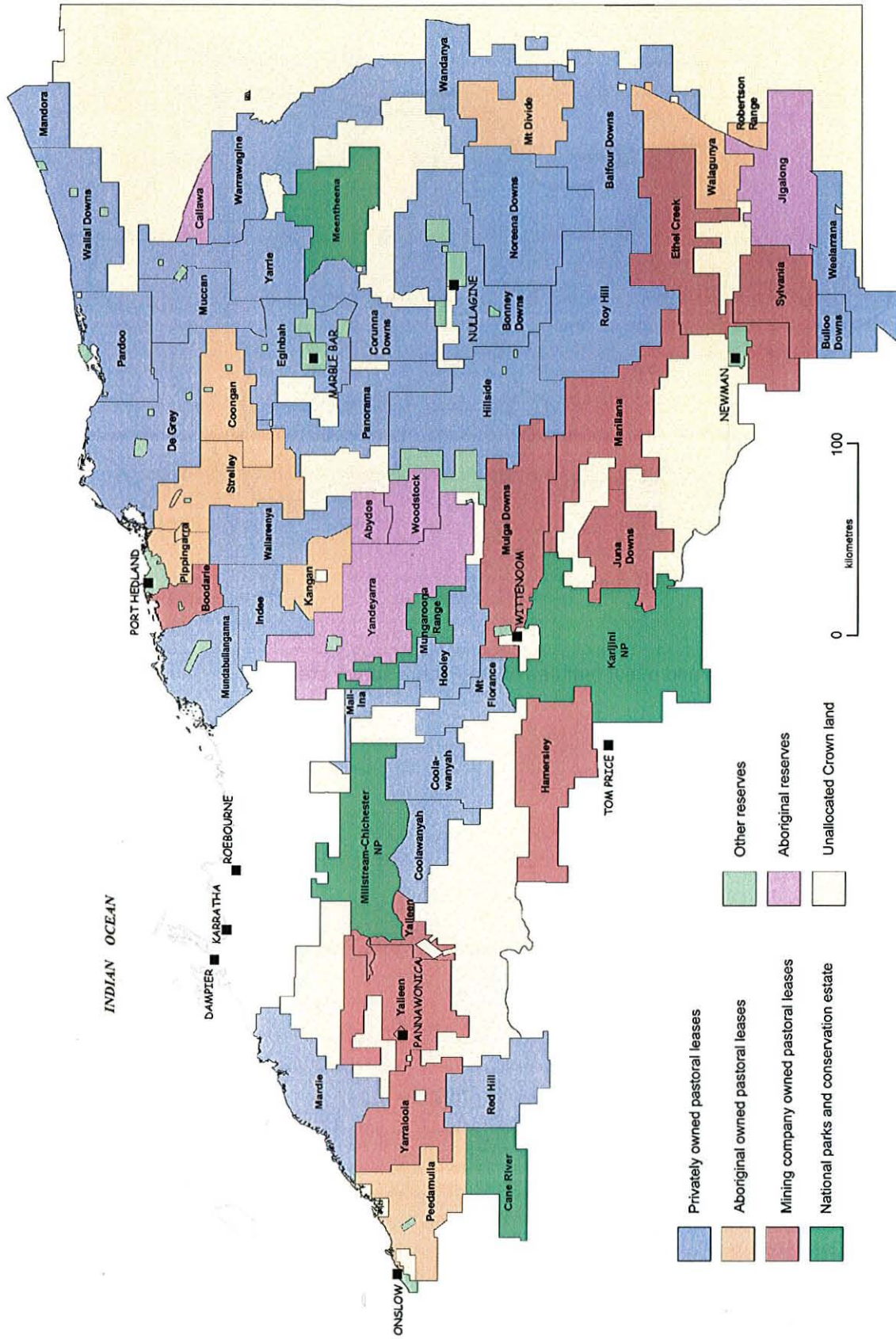


Figure 3. Pastoral stations and conservation and aboriginal reserves in the survey area

Chapter 1

Using rangeland survey information in pastoral management

Rangeland surveys provide information that is useful for pastoral management in four major areas:

- description and assessment of the land
- assessing grazing impact
- land use planning
- individual property planning

1.1 Description and assessment of the land

The Pilbara rangelands have been described in terms of land systems, soils and vegetation (Van Vreeswyk *et al.* 2004). **Land systems** are pieces of country that have their own distinctive patterns of landscapes, soils and vegetation. The patterns are repeatable throughout the area and can readily be seen and mapped on aerial photographs. Land systems are the basic mapping unit used in broad-scale rangeland surveys and are suitable for mapping at the regional and pastoral lease scale.

Land systems can be arranged into groups of systems with similar landscapes and pastoral characteristics to give broad **land types**. The 102 Pilbara land systems have been grouped into 20 land types. An example of a broad Pilbara land type is 'alluvial plains with soft spinifex grasslands' which is comprised of three similar (but differing in detail) land systems. Land types are useful for mapping at the regional and pastoral lease scale.

Land systems can be subdivided into a number of smaller **land units**. Land units are described in terms of their landform (e.g. alluvial plain, lower footslope, grove, sand dune) and usually support a particular soil and vegetation type. The same land unit such as a sand dune may occur in different land systems but in different proportions; i.e. it may be very common in one land system and much less common in another. Land units have not been mapped for the Pilbara but are described in the land system descriptions in Van Vreeswyk *et al.* 2004.

Twenty-one **soil groups** were described for the Pilbara. These soils have different responses to management impacts, for example: different susceptibilities to erosion and different requirements for regeneration.

Site types are an ecological classification at the land unit scale based on plant community, soil type and landform. They are often called '**pasture types**' in pastoral references. There are 44 site types, grouped into 13 broad pasture types, within the Pilbara (Table 4).

Rangeland surveys also provide an assessment of the condition of the land. There were about 12,450 assessments of range condition made at one kilometre intervals throughout the Pilbara survey area. Seventy-seven percent of traverse records indicated that vegetation was in good or very good condition, 11% indicated fair condition and 12% indicated poor or very poor condition.

Severely degraded and eroded areas (sde) are areas where perennial vegetative cover is severely reduced and the soils have some degree of accelerated erosion. These areas are identified and mapped during rangeland surveys because of their importance in terms of lost ecological function, reduced or lost grazing value, increased run-off and dust hazard. About 310 km² (or 0.2%) of the Pilbara survey area was mapped as severely degraded and eroded.

Areas most susceptible to degradation are:

- drainage floors, alluvial plains and flood plains subject to flooding and through-flow and with erosion prone soils (e.g. texture contrast soils);
- sand dunes and sandy plains in coastal areas;
- hardpan washplains where sheet water flows are disrupted; and
- sites supporting vegetation which is highly preferred by herbivores.

Land types, land systems, range condition assessments and severely degraded and eroded areas are shown on station plans and on the resource map which accompanies Technical Bulletin No. 92 (Van Vreeswyk *et al.* 2004).

1.2 Assessing grazing impact

Land managers and administrators must have an understanding of the influence of grazing on rangeland ecosystems to ensure that management is appropriate and sustainable. The traditional idea of gradual and consistent change in the condition of rangeland vegetation and soils in response to increasing or decreasing stocking rate has been largely replaced by a view that major change happens episodically, during drought or in an extremely good season (Westoby 1980). However, inappropriate or continuously excessive grazing pressure can still bring about severe degradation even in 'normal' years (Pringle 1994, Watson, Westoby and Holm 1997). Sites at the land unit scale are used to assess grazing impacts. Grazing impacts and plant indicator species are described in the Site type ecology chapter of Technical Bulletin No. 92 (Van Vreeswyk *et al.* 2004) and in 'Pasture condition guides for the Pilbara' (Payne and Mitchell 2002).

The main indicators of grazing impacts are:

- the density and mix of palatable plants;
- the density of unpalatable shrubs;
- the prominence of palatable plants which are particularly sensitive to grazing; and
- the health and stability of the soil.

The condition of the land resources, in terms of grazing impacts, was assessed during field work. Eighty-eight percent of all traverse assessments indicated vegetation was in very good, good or fair condition. This may be regarded as acceptable condition. The remaining 12% indicated poor or very poor vegetation condition, with either considerable loss of palatable perennial plants or general loss of perennial plants, or, in some cases, marked increases in cover by unpalatable species ('woody weeds').

Vegetation condition and soil erosion are often closely related. Decline in vegetation condition involving decreases in perennial grass cover or total shrub cover as a result of grazing, means that soil surfaces are increasingly unprotected from the effects of wind and water. Erosion is likely to commence (unless the surface is inherently resistant) and to accelerate if vegetation condition continues to decline. However, in some instances of

substantial grazing impact, the vegetation changes to dense 'woody weeds', which enhance soil stability.

During the Pilbara rangeland survey, accelerated erosion was recorded at 6.5% of the traverse assessments: 5.3% of assessments indicated slight, minor or moderate erosion (i.e. <50% of the surface affected) and 1.2% showed severe or extreme erosion (>50% of the surface affected). Most of the accelerated erosion was caused by water, rather than wind.



This fenceline shows the impact of inappropriate stocking rates. Perennial grasses have been all but eliminated on the right and the tussock grassland changed to an annual herbfield/grassland. Fortunately there is no erosion as the soil is protected by an abundant stony mantle. Recovery could be effected by destocking for a few years.

1.3 Land use planning

Rangeland survey information provides an integrated framework for management planning at several scales and for a variety of objectives. These may range from the use of information at the broad land type scale for regional land use planning such as selecting representative conservation reserves, to the use of soil type information for determining mining hazards or vegetation types for planning ecotourism.

Information at a land type scale can be used to help develop district or regional pastoral management principles and options. The land types described in the Pilbara survey are depicted as different colour-coded areas on the resource map which accompanies Technical Bulletin No. 92 and on the 1:100,000 scale station plans. They occur at about the same scale as a pastoral paddock (i.e. average size roughly 25 km²) although any one pastoral paddock usually contains more than one land type. Each land type has different management options which are suggested in Chapter 2 of this report.

Land systems represent further definition and detailing of the description of the broad land types and have been mapped individually as specific areas within each land type. The land system approach to mapping enables extensive rangeland regions to be mapped at the smallest scale (1:100,000) that is useful for land use management and planning across very broad catchments or regions. Land system boundaries can be reproduced onto topographical maps or pastoral plans or paddock plans at any scale but 1:100,000 or 1:50,000 scale is the most useful for planning at the individual property level.

Land units generally have an area of 1-100 ha although some units, such as hardpan plains, may be much larger, occasionally up to 1,000 ha (5 km x 2 km). Land units within each land system in the survey area have been described, but not mapped. Land units can be identified from aerial photography or other remotely sensed imagery at scales of 1:50,000 or larger. A land system often includes one or more land units which are particularly sensitive to management practices. Once these land units have been identified, the effects of land management can generally be assessed from its effects on these key land units. This is particularly useful in more detailed land use studies such as monitoring the impact of mining or grazing. The sensitivity of particular land units to water erosion, wind erosion, flooding and inundation is presented in the Soils chapter of Technical Bulletin No. 92.

Land unit information can also be used in planning site developments such as buildings and roads. It can be used for planning intensive agriculture, such as irrigated horticulture. These alternative industries on pastoral enterprises are becoming more important as economic pressures on pastoral activities increase.

Site types mostly occur at the same scale as the land unit and can be identified on the ground by key features of vegetation structure and composition and their position in the landscape. Identification of site types is usually possible by association with the land unit. Information at a site scale can be used to identify indicators of land management, such as grazing impact, and for planning a range monitoring system.

Severely degraded and eroded areas occur at a scale similar to that of the land unit, although individual areas may often extend across adjacent units. This information can be used in planning regeneration programs such as to control dust around a town or in individual property planning.

1.4 Individual property management

It is vital for the pastoral industry to protect its basic resources; the vegetation and the soil which supports it. Pastoral management should maintain areas that are in good condition and improve the condition in other areas. Pastoral experience in the Western Australia rangeland has indicated that conservative stocking, combined with effective control of all large grazing animals, provides the most powerful means for managers to maintain per capita income from livestock production and to maintain range condition.

Management of pastoral stations involves a variety of considerations which have to be integrated into a long-term strategy. The strategy should allow for short-term, opportunistic management responses, such as spelling after a major rainfall event to encourage the survival of seedlings of useful perennial grasses or shrubs. Climate and climate variability have a major impact on rangeland management and rangeland processes. Its implications for pastoral management are discussed in Chapter 3 of this report.

The rangeland survey information can be used for individual property planning in many different ways, some of which are presented below.

Setting stocking rates based on land capability

In Chapter 5 of this report resources are described for each station in terms of land systems, their total areas and their condition. Resource condition assessments, presented on station plans and summarised in the individual station reports, indicate how the survey team assessed the condition of different areas of each station. This information may highlight parts of the station which have been used beyond their capability or which areas are in the best condition.

Recommended carrying capacities are given for each land system in good, fair and poor condition. Areas in poor condition usually do not have the capacity to carry as many animals as those in good condition. More importantly, areas in poor condition have little drought durability; they cannot carry stock for long during drought. This is important in this region where prolonged dry periods are normal.

A carrying capacity based on land capability can be calculated when information on the land systems in a particular paddock (or other management area) is combined with the recommended carrying capacities for those land systems at current range condition. This can be done at a station or paddock scale. The information in this report is provided on a station basis. Assistance to generate this information at a paddock scale is available from local district officers of the Department of Agriculture, Western Australia.



Participants at a carrying capacity and pasture management workshop held by the Roebourne/Port Hedland Land Conservation District at Mt Florance Station in April 2001.

The land system information can also be used to consider the type of stock to put into paddocks based on the vegetation types found on each land system in the paddock. In general, breeders should be put into paddocks with productive perennial grasses and shrubs

and dry stock put into more seasonal country. In good seasons it is less important what type of stock are put into particular paddocks.

Factors that influence the distribution of grazing, such as the location of watering points or different grazing preferences, must be considered. A paddock is often made up of more than one type of country, with different pastoral potentials and stock preference. The preferred pasture needs to be monitored to check for preferential over-use and control of stock numbers and season of use must be effective.

Fencing according to land type

Some fences in the Pilbara are approaching the end of their useful life. It is critical to sustainable land use that there is an ongoing replacement program for fencing. Uncontrolled grazing allows preferential grazing of favoured vegetation which will lead to degradation.

New fencing or the replacement of old fencing needs to be placed according to land type by using the 1:100,000 station plans and the pastoral characteristics of land types discussed in Chapter 2 of this report.

Fencing according to land type has major benefits. Areas within a paddock can be managed more effectively if the paddock encloses similar land types with similar management requirements. More even distribution of grazing across the paddock will be achieved, as similar land types in the paddock will have similar grazing preferences so stock will not be as selective within the paddock. Overgrazing caused by preferential grazing, or under-utilisation of pasture within the paddock will then be minimised.

Water point location

The strategic location of watering points can also help spread grazing more evenly across paddocks and hence reduce selective grazing. Inadequate distribution of watering points has caused localised land degradation close to waters and at the same time valuable pastures at greater distances from watering points have remained little used or unused. Planning the location of watering points or relocation of existing watering points can be done using 1:100,000 station plans and information on different land types, particularly at the land unit scale, contained in this report and in Technical Bulletin No. 92.

The following recommendations are from 'Spacing water points in the southern pastoral areas of Western Australia' by Burnside, Williams and Curry (1990), but are generally also relevant to the Pilbara.

- Watering points should be no further than 5-8 km apart for sheep and 10-16 km apart for cattle. Where either feed or water is saline the recommended distance is at the lower end of the range.
- Troughs in the corner of paddocks have relatively concentrated approaches and hence grazing pressure for the same number of stock is greater than for troughs more centrally located in a paddock. Watering points should be located away from fences wherever possible so that animals have 360° access to the water. Alternatively, additional watering points should be installed to spread grazing pressure or the number of animals should be reduced.
- Where possible the watering point should be located on an area of low susceptibility to erosion and on resilient pasture (e.g. a spinifex sandplain or a stony plain within an acacia-eremophila shrubland), but with ready access to good pastures. The location

of watering points can be used to make stock travel a few kilometres to graze favoured or fragile country and thus make more use of poorer country closer to the water point.

Many of the severely degraded and eroded areas observed during the survey have been caused by the location of permanent watering points, with a long history of grazing, on or near highly susceptible land units.

Regeneration of areas in poor condition

Assessments of soil and vegetation condition are shown on the 1:100,000 scale station plans. Careful management including strategic spelling and reducing total grazing pressure through control of feral and native herbivores as well as domestic stock can improve areas where the perennial vegetation has been degraded but the soil surfaces are still largely intact. The extent to which total grazing pressure is controlled on these areas will be critical to the speed of recovery. If the area is being degraded because it is being preferentially grazed, re-fencing and/or relocating watering points by land type boundaries will control uneven grazing preferences.

A lack of seed reserves of palatable perennial grasses or shrubs may be the critical factor limiting regeneration in areas with poor condition vegetation even if soil surfaces remain relatively undamaged and responsive to rain.

Management of severely degraded and eroded areas

The map which accompanies Technical Bulletin No. 92 and station plans show areas that have been identified as being severely degraded and eroded (sde). These areas usually have little or no perennial vegetation remaining and the soil surface is bare and eroded.

Complete withdrawal from grazing to assist regeneration is the best option for severely degraded and eroded areas, particularly where accelerated erosion is evident or may occur with continued grazing pressure. To encourage regeneration and stop soil erosion, the affected area, including less degraded edges and residual patches within the area, would require fenced protection from further grazing. Again, the extent to which total grazing pressure is controlled on spelled areas will be critical to their regeneration, so control programs for reducing the impact of kangaroos and feral animals such as donkeys must be maintained.

Grazing pressure can be reduced by removing the supply of permanent water, for example by closing down a mill, fencing out a natural water supply or relocating a supply using a pipeline.

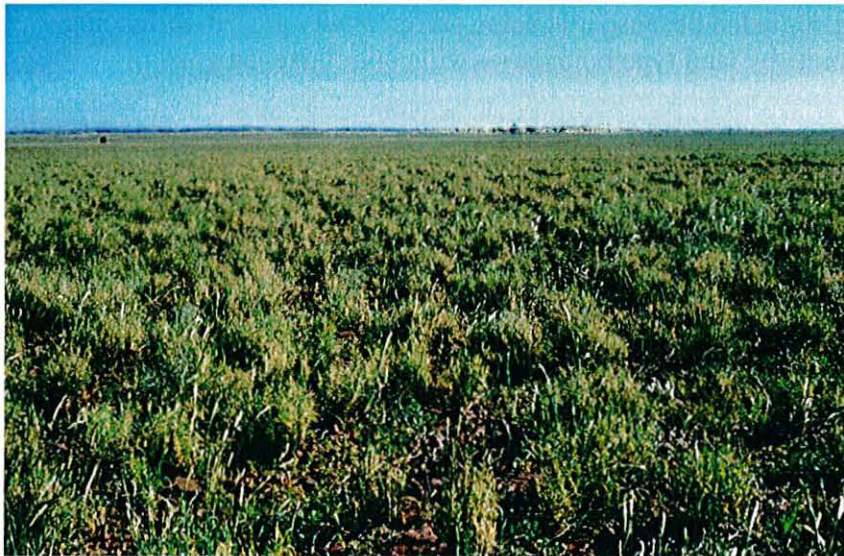
Recovery of severely degraded and eroded areas within a reasonable time may require the use of mechanical regeneration as well as grazing control.

For successful regeneration there must be adequate available soil moisture for plant germination and establishment and suitable niches on the soil surface in which seed can lodge, germinate and establish. Many regeneration techniques may be used to trap seed and better use rainfall. These include land shaping (such as embankments and water ponding), cultivation (using implements such as ploughs and pitters) which trap water and provide a suitable bed for seeds, and soil amelioration (Williams and Shepherd 1991). Soil amelioration may be required for soils that contain high levels of salts, particularly sodium salts. The low levels of soil moisture often associated with these saline or sodic soils can be improved with

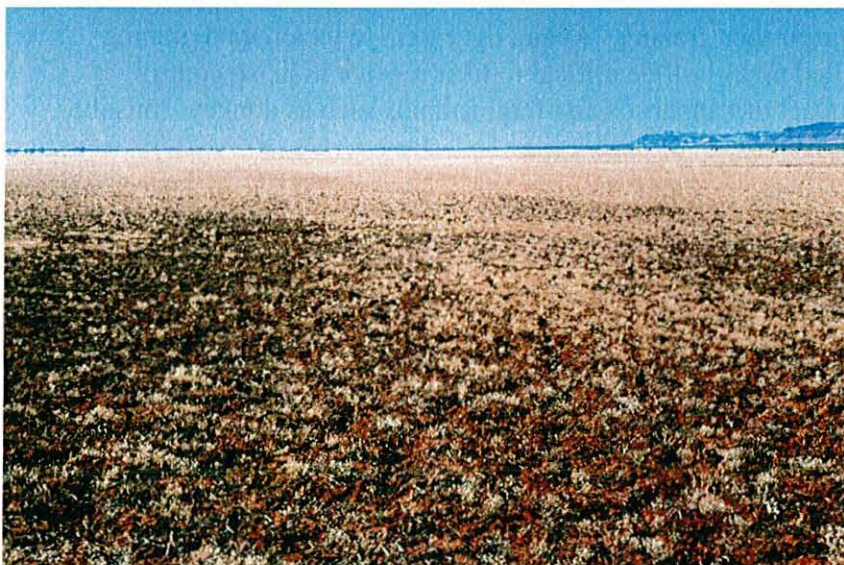
soil ameliorants. Regeneration trials in the arid shrublands showed gypsum to be a successful soil ameliorant in encouraging perennial shrub establishment on sodic soils (Ward 1990).

Mechanical regeneration techniques and reseedling (where there are no remnant native plants left to act as seed sources) are expensive and not always successful. They all have limitations, and selection of the most suitable method will depend on soil type and position in the landscape. The techniques and how to determine which is the most appropriate method to use on any particular site are described in 'A guide to mechanical rangeland regeneration' (Addison 1997).

Strict grazing control must be practised while plants are establishing. Economic analyses on predicted returns generally show that it is not profitable to undertake mechanical regeneration on severely degraded and eroded areas.



This barley Mitchell grass (Astrebla pectinata) country on a basaltic upland of the Wona land system is in good condition. It supports many useful annuals in season and the fairly dense perennial grass provides good feed and durability in drier times.



This barley Mitchell grass (Astrebla pectinata) upland country also on the Wona land system has lost most of its perennial grass cover and is in poor condition. It still provides useful feed as annual grasses and herbs in season but has no durability in dry times. It has the capacity to recover relatively quickly if destocked, but only if there are patches of perennial grasses remaining as a seed source.

Range monitoring

Changes in range condition are often slow and difficult to detect. Memory alone cannot be expected to track change over many years. However, a monitoring system can be installed as a means to provide a permanent record of change.

Range monitoring provides a formalised means by which information on vegetation and soil surface characteristics can be incorporated into the decision making process. Management decisions regarding the number and distribution of stock, as well as on tools such as spelling, burning and relocation of fences and watering points, can be made within the context of changes observed at permanent monitoring sites.



These mulga (Acacia aneura) groves have collapsed due to water starvation. Disturbance such as removal of ground cover by overgrazing or inappropriate positioning of tracks has initiated erosion and resulted in rapid run-off away from the groves. Considerable soil has been lost (as visible by the exposed tree stumps in the foreground). The soil surfaces are scalded and some eroded material has been re-deposited as sandy accumulations. The area needs to be protected from grazing.

A permanent system also provides a means by which the long term effects of managers' actions can be demonstrated. Management that uses a monitoring system is more likely to enable sustainable production from the rangelands.

Photographing the same site at repeated intervals is a simple and effective method of monitoring in the rangelands. The photographic site provides powerful visual evidence of change which can be reassessed and interpreted quickly. The current number and type of stock in the paddock and the duration of the grazing period as well as climatic factors such as recent seasonal conditions need to be recorded to enable interpretation of the monitoring information.

Assistance to set up monitoring sites is available to pastoralists through the Department of Agriculture, Western Australia.

Land system distributions within paddocks are useful for helping to select monitoring sites (Holm, Burnside and Mitchell 1987). Sites which are representative of the paddock can be located on the basis of the paddock's composition of types of country. Land system maps and descriptions can also be used to locate monitoring sites in sensitive areas most likely to show change and provide an early warning system for the paddock. Monitoring sites are located and assessed at a land unit/pasture scale. Information presented in Chapter 2 of this report, and in greater detail in the Land systems and Site type ecology chapters of Technical Bulletin No. 92, will provide insights as to which pasture types or land units are most appropriate to monitor.

Chapter 2

The Pilbara rangelands

Land types, land systems, site type groups and site types were used to classify the rangelands of the Pilbara. These are described in detail in Technical Bulletin No. 92 (Van Vreeswyk *et al.* 2004) and land systems within land types were mapped on the resource map which accompanies the report and on individual station plans. For the purposes of this report site type groups can be regarded as being pasture types.

2.1 Why land types, land systems and pasture types?

Land types are very broad groups of country which are distinct from one another in terms of landform, vegetation and pastures (see Table 2). Each land type consists of a number of **land systems** which are the units mapped in rangeland surveys. Land systems within a land type generally have similar pastoral potential and management requirements. One hundred and two land systems grouped into 20 land types are described in Technical Bulletin No. 92. For simplicity this report generally focuses on land types.

Pasture types are broad groups of vegetation each consisting of a number of particular vegetation communities which have similar pasture characteristics. Pasture types occur at a land unit scale (e.g. sand dune, narrow drainage floor). For simplicity this report focuses on 12 very broad pasture types which are detailed in 'Pasture condition guides for the Pilbara', Department of Agriculture, Miscellaneous Publication No. 19 (Payne and Mitchell 2002).

A hypothetical piece of country (Figure 4a) in the following description illustrates the land type/ land system classification previously described.

Rugged hilly country (land type 1) occurs at the top of the landscape. Numerous hill land systems can be classified into land type 1 but for the purposes of this example two hill systems are given. These are Rocklea and Capricorn which are similar but differ in that Rocklea is hill tracts and plateaux based on basalt whereas Capricorn is hills and strike ridges on sedimentary rocks. They both support the same Spinifex Hill Pasture type.

Downslope of land type 1 the relief becomes more subdued with gentle slopes and gently undulating stony plains (land type 8). Boolgeeda differs from Macroy in that it consists of gently sloping colluvial plains with sub-parallel drainage patterns whereas Macroy is slopes and plains on granite with occasional tor heaps. They both support Hard Spinifex Plain Pasture and Soft Spinifex Plain Pasture.

Downslope of land type 8 the country changes to level alluvial plains (land type 13). In this example Mallina and Paradise land systems are similar but differ in that Paradise has more eroded and scalded claypan areas. They both support Soft Spinifex Plain Pastures and minor Roebourne Plains Grass pastures. Paradise has more of the latter than Mallina.

River plains (land type 17) occur at the bottom of the landscape as more or less active flood plains associated with major rivers. River land system differs from Coolibah in that it includes major channels and has somewhat different soils. They both support woodlands or shrublands with tussock grasses.

In Figure 4b the differences between Mallina and Paradise land systems are illustrated. These similar systems differ most in the proportion of the same pasture types that they support. They have similar pastoral characteristics and hence it is appropriate to consider them together in terms of pastoral management.

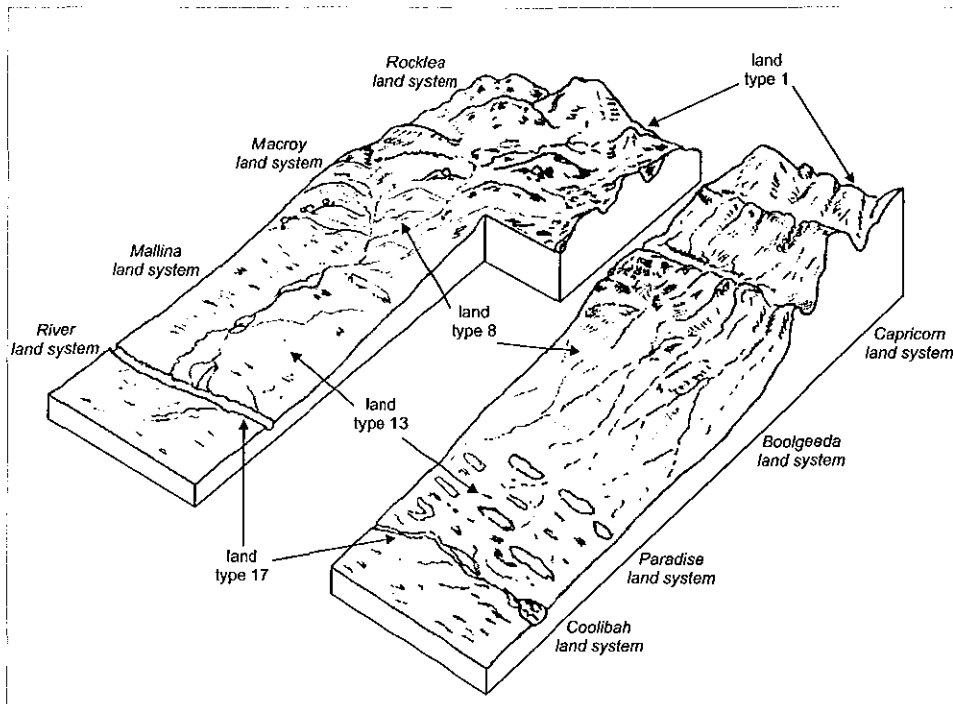


Figure 4a. A sequence of land types and land systems from hills down to major drainage lines

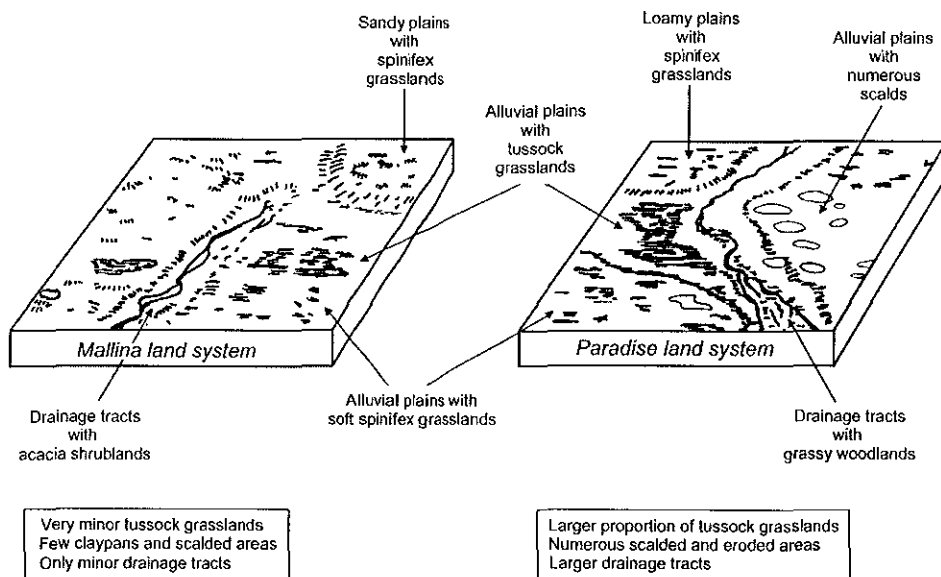


Figure 4b. The different proportions of the same pasture types and land units differentiates between Mallina and Paradise land systems

2.2 Land types and their land systems

Land systems are characterised by their:

- position in the landscape;
- geology;
- distinctive pattern of landforms (land units) with their characteristic soil and pasture types.

Land systems are listed in Table 2 according to the broad land types to which they belong.

The pastures and their proportions which occur on a land system determine the pastoral potential of the system. Each pasture type was given an estimated carrying capacity. To determine the carrying capacity for the whole land system the proportion of its component pastures (based on the land system descriptions given in Technical Bulletin No. 92) was multiplied by each pasture's capacity. For simplicity, the land systems were then grouped according to six categories of pastoral potential ranging from very high to very low. The groups and their suggested carrying capacities are presented in Chapter 5 (Table 8).

It is important to note that not all parts of a particular land type or land system may have the same pastoral potential. For example, some stony plain land systems may include drainage floors supporting saltbush and bluebush shrublands with moderate pastoral potential and stony plains with acacia-eremophila-cassia shrublands with low pastoral potential. The overall carrying capacity given for the land system is derived from calculations based on the proportions of its component pastures (Table 10). Table 1 arranges the land types in order of decreasing size within the Pilbara survey area. The three largest land types (1, 8 and 11) collectively occupy almost 69% of the area.

Table 1. Pilbara land types arranged according to size

Land type	Abbreviated description	% of survey area
1	Hills with spinifex	32.1
11	Spinifex sandplains	22.3
8	Stony plains with spinifex	13.8
12	Mulga hardpan plains	5.1
17	River plains with woodlands and tussock grasses	4.6
3	Plateaux and breakaways with spinifex	4.1
13	Alluvial plains with soft spinifex	2.9
14	Alluvial plains with tussock grasslands or shrublands	2.5
5	Dissected plains with spinifex	2.4
19	Coastal plains, dunes, mudflats and beaches	1.8
6	Stony plains and hills with spinifex	1.7
10	Stony plains with acacia shrublands	1.4
9	Stony gilgai plains with tussock grasses and spinifex	1.1
15	Snakewood alluvial plains	1.0
18	Calcrete plains with shrublands or spinifex	1.0
7	Stony plains and low hills with acacia shrublands	0.8
20	Lake country with halophytic shrublands	0.6
2	Hills with acacia shrublands	0.4
4	Plateaux and breakaways with acacia shrublands	0.2
16	Alluvial plains with halophytic shrublands	0.2

Table 2 lists the 20 land types and their component land systems and more detailed descriptions follow.

Table 2. Land types and their land systems

Land type	Description and land systems
1	Hills and ranges with spinifex grasslands Land systems - Black, Boolaloo, Capricorn, Granitic, Houndstooth, McKay, Newman, Robertson, Rocklea, Ruth and Talga
2	Hills and ranges with acacia shrublands Land systems - Augustus, Charley and Marandoo
3	Plateaux, mesas and breakaways with spinifex grasslands Land systems - Callawa, Coongimah, Kumina, Oakover, Nanutarra, and Robe
4	Plateaux, mesas and breakaways with acacia shrublands Land systems - Laterite and Table
5	Dissected plains with spinifex grasslands Land systems - Billygoat, Egerton and Platform
6	Stony plains and hills with spinifex grasslands Land systems - Adrian, Bonney, Mosquito, Nirran and Tanpool
7	Stony plains and low hills with acacia shrublands Land systems - Collier and Prairie
8	Stony plains with spinifex grasslands Land systems - Boolgeeda, Lochinvar, Macroy, Paterson, Peedamulla, Pyramid, Satirist, Stuart and Taylor
9	Stony gilgai plains with tussock grasslands and spinifex grasslands Land systems - White Springs and Wona
10	Stony plains with acacia shrublands Land systems - Dollar, Elimunna, Ford, Kanjenjie, Paraburdoo and Sylvania
11	Sandplains with spinifex grasslands Land systems - Buckshot, Divide, Giralia, Gregory, Little Sandy, Nita and Uaroo
12	Washplains on hardpan with groved mulga shrublands (sometimes with spinifex understorey) Land systems - Cadgie, Fan, Jamindie, Jurrawarrina, Nooingnin, Pindering, Spearhole, Three Rivers, Wannamunna, Washplain and Zebra
13	Alluvial plains with soft spinifex grasslands Land systems - Mallina, Paradise and Urandy
14	Alluvial plains with tussock grasslands or grassy shrublands Land systems - Balfour, Brockman, Horseflat, Pullgarah and Turee
15	Alluvial plains with snakewood shrublands Land systems - Christmas, Cowra, Hooley, Marillana, Narbung and Sherlock
16	Alluvial plains with halophytic shrublands Land systems - Cundelbar, Mannerie and Talawana
17	River plains with grassy woodlands and shrublands, and tussock grasslands Land systems - Cane, Coolibah, Fortescue, Jigalong, River and Yamerina
18	Calcreted drainage plains with shrublands or spinifex grasslands Land systems - Calcrete, Lime and Warri
19	Coastal plains, dunes, mudflats and beaches with tussock grasslands, soft spinifex grasslands and halophytic shrublands Land systems - Anna, Cheerawarra, Dune, Eighty Mile, Littoral, Onslow and Roebuck
20	Salt lakes and fringing alluvial plains with halophytic shrublands Land systems - Marsh and Weelarrana

Land type 1. Hills and ranges with spinifex grasslands (58,369 km², 32.1% of survey area)

All the land systems in this land type have low or very low pastoral potential as they support Spinifex Hill Pastures predominantly made up of hard spinifex species which are not eaten by livestock. Many of the systems are poorly accessible or inaccessible to stock. Some of the most rugged systems (e.g. Newman, Capricorn) are basically of no use for pastoralism. Systems with more accessible parts and occasional stands of soft spinifex are of limited use.

Soils are usually shallow and very stony. The soil surfaces are generally stable and not susceptible to erosion due to dense protective stony mantles and rock outcrop.

Major pasture type Spinifex Hill Pasture

Land systems

Black	Linear ridges of dolerite or basalt supporting hard spinifex grasslands, with unvegetated rock piles along summits (165 km ²)
Boolaloo	Granite hills, domes and tor fields and restricted sandy plains supporting soft spinifex grasslands (1,502 km ²)
Capricorn	Hills and ridges of sandstone and dolomite supporting shrubby hard and soft spinifex grasslands (5,296 km ²)
Granitic	Rugged granitic hills supporting shrubby hard and soft spinifex grasslands (4,020 km ²)
Houndstooth	Rough shale hills, stony plains and broad drainage floors supporting hard spinifex grasslands (427 km ²)
McKay	Hills, ridges, plateaux remnants and breakaways of meta-sedimentary and sedimentary rocks supporting hard spinifex grasslands (4,202 km ²)
Newman	Rugged jaspilite plateaux, ridges and mountains supporting hard spinifex grasslands (14,580 km ²)
Robertson	Hills and ranges of sedimentary rocks supporting hard spinifex grasslands (2,714 km ²)
Rocklea	Basalt hills, plateaux, lower slopes and minor stony plains supporting hard spinifex (and occasionally soft spinifex) grasslands (22,993 km ²)
Ruth	Hills and ridges of volcanic and other rocks supporting hard spinifex (and occasionally soft spinifex) grasslands (346 km ²)
Talga	Hills and ridges of greenstone and chert and stony plains supporting hard and soft spinifex grasslands (2,124 km ²)

Land type 2. Hills and ranges with acacia shrublands (738 km², 0.4% of survey area)

The three land systems in this very restricted land type are Augustus, Charley and Marandoo. Augustus is rugged, poorly accessible and supports *Acacia*, *Eremophila* and *Senna* shrub species that are unattractive to livestock. Its pastoral potential is very low. Charley system consists of hills and ridges on dolerite and basalt with unattractive mulga and *Senna* shrublands and marginally more useful pastures on restricted lower plains. Its overall pastoral potential is very low. The Marandoo system consists of basalt hills and stony plains with

mulga shrublands and understorey tussock grasses and shrubs which are moderately attractive to livestock. More rugged parts are poorly accessible but overall pastoral value is moderate.

Soils are usually shallow and very stony. The soil surfaces are generally stable and not susceptible to erosion because of protective stony mantles and rock outcrop.

Major pasture type Acacia Mixed Shrubland Pasture

Land systems

Augustus	Rugged ranges, hills, ridges and plateaux supporting mulga shrublands and hard spinifex grasslands (61 km ²)
Charley	Dolerite hills and ridges and restricted plains supporting mulga and cassia shrublands and spinifex grasslands (218 km ²)
Marandoo	Basalt hills and restricted stony plains supporting grassy mulga shrublands (459 km ²)

Land type 3. Plateaux, mesas and breakaways with spinifex grasslands (7,489 km², 4.1% of survey area)

Four of the five land systems in this land type have low pastoral potential and the fifth system has very low potential.

Except for the steepest breakaway faces and elevated plateaux remnants, most of the systems are accessible to livestock but are unattractive. The vegetation is predominantly unpalatable hard spinifex grasslands with isolated to scattered shrubs. Small areas of drainage floors may support hard spinifex or moderately preferred soft spinifex or patchy tussock grasses below shrubs.

Soils are stony or red shallow loams or calcareous shallow loams with deeper loamy earths in drainage tracts. Soil surfaces are protected by abundant mantles of limonitic or calcareous gravels and are generally not prone to erosion.

Major pasture types	Spinifex Hill Pasture	(d) ¹
	Hard Spinifex Plain Pasture	(d)
	Soft Spinifex Plain Pasture	(m) ²

Land systems

Callawa	Highly dissected low hills, mesas and gravelly plains of sandstone and conglomerate supporting soft and hard spinifex grasslands (1,003 km ²)
Coongimah	Plateau surfaces, low hills with steep slopes and undulating uplands supporting hard spinifex grasslands (3,244 km ²)
Kumina	Duricrust plains and plateau remnants supporting hard spinifex grasslands (151 km ²)
Nanutarra	Low mesas and hills of sedimentary rocks supporting soft and hard spinifex grasslands (697 km ²)

¹ (d) - dominant or co-dominant

² (m) - minor

Oakover	Breakaways, mesas, plateaux and stony plains of calcrete supporting hard spinifex grasslands (1,529 km ²)
Robe	Low limonite mesas and buttes supporting soft spinifex (and occasionally hard spinifex) grasslands (865 km ²)

Land type 4. Plateaux, mesas and breakaways with acacia shrublands (432 km², 0.2% of survey area)

This minor land type has two land systems with similar landforms to those in land type 3 but differs in the vegetation that it supports. Vegetation is mostly *Acacia*, *Eremophila* and *Senna* shrublands with a small component of palatable species but overall pastoral value is low. More palatable shrubs or tussock grasses occur on very small areas of drainage tracts and lower plains. These areas are susceptible to preferential overuse and occasional erosion.

Soils are stony types, red shallow gravelly sands and calcareous shallow loams on upper parts of the land type and clays on restricted lower tracts.

Major pasture type Acacia Mixed Shrubland Pasture

Land systems

Laterite	Laterite mesas and gravelly rises and plains supporting mulga shrublands (355 km ²)
Table	Low calcrete plateaux, mesas and lower plains supporting mulga and cassia shrublands and minor spinifex grasslands (77 km ²)

Land type 5. Dissected plains with spinifex grasslands (4,271 km², 2.4% of survey area)

The three land systems in this land type all show intensely dendritic or sub-parallel patterns of drainage incision into colluvium or hardpan but this is geological rather than accelerated erosion. The vegetation is hard spinifex grasslands with isolated to scattered mulga and other *Acacia* species shrubs. Pastoral potential is low or very low.

Soils are red shallow loams, red brown hardpan shallow loams and minor red loamy earths. Abundant surface mantles of ironstone and other gravels and pebbles are very common. The land type is not susceptible to grazing induced degradation or erosion.

Major pasture type Hard Spinifex Plain Pasture

Land systems

Billygoat	Dissected plains and slopes supporting hard spinifex grasslands (2,235 km ²)
Egerton	Dissected hardpan plains supporting mulga shrublands and hard spinifex grasslands (466 km ²)
Platform	Dissected slopes and raised plains supporting hard spinifex grasslands (1,570 km ²)

Land type 6. Stony plains and hills with spinifex grasslands (3,059 km², 1.7% of survey area)

The pastoral potential of this land type varies from very low to moderate depending on land systems and the proportions of preferred to non-preferred pasture on each system.

Most of the land type supports hard spinifex grasslands with scattered acacia shrubs with lesser areas of more attractive soft spinifex grasslands and minor areas with a few bluebush shrubs and tussock grasses. Bonney land systems supports extensive areas of soft spinifex and pastoral value is moderate. The Nirran system supports hard and soft spinifex grasslands with some bluebush shrubs and tussock grasses in drainage lines. Its pastoral value is moderate.

Soils of the land type are predominantly skeletal stony types, red shallow loams and earths and minor clays and duplexes. Protective stony surface mantles are widespread. The land type is not generally susceptible to degradation or erosion. However, small drainage floors with duplex soils and preferred vegetation on the Mosquito, Nirran and Tanpool systems are moderately susceptible.

<i>Major pasture types</i>	Hill Spinifex Pasture	(d)
	Hard Spinifex Plain Pasture	(d)
	Soft Spinifex Plain Pasture	(m)

Land systems

Adrian	Stony plains and low silcrete hills supporting hard spinifex grasslands (235 km ²)
Bonney	Low rounded hills and undulating stony plains supporting soft spinifex grasslands (753 km ²)
Mosquito	Stony plains and prominent ridges of schist and other metamorphic rocks supporting hard spinifex grasslands (1,840 km ²)
Nirran	Undulating stony plains and hills supporting hard spinifex grasslands and mulga shrublands with soft spinifex (163 km ²)
Tanpool	Stony plains and low ridges of sandstone and other sedimentary rocks supporting hard spinifex grasslands and snakewood shrublands (68 km ²)

Land type 7. Stony plains and low hills with acacia shrublands (1,390 km², 0.8% of survey area)

This minor land type differs from land type 6 in that it supports shrublands rather than spinifex grasslands. The two component land systems, Collier and Prairie, have low and moderate pastoral potential respectively. They support shrublands of mulga and other acacias and *Eremophila* and *Senna* species with minor areas of bluebush and saltbush and soft spinifex.

Soils are stony types, red shallow sands and loams, loamy earths and sandy duplexes. Abundant mantles of pebbles and cobbles protect many soil surfaces but are sparser on sandy parts. Saline plains and drainage floors with duplex soils which support bluebush shrubs are susceptible to preferential overuse and accelerated erosion.

Major pasture types	Acacia Mixed Shrub Pasture	(d)
	Snakewood Chenopod Pasture	(m)
	Bluebush/Saltbush Pasture	(m)
	Hill Spinifex Pasture	(m)

Land systems

Collier	Undulating stony uplands, low hills and ridges and stony plains supporting mulga shrublands (169 km ²)
Prairie	Gently undulating stony plains and granite hills supporting acacia-eremophila-cassia shrublands and minor soft spinifex grasslands (1,221 km ²)

Land type 8. Stony plains with spinifex grasslands (24,977 km², 13.7% of survey area)

This land type is mostly of moderate pastoral potential with some parts (three of nine land systems) of low potential. The land type has extensive plains which support hard and soft spinifex grasslands with variable overstoreys of mulga and other acacia shrubs.

Young soft spinifex stands are moderately preferred by livestock and provide valuable grazing. Hard spinifex is generally unpalatable but regular burning provides some useful annuals and herbs but carrying capacity is low. Those minor parts of the land type with clay soils support useful Roebourne Plains Grass Pastures.

Soils are red shallow sands, loams, loamy earths, gravel soils, sandy duplexes and clays. Surface mantles of ironstone and other gravels and pebbles are widespread and particularly abundant on the Boolgeeda and Peedamulla systems. The land type is not generally susceptible to erosion but Roebourne Plains Grass and Soft Spinifex Pastures can degrade if grazing is uncontrolled.

Major pasture types	Hard Spinifex Plain Pasture	(d)
	Soft Spinifex Plain Pasture	(d)
	Roebourne Plains Grass Pasture	(m)
	Snakewood Chenopod Pasture	(m)

Land systems

Boolgeeda	Stony lower slopes and plains below hill systems supporting hard and soft spinifex grasslands and mulga shrublands (7,748 km ²)
Lochinvar	Stony plains and occasional sand dunes supporting hard spinifex (and occasionally soft spinifex) grasslands (287 km ²)
Macroy	Stony plains and occasional tor fields based on granite supporting hard and soft spinifex grasslands (13,095 km ²)
Paterson	Stony and sandy plains with isolated low hills of sandstone or conglomerate supporting hard spinifex (and occasionally soft spinifex) grasslands and minor tussock grasslands (818 km ²)
Peedamulla	Gravelly plains supporting hard spinifex grasslands and minor snakewood shrublands (587 km ²)
Pyramid	Stony gilgai plains supporting hard spinifex grasslands and minor tussock grasslands (142 km ²)

Satirist	Stony plains and low rises supporting hard spinifex grasslands, and gilgai plains supporting tussock grasslands (377 km ²)
Stuart	Gently undulating stony plains supporting hard and soft spinifex grasslands and snakewood shrublands (1,794 km ²)
Taylor	Stony plains and isolated low hills of sedimentary rocks supporting hard and soft spinifex grasslands (129 km ²)

Land type 9. Stony gilgai plains with tussock grasslands and spinifex grasslands
(2,081 km², 1.1% of survey area)

This land type is comprised of two land systems, Wona of moderately high pastoral potential and White Springs of moderate potential. It consists of gently undulating upland plains developed on basalt and lower plains on residual deposits of clay and basalt pebbles. The type supports open tussock grasslands of Mitchell grass and Roebourne Plains grass and hummock grasslands of hard spinifex. Soils are cracking clays with gilgai microrelief and calcareous shallow loams. Surface mantles of basalt pebbles and cobbles are common to very abundant.

The tussock grass pastures on this land type are highly preferred by livestock and kangaroos and can degrade to annual grasslands or herbfields if stocking is uncontrolled. In this condition they still provide valuable feed in season but have no durability in dry times. The land type is not susceptible to erosion except if the stony mantle is removed such as along tracks on sloping plains.

<i>Major pasture types</i>	Mitchell Grass Tableland Pasture	(d)
	Roebourne Plains Grass Pasture	(d)
	Hard Spinifex Plain Pasture	(m)

Land systems

White Springs	Stony gilgai plains supporting tussock grasslands and hard spinifex grasslands (266 km ²)
Wona	Basalt upland gilgai plains supporting tussock grasslands and minor hard spinifex grasslands (1,815 km ²)

Land type 10. Stony plains with acacia shrublands (2,583 km², 1.4% of survey area)

This land type is predominantly of moderate or moderately high pastoral potential. Minor parts of it have high potential (Kanjenjie land system) and low potential (Ford land system). It supports tall shrublands of mulga, snakewood and other acacias with understoreys of low shrubs or useful perennial grasses. Some parts support tussock grasslands of Mitchell grass or Roebourne Plains grass with few shrubs.

Soils are loamy earths, shallow loams and cracking and non-cracking clays commonly with abundant surface mantles. Many of the low shrubs and grasses on the type are preferred by livestock and unrestricted grazing can result in degradation. Due to its stony nature, much of the land type is not susceptible to erosion. However, some drainage zones and saline plains are slightly to moderately susceptible.

<i>Major pasture types</i>	Acacia Mixed Shrub Pasture	(d)
	Snakewood Chenopod Pasture	(d)

Roebourne Plains Grass Pasture	(m)
Mitchell Grass Alluvial Plain Pasture	(m)
Bluebush/Saltbush Pasture	(m)

Land systems

Dollar	Stony plains supporting acacia shrublands (87 km ²)
Elimunna	Stony plains on basalt supporting sparse acacia and cassia shrublands and patchy tussock grasslands (617 km ²)
Ford	Gently undulating shaly plains with isolated low hills supporting mulga shrublands (85 km ²)
Kanjenjie	Stony clay plains supporting snakewood shrublands with tussock grasses (152 km ²)
Paraburdoo	Basalt derived stony gilgai plains and stony plains supporting snakewood and mulga shrublands with spinifex and tussock grasses (565 km ²)
Sylvania	Gritty surfaced plains and low rises on granite supporting acacia- <i>eremophila</i> -cassia shrublands (1,077 km ²)

Land type 11. Sandplains with spinifex grasslands (40,466 km², 22.3% of survey area)

This very large land type consists of broad, level or gently undulating sandplains with or without linear dunes and is mostly of low or very low pastoral value. It supports hummock grasslands or shrubby hummock grasslands predominantly of hard spinifex and, less frequently, of soft spinifex. Shrubs and occasional trees include numerous acacias, *Grevillea*, *Hakea* and *Corymbia* (formerly *Eucalyptus*) species and desert oak. One of the seven component land systems, Nita, is of moderate pastoral potential as it supports more soft spinifex than elsewhere.

Old stands of hard spinifex are virtually useless for pastoralism. However, for a year or two after fire, and with good seasonal conditions they can supply annual herbs and grasses which will support dry stock at low rates.

Soils of the land type are red deep sands with some shallower sands and sandy earths. The land type is not prone to degradation but wind erosion can occur after fire on sandplains and dune flanks and crests. Such occurrences usually stabilise readily with spinifex after rain.

Major pasture types	Hard Spinifex Plain Pasture	(d)
	Soft Spinifex Plain Pasture	(m)

Land systems

Buckshot	Gravelly sandplains and occasional sand dunes supporting hard spinifex grasslands (2,780 km ²)
Divide	Sandplains and occasional dunes supporting shrubby hard spinifex grasslands (5,293 km ²)
Giralia	Linear dunes and broad sandy plains supporting hard and soft spinifex grasslands (66 km ²)
Gregory	Linear dunes and restricted sandplains supporting shrubby hard spinifex (and occasionally soft spinifex) grasslands (113 km ²)

Little Sandy	Sandplains with linear and reticulate dunes supporting shrubby hard and soft spinifex grasslands (13,283 km ²)
Nita	Sandplains supporting shrubby soft spinifex grasslands with occasional trees (11,250 km ²)
Uaroo	Broad sandy plains supporting shrubby hard and soft spinifex grasslands (7,681 km ²)

Land type 12. Washplains on hardpan with groved mulga shrublands (sometimes with spinifex understorey) (9,190 km², 5.1% of survey area)

Eleven land systems make up this land type. Pastoral potential is mostly low. However, two systems (Cadgie and Washplain) have moderate potential, two (Fan and Wannamunna) have moderately high potential and one system (Jurrawarrina) has high potential. The land type supports scattered tall shrublands of mulga and other acacias with sparse undershrubs on hardpan wash plains and dense shrublands and perennial grasses in groves, drainage foci and drainage zones. Soils are predominantly hardpan shallow loams, loamy earths and, less frequently, clays. Surface mantles of ironstone and quartz gravel and pebbles are common.

Annual herbs and grasses provide abundant forage in good seasons and low shrubs and perennial grasses provide moderate drought durability. Preferred shrubs and grasses are prone to degradation if grazing is uncontrolled. Roads, tracks or other disturbances which impede or substantially alter sheet water flows on this country can result in widespread shrub deaths caused by water starvation.

Soil erosion is not common on this land type but drainage tracts and wash plains receiving more concentrated sheet flow are slightly to moderately susceptible. Inappropriate siting or construction of tracks, roads or fences can also initiate erosion which may proceed down to the shallow hardpan layers.

<i>Major pasture types</i>	Hardpan Mulga Shrub Pasture	(d)
	Ribbon Grass Pasture	(m)
	Soft Spinifex Plain Pasture	(m)
	Hard Spinifex Plain Pasture	(m)

Land systems

Cadgie	Hardpan plains with thin sand cover and sandy banks supporting mulga shrublands with soft and hard spinifex (495 km ²)
Fan	Washplains and gilgai plains supporting groved mulga shrublands and minor tussock grasslands (1,482 km ²)
Jamindie	Stony hardpan plains and rises supporting groved mulga shrublands, occasionally with spinifex understorey (2,074 km ²)
Jurrawarrina	Hardpan plains and alluvial tracts supporting mulga shrublands with tussock and spinifex grasses (664 km ²)
Nooingnin	Hardpan plains with very large groves supporting mulga shrublands (898 km ²)
Pindering	Gravelly hardpan plains supporting groved mulga shrublands and hard spinifex (351 km ²)

Spearhole	Gently undulating hardpan plains supporting groved mulga shrublands and hard spinifex (1,270 km ²)
Three Rivers	Hardpan plains and minor sandy banks supporting sparse mulga shrublands (88 km ²)
Wannamunna	Hardpan plains and internal drainage tracts supporting mulga shrublands and woodlands (and occasionally eucalypt woodlands) (577 km ²)
Washplain	Hardpan plains supporting groved mulga shrublands (917 km ²)
Zebra	Hardpan plains with large linear gravelly sand banks supporting acacia shrublands with soft and hard spinifex (374 km ²)

Land type 13. Alluvial plains with soft spinifex grasslands (5,347 km², 2.9% of survey area)

This land type of level alluvial plains is comprised of three land systems; Urandy of moderate pastoral potential, Mallina of moderately high potential and Paradise of high potential. Vegetation consists of hummock grasslands or shrubby grasslands with smaller but important admixtures of tussock grasslands of Roebourne Plains grass, ribbon grass and buffel grass. Soft spinifex is moderately preferred by livestock if kept in young condition by appropriate fire and grazing management. The perennial grasses are moderately to highly preferred and as such are prone to decline if grazing is uncontrolled.

Soils are red sandy earths, loamy earths, sandy duplexes and cracking and non-cracking clays. A high proportion of the soils on the Paradise system are deep sandy duplexes which are highly susceptible to erosion if the vegetation cover is depleted. Some parts of this system are currently severely degraded and eroded. However, it is likely that the system is not as extensively degraded as it was in the past. Partial recovery has occurred with the establishment of soft spinifex and buffel grass aided by generally very good seasons in the last 10-15 years and improved management.

The Mallina system is rather less susceptible to erosion than Paradise but is still moderately to highly susceptible. The Urandy system is generally not susceptible.

Major pasture types	Soft Spinifex Plain Pasture	(d)
	Roebourne Plains Grass Pasture	(m)
	Ribbon Grass Pasture	(m)
	Buffel Grass Pasture	(m)

Land systems

Mallina	Sandy-surfaced alluvial plains supporting soft spinifex (and occasionally hard spinifex) grasslands (2,557 km ²)
Paradise	Alluvial plains supporting soft spinifex grasslands and tussock grasslands (1,479 km ²)
Urandy	Stony plains, alluvial plains and drainage lines supporting shrubby soft spinifex grasslands (1,311 km ²)

Land type 14. Alluvial plains with tussock grasslands or grassy shrublands (4,620 km², 2.5% of survey area)

This country has moderately high or high pastoral potential. It supports large areas of tussock grasslands of Roebourne Plains grass and other grasses and smaller parts with shrublands which include useful chenopods such as bluebush and saltbush and others. This vegetation is preferred by livestock and provides good quality feed from annuals in season and drought durability from the perennial grasses and shrubs. It is suitable for year long grazing providing that stocking rates are appropriate.

Soils are mostly cracking and non-cracking clays and also red shallow loams and duplex types. Surface mantles of ironstone and other pebbles and cobbles vary from absent to abundant. Clay soils on flat topography are usually inherently resistant to erosion but can become susceptible (particularly to wind erosion) if vegetative cover is lost. In general this country is moderately susceptible to erosion except where the soil surface is protected by abundant stony mantles.

<i>Major pasture types</i>	Roebourne Plains Grass Pasture	(d)
	Mitchell Grass Alluvial Plain Pasture	(m)
	Bluebush/Saltbush Pasture	(m)
	Snakewood Chenopod Pasture	(m)
	Soft Spinifex Plain Pasture	(m)
	Hardpan Mulga Shrub Pasture	(m)

Land systems

Balfour	Shale, gravel and clay plains supporting eremophila-cassia shrublands, tussock grasslands and halophytic shrublands (1,480 km ²)
Brockman	Alluvial plains with cracking clay soils supporting tussock grasslands (735 km ²)
Horseflat	Gilgaied clay plains supporting tussock grasslands and minor grassy snakewood shrublands (1,261 km ²)
Pullgarah	Alluvial plains supporting tussock grasslands and soft spinifex grasslands (563 km ²)
Turee	Stony alluvial plains with gilgaied and non-gilgaied surfaces supporting tussock grasslands and grassy shrublands (581 km ²)

Land type 15. Alluvial plains with snakewood shrublands (1,795 km², 1.0% of survey area)

This land type has moderate to high pastoral potential depending largely on the proportion of perennial grass pastures in the six land systems which comprise the type. It provides high quality forage in season, has good drought durability and is suitable for grazing by all classes of stock providing stocking rates are appropriate.

The land type is characterised by tall shrublands of snakewood and mulga with understoreys of desirable tussock grasses, saltbush and bluebush and lesser areas of open tussock grasslands. Soils are predominantly cracking and non-cracking clays and also loamy earths and duplexes. Stony or gravelly mantles are very common but some soil surfaces are relatively unprotected.

The chenopod low shrubs on the land type are highly attractive to livestock and are prone to preferential overgrazing. Due to protective stony mantles much of the land type is not susceptible to erosion. However, those parts such as drainage floors, saline plains and gilgai plains with no mantles and duplex or friable clay soils are moderately susceptible.

<i>Major pasture types</i>	Snakewood Chenopod Pasture	(d)
	Roebourne Plains Grass Pasture	(d)
	Ribbon Grass Pasture	(m)
	Hard Spinifex Plain Pasture	(m)

Land systems

Christmas	Stony alluvial plains supporting snakewood and mulga shrublands with sparse tussock grasses (232 km ²)
Cowra	Plains fringing the Marsh land system and supporting snakewood and mulga shrublands with some halophytic undershrubs (203 km ²)
Hooley	Alluvial clay plains supporting a mosaic of snakewood shrublands and tussock grasslands (590 km ²)
Marillana	Gravelly plains with large drainage foci and unchannelled drainage tracts supporting snakewood shrublands and grassy mulga shrublands (419 km ²)
Narbung	Alluvial wash plains with prominent internal drainage foci supporting snakewood and mulga shrublands with halophytic low shrubs (159 km ²)
Sherlock	Stony alluvial plains supporting snakewood shrublands with patchy tussock grasses and spinifex grasslands (192 km ²).

Land type 16. Alluvial plains with halophytic shrublands (388 km², 0.2% of survey area)

This very minor land type consists of three land systems and is of moderate pastoral potential. Land systems Cundelbar and Talawana support halophytic shrublands of saltbush, bluebush and frankenia which are attractive to livestock. The Mannerie system supports unusual vegetation in the form of paperbark thickets, samphire and frankenia shrublands with saltwater couch and minor areas of shrubby soft spinifex or buffel grass grasslands. This vegetation is moderately attractive to livestock.

Soils of the Cundelbar and Talawana systems are sandy and loamy earths and duplexes. Soils of the Mannerie system are calcareous loamy earths and deep sands. Alluvial plains and drainage floors with duplex soils are prone to erosion. Other soil types are mostly not susceptible.

Major pasture types

Cundelbar and Talawana l.s.	Bluebush/Saltbush Pasture	(d)
	Roebourne Plains Grass Pasture	(m)
	Soft Spinifex Plain Pasture	(m)
Mannerie l.s.	Other Pastures (paperbark thickets, samphire shrublands and saltwater couch grasslands)	(d)

Soft Spinifex Plain Pasture	(m)
Buffel Grass Pasture	(m)

Land systems

Cundelbar	Saline alluvial plains supporting halophytic shrublands (37 km ²)
Mannerie	Seepage areas on inland margin of paleo-tidal plains supporting melaleuca thickets and halophytic shrublands (190 km ²)
Talawana	Alluvial plains and claypans supporting grassy halophytic shrublands (161 km ²)

Land type 17. River plains with grassy woodlands and shrublands and tussock grasslands (8,338 km², 4.6% of survey area)

These level alluvial plains and flood plains associated with the major rivers of the Pilbara are of moderately high to very high pastoral potential and have good drought durability when in good condition. Vegetation consists mainly of grasslands, shrubby grasslands and grassy woodlands with ribbon grass, Roebourne Plains grass and buffel grass. Overstoreys are snakewood, mulga, other acacias and eucalypts such as coolibah. Some pastures include bluebush and saltbush low shrubs and there are also minor inclusions of soft and hard spinifex.

Soil types are duplexes, cracking and non-cracking clays and loamy earths mostly without surface mantles. Pastures are preferred by livestock and are capable of supporting all classes of stock on a year-long basis at appropriate stocking rates. Some substantial parts of the land type have been over-utilised in the past and have declined to fair or poor condition. Those plains with duplex soils are moderately to highly susceptible to erosion if vegetative cover is lost. Buffel grass has colonised and stabilised some previously degraded areas especially on the Yamerina and River land systems.

Major pasture types	Roebourne Plains Grass Pasture	(d)
	Ribbon Grass Pasture	(d)
	Buffel Grass Pasture	(d)
	Snakewood Chenopod Pasture	(m)
	Bluebush/Saltbush Pasture	(m)
	Soft Spinifex Plain Pasture	(m)

Land systems

Cane	Alluvial plains and flood plains supporting snakewood shrublands, soft and hard spinifex grasslands and tussock grasslands (812 km ²)
Coolibah	Flood plains with weakly gilgaied clay soils supporting coolibah woodlands with tussock grass understorey (1,014 km ²)
Fortescue	Alluvial plains and flood plains supporting patchy grassy woodlands and shrublands and tussock grasslands (504 km ²)
Jigalong	Alluvial plains and flood plains supporting grassy shrublands and woodlands, and halophytic shrublands (713 km ²)
River	Active flood plains and major rivers supporting grassy eucalypt woodlands, tussock grasslands and soft spinifex grasslands (4,088 km ²)

Yamerina Flood plains and deltaic deposits supporting tussock grasslands and grassy woodlands and minor halophytic shrublands (1,207 km²)

Land type 18. Calcreted drainage plains with shrublands or spinifex grasslands (1,799 km², 1.0% of survey area)

Three land systems comprise this type of country and pastoral potential is mostly moderate. The Calcrete and Lime land systems support shrubby hummock grasslands of hard and soft spinifex with some tussock grasses in lower drainage plains and drainage foci. Soils are calcareous shallow loams. The Warri system supports acacia mixed shrublands and some tussock grasses in lower parts. Soils are calcareous shallow loams with minor duplexes and clays.

Pastures on the Warri land system are highly preferred by livestock and native animals and are prone to over-use. Erosion is uncommon, although it may occur on areas with duplex soils between or adjacent to calcrete platforms. The other two systems of the land type are generally not prone to degradation or erosion.

<i>Major pasture types</i>	Plain Hard Spinifex Pasture	(d)
	Plain Soft Spinifex Pasture	(d)
	Acacia Mixed Shrub Pasture	(d) (Warri land system only)
	Ribbon Grass Pasture	(m)

Land systems

Calcrete	Low calcrete platforms and plains supporting shrubby hard spinifex grasslands (1,444 km ²)
Lime	Calcareous plains supporting soft and hard spinifex grasslands and melaleuca shrublands (50 km ²)
Warri	Low calcrete platforms and plains supporting mulga and cassia shrublands (305 km ²)

Land type 19. Coastal plains, dunes, mudflats and beaches with tussock grasslands, soft spinifex grasslands and halophytic shrublands (3,317 km², 1.8% of the survey area)

The pastoral potential of this coastal country varies considerably from low to very high depending on such factors as the frequency and extent of bare tidal mudflats and proportion of buffel grass in the country. For example, the Littoral land system which comprises almost half of the land type, includes very large areas of unvegetated mudflats and consequently its potential is very low. Systems such as Anna and Eighty Mile support much buffel grass pasture and have very high potential. Generally the land type supports hummock grasslands of soft spinifex, tussock grasslands of Roebourne Plains grass, ribbon grass, buffel grass, silky brown top and swamp grass; also saltwater couch grasslands and samphire shrublands. Mangrove communities flank sea shores and tidal creeks.

Soil types are deep calcareous sands on coastal dunes, red deep sands on sandplains and grey deep duplexes, clays and saline tidal soils on broad plains.

Parts of the land type, such as dunes and sandy plains adjacent to the coast, have high susceptibility to wind erosion if the grasses are removed by fire, grazing or other disturbance.

For this reason the use of fire on these parts is not recommended as a management tool. Any existing areas of blowouts and wind erosion need to be protected from grazing.

The pastures of this land type are well preferred by livestock and are generally resilient under grazing unless subject to extreme grazing pressure when grasses and saline shrubs can be removed and scalded areas develop. Parts of this country are subject to fairly regular inundation and waterlogging for prolonged periods can adversely affect vegetation and prevent access.

<i>Major pasture types</i>	Soft Spinifex Plain Pasture	(d)
	Buffel Grass Pasture	(d)
	Ribbon Grass Pasture	(d)
	Roebourne Plains Grass Pasture	(d)
	Other Pastures (saltwater couch grasslands and samphire shrublands)	(m)

Land systems

Anna	Coastal plains with saline soils supporting tussock grasslands and minor halophytic shrublands (598 km ²)
Cheerawarra	Sandy coastal plains and saline clay plains supporting soft and hard spinifex grasslands and minor tussock grasslands (197 km ²)
Dune	Dune fields supporting soft spinifex grasslands (138 km ²)
Eighty Mile	Beach foredunes, coastal dunes and sandy plains supporting buffel grass grasslands and soft spinifex grasslands (352 km ²)
Littoral	Bare coastal mudflats with mangroves on seaward fringes, samphire flats, sandy islands, coastal dunes and beaches (1,577 km ²)
Onslow	Sandplains, dunes and clay plains supporting soft spinifex grasslands and minor tussock grasslands (424 km ²)
Roebuck	Saline coastal plains supporting saltwater couch grasslands, samphire shrublands and mangroves (31 km ²)

Land type 20. Salt lakes and fringing alluvial plains with halophytic shrublands (1,024 km², 0.6% of survey area)

This minor land type consists of two land systems, Marsh of moderate pastoral potential and Weelarrana of very low potential. Both systems support halophytic low shrublands of samphire, bluebush and saltbush. However, Marsh also supports productive saltwater couch grasslands which are not found on Weelarrana. Weelarrana also supports unproductive grasslands of hard spinifex. Both systems have areas of saline lake beds without vegetation.

The dominant soils are clays, often high in gypsum and the Weelarrana system also has areas of red loamy earths and red deep sands.

Bluebush, saltbush and saltwater couch pastures are preferred by livestock and are prone to degradation unless grazing is controlled. Much of the land type is not susceptible to erosion but some alluvial fans, drainage tracts and saline plains are slightly to moderately susceptible.

Major pasture types

Marsh l.s.	Bluebush/Saltbush Pasture	(d)
	Other Pastures (saltwater couch grasslands and samphire shrublands)	(d)
Weelarrana l.s.	Other Pastures (samphire shrublands)	(d)
	Bluebush/Saltbush Pasture	(m)
	Hard Spinifex Plain Pasture	(m)

Land systems

Marsh	Lake beds and flood plains subject to regular inundation supporting samphire shrublands, saltwater couch grasslands and halophytic shrublands (977 km ²)
Weelarrana	Salt lakes with fringing saline plains and sandy islands supporting halophytic shrublands and hard spinifex grasslands (47 km ²)

2.3 Management options for land types

Table 3 lists some pastoral management options available for the maintenance and improvement of the 20 land types within the survey area. Options are given for each land type where the vegetation condition is good to fair and where it is poor, and for severely degraded and eroded areas (sde) within the land type. Areas of sde were observed in ten of the 20 land types during the survey. The management options are based on recommendations made by P.J. Curry (pers. comm.). The options that are listed as starting points for consideration are as follows:

Year-long grazing (Y)

This is a standard method for management practice in the area. Its potential for sustainable use or for land recovery lies in devising an appropriate stocking rate for the particular paddock. The extensive research literature on the relative impact of different grazing systems suggests that, throughout the world, deriving an appropriate stocking rate for the ongoing conditions is the most powerful variable in the management of semi-arid and arid rangelands. This report provides information which will assist in setting this stocking level. Chapter 5 describes pastoral potential, resource condition and recommends carrying capacities for each land system on individual stations. However, variations in seasonal conditions are common and this suggests that stocking rates should be flexible in response to seasons, rather than being fixed.

Rotational grazing or seasonal deferrals (R)

This option involves regular patterns of seasonal grazing use followed by a season of resting the pasture. Rotations should be commenced and managed according to the level of utilisation rather than according to set or fixed time periods. Grazing deferral of high pastoral potential vegetation, such as saltbush and bluebush shrublands, over summer has been the more common practice. There is little to indicate to what extent gains in vegetation condition reported from leases using this management system are attributable to the grazing deferrals as distinct from the application of lower stocking rates as calculated on a year-long average.

Even in the absence of any significant advantages in vegetation conservation or animal production, grazing deferrals and rotations are managerially and economically attractive in that less land is under grazing use (and requiring managerial inputs) at any one time.

Opportunistic grazing in good seasons (O)

Grazing areas comprised of low or very low pastoral potential land systems support few palatable perennial plants and have little capacity to maintain stock during adverse seasons.

Stocking rates applicable for such paddocks during adverse seasonal conditions may be so low on a year-long basis that, depending on prevailing commodity prices and enterprise economics, there is low likelihood of profitability from maintaining infrastructure in such paddocks.

Opportunistic grazing which uses short-lived annual or ephemeral pasture growing after significant rainfall can allow short-term (i.e. single season) grazing at higher stocking rates. Some areas suited to such use will then require complete and indefinite deferral from continued grazing until after one or more subsequent growth periods. Careful monitoring of plant utilisation rates is essential in such situations which, if over-extended, can result in damage to the residual perennial vegetation and sudden plunges in animal nutrition.

Land types of moderate or high pastoral value can also be used in this way, if other considerations make it appropriate to do so.

Spelling and/or destocking and/or dewatering areas in poor condition (D)

Complete withdrawal from grazing use to facilitate accelerated regeneration may be the desired option for land in poor condition, particularly where accelerated erosion is evident or is a risk.

The extent to which all grazing pressure is controlled within the paddock will be critical to the speed of recovery given the particular seasonal conditions that follow. Continuing the availability of permanent water in the troughs or overflow at windmills will tend to maintain compensatory grazing pressure by kangaroos and goats. Control programs and technologies for reducing impact by kangaroos and goats, such as a total grazing management system through the use of permanent trap yards (Pearce, Elliott and Rouda 1998) are relevant here.

Areas with stable, healthy soil surfaces are more likely to respond to spelling.

Water point relocation (W)

Many areas of severe degradation and erosion within the survey area have been caused through the chronic effects experienced at permanent water points grazed for 80 to 90 years or more on or near highly susceptible land units. For example, many of the wells and bores sunk on the wash plains of land type 12 were sited on the edge of concentrated flow zones. The shallow soils found on such units are highly susceptible to erosion. Where they are eroded to the hardpan, soil loss is total and the land degradation may be permanent.

Ongoing erosion of such areas can be mitigated (and the dietary intake for stock improved) by relocating water points away from their existing sites (Burnside, Williams and Curry 1990).

Fenced protection from grazing (F)

Areas that are severely degraded and eroded require fenced protection from further grazing to encourage regeneration and arrest erosion. Such protection will enhance recovery commencing from the less degraded edges and residual patches around and within severely degraded areas.

Refencing by land type boundaries is a valuable means to control major differences in grazing preference between land types within the paddock. In situations where a degraded zone of high potential preferred land (such as Jurrawarrina land system) occupies only 5-20% of the paddock area, it is unlikely that wholly equitable grazing management can be established without refencing by land type.

Seed reserve augmentation (S)

A widespread and general symptom of poor vegetation condition in the survey is the loss of palatable perennial understorey shrubs in mulga and snakewood shrublands in land types 12 and 15 and loss of perennial grasses on basalt plains and alluvial plains of land types 9, 13 and 14. In most parts of such areas, soil surfaces remain undamaged and are highly responsive seasonally. A lack of perennial seed reserves may be the critical factor limiting regeneration.

Bulk litter obtained from intact sites ('seed reserves') of the same vegetation type and distributed over areas in poor condition may have potential to initiate recovery in good seasons.

Attempts to reseed severely degraded and eroded areas without cultivation have proved futile. In such cases the soil surface has lost the ability to support basic ecological processes such as infiltration, and nutrient recycling and storage. This is the critical feature preventing regeneration on eroded landscapes, even if seed reserves are adequate.

Strategic burning (B)

The use of fire as a tool in vegetation management has important application to the spinifex grasslands on many land types in the Pilbara. The objective of burning is to maximise productive potential by removing old unpalatable growth and maintaining diversity of palatable short-lived species which emerge after fire. There is evidence that, in the Pilbara environment, season of burning influences the resulting species composition of the pasture (Suijddorp 1967). Summer burning, to encourage grass species and forbs rather than shrubs, is recommended. Burning should be accompanied by deferment of grazing for six to eight weeks following effective rainfall to ensure that spinifex seedlings and other desirable species have time to establish. For additional discussion of fire management on spinifex see Pastoral Lands Board (2001 a), Stretch (1996), Williams and Tauss (1990) and Suijddorp (1981).

Mechanical intervention (M)

Mechanical intervention of some kind has been attempted by some pastoral managers to treat severely degraded and eroded areas. Results in the Pilbara have been rather more successful than in rangelands of the southern shrublands. Some severely degraded alluvial plains of the Yamerina and Paradise land systems associated with the lower reaches of the De Grey and Yule Rivers have been successfully regenerated with mechanical works and introduced buffel grass (*Cenchrus ciliaris*). Strip contour ploughing and seeding with buffel grass has also been successful on degraded frontage lands of the Fortescue land system along upper reaches of the Fortescue River.

To be successful, mechanical intervention should be approached at a catchment scale and must be combined with effective control of all grazing pressure. Regeneration programs need to be regarded as medium to long term and must include follow-up and re-treatment works for

several years. For more details of appropriate techniques see Addison (1977), Ward (1990) and Williams and Shepherd (1991).

From an economic perspective, mechanical intervention is best viewed as a high cost, moderate risk rehabilitation process which may be best deferred as a management option until a range of larger scale management priorities are in place.

Reduction of populations of feral animals and kangaroos (K)

The ability of pastoral managers to apply landcare practices that improve land condition depends as much on their capacity to control the grazing of feral animals (donkeys, brumbies) and kangaroos as it does on the control of stock numbers and the areas stock graze.

Research and census of the populations of kangaroos in the arid zone generally has shown that commercial culling programs have had no significant impact on numbers. Eradication is not seen as an appropriate or accepted goal for red kangaroos anywhere. Ongoing research and development aimed at devising methods for effective managerial control through depriving the animals access to (artificial) stock watering points offers the best prospect for success.

Controlling all populations of large grazing animals on pastoral lease land is the essential pre-requisite for maximising the potential of management for land conservation.

Table 3. Some pastoral management options for the conservation of land types (see Table 2 for component land systems)

Land type	Vegetation condition		Severely degraded and eroded areas (sde)
	Good - fair	Poor	
1 Hills with spinifex	Y R O	B K	Not relevant
2 Hills with acacia shrublands	Y R O	K O	K
3 Plateaux and breakaways with spinifex	Y R O	B K	Not relevant
4 Plateaux and breakaways with acacia shrublands	Y R O	K Y R O D	K
5 Dissected plains with spinifex	Y R O	B K	Not relevant
6 Stony plains and hills with spinifex	Y R O	B K	Not relevant
7 Stony plains and low hills with acacia shrublands	Y R O	B K Y R O D	K
8 Stony plains with spinifex	Y R O	B K	Not relevant
9 Stony gilgai plains with tussock grasses and spinifex	Y R O	K Y R O D W S	K D W F K
10 Stony plains with acacia shrublands	Y R O	Y R O D S	K D W F K
11 Spinifex sandplains	O	B	Not relevant
12 Mulga hardpan plains	Y R O	K Y R O D S	K D W F M K
13 Alluvial plains with soft spinifex	Y R O	B K Y R O D W	B K D W F M K
14 Alluvial plains with tussock grasslands or shrublands	Y R O	K Y R O D W	K D W F M K
15 Snakewood alluvial plains	Y R O	K Y R O D W	K D W F M K
16 Alluvial plains halophytic shrublands	Y R O F	K Y R O D W F	K D W F M K
17 River plains with woodlands and tussock grasses	Y R O F	K Y R O D W F	K D W F M K
18 Calcrete plains with shrublands or spinifex	Y R O	B K Y R O D W	B K D W F K
19 Coastal plains, dunes, mudflats and beaches	Y R O	K Y R O D W	K D W F K
20 Lake country with halophytic shrublands	Y R O	K Y R O D W	K D W F M K

Y	Year-long grazing	F	Fenced protection from grazing
R	Rotational grazing or deferral	S	Seed reserve augmentation
O	Opportunistic grazing in good seasons	B	Strategic burning
D	Spelling, destocking and dewatering	M	Mechanical cultivation and rehabilitation
W	Water point relocation	K	Population reduction in kangaroos after eradication of feral animals

2.4 Pasture types

Pasture types are the building blocks of land systems and land types within any paddock. Table 4 lists 12 very broad Pilbara pasture types that have been described by Payne and Mitchell (2002) and lists their component site types as described by Van Vreeswyk *et al.* (2004).

Table 4. Pilbara pastures

Pasture types (Payne and Mitchell 2002)	Site types (Van Vreeswyk <i>et al.</i> 2004)
Soft Spinifex Plain	<ul style="list-style-type: none"> - Plain soft spinifex grassland (PSSG) - Plain mulga spinifex shrubland/grassland (PMSS) - Sandplain soft spinifex grassland (SSSG) - Coastal dune soft spinifex grassland (CDSG) - Sandy bank acacia spinifex shrubland (SBAS) - Alluvial plain soft spinifex grassland (ASSG) - Alluvial plain snakewood hummock grass shrubland (ASHS) - Drainage acacia hummock grass shrubland/woodland (DAHW) - Drainage spinifex grassland with eucalypt overstorey (DESG)
Hard Spinifex Plain	<ul style="list-style-type: none"> - Plain hard spinifex grassland (PHSG) - Sandplain hard spinifex grassland (SHSG) - Calcrete spinifex grassland (CASG) - Stony plain spinifex grassland with chenopod shrubs (SSCG) - Alluvial plain hard spinifex grassland (AHSO)
Spinifex Hill	<ul style="list-style-type: none"> - Hill spinifex grassland (HSPG) - Hill eucalypt spinifex grassland (HESG)
Roebourne Plains Grass	<ul style="list-style-type: none"> - Alluvial plain Roebourne Plains grass grassland (ARPG) - Stony alluvial plain snakewood grassy shrubland (SSTS)
Ribbon Grass	<ul style="list-style-type: none"> - Alluvial plain ribbon grass grassland (APTG sub type APRG) - Grove mulga grassy woodland/shrubland (GMGW) - Drainage eucalypt and acacia grassy woodland/shrubland (DEGW)
Mitchell Grass Alluvial Plain	<ul style="list-style-type: none"> - Alluvial plain Mitchell grass grassland (APTG sub type APMG)
Mitchell Grass Tableland	<ul style="list-style-type: none"> - Basaltic upland tussock grassland (BUTG)
Buffel Grass	<ul style="list-style-type: none"> - Alluvial plain buffel grass grassland (APBG) - Alluvial plain buffel grass grassland with eucalypt overstorey (AEBG) - Coastal dune buffel grass grassland (CDBG)
Bluebush/Saltbush	<ul style="list-style-type: none"> - Plain mixed halophyte shrubland (PXHS) - Plain mulga shrubland with chenopod low shrubs (PMCS) - Plain chenopod grassy shrubland (PCGS)
Snakewood Chenopod	<ul style="list-style-type: none"> - Plain snakewood shrubland with chenopod low shrubs (PSCS)
Hardpan Mulga Shrub	<ul style="list-style-type: none"> - Hardpan plain mulga shrubland (HPMS) - Lateritic hardpan plain acacia shrubland (LHAS) - Plain sparse mulga shrubland (PSMS) - Grove mulga woodland/shrubland (GMUW)
Acacia Mixed Shrub	<ul style="list-style-type: none"> - Stony plain acacia-eremophila-cassia shrubland (SAES) - Plain acacia cassia grassy shrubland (PAGS) - Calcrete acacia cassia shrubland (CACS)
Other	<ul style="list-style-type: none"> - Hill mulga grassy shrubland (HMGS) - Plain mosaic grassy shrubland (PMGS) - Plain mosaic grassland (PMOG) - Saline plain sporobolus grassland (SPSG) - Plain samphire shrubland (PSPS) - Drainage eucalypt and acacia woodland/shrubland (DEAW) - Drainage melaleuca shrubland (DMES) - Gallery (riverbank and channel) melaleuca/eucalypt woodland (GMEW)

It is the pasture type (or 'plant community') and its associated soil that one looks at to gauge range condition. Each pasture type will have its characteristic increaser and decreaser plant species (Table 5) and a particular sensitivity to soil erosion.

Table 5. Plant species indicator values

Decreasers (desirables)	Plants which decrease in numbers as grazing pressure increases (e.g. barley Mitchell grass - <i>Astrebala pectinata</i> , silver saltbush - <i>Atriplex bunburyana</i>). These are highly palatable plants which are preferred by grazing animals and are also known as 'desirables'.
Increasers (undesirables)	Plants which increase in number as grazing pressure increases (e.g. crinkled cassia - <i>Senna artemisioides</i> ssp. <i>helmsii</i> , feathertop three awn - <i>Aristida latifolia</i>). These are unpalatable plants known as 'woody weeds' (in the case of shrubs) or 'undesirables'. They can also include palatable plants which are poisonous to livestock (e.g. black soil poison - <i>Stemodia kingii</i>).
Intermediates	Plants which may initially increase under grazing, but being moderately or slightly palatable decrease under continued increasing grazing pressure (e.g. three winged bluebush - <i>Maireana triptera</i>).
No indicator value (stability desirables)	Plants which are largely unaffected by grazing and which usually only decrease in number after natural disturbance such as hail damage or fire (e.g. mulga - <i>Acacia aneura</i> , hard spinifex - <i>Triodia</i> spp. or eucalypt trees). These plants are not palatable or only slightly palatable (or out of reach of browsing animals) and are known as 'stability desirables'. They confer stability on the landscape and contribute to important landscape functioning processes such as water retention and nutrient cycling.

As discussed previously, pasture types are used to assess resource condition. Within the plant community some plants are favoured and others are disadvantaged by particular grazing strategies. Each type of rangeland has characteristic plant species, known as 'indicator species', which indicate the vegetation condition for purposes of pastoral use. Table 5 shows categories of indicator value. Some species are more sensitive to grazing than others in the same category. For example, silver saltbush (*Atriplex bunburyana*) is much more easily removed from Bluebush/Saltbush Pasture than is tall saltbush (*Rhagodia eremaea*) although both are classified as decreaser species.

More detailed information on many of the common plants found in the Pilbara, including their indicator values, is contained in 'Arid shrubland plants of Western Australia' (Mitchell and Wilcox 1994) and 'Plants of the Kimberley region of Western Australia' (Petheram and Kok 1983). By being able to distinguish plant species, land managers can determine the impact of their management practices and set goals in terms of the numbers and species of plants they want on the property.

Pastoral and range condition characteristics, species indicator lists, management requirements and suggested carrying capacities for 12 broad pasture types are described in a separate publication, 'Pasture condition guides for the Pilbara' (Payne and Mitchell 2002). Colour photographs of pastures in good, fair and poor condition are included in the guides to assist with field assessments. Table 6 gives a brief summary of the pastures described in the guides which should be particularly referred to for plant species indicator lists and how to assess condition.

Table 6. Summary of pasture types in the Pilbara (Payne and Mitchell 2002)

Pasture type	Area km ²	%	Landforms, soils and vegetation	Pastoral potential	Condition
Soft Spinifex Plain	44,150	23.0	Alluvial plains, drainage floors, sandy surfaced plains, sandplains and dunes; sandy earths, duplex soils and deep sands; soft spinifex grasslands with scattered shrubs and occasional trees.	Moderate	Vegetation condition mostly good (69% of records). Some degraded areas and localised erosion on some alluvial plains. Soft spinifex pastures are moderately preferred by livestock, good drought reserve; regular burning required to maintain pasture attractiveness and value for stock.
Hard Spinifex Plain	55,280	28.8	Extensive level to gently undulating stony plains, gritty surfaced plains and sandplains; deep and shallow sands, loams, sandy earths and duplex soils, occasionally clayey soils; hard spinifex grasslands with very scattered shrubs and occasional trees.	Very low	Vegetation condition mostly good; generally unattractive to livestock except for a few years following burning; generally not susceptible to erosion.
Spinifex Hill	56,730	29.5	Rugged hills, ridges, plateaux and footslopes; stony soils and red shallow loams, mostly hard spinifex with sparse shrubs and occasional trees.	Very low to useless	Vegetation condition good, unattractive or poorly accessible to livestock; mostly of no use for pastoralism.
Roebourne Plains Grass	5,280	2.8	Level alluvial plains often with gilgai microrelief; deep cracking clays and red brown clays; tussock grasslands dominated by Roebourne Plains Grass occasionally with patches of snakewood shrubs.	High	Vegetation condition varies from very good to very poor with some extensive areas of pasture decline. Soil erosion fairly common, some severely degraded and eroded areas.
Ribbon Grass	1,765	0.9	Alluvial plains, drainage tracts and groved plains. Also sandy plains and floors in granitic terrain. Deep clays and cracking clays, loamy and sandy earths and sandy duplex soils; tussock grasslands ± shrubs or tall shrublands with grass understorey.	Very high	Condition is highly variable ranging from very good to very poor. Soil erosion is not widespread but is locally significant on some drainage floors and alluvial plains.
Mitchell Grass Alluvial Plain	505	0.3	Alluvial plains with gilgai microrelief and deep, self mulching, cracking clay soils; tussock grasslands of Mitchell grasses with very few shrubs.	Very high	Conditions varies from very good to very poor. About 47% of records indicate degraded condition with substantial reductions in density of desirable grasses; soils mostly stable but some localised erosion
Mitchell Grass Tableland	1,480	0.8	Gently sloping or gently undulating upland stony gilgai plains and other stony plains based on basalt; self mulching cracking clay and other clay soils; tussock grassland	High	Pastures are mostly in poor or fair condition (69% of records), some areas more distant from water are in good condition. Pastures are attractive to herbivores and prone to degrade to annual herfields but are generally not susceptible to erosion.

Table 6. Summary of pasture types in the Pilbara (Payne and Mitchell 2002) - *continued*

Pasture type	Area km ²	%	Landforms, soils and vegetation	Pastoral potential	Condition
Buffel Grass	3,435	1.8	Alluvial plains, river terraces, levees, channel banks and drainage floors, also coastal dunes and sandplains; loamy and sandy earths, loamy duplex soils and deep calcareous sands; tussock grasslands with very scattered shrubs and trees.	Very high	Pasture condition is predominantly very good or good (83% of records); buffel grass has ability to colonise and eventually stabilise many degraded sites; recently colonised sites with poor total cover are still degraded and may show erosion.
Bluebush/Saltbush	1,570	0.8	Level alluvial plains and drainage floors with saline clay or duplex soils; low shrublands of bluebush, saltbush and other halophytes with sparse acacia overstorey.	Moderate	These pastures are prone to preferential overuse by livestock. Condition is predominantly poor (38% of records) with substantial losses of palatable shrubs but varies from very poor to very good. Pasture decline is frequently associated with soil erosion on duplex soils or other soils that are not protected by stony mantles.
Snakewood Chenopod	1,320	0.7	Alluvial plains and stony plains mostly without gilgai microrelief; soils are deep clays, loamy earths and duplex types; mid height or tall snakewood shrublands with understorey of chenopod shrubs.	Moderate	These pastures are prone to preferential overuse by livestock. Condition is predominantly poor (34% of records) but varies from very poor to very good. Considerable loss of palatable shrubs is widespread and soil erosion is common
Hardpan Mulga Shrub	6,860	3.6	Level to gently inclined alluvial hardpan plains; hardpan shallow loams and loamy earths; mulga shrublands with groves (banks of dense mulga) arranged at right angles to direction of sheet water flow.	Low	Condition is about equally distributed between good, fair and poor with palatable shrubs considerably reduced in some parts; soil erosion not widespread but some areas of moderate and severe sheeting.
Acacia Mixed Shrub	3,170	1.6	Level to gently undulating stony plains, low rises and hill footslopes; stony soils, shallow loams, red brown clays and shallow sands; scattered low shrublands (less frequently mid height or tall shrublands).	Low	Pasture condition is predominantly fair (40% of records) with moderate losses of palatable shrubs but varies from very good to poor; soil erosion is rare.
Other Un-vegetated	8,415	4.4			
	1,960	1.0	Saline tidal mud flats, lake beds, claypans, river beds	Nil	
Total*	191,920	100			

* includes all lands within the Pilbara survey area (Van Vreeswyk *et al.* 2004) and the Roebourne Plains survey area (Payne and Tille 1992)

The pasture carrying capacities suggested in Table 7 have been used to calculate the carrying capacities of all Pilbara land systems in Chapter 5 (see Table 11). This was possible as the proportions of the various pasture types which go to make up each land system have been estimated by field sampling. Table 10 in Chapter 5 shows the method of calculating the potential carrying capacity for a particular land system based on the capacities of its component pasture types.

Table 7. Suggested sustainable carrying capacities (ha/cattle unit) for pasture types at three levels of condition (Payne and Mitchell 2002)

Pasture type	Carrying capacity (ha/cu)		
	Good condition	Fair condition	Poor condition
Spinifex Hill	- young soft spinifex after fire	120	Not relevant
	- young hard spinifex after fire	280	Not relevant
	- old stands		Useless for pastoralism
Hard Spinifex Plain	- young stands after fire	140	170
	- old stands		Useless for pastoralism
Soft Spinifex Plain	60	84	120
Roebourne Plains Grass	20	40	50
Ribbon Grass	15	30	45
Mitchell Grass Alluvial Plain	15	30	45
Mitchell Grass Tableland	30	60	75
Buffel Grass	6	12	18
Bluebush/Saltbush	55	77	110
Snakewood Chenopod	80	112	160
Hardpan Mulga Shrub	- plains	120	145
	- groves	60	84
Acacia Mixed Shrub	120	145	170

Chapter 3

Climate

The climate of the Pilbara area is described in detail in the Climate chapter of the Department of Agriculture, Western Australia, Technical Bulletin No. 92 (Van Vreeswyk et al. 2004). That chapter, with some modification, is summarised here.

Most of the Pilbara has a semi-arid climate although south-eastern parts, where rainfall averages less than 250 mm per year, could be regarded as arid. Rainfall is low, unreliable and highly variable. Rainfall can be highly variable across relatively small distances with much of the area's rain coming from local thunderstorms or extended cold fronts from the south. Rather more widespread heavy rain, though still variable in total amount, is likely from tropical cyclones crossing the coast during the summer months.

Rainfall is summer dominant throughout and ranges from about 200 mm in the inland south-east to 300-350 mm in central and coastal areas to 400 mm in the Hamersley Ranges.

The winter (May to October) weather pattern is characterised by mild to warm daily temperatures with winds predominantly from the east and south-east. Rainfall is occasional with generally the southern coastal areas (around Onslow) benefiting more than other areas.

Daily summer (November to April) temperatures are high to very high. Marble Bar has the hottest average daily temperature for December to February of about 41°C maximum and 26°C minimum. Winds are more variable in direction in summer than winter and coastal areas are characterised by strong afternoon sea breezes.

Figure 5 shows the location of and average annual rainfall at 12 recording centres mentioned in this chapter.

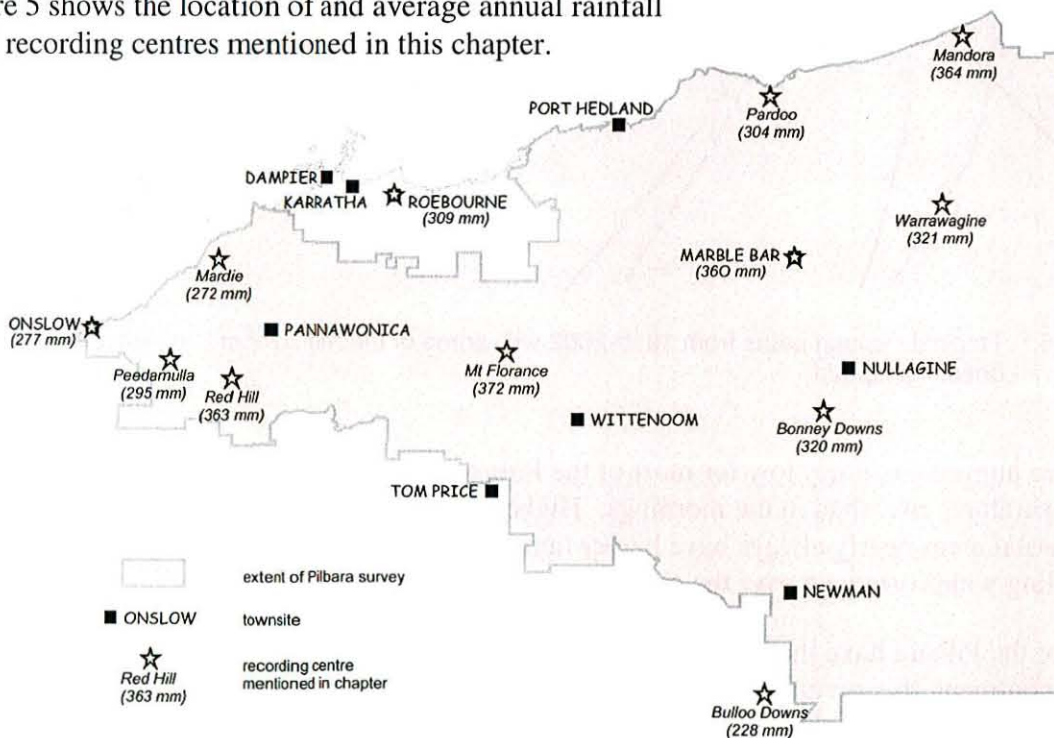


Figure 5. Location of and average annual rainfall at 12 Pilbara recording centres

Semi-permanent heat lows over the Pilbara in summer commonly interact with low level moisture to generate thunderstorms that will regularly produce local heavy rainfall and flooding. Cyclones are also common during the summer months – the Pilbara coast is one of the most cyclone-prone areas of the world (see Figure 6). Bureau of Meteorology records, which date back to 1910, indicate that 235 cyclones have crossed the coast, while another 160 stayed out to sea but passed close by. On average 2.5 cyclones per year cross the coast accompanied by strong to destructive winds often in excess of 170 km/h, and heavy rain. In any one year the maximum number of cyclones has been 6 (1965, 1981, 1984). The widespread flooding after heavy rains that are always associated with cyclones can create problems with infrastructure and stock but native vegetation flourishes.

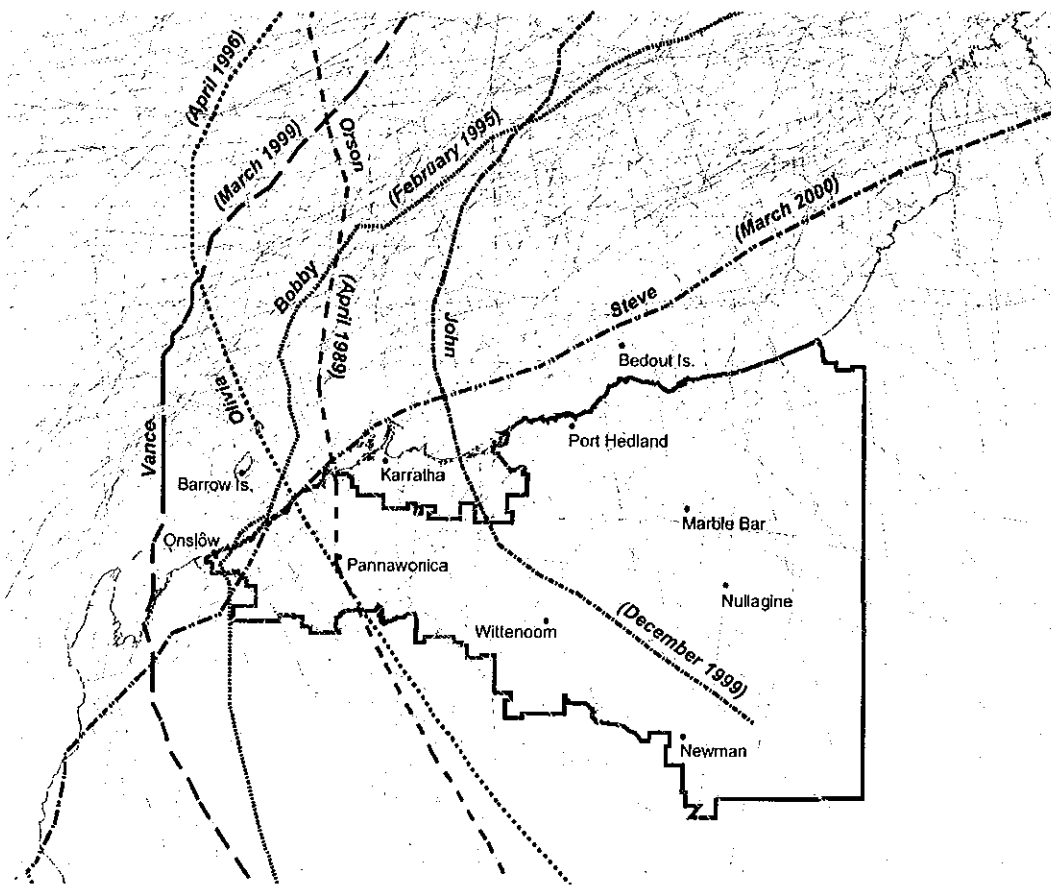


Figure 6. Tropical cyclone paths from 1910-2002 with some of the more recent, significant ones highlighted

Relative humidity is fairly low for most of the Pilbara and tends to be lower in the afternoon as temperatures rise, than in the mornings. Highest humidity is between February and June and coastal areas nearly always have higher humidity than inland areas, especially when prevailing winds originate over the ocean.

Parts of the Pilbara have the highest average annual evaporation in Australia and, as for much of the continent, this is considerably higher than the average rainfall. In the south-east, whilst rainfall amounts to less than 200 mm, annual evaporation is in excess of 4,000 mm (20 times as much). With an annual rainfall of over 400 mm Wittenoom records one of the highest

annual rainfalls in the Pilbara and is located within an area of lowest annual evaporation of 3,000 mm (7.5 times higher). On average, for most of the Pilbara, the annual evaporation is about 10 times higher than the rainfall.

Rainfall effectiveness and seasons

The availability of soil moisture is the most dominant factor influencing plant growth in the arid and semi-arid regions. Rainfall, from which most soil moisture is derived, is most effective for plant growth if it comes as a combination or series of episodic falls. This is far preferable than receiving the average or total annual rainfall as one or a few major events that are likely to cause more damage than good. Assessing the effectiveness of rainfall for plant growth needs to consider, among other things, the frequency (as well as the amounts falling) of rainfall events. Growing conditions are also influenced by temperature which, if extreme, will retard growth.

The WATBAL computer model (Fitzpatrick, Slatyer and Krishnan 1967) provides an assessment of rainfall effectiveness in terms of availability of sufficient soil moisture to promote vegetation growth. The model takes into account incoming rainfall and potential losses from transpiration, evaporation, percolation and run-off over pentads (five day periods). If there is a store of water remaining in the soil at the conclusion of the pentad then plant growth is considered to have occurred. Table 8 shows the results of this assessment at nine recording centres in the Pilbara. The criteria adopted for effective summer rains (December to May) is 20 days or more of continuously favourable soil moisture and 30 days or more for effective winter rain (June to November), after an initial rain event of 15 mm.

Table 8 lists the average start date of effective seasons for each of the nine centres and the average length of the growing seasons. It also shows the duration of the best season and worst season on record.

Most of the Pilbara is much more likely to have an effective summer season than an effective winter season. One exception to this is Mardie on the south-west coast where the chance of having an effective summer season (55%) is only marginally higher than the chance of having an effective winter season (53%). Mandora in the far north-east has the longest average summer growing season (55 days). Red Hill and Mardie in the south-west share the longest average winter growing season (40 days) and Red Hill also has the longest average yearly growing season (85 days). Bulloo Downs has the shortest average yearly growing season (55 days).

Seasons usually break around early to mid February in summer and late May to early June in winter. However, for each location there is a considerable range (particularly for summer) when this actually occurs.

On average the growing season in summer lasts for about 4-8 weeks, whilst in winter it lasts for about 3-6 weeks. The average length of summer season decreases along the coast from the north-east to the south-west and also decreases inland to the south-east. The average length of the summer season remains relatively long in the centre-west and inland south-west (Mt Florance 50 days and Red Hill 45 days) probably relating to the relatively high rainfall these areas enjoy as a result of the proximity of the Hamersley uplands.

Table 9 summarises the number of effective and failed seasons for both summer and winter for each of the centres for the period of time for which rainfall records are available. At some

centres favourable seasons are much more reliable than at others. Mandora in the north is fortunate to have 80% of all years on record producing an effective summer season whereas Bullo Downs has had on average only 40% of effective summer seasons. Mandora has had an effective winter season only in 18% of years whereas Mardie has had effective winters in 53% of years.

Table 8. Average start date of effective summer and winter seasons, their average length and extremes

	Bonney Downs	Bullo Downs	Mandora	Mardie	Mt Florance	Pardoo	Red Hill	Roe-bourne	Warrawagine
Average starting date for an effective summer	17 Feb ± 28 days	18 Feb ± 50 days	29 Jan ± 47 days	14 Feb ± 30 days	8 Feb ± 44 days	3 Feb ± 30 days	8 Feb ± 28 days	11 Feb ± 45 days	3 Feb ± 25 days
Average length of summer growing season (days)	45 ± 28	30 ± 25	55 ± 30	30 ± 21	50 ± 26	40 ± 26	45 ± 26	35 ± 25	41 ± 26
Best summer season (days)	115 (1941)	75 (1999)	130 (1968)	95 (1933)	150 (1999)	100 (1996)	120 (1933)	90 (1945)	105 (1942)
Worst summer season (days)	5	0	0	0	5	0	0	0	0
Average starting date for an effective winter	3 Jun ± 24 days	1 Jun ± 28 days	25 May ± 21 days	30 May ± 25 days	2 Jun ± 24 days	1 Jun ± 26 days	30 May ± 24 days	1 Jun ± 24 days	3 Jun ± 26 days
Average length of winter growing season (days)	25 ± 22	25 ± 20	20 ± 20	40 ± 24	30 ± 22	25 ± 22	40 ± 29	26 ± 20	20 ± 20
Best winter season (days)	90 (1955)	75 (1998)	70 (1998)	90 (1973)	75 (1931)	95 (1955)	110 (1973)	70 (1910)	70 (2000)
Worst winter season (days)	0	0	0	0	0	0	0	0	0

Table 9. The number of effective and failed seasons for summer and winter

	Bonney Downs	Bullo Downs	Mandora	Mardie	Mt Florance	Pardoo	Red Hill	Roe-bourne	Warrawagine
Number of effective summer seasons (>20 growing days)	51 (55%)	37 (40%)	70 (80%)	51 (55%)	71 (76%)	65 (70%)	62 (67%)	60 (64%)	53 (57%)
Number of failed summer seasons (<20 growing days)	42 (45%)	56 (60%)	18 (20%)	42 (45%)	22 (24%)	28 (30%)	31 (33%)	33 (36%)	40 (43%)
Number of effective winter seasons (>30 growing days)	30 (32%)	27 (29%)	16 (18%)	49 (53%)	29 (31%)	26 (28%)	47 (51%)	25 (27%)	18 (19%)
Number of failed winter seasons (<30 growing days)	63 (68%)	66 (71%)	72 (82%)	44 (47%)	32 (69%)	67 (72%)	46 (49%)	68 (73%)	75 (81%)

Climate and pastoral management

Consideration of climate factors is obviously essential when making decisions regarding animal husbandry and land management. For example, climatic factors such as temperature and rainfall determine that April to September is the most suitable time of year to undertake cattle mustering and cattle husbandry practices such as castrating, branding and weaning.

One certain aspect of the climate in the Pilbara is drought. Droughts are a feature of the national pastoral environment and much of the Pilbara has a high to severe drought risk (see Figure 7). Low rainfall years, especially if sequential, will have a serious effect on stock numbers and production but they must be expected and provision must be made for them through sound financial and property management (Reynolds, Watson and Collins 1983). Retaining high stock numbers during dry times has often led to a decline in the resource base affecting future productivity. However, management decisions such as selling off and culling to maintain a high quality nucleus herd structure will maintain or improve animal productivity and preserve the productivity of the rangelands (Curry *et al.* 1994).

In 1965 the Bureau of Meteorology (BOM) implemented a Drought Watch Service (DWS) as a key component to assist with national drought management in rural Australia. Access to the DWS data, analysis and reporting is available through the BOM website (www.bom.gov.au).

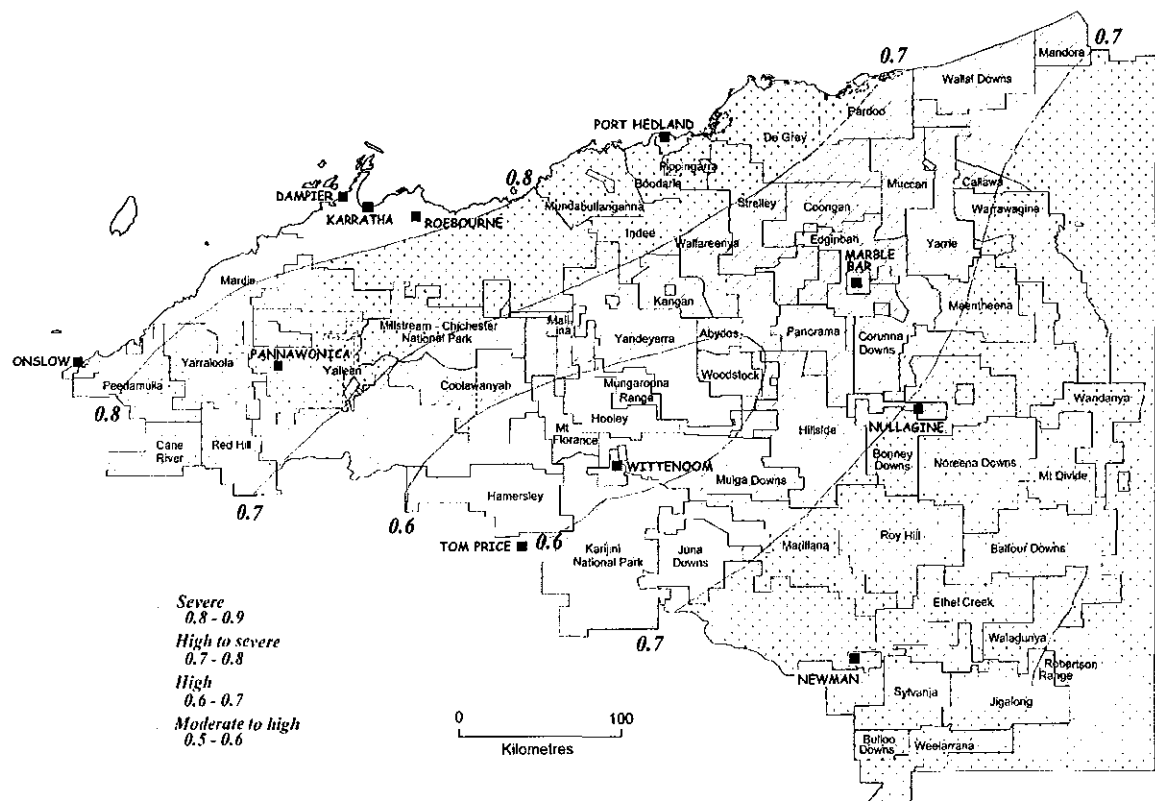


Figure 7. Drought risk index based on percentiles of average rainfall (from Colls and Whitaker 1995).

The following information is taken from reports on pastoral management in the more southern rangelands (Pringle 1994, Van Vreeswyk and Godden 1998). Amendments appropriate to the different climatic patterns and plant growth responses of the Pilbara have been made.

The current range condition of a station indicates its level of drought durability. Country that is in poor condition supports fewer palatable perennial grasses and shrubs than the same type of country in good condition and therefore has less durability (less ability to support stock) in dry times. In drought, when there is very little or no annual forage present, grazing pressure is concentrated on perennial plants which are already under stress from very low soil moisture. Some plants drop their leaves and become dormant, those that try to maintain foliage are prone to damage from overgrazing. During prolonged dry times destocking or substantially reducing total grazing pressure (including feral animals and kangaroos) will prevent or minimise degradation.

Perennial vegetation can also be degraded after the break of season following a poor season if ground feed is sparse. Perennial plants are stressed, but pick up after rain, producing new growth in an effort to restore their vigour. If they are grazed heavily at this time, they may not survive. However deferment of grazing immediately after the break of the season will enhance the chance of recovery of perennial grasses and shrubs.

The country cannot improve without soil moisture to promote seed germination and plant growth. Thus destocking a paddock over a poor season may prevent degradation, but is unlikely to promote an improvement until good seasons return. Substantial improvement in the condition of the land usually requires a sequence of good seasons (Pringle 1994).

During good seasons (and assuming a healthy soil) there is usually not very much grazing pressure on perennial plants as a whole. Species which are particularly palatable may be grazed, but generally stock prefer the ground feed. Some seedlings of perennial species in the ground feed may be grazed. The critical time arises when the short-lived species begin to wilt and perennial recruits become relatively more conspicuous and attractive to stock and other animals. It is then that a reduction in total grazing pressure is most likely to be effective.

Analysing long-term seasonal conditions allows predictions to be made, such as the probability of receiving a successful summer (20 consecutive days of plant growth) or winter (30 consecutive days of plant growth). For example, there is an 80% probability in any year that Mandora will enjoy an effective summer and a 67%, 70% and 76% probability respectively that Red Hill, Pardoo and Mt Florance will have an effective summer (see Table 9). In contrast to summer, the chances of receiving a successful winter season are poor except in the south-west. Mandora and Warrawagine have about an 18% probability that they will have an effective winter, whereas there is a 31% and 53% probability that Mt Florance and Mardie will receive effective winters.

Recent seasonal conditions will largely determine the amount of annual forage available and the general vigour of perennial grasses and shrubs. Considering this, together with predictions for the next season based on historical rainfall records, will guide management decisions on how many and what type of stock to put into particular paddocks, and numbers for selling and culling.

Based on the probability of effective seasons the following scenarios can arise.

Following a successful summer, chances are that the winter will be disappointing.

This scenario is the most common; fair to good summers and, more often than not, poor winters. In these circumstances, stock numbers should be set on the basis that ground feed is going to be in short supply by spring.

Monitoring the vigour of perennial grasses and shrubs and perhaps the extent to which animals hang on watering points should give a reasonable warning if the country is beginning to struggle with existing total grazing pressure.

Following a good winter, chances are that the good run will last through summer.

Pasture growth from winter rainfall can be considered an unusual bonus rather than something to rely on. However when it does occur, it presents one of the best opportunities for improvement in the health of the land. All of the perennial plants that germinated during the winter face a reasonable chance of also receiving summer rain. Spelling in these circumstances is likely to enhance recruitment of palatable perennial plants.

This situation also allows for the build-up of stock numbers if they have been well below the long-term capacity of the land. Care should be taken in monitoring the land so that improvement in animal production is in balance with improvements in range condition – a balance between 'cashing in' on the season and 'putting some away' (protecting new recruits) for the next, inevitable, poor season.

Following a failed summer it is unlikely that there will be a good winter.

The failure of a summer is particularly serious because the next break of season is probably more than eight months away (next summer) as there is only a low probability of the winter being effective. Furthermore, grazing pressure on grasses and shrubs will increase as the weather becomes hotter and drier, and stock may tend to hang on waters and degrade the surrounding country. Decisions will need to be made in May to June about selling additional stock and where to retain remaining stock on scarce forage reserves over the critical late winter and spring months.

The outlook after a failed summer is very gloomy and total grazing pressure should be reduced accordingly. Failure to do so is likely to result in degradation and poor stock performance. This is a good time to screen herds and get rid of poorer animals.

Following a failed winter, chances are that summer will see some improvement.

This is not an unusual situation, most winters are poor and ground feed is usually patchy and short-lived. Some confidence in a reasonable summer is warranted. However, if the season has not broken by the end of February the situation is becoming critical and stocking levels may need to be reduced as soon as possible. The key in this situation is to keep a close eye on both the condition of the country and perhaps the behaviour of animals, particularly whether they tend to hang on the watering point.

Except for the far western corner, the modal (or most commonly occurring) year for the Pilbara consists of an effective summer season followed by a failed winter season. Recommended carrying capacities provided in this report are for this situation, referred to as a 'normal year', to be carried over winter and spring.

In the far west at centres like Mardie, Peedamulla and Onslow the probability of having an effective summer season is only slightly higher than the probability of having an effective winter. Although these centres have less probability of receiving effective summer rains than most other parts of the Pilbara they do have a reasonable chance (about 50-55%) of receiving effective summer and winter seasons.

Chapter 4

Pastoral enterprises and current pastoral management

The area includes the whole of 41 pastoral leases and 4 Aboriginal reserves. The pastoral leases almost exclusively run cattle rather than sheep and two of the Aboriginal reserves also run cattle. Two previous leases, Cane River and Meentheena, have recently been purchased by the Department of Conservation and Land Management and have been destocked and will be incorporated into the conservation estate.

The average size of pastoral leases in this survey area is about 245,000 ha; however individual property size varies greatly between about 24,000 ha and 400,000 ha. Stations usually run between 3,000 and 20,000 cattle and the preferred breeds are Brahman, Santa Gertrudis, Droughtmaster and Shorthorn.

In the past most Pilbara stations were well developed for sheep. With the changeover to cattle many sheep fences have been abandoned or upgraded or partially replaced by cattle fencing. Many of the more productive stations along the major rivers and in coastal areas are now well developed in terms of paddocks and artificial watering points providing better cattle control and the opportunity for improved cattle and grazing management. The level of development, particularly in relation to the provision of stock water, is largely determined by the availability and cost of providing water for the limited number of stock that can be run on these pastures. Some inland stations on granitic or basaltic country are also well developed but stations with high proportions of rough hill lands or very low value hard spinifex pastures are poorly developed as the cost of development is often not justifiable.

The design of paddocks on most stations generally precedes the relatively recent trend towards fencing according to country (land) type. Some pastoralists favour a mix of country types in paddocks where different country types are grazed at different times of the year, hence spelling all areas for some time. However, evidence on numerous stations indicates that mixing country types in paddocks leads to overgrazing in better types and under-utilisation in poorer types.

Traditionally, stations have been run as family businesses, however, this has changed in recent years. Mining companies now own and operate nine pastoral leases as viable enterprises. Aboriginal groups own nine pastoral stations, some of which are run as cattle enterprises.

Most cattle stations are run with small numbers of permanent staff, typically a manager, two or three jackeroos/station hands, windmill man/mechanic and cook augmented at peak activity times such as annual mustering by additional casuals. Some smaller traditional family run stations rely largely on family members for labour with additional casuals for mustering. Contractors are usually used for larger fencing jobs and for building cattle yards on larger properties.

Pastoralists usually distribute their stock by placing weaners and steers in better types of country (e.g. alluvial plain tussock grass country) and breeders in less preferred types (e.g. soft spinifex plain country). In poor seasons pastoralists may be forced to redistribute grazing

pressure by shifting animals between paddocks. Apart from such occasions, most pastoralists do not generally shift many stock between annual musters.

Bulls are usually run year long with the herd with peak mating activity occurring after the flush of green feed in summer months and the bulk of calves being dropped in October to January. Mustering commences about April after the hottest times of the year and may continue to September or October. Mustering frequently, but not always, includes the use of fixed wing aircraft or helicopters working with ground crews using vehicles or motorbikes and occasionally horses. Trapping or 'self mustering' on watering points is used by some pastoralists to aggregate cattle. The better self mustering systems include a spelled 'trapping paddock' at the waters to be trapped. At mustering the out trap on the water is closed and the paddock is opened. This allows an area to be trapped for several days as the trapped or self mustered cattle have access to feed and water. Self-mustering systems are more efficient than just trapping.

A number of pastoralists have developed holding paddocks in strategic areas of their properties to use in association with portable yards for mustering and trucking cattle. These paddocks are also used to mother-up cows and young calves before they are released following mustering.

During the mustering season cattle husbandry activities such as castrating, branding, de-horning and weaning are undertaken as well as the separation and turn-off of saleable stock and the return of breeders to paddocks. Weaners may receive special treatment such as tailing and feeding in yards before turning out into a weaner paddock. Most stations have one main weaning period but some undertake a second round later in the year to wean late calves.

Spring can be a critical time in the Pilbara as feed supplies become very dry and sparse. As a result some pastoralists shift cattle to other paddocks or areas and may sell some cattle depending on the conditions and current prices. Water supplies are generally not as critical as in more southern rangelands as many Pilbara stations rely on water in river pools as well as relatively shallow and plentiful underground water.

General station activities occurring throughout the year include vermin control, water point checking and repairs and maintenance to infrastructure such as tracks, water point equipment, fences, yard and plant. Fire management is very important to Pilbara pastoralists in order to maintain spinifex pastures in an attractive condition for livestock. Many managers regularly burn spinifex country and plan their burning strategies with neighbours and the relevant bush fire services authorities and use best management practices (Pastoral Lands Board 2001 a).

On a longer term basis, pastoralists consider formal rangeland monitoring, further development of stock water systems, new fencing and other infrastructure and the spelling of paddocks. The maintenance of station infrastructure, including programmed replacement, is essential for good pastoral management and is not adequately addressed on some stations. This may result in considerable problems in the future.

Most pastoralists on properties with adequate fencing spell paddocks on an opportunistic basis as they see fit. This is possibly a practical approach, as spelling will only be highly effective for a few periods in any decade, when seasons are favourable and natural ecosystems resilience to grazing can be bolstered. To gain maximum benefit from spelling, control of grazing pressure by donkeys and kangaroos on the spelled areas is necessary and is an ongoing problem.

One of the most contentious issues in rangeland management is the management of severely degraded and eroded areas. In most cases, the environmental debt was incurred by a previous manager or lessee. Major flooding in the lower Fortescue and Robe rivers early in March 2004 due to record rains from cyclone Monty demonstrated that serious erosion of country in good condition can occur as a result of these major events. Most pastoralists manage these areas sensitively and are quite prepared to comply with recommendations from the Department of Agriculture on how they should be managed. Continual failure to adopt appropriate management in such areas can eventually lead to the serving of a Soil Conservation Notice.

The Pilbara is covered by three Land Conservation Districts: De Grey, East Pilbara and Roebourne/Port Hedland. Best management practice guidelines relevant to the Pilbara are provided by the Pastoral Lands Board (2001 a & b).

Chapter 5

Individual station reports

Station reports are presented as tables, and in alphabetical order, for the 41 stations which fall wholly into the survey area. Reports are also presented for two Aboriginal reserves that currently run cattle.

Each station report consists of preliminary information including the Land Conservation District and Shire in which the station falls. The area included within each station is that which was legally defined as part of the pastoral lease(s) comprising each station at the time of the survey. The area does not include reserves, freehold land and unallocated Crown land within the pastoral lease unless the station has grazing rights over a reserve in which case the reserve's land system area and traverse points are included in the detailed breakdowns for that station. The station area calculated from the digitised mapping is more accurate than the current stated legal area.

The first table deals with land types, i.e. groups of similar land systems. It gives a general impression of the types of country and their extent on each station. Land types and land systems are shown on the station plans.

The second table provides more detailed information at a land system scale. For each land system (sorted into groups according to pastoral potential), there is information on its area, how much if any has been mapped as severely degraded and eroded (sde), how many traverse assessments were made on it, and what its condition was, based on these traverse assessments.

For the purpose of this report, the following six categories of pastoral potential, based on estimated carrying capacity, have been adopted (see Table 8).

Table 8. Categories of pastoral potential for land systems

Category	Carrying capacity (ha/cattle unit)
Very high	5-15 ha/cu
High	16-30 ha/cu
Moderately high	31-50 ha/cu
Moderate	51-80 ha/cu
Low	81-120 ha/cu
Very low	>121 ha/cu

For each land system the suggested carrying capacity (scc), according to the system's current range condition, and the potential carrying capacity (pcc), assuming all of the system is in good condition, is given. The suggested figures are for a 'normal year' (i.e. a fair summer followed by a poor winter) to be carried over winter. The figures assume all feral animals and kangaroos are under control.

The carrying capacities are given in cattle units (cu). These can be converted to different types and classes of stock using the conversion rates in Table 9. Table 9 also provides

conversion rates for sheep, donkeys and kangaroos so that these other grazers can also be considered.

Table 9. Relative feed requirements expressed as cattle units (cu)*

Cattle	
1 steer	1.0 cu
1 year old steer or heifer	0.8 cu
1 cow (average for cows producing 50% calves)	1.4 cu
1 weaner	0.6 cu
1 bull	1.5 cu
Sheep	
1 wether = 1 dse	0.14 cu
1 ewe (average for ewes producing 50% lambs) = 1.3 dse	0.19 cu
1 weaner (to 1 year old) = 0.7 dse	0.10 cu
1 ram = 1.5 dse	0.21 cu
Other grazers	
1 donkey	1.0 cu
1 kangaroo	0.09 cu

* 1 cu = 7 dry sheep equivalents (dse)

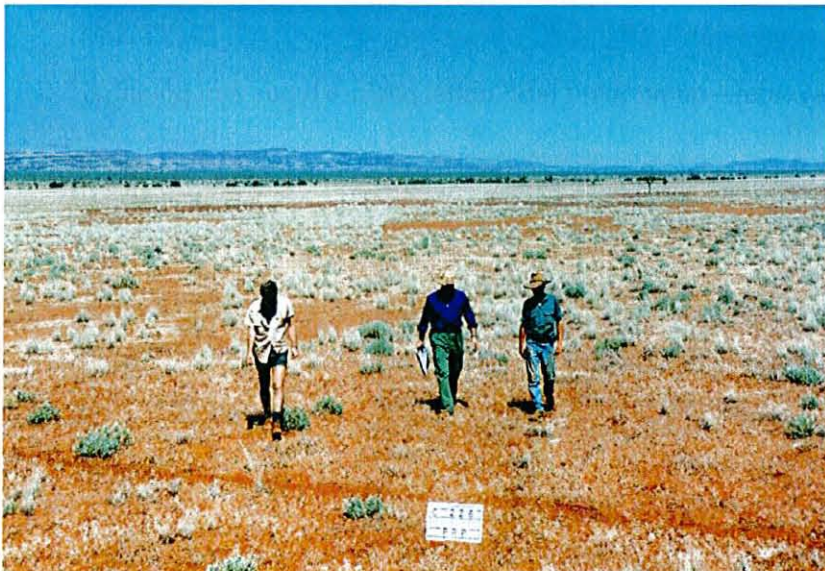
Any severely degraded and eroded areas (sde) are given a carrying capacity of nil when calculating the suggested carrying capacity (scc). These areas are shown on the station plans. Areas of riverbed have been extracted from the river land systems (of which they are a part) and have been given a carrying capacity of zero.

The carrying capacities are based on the condition of the perennial vegetation. The vegetation condition classes are defined as:

- Good** for the land unit-vegetation type, the site's cover and composition of shrubs, perennial herbs and grasses is near optimal, free of obvious reductions in palatable species or increases in unpalatable species. Perennials present include all or most of the palatable species expected; some less palatable or unpalatable species may have increased; but total perennial cover is not very different from the optimal.
- Fair** moderate losses of palatable perennials and/or increases in unpalatable shrubs or grasses, but most palatable species and stability desirables still present; foliar cover is less than on comparable sites rated as good unless unpalatable species have increased.
- Poor** conspicuous losses of palatable perennials or few, if any, palatable perennials remain, foliar cover is either decreased through a general loss of perennials or is increased by invasion of unpalatable species.



*When in **good range condition**, Roebourne Plains Grass Pastures support dense stands of Roebourne Plains grass and a few other desirable perennial grasses and herbs. This site is on a weakly gilgaied plain of the Horseflat land system. Basal cover of the grasses is about 5%. These plains rarely support shrubs or trees.*



*In **fair range condition** stands of Roebourne Plains grass become patchy. Here basal cover is about 2%. The inter-tussock spaces support annual grasses and herbs in season.*



*This Roebourne Plains Grass Pasture on a stony plain of the Paterson land system is in **poor range condition**. Perennial grasses exist only as patchy remnants with a basal cover of less than 0.2%. Soils have been eroded and deflated by water and wind leaving a surface mantle of pebbles and stones.*

Very little definitive information is available about the carrying capacity of Pilbara pastures but there is some information about similar pasture types found in the Kimberley and in the more southern rangelands. Payne *et al.* (1974) estimated carrying capacities for black soil plain (Mitchell grass), ribbon grass, soft and hard spinifex and other pastures in the West Kimberley and these figures have been used as guides for preparing estimations for similar pastures found in the Pilbara. Grazing trials in the West Kimberley (unpublished data) in the late 1960s indicated that good stands of buffel grass could easily carry 1 cu/6.5 ha over several years. A figure of 1 cu/6 ha for good condition buffel grass has been adopted for the Pilbara. Shrub based pastures in the Pilbara such as Hardpan Mulga Shrub, Acacia Mixed Shrub, Bluebush/Saltbush and Snakewood Chenopod are similar to pastures described in more southern areas such as the Ashburton survey (Payne, Mitchell and Holman 1988) and Murchison survey (Curry *et al.* 1994). Carrying capacity estimates from these survey areas were used as guides for preparing figures for the Pilbara. A carrying capacity and pasture management workshop held by the Roebourne/Port Hedland Land Conservation District Committee in April 2001 helped finalise suggested carrying capacities for Pilbara pastures.

The potential carrying capacity (pcc) of each land system was calculated based on the proportion of its component land units and the pasture types that they support (see Table 10).

Table 10. White Springs land system – component land units, pasture types and potential carrying capacity (pcc)

Land unit	% of area	Pasture type	pcc (ha/cu)*	pcc for whole system (ha/cu)
Stony plain	52	Hard Spinifex Plain	140	
Gilgai plain	15	Roebourne Plains Grass	20	51
	23	Mitchell Grass Tableland	30	
Outer slope	9	Hard Spinifex Plain	140	
Drainage line	1	Soft Spinifex Plain	60	

* see Table 7

The suggested carrying capacity (scc) of each land system needs to take into account the present condition of the system i.e. how much of it is in good, fair and poor condition. Areas in poor condition usually do not have the capacity to carry as many animals as those in good condition and cannot carry stock for long in drought. Table 11 shows the suggested carrying capacity for each of the Pilbara land systems in good, fair and poor condition.

The third table in the station report is a summary of the second table. Information is presented for land systems grouped according to pastoral potential.

Finally, summary range condition information for the station as a whole is presented. This includes the amount of severely degraded and eroded land mapped out on the station, the proportion of traverse assessments in good, fair and poor condition, and the suggested and potential carrying capacities of the station.

Throughout the station reports the figures have been rounded so there may be slight discrepancies due to this.

Forage availability (and hence carrying capacity and potential animal production) varies substantially during years and between years (Holm 1994). This variability makes a single recommendation about carrying capacity rather meaningless and perhaps misleading to both land managers and administrators. The potential and suggested carrying capacity figures presented in the station reports apply to a 'normal year' to be carried over the dry season. Given that this specific situation is the most commonly occurring, the suggested carrying capacities represent a reasonable approximation of long term sustainable carrying capacity. On an annual basis however, an optimal carrying capacity may be substantially higher or lower than the scc, reflecting the variability in seasons experienced in the area. There is no requirement for these figures to be rigidly applied by managers.

For the reasons stated above, it is inappropriate for the carrying capacity figures to be used alone for commercial or regulatory purposes.

Table 11. Pilbara land system pastoral potentials and carrying capacities (ha/cattle unit) for three levels of condition

Pastoral potential	Land system	Good condition (ha/cu)	Fair condition (ha/cu)	Poor condition (ha/cu)
Very high	Eighty Mile	8	16	24
	Anna	10	20	30
	Yamerina	12	24	36
High	River	17	32	46
	Coolibah	18	34	49
	Brockman	19	36	51
	Horseflat	19	36	51
	Kanjenjie	20	38	54
	Roebuck	20	38	54
	Fortescue	20	38	54
	Hooley	23	44	62
	Jurrawarrina	24	46	65
	Pullgarah	26	49	70
Moderately high	Paradise	31	53	71
	Cane	31	53	71
	Wona	33	56	76
	Turee	35	60	80
	Christmas	35	60	80
	Paraburdoo	35	60	80
	Onslow	37	63	85
	Marillana	39	66	90
	Jigalong	40	68	92
	Elimunna	42	71	95
	Wannamunna	44	75	100
	Balfour	44	75	100
	Marsh	45	77	105
	Dune	50	85	115
Moderate	White Springs	51	77	95
	Washplain	51	77	95
	Sherlock	52	78	100
	Cowra	53	80	100
	Dollar	53	80	100
	Fan	54	80	105
	Talawana	56	85	105
	Urandy	57	85	110
	Bonney	58	85	110
	Warri	60	90	115
	Cundelbar	60	90	115
	Nita	60	90	115
	Satirist	61	90	115
	Cheerawarra	61	90	115
	Narbung	64	95	120
	Mallina	67	100	125
	Sylvania	69	105	130
	Stuart	70	105	135
	Mannerie	71	105	135
	Paterson	71	105	135
	Marandoo	73	110	140
	Nirran	73	110	140
	Peedamulla	74	110	140
	Prairie	76	115	145
	Cadgie	79	120	150
	Boolgeeda	80	120	150
	Macroy	80	120	150
Taylor	80	120	150	
Jamindie	80	120	150	

Table 11. Pilbara land system pastoral potentials and carrying capacities (ha/cattle unit) for three levels of condition - *continued*

Pastoral potential	Land system	Good condition (ha/cu)	Fair condition (ha/cu)	Poor condition (ha/cu)
Low	Pindering	85	110	125
	Lime	85	110	125
	Pyramid	85	110	125
	Zebra	90	120	135
	Uaroo	90	120	135
	Calcrete	90	120	135
	Giralia	90	120	135
	Laterite	100	130	150
	Coongimah	100	130	150
	Nooingnin	100	130	150
	Tanpool	100	130	150
	Boolaloo	100	130	150
	Three Rivers	105	140	155
	Callawa	105	140	155
	Nanutarra	105	140	155
	Oakover	110	145	165
	Robe	110	145	165
	Collier	110	145	165
	Spearhole	110	145	165
	Little Sandy	110	145	165
	Gregory	110	145	165
	Table	110	145	165
	Lochinvar	115	150	170
Ford	115	150	170	
Billygoat	115	150	170	
Charley	120	155	180	
Houndstooth	120	155	180	
Very low	Egerton	125	150	150
	Divide	125	150	150
	Weelarrana	130	155	155
	Kumina	130	155	155
	Platform	135	160	160
	Mosquito	135	160	160
	Buckshot	135	160	160
	Ruth	140	170	170
	Granitic	145	175	175
	Capricorn	150	180	180
	Charley	150	180	185
	Talga	155	185	185
	McKay	160	190	190
	Robertson	160	190	190
	Rocklea	160	190	190
	Adrian	170	205	205
	Augustus	215	260	260
Newman	215	260	260	
Littoral	225	270	270	
Black	265	320	320	

BALFOUR DOWNS STATION

PASTORAL LEASE 3114/977 + GRAZING RIGHTS ON 398/804

Area:	About 350,734 ha (legal); 350,673 ha (computed)
Area surveyed:	436,710 ha (whole lease plus 398/804)
Land Conservation District:	East Pilbara
Shire(s):	East Pilbara

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
1	Hills with spinifex	5	121,092	27.7
2	Hills with acacia shrublands	1	8,819	2.0
3	Plateaux and breakaways with spinifex	2	25,575	5.9
4	Plateaux and breakaways with acacia shrublands	1	4,292	1.0
5	Dissected plains with spinifex	1	29,218	6.7
6	Stony plains and hills with spinifex	2	3,098	0.7
7	Stony plains and low hills with acacia shrublands	1	81	^0.0
8	Stony plains with spinifex	1	5,762	1.3
10	Stony plains with acacia shrublands	1	1,672	0.4
11	Spinifex sandplains	3	108,792	24.9
12	Mulga hardpan plains	4	33,379	7.6
14	Alluvial plains with tussock grasses or shrublands	2	62,010	14.2
16	Alluvial plains with halophytic shrublands	1	10,327	2.4
17	River plains with woodlands and tussock grasses	3	12,212	2.8
18	Calcrete plains with shrublands or spinifex	1	9,899	2.3
	Lake bed	1	482	0.1

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		Traverse assessment and resource condition											
			Total	Sde ⁺	No. of traverse points [#]	Soil erosion (%)				Perennial vegetation (%)			Scc ⁺ (cu)	Pcc ⁺⁺ (cu)		
						ha	%	ha	Nil	Minor	Mod.	Severe			Good	Fair
High	14	Brockman	70	^0.0	0	0	0	0	0	0	0	0	0	0	2	4
High	17	Coolibah	7,837	1.8	190	17	82	12	0	6	53	18	29	311	435	
High	17	River	3,022	0.7	0	2	100	0	0	0	100	0	0	161	178	
Mod. high	14	Balfour	61,940	14.1	0	93	92	5	2	1	39	42	19	1,032	1,408	
Mod. high	10	Elimunna	1,672	0.4	0	2	100	0	0	0	0	50	50	21	40	
Mod. high	17	Jigalong	1,353	0.3	0	0	0	0	0	0	0	0	0	18	34	
Moderate	8	Boolgeeda	5,762	1.3	0	7	100	0	0	0	100	0	0	72	72	
Moderate	12	Jamindie	228	0.1	0	0	0	0	0	0	0	0	0	2	3	
Moderate	16	Tallawuna	10,327	2.4	239	3	0	33	0	67	0	33	67	101	184	
Moderate	12	Washplain	10,988	2.5	0	3	100	0	0	0	67	33	0	154	215	
Low	5	Billygoat	29,218	6.7	0	31	100	0	0	0	87	10	3	247	254	
Low	1	Bootaloo	239	0.1	0	0	0	0	0	0	0	0	0	2	2	
Low	18	Calcrete	9,899	2.3	0	10	90	10	0	0	70	20	10	100	110	
Low	7	Collier	81	^0.0	0	0	0	0	0	0	0	0	0	1	1	
Low	3	Coongimah	19,514	4.5	0	0	0	0	0	0	0	0	0	194	195	
Low	4	Laterite	4,292	1.0	0	0	0	0	0	0	0	0	0	43	45	
Low	11	Little Sandy	9,757	2.2	0	0	0	0	0	0	0	0	0	88	89	
Low	3	Oakover	6,061	1.4	0	0	0	0	0	0	0	0	0	57	58	
Low	12	Spearhole	5,468	1.3	0	8	100	0	0	0	100	0	0	50	50	
Low	12	Zebra	16,695	3.8	0	35	100	0	0	0	86	14	0	189	196	
Very low	6	Adrian	1,255	0.3	0	0	0	0	0	0	0	0	0	6	7	
Very low	11	Buckshot	11,032	2.5	0	2	100	0	0	0	100	0	0	82	82	
Very low	2	Charley	8,819	2.0	0	9	100	0	0	0	78	22	0	57	59	
Very low	11	Divide	88,003	20.1	0	18	100	0	0	0	100	0	0	693	704	
Very low	1	Granitic	11,320	2.6	0	0	0	0	0	0	0	0	0	78	78	
Very low	1	McKay	17,443	4.0	0	10	100	0	0	0	100	0	0	109	109	
Very low	6	Mosquito	1,843	0.4	0	0	0	0	0	0	0	0	0	13	14	
Very low	1	Robertson	49,942	11.4	0	20	100	0	0	0	75	25	0	303	312	
Very low	1	Rocklea	42,148	9.7	0	18	100	0	0	0	72	6	22	251	263	
Nil		Lake bed	482	0.1	0	0	0	0	0	0	0	0	0	0	0	

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition									
	Total		Sde ⁻ ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)			Scc [*] (cu) (from table 2)	Pcc ^{**} (cu)
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor		
High	10,929	2.5	190	19	84	0	11	5	58	16	26	474	617
Moderately high	64,965	14.8	0	95	92	5	2	1	38	42	20	1,071	1,482
Moderate	27,305	6.3	239	13	77	8	15	0	70	15	15	329	474
Low	101,224	23.2	0	84	99	1	0	0	87	12	1	971	1,000
Very low	231,805	53.1	0	77	100	0	0	0	85	10	5	1,592	1,628
Nil	482	0.1	0	0	0	0	0	0	0	0	0	0	0
Total	436,710	100.0	429	288	95	2	2	1	67	22	11	4,437	5,201
Survey average for land systems traversed on this station					93	4	2	1	66	15	19		

[^] indicates minor value not reported in tables.

⁻ Area mapped as being severely degraded and eroded.

[#] Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

^{*} Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

^{**} Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 429 (0.1% of station)

Number of traverse points 288

Pastoral resource condition :

Soil erosion

% nil	95
% minor	2
% moderate	2
% severe	1

Perennial vegetation

% good	67
% fair	22
% poor	11

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing.

4,440

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing.

5,200

BONNEY DOWNS STATION

PASTORAL LEASE 3114/1208

Area:	About 373,621 ha (legal); 376,077 ha (computed)
Area surveyed:	Whole lease
Land Conservation District:	De Grey
Shire(s):	East Pilbara

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
1	Hills with spinifex	7	204,627	54.4
3	Plateaux and breakaways with spinifex	1	4,306	1.1
4	Plateaux and breakaways with acacia shrublands	1	4,746	1.3
6	Stony plains and hills with spinifex	2	141,019	37.5
8	Stony plains with spinifex	2	3,195	0.8
9	Stony gilgai plains with tussock grasses and spinifex	1	9,666	2.6
10	Stony plains with acacia shrublands	1	2,080	0.6
11	Spinifex sandplains	1	57	^0.0
12	Mulga hardpan plains	2	4,929	1.3
17	River plains with woodlands and tussock grasses	1	1,452	0.4

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		Sde ⁻ ha	No. of traverse points [#]	Traverse assessment and resource condition							Scc [*] (cu)	Pcc ^{**} (cu)	
			Total				Soil erosion (%)				Perennial vegetation (%)					
			ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor			
High	17	River	1,452	0.4	0	1	100	0	0	0	0	100	0	0	77	85
Mod. high	10	Elimunna	2,080	0.6	0	6	100	0	0	0	83	17	0	46	50	
Mod. high	9	Wona	9,666	2.6	0	7	100	0	0	0	43	14	43	212	293	
Moderate	6	Bonney	19,951	5.3	0	45	100	0	0	0	94	4	2	336	344	
Moderate	8	Macroy	2,326	0.6	0	9	100	0	0	0	100	0	0	29	29	
Moderate	8	Taylor	869	0.2	0	1	100	0	0	0	100	0	0	11	11	
Low	1	Boolaloo	958	0.3	0	0	0	0	0	0	0	0	0	10	10	
Low	4	Laterite	4,746	1.3	0	8	100	0	0	0	100	0	0	50	50	
Low	12	Pindering	2,384	0.6	0	0	0	0	0	0	0	0	0	27	28	
Low	3	Robe	4,306	1.1	0	7	100	0	0	0	86	14	0	40	41	
Low	12	Spearhole	2,545	0.7	0	4	100	0	0	0	100	0	0	23	23	
Very low	1	Capricorn	15,971	4.2	0	2	100	0	0	0	100	0	0	106	106	
Very low	11	Divide	57	^0.0	0	0	0	0	0	0	0	0	0	0	0	
Very low	1	Granitic	53,591	14.3	0	32	100	0	0	0	100	0	0	370	370	
Very low	1	McKay	13,246	3.5	0	4	100	0	0	0	100	0	0	83	83	
Very low	6	Mosquito	121,068	32.2	0	89	99	0	1	0	96	3	1	888	897	
Very low	1	Newman	2,951	0.8	0	0	0	0	0	0	0	0	0	13	14	
Very low	1	Rocklea	115,133	30.6	0	104	100	0	0	0	99	0	1	718	720	
Very low	1	Talga	2,777	0.7	0	1	100	0	0	0	100	0	0	18	18	

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition									Scc [*] (cu) (from table 2)	Pcc ^{**} (cu)
	Total		Sde [†] ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)					
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor			
High	1,452	0.4	0	1	100	0	0	0	0	100	0	77	85	
Moderately high	11,746	3.1	0	13	100	0	0	0	62	15	23	258	343	
Moderate	23,146	6.1	0	55	100	0	0	0	94	4	2	376	384	
Low	14,939	4.0	0	19	100	0	0	0	95	5	0	150	152	
Very low	324,794	86.4	0	232	100	0	0	0	98	1	1	2,196	2,208	
Total	376,077	100.0	0	320	100	0	^0	0	95	3	2	3,057	3,172	
Survey average for land systems traversed on this station					99	^0	^0	^0	93	4	3			

^ indicates minor value not reported in tables.

† Area mapped as being severely degraded and eroded.

Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

* Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

** Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 0 (0.0% of station)

Number of traverse points 320

Pastoral resource condition :

Soil erosion

% nil 100
 % minor 0
 % moderate 0
 % severe 0

Perennial vegetation

% good 95
 % fair 3
 % poor 2

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing. 3,060

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing. 3,170

BOODARIE STATION

PASTORAL LEASE 3114/618 + GRAZING RIGHTS ON 398/794

Area: About 67,384 ha (legal); 68,792 ha (computed)
Area surveyed: 77,024 ha (whole lease plus 398/794)
Land Conservation District: Roebourne-Port Hedland
Shire(s): Port Hedland Town

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
1	Hills with spinifex	2	283	0.4
8	Stony plains with spinifex	1	5,044	6.5
11	Spinifex sandplains	1	37,546	48.7
13	Alluvial plains with soft spinifex	2	19,187	24.9
17	River plains with woodlands and tussock grasses	2	13,461	17.5
19	Coastal plains, dunes, mudflats and beaches	2	737	1.0
	River bed	1	766	1.0

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		No. of traverse points [#]	Traverse assessment and resource condition								Scc [*] (cu)	Pcc ^{**} (cu)
			Total			Soil erosion (%)				Perennial vegetation (%)					
			ha	%		Sde ⁻ ha	Nil	Minor	Mod.	Severe	Good	Fair	Poor		
Very high	17	Yamerina	5,955	7.7	0	18	88	6	0	6	66	28	6	409	496
High	13	Paradise	1,147	1.5	0	4	25	25	50	0	25	25	50	22	37
High	17	River	7,506	9.7	0	11	100	0	0	0	100	0	0	442	442
Moderate	19	Cheerawarra	80	0.1	0	1	100	0	0	0	0	100	0	1	1
Moderate	8	Macroy	5,044	6.5	0	3	100	0	0	0	33	67	0	62	63
Moderate	13	Mallina	18,040	23.5	0	22	86	5	9	0	77	14	9	249	269
Low	11	Uaroo	37,546	48.8	0	77	97	3	0	0	90	6	4	427	442
Very low	19	Littoral	657	0.9	0	0	0	0	0	0	0	0	0	3	3
Very low	1	Ruth	98	0.1	0	0	0	0	0	0	0	0	0	1	1
Very low	1	Talga	185	0.2	0	0	0	0	0	0	0	0	0	1	1
Nil		River bed	766	1.0	0	0	0	0	0	0	0	0	0	0	0

Table 3. Pastoral resource summary

Pastoral potential	Area		Traverse assessment and resource condition										Scc [*] (cu) (from table 2)	Pcc ^{**} (cu)
	Total		Sde [~] ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)					
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor			
Very high	5,955	7.7	0	18	88	6	0	6	66	28	6	409	496	
High	8,653	11.2	0	15	80	7	13	0	80	7	13	464	479	
Moderate	23,164	30.1	0	26	88	4	8	0	69	23	8	312	333	
Low	37,546	48.8	0	77	97	3	0	0	90	6	4	427	442	
Very low	940	1.2	0	0	0	0	0	0	0	0	0	5	5	
Nil	766	1.0	0	0	0	0	0	0	0	0	0	0	0	
Total	77,024	100.0	0	136	92	4	3	1	81	13	6	1,617	1,755	
Survey average for land systems traversed on this station					91	6	2	1	85	10	5			

[^] indicates minor value not reported in tables.

[~] Area mapped as being severely degraded and eroded.

[#] Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

^{*} Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

^{**} Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 0 (0.0% of station)

Number of traverse points 136

Pastoral resource condition :

Soil erosion

% nil	92
% minor	4
% moderate	3
% severe	1

Perennial vegetation

% good	81
% fair	13
% poor	6

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing.

1,620

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing.

1,760

COOLAWANYAH STATION

PASTORAL LEASE 3114/1228 + PART RESERVE 38991

Area:	About 177,131 ha (legal); 178,373 ha (computed)
Area surveyed:	309,142 ha (whole lease plus part reserve 38991)
Land Conservation District:	Roebourne-Port Hedland
Shire(s):	Ashburton

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
1	Hills with spinifex	4	83,306	26.9
3	Plateaux and breakaways with spinifex	2	3,352	1.1
5	Dissected plains with spinifex	2	1,870	0.6
6	Stony plains and hills with spinifex	1	5,742	1.9
8	Stony plains with spinifex	2	60,286	19.6
9	Stony gilgai plains with tussock grasses and spinifex	1	16,644	5.4
10	Stony plains with acacia shrublands	1	9,696	3.1
12	Mulga hardpan plains	1	10,306	3.3
13	Alluvial plains with soft spinifex	1	44,213	14.3
14	Alluvial plains with tussock grasses or shrublands	1	19,128	6.2
15	Snakewood alluvial plains	1	20,065	6.5
17	River plains with woodlands and tussock grasses	2	21,113	6.8
18	Calcrete plains with shrublands or spinifex	1	13,421	4.3

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		Traverse assessment and resource condition							Scc [*] (cu)	Pcc ^{**} (cu)		
			Total	Sde [†]	No. of traverse points [#]	Soil erosion (%)				Perennial vegetation (%)					
						ha	%	ha	Nil	Minor	Mod.			Severe	Good
High	14 Brockman		19,128	6.2	0	39	94	3	3	0	52	15	33	712	1,007
High	17 Coolibah		4,289	1.4	0	11	100	0	0	0	50	25	25	170	238
High	15 Hooley		20,065	6.5	0	56	95	5	0	0	64	18	18	701	872
High	12 Jurrawarrina		10,306	3.3	97	17	100	0	0	0	82	6	12	384	429
High	10 Kanjenjie		9,696	3.1	0	21	100	0	0	0	76	14	10	422	485
High	17 River		16,823	5.4	0	34	97	3	0	0	73	9	18	837	990
Mod. high	9 Wona		16,644	5.4	0	28	100	0	0	0	54	14	32	375	504
Moderate	6 Bonney		5,742	1.9	0	0	0	0	0	0	0	0	0	97	99
Moderate	8 Boolgeeda		58,350	18.9	0	41	100	0	0	0	95	5	0	719	729
Moderate	8 Satirist		1,936	0.6	0	7	100	0	0	0	100	0	0	32	32
Moderate	13 Urandy		44,213	14.3	0	62	100	0	0	0	98	0	2	769	776
Low	18 Calcrete		13,421	4.3	0	50	100	0	0	0	94	6	0	147	149
Low	3 Robe		341	0.1	0	0	0	0	0	0	0	0	0	3	3
Very low	1 Capricorn		1,799	0.6	0	0	0	0	0	0	0	0	0	12	12
Very low	5 Egerton		860	0.3	0	2	100	0	0	0	100	0	0	7	7
Very low	3 Kumina		3,011	1.0	0	0	0	0	0	0	0	0	0	23	23
Very low	1 McKay		25,153	8.1	0	2	100	0	0	0	100	0	0	156	157
Very low	1 Newman		46,672	15.2	0	7	100	0	0	0	100	0	0	217	217
Very low	5 Platform		1,010	0.3	0	0	0	0	0	0	0	0	0	7	7
Very low	1 Rocklea		9,682	3.1	0	9	100	0	0	0	78	0	22	58	61

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition									
	Total		Sde ⁻ ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)			Scc ⁺ (cu) (from table 2)	Pcc ^{**} (cu)
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor		
High	80,308	26.0	97	178	96	3	1	0	66	14	20	3,226	4,021
Moderately high	16,644	5.4	0	28	100	0	0	0	54	14	32	375	504
Moderate	110,241	35.6	0	110	100	0	0	0	96	3	1	1,617	1,636
Low	13,762	4.5	0	50	0	0	0	0	94	6	0	150	152
Very low	88,187	28.5	0	20	100	0	0	0	90	0	10	480	484
Total	309,142	100.0	97	386	98	1	^0	0	79	9	12	5,848	6,797
Survey average for land systems traversed on this station					95	3	1	1	71	13	16		

[^] indicates minor value not reported in tables.

⁻ Area mapped as being severely degraded and eroded.

[#] Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

⁺ Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

^{**} Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 97 (^0.0% of station)

Number of traverse points 386

Pastoral resource condition :

Soil erosion

% nil 98

% minor 1

% moderate ^0

% severe 0

Perennial vegetation

% good 79

% fair 9

% poor 12

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing.

5,850

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing.

6,800

COONGAN STATION

PASTORAL LEASE 3114/1061 + GRAZING RIGHTS ON 398/716

Area: About 180,341 ha (legal); 180,409 ha (computed)
 Area surveyed: 184,909 (whole lease plus 398/716)
 Land Conservation District: De Grey
 Shire(s): East Pilbara

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
1	Hills with spinifex	4	11,858	6.4
8	Stony plains with spinifex	3	15,511	8.4
11	Spinifex sandplains	1	77,512	42.0
13	Alluvial plains with soft spinifex	2	60,883	32.9
14	Alluvial plains with tussock grasses or shrublands	1	3,007	1.6
17	River plains with woodlands and tussock grasses	1	12,643	6.8
18	Calcrete plains with shrublands or spinifex	1	1,130	0.6
	River bed	1	2,365	1.3

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		Traverse assessment and resource condition										Scc [*] (cu)	Pcc ^{**} (cu)
			Total	Sde [~]	No. of traverse points [#]	Soil erosion (%)				Perennial vegetation (%)						
						ha	%	ha	Nil	Minor	Mod.	Severe	Good	Fair		
High	14	Horseflat	3,007	1.6	0	0	0	0	0	0	0	0	0	0	110	158
High	13	Paradise	20,271	11.0	0	14	65	21	7	7	57	29	14	507	654	
High	17	River	12,643	6.8	0	11	91	0	0	9	73	18	9	637	744	
Moderate	8	Boolgeeda	6,758	3.6	0	11	100	0	0	0	91	9	0	82	84	
Moderate	8	Macroy	7,511	4.1	0	1	100	0	0	0	100	0	0	92	94	
Moderate	13	Mallina	40,612	22.0	0	70	84	16	0	0	76	14	10	553	606	
Low	1	Boolaloo	25	0.0	0	0	0	0	0	0	0	0	0	0	0	
Low	18	Calcrete	1,130	0.6	0	0	0	0	0	0	0	0	0	12	13	
Low	8	Pyramid	1,242	0.7	0	1	100	0	0	0	100	0	0	15	15	
Low	11	Uaroo	77,512	41.9	0	75	96	3	1	0	89	11	0	887	912	
Very low	1	Capricorn	1,476	0.8	0	0	0	0	0	0	0	0	0	10	10	
Very low	1	Rocklea	663	0.4	0	0	0	0	0	0	0	0	0	4	4	
Very low	1	Talga	9,694	5.2	0	6	100	0	0	0	100	0	0	63	63	
Nil		River bed	2,365	1.3	0	0	0	0	0	0	0	0	0	0	0	

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition									Scc [*] (cu) (from table 2)	Pcc ^{**} (cu)
	Total		Sde [†] ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)					
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor			
High	35,921	19.4	0	25	76	12	4	8	64	24	12	1,254	1,556	
Moderate	54,881	29.7	0	82	87	13	0	0	78	13	9	727	784	
Low	79,909	43.2	0	76	96	3	1	0	89	11	0	914	940	
Very low	11,833	6.4	0	6	100	0	0	0	100	0	0	77	77	
Nil	2,365	1.3	0	0	0	0	0	0	0	0	0	0	0	
Total	184,909	100.0	0	189	90	8	1	1	82	13	5	2,972	3,357	
Survey average for land systems traversed on this station					91	7	2	^0	84	11	5			

[^] indicates minor value not reported in tables.

[†] Area mapped as being severely degraded and eroded.

[#] Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

^{*} Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

^{**} Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 0 (0.0% of station)

Number of traverse points 189

Pastoral resource condition :

Soil erosion

% nil 90

% minor 8

% moderate 1

% severe 1

Perennial vegetation

% good 82

% fair 13

% poor 5

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing.

2,970

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing.

3,360

CORUNNA DOWNS STATION

PASTORAL LEASE 3114/745 + PART 3114/1275 (MEENTHEENA P.L.)*

Area:	About 146,513 ha (legal); 147,844 ha (computed)
Area surveyed:	214,698 ha
Land Conservation District:	De Grey
Shire(s):	East Pilbara

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
1	Hills with spinifex	6	47,185	22.0
8	Stony plains with spinifex	2	159,921	74.5
17	River plains with woodlands and tussock grasses	1	6,944	3.2
18	Calcrete plains with shrublands or spinifex	1	648	0.3

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		Sde ⁻	No. of traverse points [#]	Traverse assessment and resource condition							Pcc ^{**} (cu)	
			Total	%			Soil erosion (%)				Perennial vegetation (%)				Scc [*] (cu)
							ha	ha	Nil	Minor	Mod.	Severe	Good		
High	17	River	6,944	3.2	0	3	100	0	0	0	67	33	0	371	408
Moderate	8	Boolgeeda	635	0.3	0	0	0	0	0	0	0	0	0	7	8
Moderate	8	Macroy	159,286	74.2	0	255	99	^0	^0	0	95	4	1	1,965	1,991
Low	1	Boolaloo	439	0.2	0	0	0	0	0	0	0	0	0	4	4
Low	18	Calcrete	648	0.3	0	2	100	0	0	0	100	0	0	7	7
Very low	1	Black	2,360	1.1	0	2	100	0	0	0	100	0	0	9	9
Very low	1	Capricorn	5,419	2.5	0	0	0	0	0	0	0	0	0	36	36
Very low	1	Granitic	17,282	8.1	0	3	100	0	0	0	100	0	0	119	119
Very low	1	Rocklea	19,489	9.1	0	15	100	0	0	0	100	0	0	122	122
Very low	1	Talga	2,196	1.0	0	3	100	0	0	0	100	0	0	14	14

* The adjacent Meentheena pastoral lease block, at the time of reporting, has been sub-divided with about 67,900 ha being amalgamated with Corunna Downs and the balance being converted to Conservation Reserve. Corunna Downs pastoral lease was originally about 146,513 ha giving a new legal area of about 214,400 ha.

Table 3. Pastoral resource summary

Pastoral potential	Area		Sde ⁻ ha	No. of traverse points	Traverse assessment and resource condition								Scc [*] (cu) (from table 2)	Pcc ^{**} (cu)
	Total				Soil erosion(%)				Perennial vegetation (%)					
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor			
High	6,944	3.2	0	3	100	0	0	0	67	33	0	371	408	
Moderate	159,921	74.5	0	255	99	^0	^0	0	96	4	1	1,972	1,199	
Low	1,087	0.5	0	2	0	0	0	0	100	0	0	11	11	
Very low	46,746	21.8	0	23	100	0	0	0	100	0	0	300	300	
Total	214,698	100.0	0	283	99	^0	^0	0	95	4	1	2,654	2,718	
Survey average for land systems traversed on this station					98	1	^0	0	95	4	1			

^ indicates minor value not reported in tables.

- Area mapped as being severely degraded and eroded.

Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

* Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

** Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 0 (0.0% of station)

Number of traverse points 283

Pastoral resource condition :

Soil erosion

% nil 99
% minor ^0
% moderate ^0
% severe 0

Perennial vegetation

% good 95
% fair 4
% poor 1

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing.

2,650

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing.

2,720

DE GREY STATION

PASTORAL LEASE 3114/1142

Area: About 380,018 ha (legal); 376,286 ha (computed)
Area surveyed: Whole lease
Land Conservation District: De Grey
Shire(s): East Pilbara; Port Hedland Town

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
1	Hills with spinifex	3	14,610	3.9
3	Plateaux and breakaways with spinifex	2	2,279	0.6
5	Dissected plains with spinifex	1	392	0.1
8	Stony plains with spinifex	2	21,730	5.8
11	Spinifex sandplains	3	100,520	26.7
13	Alluvial plains with soft spinifex	2	87,377	23.2
14	Alluvial plains with tussock grasses or shrublands	1	18,757	5.0
17	River plains with woodlands and tussock grasses	2	96,064	25.5
19	Coastal plains, dunes, mudflats and beaches	4	29,355	7.8
	River bed	1	5,202	1.4

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		No. of traverse points*	Traverse assessment and resource condition							Scc* (cu)	Pcc** (cu)	
			Total			Soil erosion (%)				Perennial vegetation (%)					
			ha	%		ha	Nil	Minor	Mod.	Severe	Good	Fair			Poor
Very high	19 Anna		13,579	3.6	0	36	97	3	0	0	94	6	0	1,320	1,358
Very high	19 Eighty Mile		10,873	2.9	0	19	100	0	0	0	100	0	0	1,305	1,359
Very high	17 Yamerina		51,967	13.8	0	56	77	14	5	4	80	9	11	3,684	4331
High	14 Horseflat		18,757	5.0	0	30	70	20	7	3	66	27	7	814	987
High	13 Paradise		68,050	18.1	1,167	85	54	35	6	5	54	33	13	1,705	2,195
High	17 River		44,097	11.7	0	64	89	8	3	0	87	11	2	2,435	2,594
Moderate	8 Boolgeeda		2,461	0.7	0	0	0	0	0	0	0	0	0	30	31
Moderate	19 Cheerawarra		1,869	0.5	0	0	0	0	0	0	0	0	0	27	31
Moderate	8 Macroy		19,269	5.1	0	8	100	0	0	0	100	0	0	237	241
Moderate	13 Mallina		19,327	5.1	0	11	64	27	9	0	64	27	9	266	288
Moderate	11 Nita		21,999	5.8	0	18	100	0	0	0	89	11	0	355	367
Low	5 Billygoat		392	0.1	0	0	0	0	0	0	0	0	0	3	3
Low	1 Boolaloo		2,976	0.8	0	0	0	0	0	0	0	0	0	30	30
Low	3 Callawa		2,272	0.6	0	1	100	0	0	0	100	0	0	22	22
Low	11 Little Sandy		9,662	2.6	0	0	0	0	0	0	0	0	0	87	88
Low	3 Robe		7	0.0	0	0	0	0	0	0	0	0	0	0	0
Low	11 Uaroo		68,859	18.3	0	60	98	2	0	0	98	2	0	807	810
Very low	1 Capricorn		11,459	3.0	0	1	100	0	0	0	100	0	0	76	76
Very low	19 Littoral		3,034	0.8	0	13	100	0	0	0	92	0	8	13	13
Very low	1 Ruth		175	0.0	0	2	100	0	0	0	100	0	0	1	1
Nil	River bed		5,202	1.4	0	0	0	0	0	0	0	0	0	0	0

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition										Scc [^] (cu) (from table 2)	Pcc ^{''} (cu)
	Total		Sde ⁻ ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)						
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor				
Very high	76,419	20.3	0	111	87	8	3	2	89	6	5	6,309	7,048		
High	130,904	34.8	1,167	179	69	23	5	3	68	24	8	4,954	5,776		
Moderate	64,925	17.3	0	37	89	8	3	0	83	14	3	915	958		
Low	84,168	22.3	0	61	98	2	0	0	98	2	0	949	953		
Very low	14,668	3.9	0	16	94	6	0	0	100	0	0	90	90		
Nil	5,202	1.4	0	0	0	0	0	0	0	0	0	0	0		
Total	376,286	100.0	1,167	404	82	13	3	2	81	14	5	13,217	14,825		
Survey average for land systems traversed on this station					84	11	3	2	76	14	10				

[^] indicates minor value not reported in tables.

⁻ Area mapped as being severely degraded and eroded.

^{*} Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

^{*} Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

^{''} Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 1,167 (0.3% of station)

Number of traverse points 404

Pastoral resource condition :

Soil erosion

% nil	82
% minor	13
% moderate	3
% severe	2

Perennial vegetation

% good	81
% fair	14
% poor	5

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing.

13,220

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing.

14,830

EGINBAH STATION

PASTORAL LEASE 3114/1244

Area:	About 224,775 ha (legal); 225,528 ha (computed)
Area surveyed:	Whole lease
Land Conservation District:	De Grey
Shire(s):	East Pilbara

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
1	Hills with spinifex	6	134,881	59.8
6	Stony plains and hills with spinifex	1	1,236	0.5
8	Stony plains with spinifex	5	64,727	28.7
11	Spinifex sandplains	1	1,317	0.6
13	Alluvial plains with soft spinifex	1	9,525	4.2
17	River plains with woodlands and tussock grasses	1	12,136	5.4
18	Calcrete plains with shrublands or spinifex	1	1,520	0.7
	Mining	1	186	0.1

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		Traverse assessment and resource condition										
			Total		Sde [†]	No. of traverse points [‡]	Soil erosion (%)				Perennial vegetation (%)			Scc ^{††} (cu)	Pcc ^{††} (cu)
			ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor		
High	17	River	12,136	5.4	0	8	100	0	0	0	87	13	0	648	714
Moderate	6	Bonney	1,236	0.5	0	7	100	0	0	0	100	0	0	21	21
Moderate	8	Boolgeeda	9,645	4.3	0	20	100	0	0	0	95	0	5	118	121
Moderate	8	Macroy	50,615	22.4	0	65	98	2	0	0	94	6	0	622	633
Moderate	13	Mallina	9,525	4.2	0	30	83	7	10	0	80	13	7	132	142
Moderate	8	Satirist	1,241	0.6	0	0	0	0	0	0	0	0	0	19	20
Moderate	8	Taylor	2,668	1.2	0	2	100	0	0	0	100	0	0	33	33
Low	1	Boolaloo	144	0.1	0	0	0	0	0	0	0	0	0	1	1
Low	18	Calcrete	1,520	0.7	0	5	100	0	0	0	80	0	20	16	17
Low	8	Pyramid	558	0.2	0	2	100	0	0	0	100	0	0	7	7
Low	11	Uaroo	1,317	0.6	0	0	0	0	0	0	0	0	0	15	15
Very low	1	Black	479	0.2	0	4	100	0	0	0	100	0	0	2	2
Very low	1	Capricorn	24,110	10.7	0	14	100	0	0	0	100	0	0	161	161
Very low	1	Granitic	9,226	4.1	0	0	0	0	0	0	0	0	0	64	64
Very low	1	Rocklea	81,544	36.1	0	61	100	0	0	0	97	3	0	507	510
Very low	1	Talga	19,378	8.6	0	3	100	0	0	0	67	33	0	125	125
Nil		Mining	186	0.1	0	0	0	0	0	0	0	0	0	0	0

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition									Scc [*] (cu) (from table 2)	Pcc ^{**} (cu)
	Total		Sde ⁻ ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)					
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor			
High	12,136	5.4	0	8	100	0	0	0	87	13	0	648	714	
Moderate	74,930	33.2	0	124	96	2	2	0	91	6	3	945	970	
Low	3,539	1.6	0	7	100	0	0	0	86	14	0	39	40	
Very low	134,737	59.7	0	82	100	0	0	0	96	4	0	859	862	
Nil	186	0.1	0	0	0	0	0	0	0	0	0	0	0	
Total	225,528	100.0	0	221	98	1	1	0	93	5	2	2,491	2,586	
Survey average for land systems traversed on this station					97	2	1	0	93	5	2			

[^] indicates minor value not reported in tables.

⁻ Area mapped as being severely degraded and eroded.

[#] Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

^{*} Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

^{**} Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 0 (0.0% of station)

Number of traverse points 221

Pastoral resource condition :

Soil erosion

% nil 98

% minor 1

% moderate 1

% severe 0

Perennial vegetation

% good 93

% fair 5

% poor 2

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing.

2,490

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing.

2,590

ETHEL CREEK STATION

PASTORAL LEASE 3114/992

Area:	About 373,692 ha (legal); 371,916 ha (computed)
Area surveyed:	Whole lease
Land Conservation District:	East Pilbara
Shire(s):	East Pilbara; Meekatharra

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
1	Hills with spinifex	4	21,344	5.7
2	Hills with acacia shrublands	1	5,880	1.6
4	Plateaux and breakaways with acacia shrublands	1	274	0.1
5	Dissected plains with spinifex	2	2,361	0.6
6	Stony plains and hills with spinifex	1	2,819	0.8
7	Stony plains and low hills with acacia shrublands	1	19,532	5.3
8	Stony plains with spinifex	1	9,327	2.5
10	Stony plains with acacia shrublands	2	13,272	3.6
11	Spinifex sandplains	1	112,891	30.3
12	Mulga hardpan plains	6	74,013	19.9
14	Alluvial plains with tussock grasses or shrublands	2	23,387	6.3
17	River plains with woodlands and tussock grasses	4	86,107	23.1
18	Calcrete plains with shrublands or spinifex	2	709	0.2

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		Traverse assessment and resource condition											
			Total ha	Sde [†] %	No. of traverse points [#]	Soil erosion (%)				Perennial vegetation (%)			Scc [*] (cu)	Pcc ^{**} (cu)		
						Nil	Minor	Mod.	Severe	Good	Fair	Poor				
High	14 Brockman		5,898	1.6	72	7	100	0	0	0	0	0	14	86	208	310
High	17 Coolibah		10,202	2.7	330	24	71	4	17	8	4	21	75	225	567	
High	17 Fortescue		32,188	8.6	221	86	58	23	12	7	19	22	59	830	1,609	
High	17 River		9,132	2.5	0	8	100	0	0	0	49	38	13	400	537	
Mod. high	14 Balfour		17,489	4.7	0	19	63	26	11	0	0	0	100	281	397	
Mod. high	10 Elimunna		5,479	1.5	0	18	100	0	0	0	56	33	11	105	130	
Mod. high	17 Jigalong		34,585	9.3	190	43	74	12	7	7	7	19	74	445	865	
Moderate	8 Boolgeeda		9,327	2.5	0	16	100	0	0	0	62	25	13	101	117	
Moderate	12 Fan		14,824	4.0	0	0	0	0	0	0	0	0	0	178	275	
Moderate	7 Prairie		19,532	5.3	0	16	94	6	0	0	81	13	6	241	257	
Moderate	10 Sylvania		7,793	2.1	0	4	100	0	0	0	25	75	0	87	113	
Moderate	18 Warri		335	0.1	0	0	0	0	0	0	0	0	0	4	6	
Moderate	12 Washplain		32,707	8.7	1,250	32	68	3	16	13	19	16	65	364	641	
Low	5 Billygoat		455	0.1	0	0	0	0	0	0	0	0	0	4	4	
Low	18 Calcrete		374	0.1	0	0	0	0	0	0	0	0	0	4	4	
Low	12 Jamindie		283	0.1	0	0	0	0	0	0	0	0	0	4	4	
Low	4 Laterite		274	0.1	0	0	0	0	0	0	0	0	0	2	3	
Low	12 Nooingnin		6,952	1.9	0	13	100	0	0	0	31	23	46	55	70	
Low	12 Spearhole		19,180	5.1	0	38	100	0	0	0	58	37	5	160	174	
Low	12 Zebra		67	0.0	0	0	0	0	0	0	0	0	0	1	1	
Very low	6 Adrian		2,819	0.8	0	0	0	0	0	0	0	0	0	16	17	
Very low	11 Divide		112,891	30.4	0	15	100	0	0	0	93	7	0	890	903	
Very low	2 Charley		5,880	1.6	0	0	0	0	0	0	0	0	0	37	39	
Very low	5 Egerton		1,906	0.5	0	0	0	0	0	0	0	0	0	15	15	
Very low	1 McKay		180	0.0	0	0	0	0	0	0	0	0	0	1	1	
Very low	1 Newman		14,518	3.9	0	1	100	0	0	0	100	0	0	68	68	
Very low	1 Robertson		3,401	0.9	0	0	0	0	0	0	0	0	0	21	21	
Very low	1 Rocklea		3,245	0.9	0	0	0	0	0	0	0	0	0	19	20	

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition										Scc [†] (cu) (from table 2)	Pcc ^{**} (cu)
	Total		Sde [‡] ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)						
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor				
High	57,420	15.4	623	125	66	17	11	6	17	22	61	1,663	3,023		
Moderately high	57,553	15.5	190	80	77	13	6	4	16	18	66	831	1,392		
Moderate	84,801	22.8	1,250	68	84	3	7	6	44	21	35	975	1,409		
Low	27,302	7.3	0	51	100	0	0	0	51	33	16	230	260		
Very low	144,840	39.0	0	16	100	0	0	0	94	6	0	1,076	1,084		
Total	371,916	100.0	2,063	340	79	10	7	4	31	22	47	4,766	7,168		
Survey average for land systems traversed on this station					81	10	5	4	41	21	38				

[^] indicates minor value not reported in tables.

[‡] Area mapped as being severely degraded and eroded.

[#] Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

[†] Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

^{**} Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 2,063 (0.6% of station)

Number of traverse points 340

Pastoral resource condition :

Soil erosion

% nil 79

% minor 10

% moderate 7

% severe 4

Perennial vegetation

% good 31

% fair 22

% poor 47

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing.

4,770

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing.

7,170

HAMERSLEY STATION

PASTORAL LEASE 3114/1277

Area:	About 299,917 ha (legal); 299,497 ha (computed)
Area surveyed:	Whole lease
Land Conservation District:	Ashburton
Shire(s):	Ashburton

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
1	Hills with spinifex	3	111,713	37.2
2	Hills with acacia shrublands	1	14,256	4.8
3	Plateaux and breakaways with spinifex	1	6,212	2.1
4	Plateaux and breakaways with acacia shrublands	1	188	0.1
5	Dissected plains with spinifex	2	2,461	0.8
8	Stony plains with spinifex	1	63,598	21.2
9	Stony gilgai plains with tussock grasses and spinifex	1	2,054	0.7
10	Stony plains with acacia shrublands	1	22,176	7.4
12	Mulga hardpan plains	5	32,838	11.0
14	Alluvial plains with tussock grasses or shrublands	1	18,356	6.1
15	Snakewood alluvial plains	1	21,873	7.3
17	River plains with woodlands and tussock grasses	1	210	0.1
18	Calcrete plains with shrublands or spinifex	1	3,562	1.2

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		Traverse assessment and resource condition										
			Total	Sde ⁻	No. of traverse points [#]	Soil erosion (%)				Perennial vegetation (%)			Scc [*] (cu)	Pcc ^{**} (cu)	
						ha	%	ha	Nil	Minor	Mod.	Severe			Good
High	14 Brockman		18,356	6.1	0	48	98	0	0	2	60	19	21	745	966
High	15 Hooley		21,873	7.3	173	30	97	0	0	3	37	13	50	636	951
High	12 Jurrawarrina		16,074	5.4	0	26	73	15	4	8	50	12	38	469	670
High	17 River		210	0.1	0	0	0	0	0	0	0	0	0	11	12
Mod. high	10 Paraburdoo		22,176	7.4	0	26	92	0	8	0	62	23	15	511	634
Mod. high	12 Wannamunna		901	0.3	0	0	0	0	0	0	0	0	0	14	20
Mod. high	9 Wona		2,054	0.7	0	1	100	0	0	0	100	0	0	46	62
Moderate	8 Boolgeeda		63,598	21.2	0	55	100	0	0	0	96	2	2	784	795
Moderate	2 Marandoo		14,256	4.8	0	7	100	0	0	0	57	43	0	167	195
Low	12 Nooingnin		6,187	2.1	0	0	0	0	0	0	0	0	0	52	62
Low	18 Calcrete		3,562	1.2	0	4	100	0	0	0	50	50	0	34	40
Low	12 Pindering		8,455	2.7	0	25	100	0	0	0	84	8	8	94	99
Low	3 Robe		6,212	2.1	0	0	0	0	0	0	0	0	0	58	59
Low	12 Spearhole		1,221	0.4	0	0	0	0	0	0	0	0	0	10	11
Low	4 Table		188	0.1	0	0	0	0	0	0	0	0	0	2	2
Very low	5 Egerton		595	0.2	0	0	0	0	0	0	0	0	0	5	5
Very low	1 McKay		4,621	1.5	0	0	0	0	0	0	0	0	0	29	29
Very low	1 Newman		46,606	15.6	0	10	100	0	0	0	100	0	0	217	217
Very low	5 Platform		1,866	0.6	0	0	0	0	0	0	0	0	0	14	14
Very low	1 Rocklea		60,486	20.2	0	1	100	0	0	0	0	100	0	375	378

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition									
	Total		Sde [~]	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)			Scc [^] (cu) (from table 2)	Pcc ^{**} (cu)
	ha	%	ha		Nil	Minor	Mod.	Severe	Good	Fair	Poor		
High	56,513	18.9	173	104	91	4	1	4	51	15	34	1,861	2,599
Moderately high	25,131	8.4	0	27	93	0	7	0	63	22	15	571	716
Moderate	77,854	26.0	0	62	100	0	0	0	92	6	2	951	990
Low	25,825	8.6	0	29	100	0	0	0	79	14	7	250	273
Very low	114,174	38.1	0	11	100	0	0	0	91	9	0	640	643
Total	299,497	100.0	173	233	95	2	1	2	69	13	18	4,273	5,221
Survey average for land systems traversed on this station					93	3	2	2	65	15	20		

[^] indicates minor value not reported in tables.

[~] Area mapped as being severely degraded and eroded.

[#] Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

[^] Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

^{**} Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 173 (0.1% of station)

Number of traverse points 233

Pastoral resource condition :

Soil erosion

% nil 95

% minor 2

% moderate 1

% severe 2

Perennial vegetation

% good 69

% fair 13

% poor 18

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing.

4,270

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing.

5,220

HILLSIDE STATION

PASTORAL LEASE 3114/1265 + GRAZING RIGHTS ON RESERVE 10977

Area:	About 405,800 ha (legal);406,161 ha (computed)
Area surveyed:	428,253 ha (whole lease plus reserve 10977)
Land Conservation District:	De Grey
Shire(s):	East Pilbara

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	(% of station)
1	Hills with spinifex	8	185,690	43.5
3	Plateaux and breakaways with spinifex	1	3,192	0.7
6	Stony plains and hills with spinifex	1	7,305	1.7
8	Stony plains with spinifex	1	172,244	40.2
9	Stony gilgai plains with tussock grasses and spinifex	2	11,067	2.6
12	Mulga hardpan plains	1	9,937	2.3
14	Alluvial plains with tussock grasses or shrublands	1	2,785	0.7
15	Snakewood alluvial plains	2	4,405	1.0
17	River plains with woodlands and tussock grasses	1	7,901	1.8
18	Calcrete plains with shrublands or spinifex	2	2,049	0.5
20	Lake country with halophytic shrublands	1	21,185	4.9
	Mining	1	493	0.1

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		Sde ⁺ ha	No. of traverse points [#]	Traverse assessment and resource condition							Soil erosion (%)	Perennial vegetation (%)	Scc ⁺ (cu)	Pcc ⁺⁺ (cu)
			Total ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor				
High	17	River	7,901	1.8	0	1	100	0	0	0	100	0	0	422	465		
Mod. high	15	Marillana	203	0.0	0	3	100	0	0	0	100	0	0	5	5		
Mod. high	20	Marsh	21,185	4.9	0	1	100	0	0	0	100	0	0	392	471		
Mod. high	14	Turee	2,785	0.7	0	7	100	0	0	0	29	29	42	51	80		
Mod. high	9	Wona	10,440	2.4	0	1	100	0	0	0	0	0	100	230	316		
Moderate	6	Bonney	7,305	1.7	0	18	100	0	0	0	100	0	0	126	126		
Moderate	15	Cowra	4,202	1.0	0	6	100	0	0	0	33	50	17	59	79		
Moderate	12	Jamindie	9,937	2.3	0	7	100	0	0	0	86	14	0	100	124		
Moderate	8	Macroy	172,244	40.3	0	212	100	0	0	0	96	4	0	2,131	2,153		
Moderate	18	Warri	370	0.1	0	0	0	0	0	0	0	0	0	4	6		
Moderate	9	White Springs	627	0.1	0	0	0	0	0	0	0	0	0	11	12		
Low	1	Boolaloo	4,173	1.0	0	1	100	0	0	0	100	0	0	42	42		
Low	18	Calcrete	1,679	0.4	0	1	100	0	0	0	100	0	0	18	19		
Low	3	Robe	3,192	0.7	0	5	100	0	0	0	100	0	0	30	30		
Very low	1	Black	5,615	1.3	0	2	100	0	0	0	100	0	0	21	21		
Very low	1	Capricorn	363	0.1	0	0	0	0	0	0	0	0	0	2	2		
Very low	1	Granitic	50,975	11.9	0	3	100	0	0	0	67	33	0	351	352		
Very low	1	McKay	46,097	10.9	0	6	100	0	0	0	83	17	0	286	288		
Very low	1	Newman	7,473	1.7	0	3	100	0	0	0	67	0	33	33	35		
Very low	1	Rocklea	59,494	13.9	0	30	97	3	0	0	87	3	10	363	372		
Very low	1	Talga	11,500	2.7	0	2	100	0	0	0	100	0	0	74	74		
Nil		Mining	493	0.1	0	0	0	0	0	0	0	0	0	0	0		

Table 3. Pastoral resource summary

Pastoral potential	Area		Traverse assessment and resource condition										Scc [*] (cu) (from table 2)	Pcc ^{**} (cu)
	Total		Sde [~] ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)					
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor			
High	7,901	1.8	0	1	100	0	0	0	100	0	0	422	465	
Moderately high	34,613	8.1	0	12	100	0	0	0	58	17	25	678	872	
Moderate	194,685	45.5	0	243	100	0	0	0	95	5	0	2,431	2,500	
Low	9,044	2.1	0	7	100	0	0	0	100	0	0	90	91	
Very low	181,517	42.4	0	46	98	2	0	0	84	7	9	1,130	1,144	
Nil	493	0.1	0	0	0	0	0	0	0	0	0	0	0	
Total	428,253	100.0	0	309	100	^0	0	0	91	6	3	4,751	5,072	
Survey average for land systems traversed on this station					98	2	^0	0	90	6	4			

^ indicates minor value not reported in tables.

~ Area mapped as being severely degraded and eroded.

Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

* Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

** Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 0 (0.0% of station)

Number of traverse points 309

Pastoral resource condition :

Soil erosion

% nil 100

% minor ^0

% moderate 0

% severe 0

Perennial vegetation

% good 91

% fair 6

% poor 3

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing.

4,750

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing.

5,070

HOOLEY STATION

PASTORAL LEASE 3114/1173

Area:	About 171,004 ha (legal); 170,272 ha (computed)
Area surveyed:	Whole lease
Land Conservation District:	Roebourne-Port Hedland
Shire(s):	Ashburton

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
1	Hills with spinifex	5	73,832	43.4
3	Plateaux and breakaways with spinifex	1	1,092	0.6
5	Dissected plains with spinifex	1	484	0.3
6	Stony plains and hills with spinifex	1	28,635	16.8
8	Stony plains with spinifex	2	7,683	4.5
9	Stony gilgai plains with tussock grasses and spinifex	1	53,259	31.3
12	Mulga hardpan plains	2	981	0.6
15	Snakewood alluvial plains	1	4,279	2.5
17	River plains with woodlands and tussock grasses	1	27	^0.0

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		Traverse assessment and resource condition										
			Total	Sde ⁻	No. of traverse points ^a	Soil erosion (%)				Perennial vegetation (%)			Scc ^c (cu)	Pcc ^d (cu)	
						ha	%	ha	Nil	Minor	Mod.	Severe			Good
High	15	Hooley	4,279	2.5	0	10	90	0	10	0	20	70	10	112	186
High	12	Jurawarrina	758	0.4	0	0	0	0	0	0	0	0	0	19	32
High	17	River	27	^0.0	0	0	0	0	0	0	0	0	0	1	2
Mod. high	9	Wona	53,259	31.3	0	71	100	0	0	0	44	28	28	1,130	1,614
Moderate	6	Bonney	28,635	16.8	0	50	100	0	0	0	94	6	0	484	494
Moderate	8	Boolgeeda	6,739	4.0	0	1	100	0	0	0	100	0	0	83	84
Moderate	12	Jamindie	223	0.1	0	0	0	0	0	0	0	0	0	1	3
Moderate	8	Macroy	944	0.6	0	0	0	0	0	0	0	0	0	11	12
Low	3	Robe	1,092	0.6	0	1	100	0	0	0	100	0	0	10	10
Very low	1	Capricorn	736	0.4	0	0	0	0	0	0	0	0	0	5	5
Very low	1	Granitic	561	0.3	0	0	0	0	0	0	0	0	0	4	4
Very low	1	McKay	31,832	18.7	0	0	0	0	0	0	0	0	0	197	199
Very low	1	Newman	594	0.3	0	0	0	0	0	0	0	0	0	3	3
Very low	5	Platform	484	0.3	0	0	0	0	0	0	0	0	0	4	4
Very low	1	Rocklea	40,109	23.6	0	6	100	0	0	0	100	0	0	249	251

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition									
	Total		Sde [~] ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)			Sc [^] (cu) (from table 2)	Pcc ^{''} (cu)
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor		
High	5,064	3.0	0	10	90	0	10	0	20	70	10	132	220
Moderately high	53,259	31.3	0	71	100	0	0	0	44	28	28	1,130	1,614
Moderate	36,541	21.5	0	51	100	0	0	0	94	6	0	579	593
Low	1,092	0.6	0	1	100	0	0	0	100	0	0	10	10
Very low	74,316	43.6	0	6	100	0	0	0	100	0	0	462	466
Total	170,272	100.0	0	139	99	0	1	0	63	22	15	2,313	2,903
Survey average for land systems traversed on this station					99	^0	^0	^0	68	14	18		

[^] indicates minor value not reported in tables.

[~] Area mapped as being severely degraded and eroded.

[#] Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

[^] Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

^{''} Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 0 (0.0% of station)

Number of traverse points 139

Pastoral resource condition :

Soil erosion

% nil 99

% minor 0

% moderate 1

% severe 0

Perennial vegetation

% good 63

% fair 22

% poor 15

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing.

2,310

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing.

2,900

INDEE STATION

PASTORAL LEASE 3114/1197

Area: About 161,477 ha (legal); 161,418 ha (computed)

Area surveyed: Whole lease

Land Conservation District: Roebourne- Port Hedland

Shire(s): Port Hedland Town

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
1	Hills with spinifex	4	10,649	6.6
3	Plateaux and breakaways with spinifex	1	1,731	1.1
8	Stony plains with spinifex	3	9,933	6.2
11	Spinifex sandplains	2	94,034	58.3
13	Alluvial plains with soft spinifex	1	30,909	19.1
17	River plains with woodlands and tussock grasses	1	10,724	6.6
18	Calcrete plains with shrublands or spinifex	1	1,974	1.2
	River bed	1	1,464	0.9

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		Sde [~] ha	No. of traverse points [#]	Traverse assessment and resource condition							Scc [†] (cu)	Pcc ^{**} (cu)
			Total				Soil erosion (%)				Perennial vegetation (%)				
			ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor		
High	17	River	10,724	6.6	0	5	100	0	0	0	80	20	0	572	631
Moderate	8	Boolgeeda	3,963	2.5	0	0	0	0	0	0	0	0	0	49	50
Moderate	8	Macroy	5,266	3.3	0	12	100	0	0	0	100	0	0	66	66
Moderate	13	Mallina	30,909	19.1	0	76	97	3	0	0	79	17	4	430	461
Moderate	8	Satirist	704	0.4	0	0	0	0	0	0	0	0	0	11	12
Low	1	Boolaloo	2,485	1.5	0	4	100	0	0	0	100	0	0	25	25
Low	18	Calcrete	1,974	1.2	0	7	100	0	0	0	100	0	0	22	22
Low	11	Gregory	3,215	2.0	0	0	0	0	0	0	0	0	0	26	29
Low	3	Robe	1,731	1.1	0	4	100	0	0	0	100	0	0	16	16
Low	11	Uaroo	90,819	56.3	0	70	100	0	0	0	97	3	0	1,044	1,068
Very low	1	Capricorn	3,796	2.4	0	1	100	0	0	0	100	0	0	25	25
Very low	1	Ruth	3,372	2.1	0	10	100	0	0	0	70	20	10	23	24
Very low	1	Talga	996	0.6	0	3	100	0	0	0	100	0	0	6	6
Nil		River bed	1,464	0.9	0	0	0	0	0	0	0	0	0	0	0

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition									
	Total		Sde [~] ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)			Scc [^] (cu) (from table 2)	Pcc ^{**} (cu)
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor		
High	10,724	6.6	0	5	100	0	0	0	80	20	0	572	631
Moderate	40,842	25.3	0	88	98	2	0	0	82	15	3	556	589
Low	100,224	62.1	0	86	100	0	0	0	98	2	0	1,133	1,160
Very low	8,164	5.1	0	14	100	0	0	0	79	14	7	54	55
Nil	1,464	0.9	0	0	0	0	0	0	0	0	0	0	0
Total	161,418	100.0	0	192	99	1	0	0	89	9	2	2,315	2,435
Survey average for land systems traversed on this station					94	5	1	0	86	10	4		

[^] indicates minor value not reported in tables.

[~] Area mapped as being severely degraded and eroded.

[#] Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

^{*} Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

^{**} Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 0 (0.0% of station)

Number of traverse points 192

Pastoral resource condition :

Soil erosion

% nil 99

% minor 1

% moderate 0

% severe 0

Perennial vegetation

% good 89

% fair 9

% poor 2

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing.

2,320

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing.

2,440

JIGALONG ABORIGINAL RESERVE

RESERVE 41265 + FORMER ROBERTSON RANGE PL 3114/659

Area:	About 281,495 ha (legal); 281,615 ha (computed)
Area surveyed:	Whole reserve
Land Conservation District:	East Pilbara
Shire(s):	East Pilbara; Meekatharra

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of reserve
1	Hills with spinifex	3	21,072	7.5
2	Hills with acacia shrublands	1	969	0.3
4	Plateaux and breakaways with acacia shrublands	2	14,241	5.1
6	Stony plains and hills with spinifex	1	424	0.2
7	Stony plains and low hills with acacia shrublands	2	13,282	4.7
8	Stony plains with spinifex	1	1,484	0.5
10	Stony plains with acacia shrublands	1	42,111	15.0
11	Spinifex sandplains	3	91,484	32.4
12	Mulga hardpan plains	6	68,384	24.3
14	Alluvial plains with tussock grasses or shrublands	1	15,561	5.5
17	River plains with woodlands and tussock grasses	3	10,050	3.6
18	Calcrete plains with shrublands or spinifex	2	2,553	0.9

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		Traverse assessment and resource condition										
			Total	Sde ⁻	No. of traverse points [#]	Soil erosion (%)				Perennial vegetation (%)			Scc [*] (cu)	Pcc ^{**} (cu)	
						ha	%	ha	Nil	Minor	Mod.	Severe			Good
High	17 Fortescue		1	0.0	0	0	0	0	0	0	0	0	0	0	0
High	17 River		558	0.2	0	3	67	33	0	0	100	0	0	33	33
Mod. high	14 Balfour		15,561	5.5	0	22	95	5	0	0	27	18	55	225	354
Mod. high	17 Jigalong		9,491	3.4	0	13	85	0	8	8	8	23	69	125	237
Moderate	8 Bootgeeda		1,484	0.5	0	3	67	33	0	0	67	0	33	16	19
Moderate	12 Cadgie		21,337	7.6	0	2	100	0	0	0	100	0	0	270	270
Moderate	12 Jamindie		29,386	10.4	0	15	100	0	0	0	80	0	20	295	367
Moderate	7 Prairie		8,162	2.9	0	0	0	0	0	0	0	0	0	87	107
Moderate	10 Sylvania		42,111	15.0	0	21	100	0	0	0	52	29	19	466	610
Moderate	18 Warri		644	0.2	0	0	0	0	0	0	0	0	0	7	11
Moderate	12 Washplain		9,931	3.5	0	10	100	0	0	0	60	20	20	158	195
Low	18 Calcrete		1,909	0.7	0	0	0	0	0	0	0	0	0	20	21
Low	7 Collier		5,120	1.8	0	0	0	0	0	0	0	0	0	48	49
Low	4 Laterite		13,545	4.8	0	9	100	0	0	0	89	11	0	138	143
Low	11 Little Sandy		40,177	14.3	0	2	100	0	0	0	100	0	0	363	365
Low	12 Nooingnin		5,069	1.8	0	2	100	0	0	0	50	50	0	42	51
Low	12 Spearhole		1,551	0.6	0	0	0	0	0	0	0	0	0	13	14
Low	4 Table		696	0.2	0	0	0	0	0	0	0	0	0	6	6
Low	12 Zebra		1,110	0.4	0	0	0	0	0	0	0	0	0	12	13
Very low	6 Adrian		424	0.2	0	0	0	0	0	0	0	0	0	2	2
Very low	11 Buckshot		8,081	2.9	0	0	0	0	0	0	0	0	0	60	60
Very low	2 Charley		969	0.3	0	0	0	0	0	0	0	0	0	6	6
Very low	11 Divide		43,226	15.3	0	22	100	0	0	0	90	5	5	339	346
Very low	1 Newman		1,405	0.5	0	0	0	0	0	0	0	0	0	6	7
Very low	1 Robertson		18,934	6.7	0	3	100	0	0	0	100	0	0	118	118
Very low	1 Talga		733	0.3	0	1	100	0	0	0	100	0	0	5	5

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition									
	Total		Sde ⁻ ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)			Scc [*] (cu) (from table 2)	Pcc ^{**} (cu)
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor		
High	559	0.2	0	3	67	33	0	0	100	0	0	33	33
Moderately high	25,052	8.9	0	35	91	3	3	3	20	20	60	350	591
Moderate	85,578	30.4	0	36	97	3	0	0	59	22	19	1,299	1,579
Low	97,623	34.6	0	28	100	0	0	0	82	7	11	642	662
Very low	72,803	25.9	0	26	100	0	0	0	92	4	4	537	546
Total	281,615	100.0	0	128	96	2	1	1	61	14	25	2,861	3,411
Survey average for land systems traversed on this reserve					90	5	3	2	55	21	24		

[^] indicates minor value not reported in tables.

⁻ Area mapped as being severely degraded and eroded.

[#] Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

^{*} Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

^{**} Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Reserve summary

Severely degraded and eroded (ha) 0 (0.0% of reserve)

Number of traverse points 128

Pastoral resource condition :

Soil erosion

% nil 96

% minor 2

% moderate 1

% severe 1

Perennial vegetation

% good 61

% fair 14

% poor 25

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the reserve is fully developed for grazing.

2,860

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the reserve is fully developed for grazing.

3,410

JUNA DOWNS STATION

PASTORAL LEASE 3114/1191

Area:	About 195,926 ha (legal); 195,902 ha (computed)
Area surveyed:	Whole lease
Land Conservation District:	East Pilbara
Shire(s):	Ashburton; East Pilbara

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
1	Hills with spinifex	3	67,206	34.3
3	Plateaux and breakaways with spinifex	2	3,809	1.9
5	Dissected plains with spinifex	1	11,269	5.8
8	Stony plains with spinifex	1	72,765	37.2
10	Stony plains with acacia shrublands	2	3,008	1.5
12	Mulga hardpan plains	3	33,532	17.1
14	Alluvial plains with tussock grasses or shrublands	1	1,178	0.6
18	Calcrete plains with shrublands or spinifex	1	3,135	1.6

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		No. of traverse points [#]	Traverse assessment and resource condition						Scc [*] (cu)	Pcc ^{**} (cu)		
			Total	Sde [~]		Soil erosion (%)				Perennial vegetation (%)					
						ha	%	ha	Nil	Minor	Mod.			Severe	Good
High	14	Brockman	1,178	0.6	0	4	100	0	0	0	0	50	50	26	62
Mod. high	10	Elimunna	1,682	0.9	0	6	100	0	0	0	17	0	83	21	40
Mod. high	10	Paraburdoo	1,326	0.7	0	5	80	20	0	0	40	0	60	25	38
Mod. high	12	Wannamunna	22,618	11.5	0	40	92	5	3	0	15	28	57	290	514
Moderate	8	Boolgeeda	72,765	37.1	0	78	100	0	0	0	91	8	1	883	910
Low	18	Calcrete	3,135	1.6	0	8	100	0	0	0	75	25	0	32	35
Low	3	Oakover	1,384	0.7	0	3	100	0	0	0	100	0	0	13	13
Low	12	Pindering	9,928	5.1	0	13	100	0	0	0	77	23	0	110	117
Low	3	Robe	2,425	1.2	0	6	100	0	0	0	100	0	0	23	23
Low	12	Spearhole	986	0.5	0	1	100	0	0	0	100	0	0	9	9
Very low	1	McKay	18,253	9.3	0	9	100	0	0	0	100	0	0	114	114
Very low	1	Newman	47,192	24.1	0	15	100	0	0	0	87	13	0	217	219
Very low	5	Platform	11,269	5.8	0	6	100	0	0	0	100	0	0	83	83
Very low	1	Rocklea	1,761	0.9	0	4	100	0	0	0	50	0	50	10	11

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition									Scc [†] (cu) (from table 2)	Pcc ^{**} (cu)
	Total		Sde [~] ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)					
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor			
High	1,178	0.6	0	4	100	0	0	0	0	50	50	26	62	
Moderately high	25,626	13.1	0	51	92	6	2	0	17	22	61	336	592	
Moderate	72,765	37.1	0	78	100	0	0	0	91	8	1	883	910	
Low	17,858	9.1	0	31	100	0	0	0	84	16	0	187	197	
Very low	78,475	40.1	0	34	100	0	0	0	88	6	6	424	427	
Total	195,902	100.0	0	198	97	2	1	0	69	13	18	1,856	2,188	
Survey average for land systems traversed on this station					98	1	1	0	80	9	11			

[^] indicates minor value not reported in tables.

[~] Area mapped as being severely degraded and eroded.

[#] Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

[†] Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

^{**} Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 0 (0.0% of station)

Number of traverse points 198

Pastoral resource condition :

Soil erosion

% nil 97

% minor 2

% moderate 1

% severe 0

Perennial vegetation

% good 69

% fair 13

% poor 18

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing.

1,860

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing.

2,190

KANGAN STATION

PASTORAL LEASE 3114/1188

Area: About 123,488 ha (legal); 123,248 ha (computed)
Area surveyed: Whole lease
Land Conservation District: Roebourne-Port Hedland
Shire(s): East Pilbara

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
1	Hills with spinifex	4	30,672	24.9
3	Plateaux and breakaways with spinifex	1	249	0.2
5	Dissected plains with spinifex	1	1,857	1.5
8	Stony plains with spinifex	2	46,566	37.7
11	Spinifex sandplains	2	37,291	30.3
17	River plains with woodlands and tussock grasses	1	6,613	5.4

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		Traverse assessment and resource condition										
			Total		Sde ⁺	No. of traverse points [#]	Soil erosion (%)				Perennial vegetation (%)			Scc ⁺ (cu)	Pcc ⁺⁺ (cu)
			ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor		
High	17	River	6,613	5.4	0	2	100	0	0	0	100	0	0	354	398
Moderate	8	Boolgeeda	4,657	3.8	0	15	100	0	0	0	100	0	0	58	58
Moderate	8	Macroy	41,909	34.0	0	52	100	0	0	0	100	0	0	524	524
Low	1	Boolaloo	21,738	17.6	0	13	100	0	0	0	100	0	0	217	217
Low	11	Gregory	1,827	1.5	0	0	0	0	0	0	0	0	0	15	17
Low	3	Robe	249	0.2	0	0	0	0	0	0	0	0	0	2	2
Low	11	Uaroo	35,464	28.7	0	26	100	0	0	0	100	0	0	408	417
Very low	1	Capricorn	6,356	5.2	0	2	100	0	0	0	100	0	0	42	42
Very low	5	Platform	1,857	1.5	0	0	0	0	0	0	0	0	0	14	14
Very low	1	Rocklea	44	0.0	0	0	0	0	0	0	0	0	0	0	0
Very low	1	Talga	2,534	2.1	0	1	100	0	0	0	100	0	0	16	16

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition									Scc [†] (cu) (from table 2)	Pcc ^{††} (cu)
	Total		Sde [‡] ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)					
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor			
High	6,613	5.4	0	2	100	0	0	0	100	0	0	354	398	
Moderate	46,566	37.8	0	67	100	0	0	0	100	0	0	582	582	
Low	59,278	48.0	0	39	100	0	0	0	100	0	0	642	653	
Very low	10,791	8.8	0	3	100	0	0	0	100	0	0	72	72	
Total	123,248	100.0	0	111	100	0	0	0	100	0	0	1,650	1,696	
Survey average for land systems traversed on this station					99	1	^0	0	94	5	1			

[^] indicates minor value not reported in tables.

[‡] Area mapped as being severely degraded and eroded.

[#] Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

[†] Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

^{††} Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 0 (0.0% of station)

Number of traverse points 111

Pastoral resource condition :

Soil erosion

% nil 100

% minor 0

% moderate 0

% severe 0

Perennial vegetation

% good 100

% fair 0

% poor 0

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing.

1,650

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing.

1,700

MANDORA STATION

PASTORAL LEASE 3114/485

Area: About 92,296 ha (legal); 90,267 ha (computed)

Area surveyed: Whole lease

Land Conservation District: De Grey

Shire(s): Broome

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
11	Spinifex sandplains	2	51,400	56.9
16	Alluvial plains with halophytic shrublands	1	5,587	6.2
19	Coastal plains, dunes, mudflats and beaches	3	33,280	36.9

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		No. of traverse points [#]	Traverse assessment and resource condition							Scc [*] (cu)	Pcc ^{**} (cu)	
			Total			Soil erosion (%)				Perennial vegetation (%)					
			ha	%		ha	Nil	Minor	Mod.	Severe	Good	Fair			Poor
Very high	19 Anna		28,469	31.5	0	61	100	0	0	0	74	16	10	2,427	2,847
Very high	19 Eighty Mile		3,792	4.2	0	15	100	0	0	0	87	13	0	441	474
High	19 Roebuck		1,019	1.1	0	0	0	0	0	0	0	0	0	51	51
Moderate	16 Mannerie		5,587	6.2	0	12	92	0	8	0	50	17	33	63	79
Moderate	11 Nita		47,898	53.1	0	9	100	0	0	0	89	11	0	772	798
Low	11 Little Sandy		3,502	3.9	0	0	0	0	0	0	0	0	0	32	32

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition									
	Total		Sde [~] ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)			Sc ^c (cu) (from table 2)	Pcc ^{**} (cu)
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor		
Very high	32,261	35.7	0	76	100	0	0	0	76	16	8	2,868	3,321
High	1,019	1.1	0	0	0	0	0	0	0	0	0	51	51
Moderate	53,485	59.3	0	21	95	0	5	0	67	14	19	835	877
Low	3,502	3.9	0	0	0	0	0	0	0	0	0	32	32
Total	90,267	100.0	0	97	99	0	1	0	75	15	10	3,786	4,281
Survey average for land systems traversed on this station					99	^0	1	0	82	12	6		

[^] indicates minor value not reported in tables.

[~] Area mapped as being severely degraded and eroded.

[#] Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

^c Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

^{**} Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 0 (0.0% of station)

Number of traverse points 97

Pastoral resource condition :

Soil erosion

% nil 99
% minor 0
% moderate 1
% severe 0

Perennial vegetation

% good 75
% fair 15
% poor 10

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing.

3,790

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing.

4,280

MARDIE STATION

PASTORAL LEASE 3114/1027

Area:	About 225,615 ha (legal); 220,135 ha (computed)
Area surveyed:	Whole lease
Land Conservation District:	Roebourne-Port Hedland
Shire(s):	Roebourne

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
1	Hills with spinifex	3	54,840	24.9
3	Plateaux and breakaways with spinifex	2	12,893	5.9
8	Stony plains with spinifex	3	21,467	9.8
10	Stony plains with acacia shrublands	1	14,366	6.5
14	Alluvial plains with tussock grasses or shrublands	1	67,298	30.5
17	River plains with woodlands and tussock grasses	3	36,677	16.7
19	Coastal plains, dunes, mudflats and beaches	3	12,594	5.7

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		No. of traverse points [#]	Traverse assessment and resource condition									
			Total	Sde [~]		Soil erosion (%)				Perennial vegetation (%)			Scc [*] (cu)	Pcc ^{**} (cu)	
						ha	%	ha	Nil	Minor	Mod.	Severe			Good
Very high	17	Yamerina	21,661	9.8	0	38	89	8	3	0	66	21	13	1,461	1,805
High	14	Horseflat	67,298	30.6	139	153	92	5	2	1	57	22	21	2,676	3,542
High	17	River	6,269	2.8	0	3	67	33	0	0	67	33	0	334	369
Mod. high	17	Cane	8,747	4.0	1,980	24	25	8	13	54	25	4	71	132	282
Mod. high	19	Onslow	9,192	4.2	770	10	60	0	0	40	30	0	70	141	248
Mod. high	10	Paraburdoo	14,366	6.5	0	31	100	0	0	0	78	16	6	365	410
Moderate	8	Boolgeeda	10,067	4.6	0	7	100	0	0	0	86	14	0	120	126
Moderate	19	Cheerawarra	2,271	1.0	0	3	0	33	67	0	0	0	100	20	37
Moderate	8	Macroy	623	0.3	0	3	100	0	0	0	100	0	0	8	8
Moderate	8	Peedamulla	10,777	4.9	0	6	100	0	0	0	66	17	17	133	146
Low	3	Nanutarra	12,517	5.7	0	0	0	0	0	0	0	0	0	114	119
Low	3	Robe	376	0.2	0	0	0	0	0	0	0	0	0	3	4
Very low	19	Littoral	1,131	0.5	0	3	100	0	0	0	100	0	0	5	5
Very low	1	Newman	11,841	5.4	0	14	86	7	7	0	79	7	14	54	55
Very low	1	Rocklea	37,749	17.1	0	11	100	0	0	0	100	0	0	236	236
Very low	1	Ruth	5,250	2.4	0	1	100	0	0	0	100	0	0	37	38

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition										Scc [†] (cu) (from table 2)	Pcc ^{**} (cu)
	Total		Sde [‡] ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)						
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor				
Very high	21,661	9.8	0	38	89	8	3	0	66	21	13	1,461	1,805		
High	73,567	33.4	139	156	92	5	2	1	57	22	21	3,010	3,911		
Moderately high	32,305	14.7	2,750	65	66	3	5	26	51	9	40	638	940		
Moderate	23,738	10.8	0	19	84	5	11	0	68	11	21	281	317		
Low	12,893	5.9	0	0	0	0	0	0	0	0	0	117	123		
Very low	55,971	25.4	0	29	92	4	4	0	88	4	8	332	334		
Total	220,135	100.0	2,889	307	86	5	3	6	61	17	22	5,839	7,430		
Survey average for land systems traversed on this station					83	7	5	5	61	16	23				

[^] indicates minor value not reported in tables.

[‡] Area mapped as being severely degraded and eroded.

[#] Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

[†] Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

^{**} Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 2,889 (1.3% of station)

Number of traverse points 307

Pastoral resource condition :

Soil erosion

% nil	86
% minor	5
% moderate	3
% severe	6

Perennial vegetation

% good	61
% fair	17
% poor	22

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing.

5,840

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing.

7,430

MARILLANA STATION

PASTORAL LEASE 3114/984

Area: About 357,532 ha (legal); 357,575 ha (computed)

Area surveyed: Whole lease

Land Conservation District: East Pilbara

Shire(s): East Pilbara

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
1	Hills with spinifex	3	77,711	21.7
3	Plateaux and breakaways with spinifex	2	4,084	1.1
5	Dissected plains with spinifex	1	211	0.1
6	Stony plains and hills with spinifex	1	1,210	0.3
8	Stony plains with spinifex	1	44,093	12.3
11	Spinifex sandplains	1	37,128	10.4
12	Mulga hardpan plains	3	77,896	21.8
13	Alluvial plains with soft spinifex	1	13,870	3.9
14	Alluvial plains with tussock grasses or shrublands	1	10,979	3.1
15	Snakewood alluvial plains	2	38,118	10.7
17	River plains with woodlands and tussock grasses	3	13,992	3.9
18	Calcrete plains with shrublands or spinifex	1	17,482	4.9
20	Lake country with halophytic shrublands	1	20,644	5.8
	Mining	1	157	^0.0

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		Traverse assessment and resource condition											
			Total	Sde ⁺	No. of traverse points [#]	Soil erosion (%)				Perennial vegetation (%)			Scc ⁺ (cu)	Pcc ⁺⁺ (cu)		
						ha	%	ha	Nil	Minor	Mod.	Severe			Good	Fair
High	17	Coolibah	1,450	0.4	0	0	0	0	0	0	0	0	0	0	41	81
High	17	Fortescue	5,608	1.6	0	15	80	13	0	7	54	33	13	212	280	
High	17	River	6,934	1.9	0	12	100	0	0	0	100	0	0	408	408	
Mod. high	15	Marillana	34,620	9.7	0	30	93	0	0	7	33	40	27	603	888	
Mod. high	20	Marsh	20,644	5.8	0	7	57	14	29	0	57	43	0	373	459	
Mod. high	14	Turee	10,979	3.1	1,126	11	46	27	9	18	27	9	64	162	314	
Moderate	8	Boolgeeda	44,093	12.3	0	35	97	3	0	0	94	6	0	542	551	
Moderate	15	Cowra	3,498	1.0	0	6	83	17	0	0	17	50	33	43	66	
Moderate	12	Fan	68,027	19.0	148	77	76	14	9	1	14	21	65	729	1,260	
Moderate	12	Jamindie	9,857	2.7	0	20	95	5	0	0	65	25	10	108	123	
Moderate	13	Urandy	13,870	3.9	0	11	100	0	0	0	73	18	9	219	243	
Low	18	Calcrete	17,482	4.9	0	9	100	0	0	0	100	0	0	188	194	
Low	3	Oakover	2,341	0.7	0	4	100	0	0	0	100	0	0	22	22	
Low	12	Pindering	12	^0.0	0	0	0	0	0	0	0	0	0	0	0	
Low	3	Robe	1,743	0.5	0	9	100	0	0	0	100	0	0	17	17	
Very low	6	Adrian	1,210	0.3	0	0	0	0	0	0	0	0	0	6	7	
Very low	11	Divide	37,128	10.4	0	12	92	0	0	8	75	8	17	280	297	
Very low	1	McKay	12,823	3.6	0	7	100	0	0	0	100	0	0	80	80	
Very low	1	Newman	62,557	17.4	0	7	100	0	0	0	100	0	0	290	291	
Very low	5	Platform	211	0.1	0	0	0	0	0	0	0	0	0	2	2	
Very low	1	Rocklea	2,331	0.7	0	0	0	0	0	0	0	0	0	14	15	
Nil		Mining	157	^0.0	0	0	0	0	0	0	0	0	0	0	0	

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition									
	Total		Sde [~] ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)			Scc [*] (cu) (from table 2)	Pcc ^{**} (cu)
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor		
High	13,992	3.9	0	27	89	7	0	4	74	19	7	661	769
Moderately high	66,243	18.6	1,126	48	78	8	6	8	36	33	31	1,138	1,661
Moderate	139,345	39.0	148	149	85	9	5	1	44	19	37	1,641	2,243
Low	21,578	6.0	0	22	100	0	0	0	100	0	0	227	233
Very low	116,260	32.5	0	26	96	0	0	4	88	4	8	672	692
Nil	157	^0.0	0	0	0	0	0	0	0	0	0	0	0
Total	357,575	100.0	1,274	272	86	7	4	3	55	18	27	4,339	5,598
Survey average for land systems traversed on this station					91	5	3	1	55	20	25		

[^] indicates minor value not reported in tables.

[~] Area mapped as being severely degraded and eroded.

[#] Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

^{*} Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

^{**} Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 1,274 (0.4% of station)

Number of traverse points 272

Pastoral resource condition :

Soil erosion

% nil 86
 % minor 7
 % moderate 4
 % severe 3

Perennial vegetation

% good 55
 % fair 18
 % poor 27

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing. 4,340

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing. 5,600

MT DIVIDE STATION

PASTORAL LEASE 398/467

Area:	About 199,148 ha (legal); 199,903 ha (computed)
Area surveyed:	Whole lease
Land Conservation District:	East Pilbara
Shire(s):	East Pilbara

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
1	Hills with spinifex	3	11,088	5.5
3	Plateaux and breakaways with spinifex	2	133,985	67.1
5	Dissected plains with spinifex	1	35,233	17.6
9	Stony gilgai plains with tussock grasses and spinifex	1	511	0.3
11	Spinifex sandplains	2	10,853	5.4
12	Mulga hardpan plains	2	1,898	0.9
14	Alluvial plains with tussock grasses or shrublands	1	3,573	1.8
17	River plains with woodlands and tussock grasses	1	2,350	1.2
18	Calcrete plains with shrublands or spinifex	1	412	0.2

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		Traverse assessment and resource condition										
			Total		Sde [†]	No. of traverse points [‡]	Soil erosion (%)				Perennial vegetation (%)			Scc [†] (cu)	Pcc [‡] (cu)
			ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor		
High	17 River		2,350	1.2	0	5	100	0	0	0	60	40	0	112	138
Mod. high	14 Balfour		3,573	1.7	0	10	100	0	0	0	90	10	0	78	81
Mod. high	9 Wona		511	0.3	0	1	100	0	0	0	0	100	0	8	15
Low	5 Billygoat		35,233	17.6	0	63	100	0	0	0	89	5	6	298	306
Low	18 Calcrete		412	0.2	0	0	0	0	0	0	0	0	0	4	5
Low	3 Coongimah		126,739	63.5	0	78	100	0	0	0	96	3	1	1,253	1,267
Low	3 Oakover		7,246	3.6	0	5	100	0	0	0	100	0	0	69	69
Low	12 Spearhole		682	0.3	0	5	100	0	0	0	100	0	0	6	6
Low	12 Zebra		1,216	0.6	0	0	0	0	0	0	0	0	0	13	14
Very low	11 Buckshot		10,031	5.1	0	16	100	0	0	0	100	0	0	74	74
Very low	11 Divide		822	0.4	0	2	100	0	0	0	100	0	0	7	7
Very low	1 McKay		2,070	1.0	0	0	0	0	0	0	0	0	0	12	13
Very low	1 Robertson		2,047	1.0	0	5	100	0	0	0	80	0	20	12	13
Very low	1 Rocklea		6,971	3.5	0	15	100	0	0	0	53	27	20	40	44

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition									
	Total		Sde [~] ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)			Scc [*] (cu) (from table 2)	Pcc ^{**} (cu)
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor		
High	2,350	1.2	0	5	100	0	0	0	60	40	0	112	138
Moderately high	4,084	2.0	0	11	100	0	0	0	82	18	0	86	96
Low	171,528	85.8	0	151	100	0	0	0	94	3	3	1,643	1,667
Very low	21,941	11.0	0	38	100	0	0	0	78	11	11	145	151
Total	199,903	100.0	0	205	100	0	0	0	90	6	4	1,986	2,052
Survey average for land systems traversed on this station					99	1	0	0	92	4	4		

[^] indicates minor value not reported in tables.

[~] Area mapped as being severely degraded and eroded.

[#] Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

^{*} Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

^{**} Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 0 (0.0% of station)

Number of traverse points 205

Pastoral resource condition :

Soil erosion

% nil 100
% minor 0
% moderate 0
% severe 0

Perennial vegetation

% good 90
% fair 6
% poor 4

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing.

1,990

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing.

2,050

MT FLORANCE STATION

PASTORAL LEASE 3114/465

Area: About 119,337 ha (legal); 119,080 ha (computed)
Area surveyed: Whole lease
Land Conservation District: Roebourne-Port Hedland
Shire(s): Ashburton

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
1	Hills with spinifex	4	32,099	27.0
3	Plateaux and breakaways with spinifex	1	842	0.7
5	Dissected plains with spinifex	1	778	0.7
8	Stony plains with spinifex	2	23,928	20.1
9	Stony gilgai plains with tussock grasses and spinifex	1	1,701	1.4
12	Mulga hardpan plains	1	15,336	12.9
13	Alluvial plains with soft spinifex	1	22,239	18.7
14	Alluvial plains with tussock grasses or shrublands	1	4,226	3.5
15	Snakewood alluvial plains	1	3,751	3.1
17	River plains with woodlands and tussock grasses	2	14,180	11.9

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		No. of traverse points [#]	Traverse assessment and resource condition							Scc [*] (cu)	Pcc ^{**} (cu)	
			Total			Soil erosion (%)				Perennial vegetation (%)					
			ha	%		Sde [†] ha	Nil	Minor	Mod.	Severe	Good	Fair			Poor
High	14 Brockman		4,226	3.6	0	19	68	21	11	0	26	48	26	132	222
High	17 Coolibah		14,006	11.8	0	32	75	19	3	3	16	34	50	312	778
High	15 Hooley		3,751	3.1	0	6	83	17	0	0	17	33	50	86	163
High	12 Jurrawarrina		15,336	12.9	1,370	34	47	12	9	32	12	18	70	277	639
High	17 River		174	0.1	0	1	100	0	0	0	100	0	0	10	10
Mod. high	9 Wona		1,701	1.4	0	3	100	0	0	0	67	0	33	41	52
Moderate	8 Boolgeeda		23,784	20.0	0	4	100	0	0	0	100	0	0	291	297
Moderate	8 Macroy		144	0.1	0	0	0	0	0	0	0	0	0	2	2
Moderate	13 Urandy		22,239	18.7	0	3	100	0	0	0	67	33	0	374	390
Low	3 Robe		842	0.7	0	0	0	0	0	0	0	0	0	7	8
Very low	1 Capricorn		992	0.8	0	0	0	0	0	0	0	0	0	6	7
Very low	1 McKay		9,468	8.0	0	7	100	0	0	0	100	0	0	59	59
Very low	1 Newman		11,953	10.0	0	0	0	0	0	0	0	0	0	56	56
Very low	5 Platform		778	0.7	0	0	0	0	0	0	0	0	0	6	6
Very low	1 Rocklea		9,686	8.1	0	17	100	0	0	0	100	0	0	61	61

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition									
	Total		Sde [~] ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)			Scc [*] (cu) (from table 2)	Pcc ^{**} (cu)
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor		
High	37,493	31.5	1,370	92	64	16	7	13	18	30	52	817	1,812
Moderately high	1,701	1.4	0	3	100	0	0	0	67	0	33	41	52
Moderate	46,167	38.8	0	7	100	0	0	0	86	14	0	667	689
Low	842	0.7	0	0	0	0	0	0	0	0	0	7	8
Very low	32,877	27.6	0	24	100	0	0	0	100	0	0	188	189
Total	119,080	100.0	1,370	126	74	12	5	10	38	23	39	1,720	2,750
Survey average for land systems traversed on this station					83	7	5	5	49	15	36		

[^] indicates minor value not reported in tables.

[~] Area mapped as being severely degraded and eroded.

^{*} Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

^{*} Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

^{**} Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 1,370 (1.2% of station)

Number of traverse points 126

Pastoral resource condition :

Soil erosion

% nil 74

% minor 12

% moderate 5

% severe 10

Perennial vegetation

% good 38

% fair 23

% poor 39

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing. 1,720

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing. 2,750

MUCCAN STATION

PASTORAL LEASE 3114/1233

Area: About 176,899 ha (legal); 177,119 ha (computed)
Area surveyed: Whole lease
Land Conservation District: De Grey
Shire(s): East Pilbara

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
1	Hills with spinifex	6	19,691	11.1
3	Plateaux and breakaways with spinifex	1	12,106	6.8
8	Stony plains with spinifex	3	48,771	27.6
11	Spinifex sandplains	2	56,601	32.0
13	Alluvial plains with soft spinifex	2	34,612	19.5
17	River plains with woodlands and tussock grasses	1	5,338	3.0

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		Traverse assessment and resource condition										
			Total		Sde ⁺	No. of traverse points [#]	Soil erosion (%)				Perennial vegetation (%)			Scc [*] (cu)	Pcc ^{**} (cu)
			ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor		
High	13	Paradise	17,090	9.7	366	51	47	29	14	10	45	22	33	388	551
High	17	River	5,338	3.0	0	14	100	0	0	0	100	0	0	314	314
Moderate	8	Boolgeeda	3,456	2.0	0	0	0	0	0	0	0	0	0	42	43
Moderate	8	Macroy	45,184	25.5	0	57	93	7	0	0	91	9	0	551	565
Moderate	13	Mallina	17,522	9.9	0	23	83	17	0	0	65	22	13	229	262
Moderate	11	Nita	24,502	13.8	0	24	100	0	0	0	100	0	0	408	408
Moderate	8	Taylor	131	0.1	0	0	0	0	0	0	0	0	0	2	2
Low	1	Boolaloo	8,069	4.6	0	6	100	0	0	0	100	0	0	81	81
Low	3	Callawa	12,106	6.8	0	2	100	0	0	0	100	0	0	115	115
Low	11	Uaroo	32,099	18.1	0	64	94	6	0	0	78	19	3	354	378
Very low	1	Black	2,190	1.2	0	1	100	0	0	0	100	0	0	9	8
Very low	1	Capricorn	4,898	2.8	0	1	100	0	0	0	100	0	0	33	33
Very low	1	Granitic	1,239	0.7	0	1	100	0	0	0	100	0	0	9	9
Very low	1	Rocklea	974	0.5	0	0	0	0	0	0	0	0	0	6	6
Very low	1	Talga	2,321	1.3	0	1	100	0	0	0	100	0	0	14	15

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition									
	Total		Sde [~] ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)			Scc [*] (cu) (from table 2)	Pcc ^{**} (cu)
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor		
High	22,428	12.7	366	65	58	23	11	8	57	17	26	702	865
Moderate	90,795	51.3	0	104	92	8	0	0	87	10	3	1,230	1,278
Low	52,274	29.5	0	72	94	6	0	0	80	17	3	552	576
Very low	11,622	6.5	0	4	100	0	0	0	100	0	0	71	71
Total	177,119	100.0	366	245	84	11	3	2	78	13	9	2,555	2,790
Survey average for land systems traversed on this station					88	9	2	1	83	11	6		

[^] indicates minor value not reported in tables.

[~] Area mapped as being severely degraded and eroded.

[#] Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

^{*} Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

^{**} Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 366 (0.2% of station)

Number of traverse points 245

Pastoral resource condition :

Soil erosion

% nil 84
% minor 11
% moderate 3
% severe 2

Perennial vegetation

% good 78
% fair 13
% poor 9

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing. 2,560

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing. 2,790

MULGA DOWNS STATION

PASTORAL LEASE 3114/1047 + GRAZING RIGHTS ON 398/763

Area: About 307,811 ha (legal); 307,262 ha (computed)
Area surveyed: 348,979 ha (whole lease plus 398/763)
Land Conservation District: Roebourne-Port Hedland
Shire(s): Ashburton

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
1	Hills with spinifex	4	100,201	28.7
3	Plateaux and breakaways with spinifex	1	219	0.1
6	Stony plains and hills with spinifex	2	6,980	2.0
8	Stony plains with spinifex	2	30,433	8.7
9	Stony gilgai plains with tussock grasses and spinifex	1	20,183	5.8
12	Mulga hardpan plains	3	71,493	20.5
13	Alluvial plains with soft spinifex	1	1,586	0.5
14	Alluvial plains with tussock grasses or shrublands	1	5,330	1.5
15	Snakewood alluvial plains	3	38,134	10.9
17	River plains with woodlands and tussock grasses	2	35,719	10.2
18	Calcrete plains with shrublands or spinifex	1	5,847	1.7
20	Lake country with halophytic shrublands	1	32,598	9.3
	Lake bed	1	256	0.1

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		Traverse assessment and resource condition										
			Total	Sde ⁻	No. of traverse points [#]	Soil erosion (%)				Perennial vegetation (%)			Scc [*] (cu)	Pcc ^{**} (cu)	
						ha	%	ha	Nil	Minor	Mod.	Severe			Good
High	14 Brockman		5,330	1.5	269	5	20	20	60	0	0	20	80	184	281
High	17 Coolibah		34,306	9.8	1,058	47	72	13	6	9	21	11	68	939	1,906
High	15 Hooley		6,272	1.8	524	12	92	0	0	8	0	33	67	107	273
High	12 Jurrawarrina		15,114	4.3	567	28	74	11	4	11	7	29	64	277	630
High	17 River		1,413	0.4	0	0	0	0	0	0	0	0	0	75	83
Mod. high	15 Christmas		22,859	6.6	1,029	49	86	4	6	4	6	27	67	299	653
Mod. high	20 Marsh		32,598	9.3	0	10	100	0	0	0	70	10	20	605	724
Mod. high	9 Wona		20,183	5.8	0	14	100	0	0	0	43	43	14	444	612
Moderate	6 Bonney		1,404	0.4	0	2	100	0	0	0	100	0	0	24	24
Moderate	8 Boolgeeda		27,749	8.0	0	12	92	0	8	0	75	17	8	341	347
Moderate	15 Cowra		9,003	2.5	624	17	76	18	6	0	42	29	29	121	170
Moderate	12 Fan		2,504	0.7	178	0	0	0	0	0	0	0	0	28	46
Moderate	12 Jamindie		53,875	15.4	1,351	97	89	8	1	2	37	27	36	500	673
Moderate	8 Macroy		2,684	0.8	0	0	0	0	0	0	0	0	0	33	34
Moderate	13 Urandy		1,586	0.5	0	0	0	0	0	0	0	0	0	27	28
Low	18 Calcrete		5,847	1.7	0	6	100	0	0	0	66	17	17	58	65
Low	3 Robe		219	0.1	0	0	0	0	0	0	0	0	0	2	2
Very low	6 Adrian		5,576	1.6	0	5	100	0	0	0	80	20	0	32	33
Very low	1 Capricorn		2,830	0.8	0	6	100	0	0	0	100	0	0	19	19
Very low	1 McKay		53,026	15.2	0	16	100	0	0	0	94	6	0	328	331
Very low	1 Newman		33,726	9.7	0	23	100	0	0	0	100	0	0	157	157
Very low	1 Rocklea		10,619	3.0	0	2	100	0	0	0	100	0	0	66	66
Nil	Lake bed		256	0.1	0	0	0	0	0	0	0	0	0	0	0

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition									Scc [*] (cu) (from table 2)	Pcc ^{**} (cu)
	Total		Sde [†] ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)					
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor			
High	62,435	17.9	2,418	92	72	11	8	9	13	20	67	1,582	3,173	
Moderately high	75,640	21.7	1,029	73	90	3	4	3	22	27	51	1,348	1,989	
Moderate	98,805	28.3	2,153	128	88	8	2	2	42	26	32	1,074	1,322	
Low	6066	1.7	0	6	100	0	0	0	66	17	17	60	67	
Very low	105,777	30.3	0	52	100	0	0	0	96	4	0	602	602	
Nil	256	0.1	0	0	0	0	0	0	0	0	0	0	0	
Total	348,979	100.0	5,600	351	86	7	4	3	39	21	40	4,666	7,157	
Survey average for land systems traversed on this station					88	5	4	3	46	20	34			

[^] indicates minor value not reported in tables.

[†] Area mapped as being severely degraded and eroded.

[#] Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

^{*} Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

^{**} Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 5,600 (1.6% of station)

Number of traverse points 351

Pastoral resource condition :

Soil erosion

% nil	86
% minor	7
% moderate	4
% severe	3

Perennial vegetation

% good	39
% fair	21
% poor	40

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing.

4,670

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing.

7,160

MUNDABULLANGANA STATION

PASTORAL LEASE 3114/517

Area:	About 197,763 ha (legal); 188,480 ha (computed)
Area surveyed:	Whole lease
Land Conservation District:	Roebourne-Port Hedland
Shire(s):	Port Hedland (T)

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
1	Hills with spinifex	2	1,552	0.8
11	Spinifex sandplains	2	89,778	47.6
13	Alluvial plains with soft spinifex	2	50,233	26.7
17	River plains with woodlands and tussock grasses	2	31,617	16.8
19	Coastal plains, dunes, mudflats and beaches	2	13,550	7.2
	River bed	1	1,750	0.9

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		No. of traverse points [#]	Traverse assessment and resource condition							Scc [*] (cu)	Pcc ^{**} (cu)	
			Total			Soil erosion (%)				Perennial vegetation (%)					
			ha	%		Sde [†] ha	Nil	Minor	Mod.	Severe	Good	Fair			Poor
Very high	17	Yamerina	16,395	8.7	169	36	80	17	0	3	86	8	6	1,255	1,366
High	13	Paradise	5,500	2.9	877	18	50	33	11	6	55	28	17	127	177
High	17	River	15,222	8.1	0	46	91	7	2	0	61	28	11	715	895
Moderate	19	Cheerawarra	10,945	5.8	0	24	100	0	0	0	84	8	8	167	179
Moderate	13	Mallina	44,733	23.7	77	79	87	8	4	1	74	20	6	608	668
Low	11	Gregory	2,093	1.1	0	5	100	0	0	0	40	60	0	17	19
Low	11	Uaroo	87,685	46.6	0	83	99	1	0	0	80	16	4	974	1,032
Very low	19	Littoral	2,605	1.4	231	11	91	9	0	0	82	18	0	10	12
Very low	1	Rocklea	345	0.2	0	1	100	0	0	0	100	0	0	2	2
Very low	1	Ruth	1,207	0.6	0	3	100	0	0	0	100	0	0	9	9
Nil	-	River bed	1,750	0.9	0	0	0	0	0	0	0	0	0	0	0

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition									
	Total		Sde ⁻ ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)			Scc [*] (cu) (from table 2)	Pcc ^{**} (cu)
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor		
Very high	16,395	8.7	169	36	80	17	0	3	86	8	6	1,255	1,366
High	20,722	11.0	877	64	79	14	5	2	59	28	13	842	1,072
Moderate	55,678	29.6	77	103	90	6	3	1	76	17	7	775	847
Low	89,778	47.6	0	88	99	1	0	0	77	18	5	991	1,051
Very low	4,157	2.2	231	15	93	7	0	0	87	13	0	21	23
Nil	1,750	0.9	0	0	0	0	0	0	0	0	0	0	0
Total	188,480	100.0	1,354	306	89	8	2	1	74	19	7	3,884	4,359
Survey average for land systems traversed on this station					88	8	3	1	80	13	7		

[^] indicates minor value not reported in tables.

⁻ Area mapped as being severely degraded and eroded.

[#] Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

^{*} Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

^{**} Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 1,354 (0.7% of station)

Number of traverse points 306

Pastoral resource condition :

Soil erosion

% nil 89

% minor 8

% moderate 2

% severe 1

Perennial vegetation

% good 74

% fair 19

% poor 7

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing.

3,880

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing.

4,360

NOREENA DOWNS STATION

PASTORAL LEASE 398/722

Area:	About 376,207 ha (legal); 377,037 ha (computed)
Area surveyed:	Whole lease
Land Conservation District:	East Pilbara
Shire(s):	East Pilbara

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
1	Hills with spinifex	4	148,095	39.3
3	Plateaux and breakaways with spinifex	3	27,097	7.2
4	Plateaux and breakaways with acacia shrublands	1	5,318	1.4
5	Dissected plains with spinifex	1	64,688	17.2
6	Stony plains and hills with spinifex	1	11,288	3.0
8	Stony plains with spinifex	2	2,541	0.7
9	Stony gilgai plains with tussock grasses and spinifex	1	942	0.2
10	Stony plains with acacia shrublands	1	19,265	5.1
11	Spinifex sandplains	1	35,572	9.4
12	Mulga hardpan plains	5	44,683	11.8
14	Alluvial plains with tussock grasses or shrublands	2	8,935	2.4
17	River plains with woodlands and tussock grasses	1	6,421	1.7
18	Calcrete plains with shrublands or spinifex	1	2,192	0.6

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		Traverse assessment and resource condition										
			Total	Sde ⁺	No. of traverse points [#]	Soil erosion (%)				Perennial vegetation (%)			Scc ⁺ (cu)	Pcc ⁺ (cu)	
						ha	%	ha	Nil	Minor	Mod.	Severe			Good
High	14	Brockman	1,645	0.4	0	3	100	0	0	0	33	0	67	49	87
High	12	Jurrawarrina	4,198	1.1	0	5	100	0	0	0	60	40	0	104	175
High	17	River	6,421	1.8	0	15	93	7	0	0	86	7	7	350	378
Mod. high	14	Balfour	7,290	1.9	0	13	100	0	0	0	92	8	0	161	166
Mod. high	10	Elimunna	19,265	5.2	0	16	100	0	0	0	44	50	6	327	459
Mod. high	9	Wona	942	0.2	0	0	0	0	0	0	0	0	0	21	29
Moderate	8	Boolgeeda	1,670	0.4	0	5	100	0	0	0	100	0	0	21	21
Moderate	8	Macroy	871	0.2	0	0	0	0	0	0	0	0	0	10	11
Moderate	12	Washplain	1,771	0.5	0	6	100	0	0	0	83	17	0	32	35
Low	5	Billygoat	64,688	17.2	0	43	100	0	0	0	98	2	0	554	563
Low	18	Calcrete	2,192	0.6	0	4	100	0	0	0	100	0	0	24	24
Low	3	Coongimah	9,836	2.6	0	0	0	0	0	0	0	0	0	97	98
Low	4	Laterite	5,318	1.4	0	0	0	0	0	0	0	0	0	53	56
Low	3	Oakover	16,988	4.5	0	27	96	4	0	0	93	0	7	158	162
Low	12	Pindering	10,019	2.7	0	15	100	0	0	0	93	0	7	115	118
Low	3	Robe	273	0.1	0	1	100	0	0	0	100	0	0	3	3
Low	12	Spearhole	28,448	7.5	0	34	100	0	0	0	70	18	12	241	259
Low	12	Zebra	247	0.1	0	0	0	0	0	0	0	0	0	2	3
Very low	11	Divide	35,572	9.4	0	31	100	0	0	0	97	3	0	283	285
Very low	1	Granitic	36,190	9.6	0	14	100	0	0	0	100	0	0	250	250
Very low	1	McKay	11,030	2.9	0	1	100	0	0	0	100	0	0	68	69
Very low	6	Mosquito	11,288	3.0	0	9	100	0	0	0	100	0	0	84	84
Very low	1	Robertson	1,618	0.4	0	0	0	0	0	0	0	0	0	10	10
Very low	1	Rocklea	99,257	26.3	0	63	100	0	0	0	98	2	0	619	620

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition									
	Total		Sde [~] ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)			Scc [*] (cu) (from table 2)	Pcc ^{**} (cu)
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor		
High	12,264	3.3	0	23	96	4	0	0	74	13	13	503	640
Moderately high	27,497	7.3	0	29	100	0	0	0	66	31	3	509	654
Moderate	4,312	1.1	0	11	100	0	0	0	93	7	0	63	67
Low	138,009	36.6	0	124	99	1	0	0	88	6	6	1,247	1,286
Very low	194,955	51.7	0	118	100	0	0	0	98	1	1	1,314	1,318
Total	377,037	100.0	0	305	99	1	0	0	89	7	4	3,636	3,965
Survey average for land systems traversed on this station					98	1	1	0	83	9	8		

[^] indicates minor value not reported in tables.

[~] Area mapped as being severely degraded and eroded.

[#] Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

^{*} Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

^{**} Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 0 (0.0% of station)

Number of traverse points 305

Pastoral resource condition :

Soil erosion

% nil 99

% minor 1

% moderate 0

% severe 0

Perennial vegetation

% good 89

% fair 7

% poor 4

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing.

3,640

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing.

3,970

PANORAMA STATION

PASTORAL LEASE 398/643 + GRAZING RIGHTS ON 398/623

Area:	About 170,149 ha (legal); 170,310 ha (computed)
Area surveyed:	247,930 ha (whole lease plus 398/623)
Land Conservation District:	De Grey
Shire(s):	East Pilbara

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
1	Hills with spinifex	6	184,030	74.2
5	Dissected plains with spinifex	1	5,455	2.2
8	Stony plains with spinifex	3	50,249	20.3
11	Spinifex sandplains	1	166	0.1
17	River plains with woodlands and tussock grasses	1	5,926	2.4
18	Calcrete plains with shrublands or spinifex	1	798	0.3
	River bed	1	1,306	0.5

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		Sde ⁻	No. of traverse points [#]	Traverse assessment and resource condition							Scc ⁺ (cu)	Pcc ^{''} (cu)
			Total				Soil erosion (%)				Perennial vegetation (%)				
			ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor		
High	17	River	5,926	2.4	0	7	100	0	0	0	72	14	14	293	349
Moderate	8	Boolgeeda	4,758	1.9	0	5	100	0	0	0	100	0	0	59	59
Moderate	8	Macroy	44,152	17.9	0	73	99	1	0	0	88	11	1	532	552
Moderate	8	Satirist	1,339	0.5	0	6	100	0	0	0	100	0	0	22	22
Low	1	Boolaloo	1,341	0.5	0	0	0	0	0	0	0	0	0	13	13
Low	18	Calcrete	798	0.3	0	9	100	0	0	0	89	11	0	9	9
Low	11	Uaroo	166	0.1	0	0	0	0	0	0	0	0	0	2	2
Very low	1	Black	2,253	0.9	0	3	100	0	0	0	67	33	0	9	9
Very low	1	Capricorn	31,537	12.7	0	9	100	0	0	0	100	0	0	210	210
Very low	1	Granitic	28,936	11.7	0	9	100	0	0	0	100	0	0	200	200
Very low	5	Platform	5,455	2.2	0	8	100	0	0	0	100	0	0	40	40
Very low	1	Rocklea	82,435	33.3	0	64	100	0	0	0	100	0	0	515	515
Very low	1	Talga	37,528	15.1	0	13	100	0	0	0	100	0	0	242	242
Nil		River bed	1,306	0.5	0	0	0	0	0	0	0	0	0	0	0

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition									Scc [*] (cu) (from table 2)	Pcc ^{**} (cu)
	Total		Sde [~] ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)					
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor			
High	5,926	2.4	0	7	100	0	0	0	72	14	14	293	349	
Moderate	50,249	20.3	0	84	99	1	0	0	89	10	1	613	633	
Low	2,305	0.9	0	9	100	0	0	0	89	11	0	24	24	
Very low	188,144	75.9	0	106	100	0	0	0	99	1	0	1,216	1,216	
Nil	1,306	0.5	0	0	0	0	0	0	0	0	0	0	0	
Total	247,930	100.0	0	206	100	^0	0	0	94	5	1	2,146	2,222	
Survey average for land systems traversed on this station					99	1	0	0	95	4	1			

[^] indicates minor value not reported in tables.

[~] Area mapped as being severely degraded and eroded.

^{*} Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

^{*} Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

^{**} Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 0 (0.0% of station)

Number of traverse points 206

Pastoral resource condition :

Soil erosion

% nil 100

% minor ^0

% moderate 0

% severe 0

Perennial vegetation

% good 94

% fair 5

% poor 1

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing.

2,150

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing.

2,220

PARDOO STATION

PASTORAL LEASE 3114/446 + GRAZING RIGHTS ON 398/718

Area:	About 111,456 ha (legal); 107,280 ha (computed)
Area surveyed:	194,475 ha (whole lease plus 398/718)
Land Conservation District:	De Grey
Shire(s):	East Pilbara

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
1	Hills with spinifex	2	1,587	0.8
3	Plateaux and breakaways with spinifex	1	4,166	2.1
5	Dissected plains with spinifex	1	502	0.3
8	Stony plains with spinifex	2	455	0.2
11	Spinifex sandplains	2	169,788	87.3
13	Alluvial plains with soft spinifex	1	98	0.1
16	Alluvial plains with halophytic shrublands	1	624	0.3
17	River plains with woodlands and tussock grasses	1	485	0.3
18	Calcrete plains with shrublands or spinifex	1	3,981	2.1
19	Coastal plains, dunes, mudflats and beaches	4	12,518	6.4
	Mining	1	271	0.1

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		Traverse assessment and resource condition										
			Total		No. of traverse points [†]	Soil erosion (%)				Perennial vegetation (%)			Scc [*] (cu)	Pcc ^{**} (cu)	
			ha	%		ha	Nil	Minor	Mod.	Severe	Good	Fair			Poor
Very high	19 Anna		3,309	1.7	0	12	92	0	8	0	84	8	8	299	331
Very high	19 Eighty Mile		5,330	2.7	232	8	100	0	0	0	100	0	0	631	666
High	17 River		485	0.3	0	6	100	0	0	0	100	0	0	29	29
High	19 Roebuck		1,630	0.8	0	3	100	0	0	0	100	0	0	82	82
Moderate	8 Boolgeeda		30	0.0	0	0	0	0	0	0	0	0	0	0	0
Moderate	13 Mallina		98	0.1	0	0	0	0	0	0	0	0	0	1	1
Moderate	8 Macroy		425	0.2	0	0	0	0	0	0	0	0	0	5	5
Moderate	16 Mannerie		624	0.3	0	2	100	0	0	0	100	0	0	9	9
Moderate	11 Nita		163,490	84.2	0	110	98	2	0	0	77	15	8	2,497	2,725
Low	5 Billygoat		502	0.3	0	2	100	0	0	0	100	0	0	4	4
Low	3 Callawa		4,166	2.1	0	3	100	0	0	0	100	0	0	40	40
Low	18 Lime		3,981	2.0	0	5	100	0	0	0	40	60	0	40	47
Low	11 Little Sandy		6,298	3.2	0	12	100	0	0	0	92	8	0	56	57
Very low	1 Capricorn		1,452	0.7	0	2	100	0	0	0	100	0	0	10	10
Very low	19 Littoral		2,249	1.2	0	5	100	0	0	0	80	20	0	10	10
Very low	1 Ruth		135	0.1	0	0	0	0	0	0	0	0	0	1	1
Nil	Mining		271	0.1	0	0	0	0	0	0	0	0	0	0	0

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition									Scc [*] (cu) (from table 2)	Pcc ^{**} (cu)
	Total		Sde [~] ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)					
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor			
Very high	8,639	4.4	232	20	95	0	5	0	90	5	5	930	997	
High	2,115	1.1	0	9	100	0	0	0	100	0	0	111	111	
Moderate	164,667	84.7	0	112	98	2	0	0	78	14	8	2,512	2,740	
Low	14,947	7.7	0	22	100	0	0	0	82	18	0	140	148	
Very low	3,836	2.0	0	7	100	0	0	0	86	14	0	21	21	
Nil	271	0.1	0	0	0	0	0	0	0	0	0	0	0	
Total	194,475	100.0	232	170	98	1	1	0	81	13	6	3,714	4,017	
Survey average for land systems traversed on this station					99	1	0	0	88	9	3			

[^] indicates minor value not reported in tables.

[~] Area mapped as being severely degraded and eroded.

[#] Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

^{*} Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

^{**} Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 232 (0.1% of station)

Number of traverse points 170

Pastoral resource condition :

Soil erosion

% nil	98
% minor	1
% moderate	1
% severe	0

Perennial vegetation

% good	81
% fair	13
% poor	6

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing.

3,710

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing.

4,020

PEEDAMULLA STATION

PASTORAL LEASE 3114/905

Area:	About 227,852* ha (legal); 227,823 ha (computed)
Area surveyed:	Whole lease
Land Conservation District:	Ashburton
Shire(s):	Ashburton

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
3	Plateaux and breakaways with spinifex	2	1,718	0.7
6	Stony plains and hills with spinifex	1	5,786	2.5
8	Stony plains with spinifex	2	35,760	15.7
11	Spinifex sandplains	2	88,536	38.9
13	Alluvial plains with soft spinifex	1	3,704	1.6
14	Alluvial plains with tussock grasses or shrublands	1	8,219	3.6
17	River plains with woodlands and tussock grasses	2	39,439	17.3
19	Coastal plains, dunes, mudflats and beaches	3	44,661	19.7

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		Sde ⁻ ha	No. of traverse points [#]	Traverse assessment and resource condition							Scc [*] (cu)	Pcc ^{**} (cu)
			Total ha	%			Soil erosion (%)				Perennial vegetation (%)				
							Nil	Minor	Mod.	Severe	Good	Fair	Poor		
Very high	17 Yamerina		7,166	3.1	1,655	20	55	20	5	20	65	10	25	422	597
High	14 Horseflat		8,219	3.6	59	11	100	0	0	0	46	27	27	301	433
Mod. high	17 Cane		32,273	14.2	1,671	48	52	27	8	13	50	31	19	761	1,041
Mod. high	19 Dune		10,633	4.7	0	13	100	0	0	0	92	8	0	207	213
Mod. high	19 Onslow		24,310	10.7	0	27	93	7	0	0	93	7	0	637	657
Moderate	8 Peedamulla		21,461	9.4	0	29	93	7	0	0	76	3	21	261	290
Moderate	8 Stuart		14,299	6.3	0	24	96	4	0	0	92	8	0	199	204
Moderate	13 Urandy		3,704	1.6	0	3	67	0	0	33	67	0	33	54	65
Low	11 Giralia		2,583	1.1	0	0	0	0	0	0	0	0	0	29	29
Low	3 Nanutarra		1,630	0.7	0	0	0	0	0	0	0	0	0	15	16
Low	3 Robe		88	0.0	0	0	0	0	0	0	0	0	0	1	1
Low	6 Tanpool		5,786	2.5	0	13	100	0	0	0	70	15	15	52	58
Low	11 Uaroo		85,953	37.7	0	59	98	2	0	0	90	10	0	988	1,011
Very low	19 Littoral		9,718	4.3	0	1	0	100	0	0	100	0	0	43	43

* The legal area of Peedamulla pastoral lease is given as 224,549 ha on the lease document, however such areas are notoriously inaccurate when a boundary is defined by the coastline. DLI's SmartPlan system gives the legal area as 227,852 ha which accords well with the area calculated by the rangeland survey team.

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition									
	Total		Sde [†] ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)			Scc [‡] (cu) (from table 2)	Pcc [§] (cu)
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor		
Very high	7,166	3.1	1,655	20	55	20	5	20	65	10	25	422	597
High	8,219	3.6	59	11	100	0	0	0	46	27	27	301	433
Moderately high	67,216	29.5	1,671	88	71	17	5	7	70	20	10	1,605	1,911
Moderate	39,464	17.3	0	56	93	5	0	2	82	5	13	514	559
Low	96,040	42.2	0	723	99	1	0	0	86	11	3	1,085	1,115
Very low	9718	4.3	0	1	0	100	0	0	100	0	0	43	43
Total	227,823	100.0	3,385	248	84	10	2	4	76	14	10	3,970	4,658
Survey average for land systems traversed on this station					84	7	3	6	74	10	16		

[^] indicates minor value not reported in tables.

[†] Area mapped as being severely degraded and eroded.

[#] Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

[‡] Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

[§] Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 3,385 (1.5% of station)

Number of traverse points 248

Pastoral resource condition :

Soil erosion

% nil 84
% minor 10
% moderate 2
% severe 4

Perennial vegetation

% good 76
% fair 14
% poor 10

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing.

3,970

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing.

4,660

PIPPINGARRA STATION

PASTORAL LEASE 3114/860 + GRAZING RIGHTS ON RESERVE 16473

Area: About 63,281 ha (legal); 63,156 ha (computed)
Area surveyed: 68,774 ha (whole lease plus reserve 16473)
Land Conservation District: Roebourne-Port Hedland
Shire(s): Port Hedland (T)

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
1	Hills with spinifex	1	4,807	7.0
3	Plateaux and breakaways with spinifex	1	194	0.3
8	Stony plains with spinifex	1	23,703	34.5
11	Spinifex sandplains	1	35,583	51.7
17	River plains with woodlands and tussock grasses	1	4,295	6.2
19	Coastal plains, dunes, mudflats and beaches	1	192	0.3

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		Sde	No. of traverse points ^a	Traverse assessment and resource condition				Perennial vegetation (%)			Scc ^b (cu)	Pcc ^c (cu)
			Total				Soil erosion (%)								
			ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor		
High	17	River	4,295	6.2	0	5	100	0	0	0	100	0	0	253	253
Moderate	8	Macroy	23,703	34.5	0	13	100	0	0	0	100	0	0	292	296
Low	1	Boolaloo	4,807	7.0	0	1	100	0	0	0	100	0	0	48	48
Low	3	Robe	194	0.3	0	0	0	0	0	0	0	0	0	2	2
Low	11	Uaroo	35,583	51.7	0	57	100	0	0	0	98	2	0	417	419
Very low	19	Littoral	192	0.3	0	0	0	0	0	0	0	0	0	1	1

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition									Scc [†] (cu) (from table 2)	Pcc ^{**} (cu)
	Total		Sde [~] ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)					
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor			
High	4,295	6.2	0	5	100	0	0	0	100	0	0	253	253	
Moderate	23,703	34.5	0	13	100	0	0	0	100	0	0	292	296	
Low	40,584	59.0	0	58	100	0	0	0	98	2	0	467	469	
Very low	192	0.3	0	0	0	0	0	0	0	0	0	1	1	
Total	68,774	100.0	0	76	100	0	0	0	99	1	0	1,013	1,019	
Survey average for land systems traversed on this station					98	2	0	0	92	7	1			

[^] indicates minor value not reported in tables.

[~] Area mapped as being severely degraded and eroded.

[#] Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

[†] Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

^{**} Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 0 (0.0% of station)

Number of traverse points 76

Pastoral resource condition :

Soil erosion

% nil 100

% minor 0

% moderate 0

% severe 0

Perennial vegetation

% good 99

% fair 1

% poor 0

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing.

1,010

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing.

1,020

RED HILL STATION

PASTORAL LEASE 3114/1262

Area:	About 188,844 ha (legal); 188,431 ha (computed)
Area surveyed:	Whole lease
Land Conservation District:	Ashburton
Shire(s):	Ashburton

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
1	Hills with spinifex	4	61,569	32.7
3	Plateaux and breakaways with spinifex	2	16,646	8.8
8	Stony plains with spinifex	2	75,115	39.8
10	Stony plains with acacia shrublands	1	8,743	4.6
11	Spinifex sandplains	1	10,458	5.6
13	Alluvial plains with soft spinifex	1	11,219	6.0
15	Snakewood alluvial plains	1	2,295	1.2
17	River plains with woodlands and tussock grasses	1	1,843	1.0
18	Calcrete plains with shrublands or spinifex	1	543	0.3

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		Traverse assessment and resource condition											
			Total		Sde ⁻	No. of traverse points [#]	Soil erosion (%)				Perennial vegetation (%)			Scc [^] (cu)	Pcc ^{^^} (cu)	
			ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor			
High	17	River	1,843	1.0	0	0	0	0	0	0	0	0	0	0	98	108
Moderate	8	Boolgeeda	9,639	5.1	0	0	0	0	0	0	0	0	0	0	119	120
Moderate	10	Dollar	8,743	4.6	0	17	100	0	0	0	70	18	12	145	165	
Moderate	15	Sherlock	2,295	1.2	0	2	100	0	0	0	100	0	0	34	44	
Moderate	8	Stuart	65,476	34.8	100	84	100	0	0	0	73	17	10	847	935	
Moderate	13	Urandy	11,219	6.0	0	18	100	0	0	0	88	6	6	188	197	
Low	18	Calcrete	543	0.3	0	0	0	0	0	0	0	0	0	5	6	
Low	1	Kooline	24,016	12.7	0	15	100	0	0	0	87	13	0	197	200	
Low	3	Nanutarra	3,786	2.0	0	1	100	0	0	0	100	0	0	36	36	
Low	3	Robe	12,860	6.8	0	12	100	0	0	0	75	25	0	119	122	
Low	11	Uaroo	10,458	5.6	0	8	100	0	0	0	100	0	0	121	123	
Very low	1	Capricorn	31,490	16.7	0	9	100	0	0	0	78	22	0	208	210	
Very low	1	Newman	809	0.4	0	0	0	0	0	0	0	0	0	4	4	
Very low	1	Rocklea	5,254	2.8	0	0	0	0	0	0	0	0	0	33	33	

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition										
	Total		Sde [~] ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)			Scc [^] (cu) (from table 2)	Pcc ^{**} (cu)	
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor			
High	1,843	1.0	0	0	0	0	0	0	0	0	0	0	98	108
Moderate	97,372	51.7	100	121	100	0	0	0	76	15	9	1,333	1,461	
Low	51,663	27.4	0	36	100	0	0	0	86	14	0	478	487	
Very low	37,553	19.9	0	9	100	0	0	0	78	22	0	245	247	
Total	188,431	100.0	100	166	100	0	0	0	78	15	7	2,154	2,303	
Survey average for land systems traversed on this station					99	1	0	0	85	9	6			

[^] indicates minor value not reported in tables.

[~] Area mapped as being severely degraded and eroded.

[#] Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

^{*} Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

^{**} Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 100 (0.1% of station)

Number of traverse points 166

Pastoral resource condition :

Soil erosion

% nil 100

% minor 0

% moderate 0

% severe 0

Perennial vegetation

% good 78

% fair 15

% poor 7

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing.

2,150

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing.

2,300

ROY HILL STATION

PASTORAL LEASE 3114/983

Area:	About 399,558 ha (legal); 399,094 ha (computed)
Area surveyed:	Whole lease
Land Conservation District:	East Pilbara
Shire(s):	East Pilbara

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
1	Hills with spinifex	3	52,863	13.2
4	Plateaux and breakaways with acacia shrublands	1	2,430	0.6
5	Dissected plains with spinifex	1	5,107	1.3
6	Stony plains and hills with spinifex	2	5,028	1.3
8	Stony plains with spinifex	1	3,187	0.8
10	Stony plains with acacia shrublands	1	19,555	4.9
11	Spinifex sandplains	1	68,808	17.2
12	Mulga hardpan plains	5	92,770	23.3
14	Alluvial plains with tussock grasses or shrublands	2	45,830	11.6
15	Snakewood alluvial plains	3	26,458	6.6
17	River plains with woodlands and tussock grasses	2	24,022	6.0
18	Calcrete plains with shrublands or spinifex	2	29,711	7.4
20	Lake country with halophytic shrublands	1	23,192	5.8
	Lake bed	1	133	^0.0

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		No. of traverse points [#]	Traverse assessment and resource condition							Scc [*] (cu)	Pcc ^{**} (cu)	
			Total	Sde ⁻		Soil erosion (%)				Perennial vegetation (%)					
						ha	%	ha	Nil	Minor	Mod.	Severe			Good
High	14 Brockman		4,920	1.2	98	4	25	50	25	0	0	0	100	173	259
High	17 Coolibah		22,672	5.8	618	45	66	11	16	7	20	9	71	608	1,260
High	17 River		1,350	0.3	0	2	100	0	0	0	50	50	0	61	79
Mod. high	10 Elimunna		19,555	4.9	0	25	100	0	0	0	8	44	48	257	466
Mod. high	15 Marillana		6,958	1.7	0	0	0	0	0	0	0	0	0	126	178
Mod. high	20 Marsh		23,192	5.8	415	5	80	20	0	0	60	40	0	422	515
Mod. high	14 Turee		40,910	10.3	563	88	86	11	3	0	14	20	66	634	1,169
Moderate	8 Boolgeeda		3,187	0.8	0	1	100	0	0	0	0	0	100	39	40
Moderate	15 Cowra		3,567	0.9	0	8	100	0	0	0	37	50	13	52	67
Moderate	12 Fan		61,928	15.5	0	62	97	3	0	0	35	44	21	837	1,147
Moderate	12 Jamindie		23,133	5.8	420	20	85	5	5	5	25	20	55	197	289
Moderate	15 Narbung		15,933	4.0	0	25	76	20	4	0	52	20	28	201	249
Moderate	18 Warri		1,952	0.5	0	8	100	0	0	0	38	24	38	24	33
Moderate	12 Washplain		3,785	0.9	97	5	60	40	0	0	0	20	80	36	74
Low	5 Billygoat		5,107	1.3	0	0	0	0	0	0	0	0	0	43	44
Low	18 Calcrete		27,759	7.0	0	1	100	0	0	0	100	0	0	298	308
Low	4 Laterite		2,430	0.6	0	1	100	0	0	0	0	100	0	25	26
Low	12 Pindering		26	^0.0	0	0	0	0	0	0	0	0	0	0	0
Low	12 Spearhole		3,898	1.0	0	0	0	0	0	0	0	0	0	33	35
Very low	6 Adrian		2,157	0.5	0	1	100	0	0	0	0	0	100	13	13
Very low	11 Divide		68,808	17.3	0	19	95	5	0	0	90	5	5	538	550
Very low	1 McKay		23,091	5.8	0	5	100	0	0	0	100	0	0	144	144
Very low	6 Mosquito		2,871	0.7	0	0	0	0	0	0	0	0	0	21	21
Very low	1 Newman		20,064	5.0	0	2	100	0	0	0	100	0	0	93	93
Very low	1 Rocklea		9,708	2.4	0	5	100	0	0	0	0	80	20	52	61
Nil	Lake bed		133	^0.0	0	0	0	0	0	0	0	0	0	0	0

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition									Scc [*] (cu) (from table 2)	Pcc ^{**} (cu)
	Total		Sde [†] ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)					
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor			
High	28,942	7.3	716	51	64	14	16	6	19	10	71	842	1,598	
Moderately high	132,988	33.3	978	118	89	9	2	0	15	26	59	1,439	2,328	
Moderate	71,112	17.8	517	129	89	8	2	1	36	33	31	1,386	1,899	
Low	39,220	9.8	0	2	100	0	0	0	50	50	0	399	413	
Very low	126,699	31.7	0	32	97	3	0	0	94	3	3	816	882	
Nil	133	0.0	0	0	0	0	0	0	0	0	0	0	0	
Total	399,094	100.0	2,211	332	86	9	4	1	29	26	45	4,927	7,120	
Survey average for land systems traversed on this station					85	9	4	2	35	22	43			

[^] indicates minor value not reported in tables.

[†] Area mapped as being severely degraded and eroded.

[#] Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

^{*} Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

^{**} Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 2,211 (0.6% of station)

Number of traverse points 332

Pastoral resource condition :

Soil erosion

% nil	86
% minor	9
% moderate	4
% severe	1

Perennial vegetation

% good	29
% fair	26
% poor	45

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing.

4,930

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing.

7,120

STRELLEY STATION

PASTORAL LEASE 3114/1281

Area:	About 248,591 ha (legal); 248,893 ha (computed)
Area surveyed:	Whole lease
Land Conservation District:	De Grey
Shire(s):	East Pilbara; Port Hedland Town

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
1	Hills with spinifex	6	23,978	9.6
3	Plateaux and breakaways with spinifex	1	580	0.2
5	Dissected plains with spinifex	1	538	0.2
8	Stony plains with spinifex	3	105,612	42.5
11	Spinifex sandplains	1	87,089	35.1
13	Alluvial plains with soft spinifex	2	20,234	8.1
17	River plains with woodlands and tussock grasses	1	10,273	4.1
18	Calcrete plains with shrublands or spinifex	1	345	0.1
	River bed	1	244	0.1

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		Sde ⁻ ha	No. of traverse points [†]	Soil erosion (%)				Perennial vegetation (%)			Scc [*] (cu)	Pcc ^{**} (cu)
			Total ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor		
High	13	Paradise	12,103	4.9	0	26	61	35	4	0	77	19	4	350	390
High	17	River	10,273	4.1	0	19	84	11	5	0	73	16	11	519	604
Moderate	8	Boolgeeda	4,883	2.0	0	10	100	0	0	0	100	0	0	61	61
Moderate	8	Macroy	95,287	38.3	0	116	98	2	0	0	97	2	1	1,181	1,191
Moderate	13	Mallina	8,131	3.3	0	10	80	20	0	0	100	0	0	113	121
Moderate	8	Satirist	5,442	2.2	0	10	100	0	0	0	90	10	0	86	89
Low	1	Boolaloo	7,701	3.1	0	5	100	0	0	0	100	0	0	77	77
Low	18	Calcrete	345	0.1	0	0	0	0	0	0	0	0	0	3	4
Low	3	Robe	580	0.2	0	2	100	0	0	0	100	0	0	6	6
Low	11	Uaroo	87,089	35.0	0	100	97	2	1	0	94	5	1	1,007	1,025
Very low	1	Black	624	0.3	0	0	0	0	0	0	0	0	0	2	2
Very low	1	Capricorn	2,362	0.9	0	4	100	0	0	0	100	0	0	16	16
Very low	1	Granitic	1,495	0.6	0	0	0	0	0	0	0	0	0	10	10
Very low	5	Platform	538	0.2	0	2	100	0	0	0	100	0	0	4	4
Very low	1	Rocklea	7,087	2.8	0	18	100	0	0	0	100	0	0	44	44
Very low	1	Talga	4,709	1.9	0	1	100	0	0	0	100	0	0	30	30
Nil		River bed	244	0.1	0	0	0	0	0	0	0	0	0	0	0

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition									Scc [*] (cu) (from table 2)	Pcc ^{**} (cu)
	Total		Sde [~] ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)					
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor			
High	22,376	9.0	0	45	72	24	4	0	75	18	7	869	994	
Moderate	113,743	45.7	0	146	97	3	0	0	97	2	1	1,441	1,462	
Low	95,715	38.5	0	107	97	2	1	0	94	5	1	1,093	1,112	
Very low	16,815	6.7	0	25	100	0	0	0	100	0	0	106	106	
Nil	244	0.1	0	0	0	0	0	0	0	0	0	0	0	
Total	248,893	100.0	0	323	94	5	1	0	93	5	2	3,509	3,674	
Survey average for land systems traversed on this station					94	4	1	^0	89	8	3			

[^] indicates minor value not reported in tables.

[~] Area mapped as being severely degraded and eroded.

^{*} Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

^{*} Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

^{**} Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 0 (0.0% of station)

Number of traverse points 323

Pastoral resource condition :

Soil erosion

% nil 94

% minor 5

% moderate 1

% severe 0

Perennial vegetation

% good 93

% fair 5

% poor 2

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing.

3,510

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing.

3,670

SYLVANIA STATION

PASTORAL LEASE 3114/1234

Area:	About 193,174 ha (legal); 193,366 ha (computed)
Area surveyed:	Whole lease
Land Conservation District:	East Pilbara
Shire(s):	East Pilbara; Meekatharra

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
1	Hills with spinifex	3	14,981	7.7
2	Hills with acacia shrublands	1	1,583	0.8
4	Plateaux and breakaways with acacia shrublands	2	1,002	0.5
5	Dissected plains with spinifex	1	310	0.2
7	Stony plains and low hills with acacia shrublands	2	87,282	45.2
8	Stony plains with spinifex	1	2,411	1.2
10	Stony plains with acacia shrublands	1	54,474	28.2
11	Spinifex sandplains	1	6,346	3.3
12	Mulga hardpan plains	6	23,432	12.1
17	River plains with woodlands and tussock grasses	1	1,269	0.7
	Mining	1	276	0.1

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		Traverse assessment and resource condition											
			Total		Sde [~]	No. of traverse points [#]	Soil erosion (%)				Perennial vegetation (%)			Scc [†] (cu)	Pcc ^{**} (cu)	
			ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor			
High	17 River		1,269	0.7	0	1	100	0	0	0	0	0	100	0	40	75
Moderate	8 Boolgeeda		2,411	1.2	0	5	100	0	0	0	100	0	0	30	30	
Moderate	12 Cadgie		1,982	1.0	0	0	0	0	0	0	0	0	0	25	25	
Moderate	12 Jamindie		6,357	3.3	0	12	100	0	0	0	34	58	8	62	79	
Moderate	7 Prairie		82,822	42.8	0	71	90	8	1	1	28	51	21	842	1,090	
Moderate	10 Sylvania		54,474	28.2	0	84	89	7	4	0	36	43	21	594	789	
Moderate	12 Washplain		3,509	1.8	0	1	100	0	0	0	0	100	0	49	69	
Low	7 Collier		4,460	2.3	0	0	0	0	0	0	0	0	0	42	42	
Low	4 Laterite		913	0.5	0	1	100	0	0	0	0	100	0	7	10	
Low	12 Nooingnin		2,856	1.5	0	5	100	0	0	0	100	0	0	29	29	
Low	12 Spearhole		8,570	4.4	0	0	0	0	0	0	0	0	0	74	78	
Low	4 Table		89	0.0	0	0	0	0	0	0	0	0	0	1	1	
Low	12 Zebra		158	0.1	0	0	0	0	0	0	0	0	0	1	2	
Very low	2 Charley		1,583	0.8	0	0	0	0	0	0	0	0	0	10	11	
Very low	11 Divide		6,346	3.3	0	1	100	0	0	0	100	0	0	49	51	
Very low	5 Egerton		310	0.2	0	0	0	0	0	0	0	0	0	2	2	
Very low	1 McKay		2,822	1.5	0	1	0	100	0	0	100	0	0	18	18	
Very low	1 Newman		3,206	1.7	0	6	100	0	0	0	100	0	0	15	15	
Very low	1 Talga		8,953	4.6	0	15	100	0	0	0	87	13	0	57	58	
Nil	Mining		276	0.1	0	0	0	0	0	0	0	0	0	0	0	

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition									Scc [†] (cu) (from table 2)	Pcc ^{**} (cu)
	Total		Sde [‡] ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)					
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor			
High	1,269	0.7	0	1	100	0	0	0	0	100	0	40	75	
Moderate	151,555	78.4	0	173	91	6	2	1	34	46	20	1,602	2,082	
Low	17,046	8.8	0	6	100	0	0	0	83	17	0	154	162	
Very low	23,220	12.0	0	23	96	4	0	0	91	9	0	151	155	
Nil	276	0.1	0	0	0	0	0	0	0	0	0	0	0	
Total	193,366	100.0	0	203	91	6	2	^0	41	41	18	1,947	2,474	
Survey average for land systems traversed on this station					92	5	2	1	47	36	17			

[^] indicates minor value not reported in tables.

[‡] Area mapped as being severely degraded and eroded.

[#] Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

[†] Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

^{**} Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 0 (0.0% of station)

Number of traverse points 203

Pastoral resource condition :

Soil erosion

% nil	91
% minor	6
% moderate	2
% severe	^0

Perennial vegetation

% good	41
% fair	41
% poor	18

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing.

1,950

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing.

2,470

WALAGUNYA STATION

PASTORAL LEASE 3114/1103

Area: About 174,807 ha (legal); 174,632 ha (computed)
Area surveyed: Whole lease
Land Conservation District: East Pilbara
Shire(s): East Pilbara

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
1	Hills with spinifex	2	21,234	12.2
2	Hills with acacia shrublands	1	795	0.5
4	Plateaux and breakaways with acacia shrublands	1	4	^0.0
5	Dissected plains with spinifex	1	19	^0.0
6	Stony plains and hills with spinifex	1	8,986	5.1
7	Stony plains and low hills with acacia shrublands	2	5,330	3.1
8	Stony plains with spinifex	1	3,938	2.3
11	Spinifex sandplains	3	47,726	27.2
12	Mulga hardpan plains	5	37,189	21.3
14	Alluvial plains with tussock grasses or shrublands	1	23,261	13.3
16	Alluvial plains with halophytic shrublands	1	498	0.3
17	River plains with woodlands and tussock grasses	1	22,184	12.7
18	Calcrete plains with shrublands or spinifex	2	3,468	2.0

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		Traverse assessment and resource condition										
			Total		Sde ⁺	No. of traverse points ⁺	Soil erosion (%)				Perennial vegetation (%)			Scc ⁺ (cu)	Pcc ⁺⁺ (cu)
			ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor		
Mod. high	14 Balfour		23,261	13.3	0	20	75	20	5	0	10	15	75	375	529
Mod. high	17 Jigalong		22,184	12.7	805	34	56	26	9	9	12	18	70	291	555
Mod. high	12 Wannamunna		647	0.4	0	0	0	0	0	0	0	0	0	10	15
Moderate	8 Boolgeeda		3,938	2.3	0	0	0	0	0	0	0	0	0	47	49
Moderate	12 Jamindie		8,908	5.1	0	9	100	0	0	0	33	45	22	85	111
Moderate	7 Prairie		2,800	1.6	0	0	0	0	0	0	0	0	0	30	37
Moderate	16 Tallawuna		498	0.3	0	0	0	0	0	0	0	0	0	5	9
Moderate	18 Warri		2,038	1.2	0	0	0	0	0	0	0	0	0	24	34
Moderate	12 Washplain		11,065	6.3	1	15	93	7	0	0	27	53	20	147	217
Low	5 Billygoat		19	^0.0	0	0	0	0	0	0	0	0	0	0	0
Low	18 Calcrete		1,430	0.8	0	1	100	0	0	0	0	100	0	15	16
Low	7 Collier		2,530	1.4	0	0	0	0	0	0	0	0	0	24	24
Low	4 Laterite		4	^0.0	0	0	0	0	0	0	0	0	0	0	0
Low	11 Little Sandy		5,185	3.0	0	0	0	0	0	0	0	0	0	47	47
Low	12 Spearhole		8,534	4.9	0	0	0	0	0	0	0	0	0	73	78
Low	12 Zebra		8,035	4.6	0	15	100	0	0	0	66	27	7	85	95
Very low	6 Adrian		8,986	5.1	0	9	100	0	0	0	100	0	0	53	53
Very low	11 Buckshot		1,850	1.1	0	0	0	0	0	0	0	0	0	13	14
Very low	2 Charley		795	0.5	0	2	100	0	0	0	0	100	0	5	5
Very low	11 Divide		40,691	23.3	0	32	100	0	0	0	97	0	3	323	326
Very low	1 McKay		408	0.2	0	0	0	0	0	0	0	0	0	2	3
Very low	1 Robertson		20,826	11.9	0	5	100	0	0	0	80	0	20	125	130

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition									Scc [*] (cu) (from table 2)	Pcc ^{**} (cu)
	Total		Sde [~] ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)					
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor			
Moderately high	46,092	26.4	805	54	63	24	7	6	11	17	72	676	1,099	
Moderate	29,247	16.7	1	24	96	4	0	0	29	50	21	338	457	
Low	25,737	14.8	0	16	100	0	0	0	63	31	6	244	260	
Very low	73,556	42.1	0	48	100	0	0	0	92	4	4	521	531	
Total	174,632	100.0	806	142	85	10	3	2	47	20	33	1,779	2,347	
Survey average for land systems traversed on this station					88	6	3	3	54	16	30			

[^] indicates minor value not reported in tables.

[~] Area mapped as being severely degraded and eroded.

[#] Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

^{*} Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

^{**} Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 806 (0.5% of station)

Number of traverse points 142

Pastoral resource condition :

Soil erosion

% nil 85

% minor 10

% moderate 3

% severe 2

Perennial vegetation

% good 47

% fair 20

% poor 33

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing.

1,780

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing.

2,350

WALLAL DOWNS STATION

PASTORAL LEASE 3114/1079

Area: About 233,814 ha (legal); 233,120 ha (computed)
Area surveyed: Whole lease
Land Conservation District: De Grey
Shire(s): Broome; East Pilbara

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
3	Plateaux and breakaways with spinifex	1	4,105	1.8
11	Spinifex sandplains	1	208,398	89.3
16	Alluvial plains with halophytic shrublands	1	6,951	3.0
18	Calcrete plains with shrublands or spinifex	1	853	0.4
19	Coastal plains, dunes, mudflats and beaches	3	12,813	5.5

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		Sde [†]	No. of traverse points [#]	Traverse assessment and resource condition							Scc [†] (cu)	Pcc ^{**} (cu)
			Total				Soil erosion (%)				Perennial vegetation (%)				
			ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor		
Very high	19 Anna		6,628	2.8	0	36	97	0	3	0	80	17	3	595	663
Very high	19 Eighty Mile		6,081	2.6	205	35	100	0	0	0	88	9	3	703	760
High	19 Roebuck		104	0.0	0	0	0	0	0	0	0	0	0	5	5
Moderate	16 Mannerie		6,951	3.0	0	21	100	0	0	0	76	14	10	89	98
Moderate	11 Nita		208,398	89.4	0	53	100	0	0	0	94	6	0	3,415	3,473
Low	3 Callawa		4,105	1.8	0	0	0	0	0	0	0	0	0	39	39
Low	18 Lime		853	0.4	0	0	0	0	0	0	0	0	0	9	10

Table 3. Pastoral resource summary

Pastoral potential	Area		Traverse assessment and resource condition										
	Total		Sde [†] ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)			Scc [*] (cu) (from table 2)	Pcc ^{**} (cu)
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor		
Very high	12,709	5.5	205	71	99	0	1	0	84	13	3	1,298	1,423
High	104	0.0	0	0	0	0	0	0	0	0	0	5	5
Moderate	215,349	92.4	0	74	100	0	0	0	89	8	3	3,504	3,571
Low	4,958	2.1	0	0	0	0	0	0	0	0	0	48	49
Total	233,120	100.0	205	145	99	0	1	0	87	10	3	4,855	5,048
Survey average for land systems traversed on this station					99	0	1	0	85	10	5		

[^] indicates minor value not reported in tables.

[†] Area mapped as being severely degraded and eroded.

[#] Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

^{*} Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

^{**} Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 205 (0.1% of station)

Number of traverse points 145

Pastoral resource condition :

Soil erosion

% nil	99
% minor	0
% moderate	1
% severe	0

Perennial vegetation

% good	87
% fair	10
% poor	3

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing.

4,860

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing.

5,050

WALLAREENYA STATION

PASTORAL LEASE 3114/1266

Area:	About 205,031 ha (legal); 205,461 ha (computed)
Area surveyed:	Whole lease
Land Conservation District:	De Grey
Shire(s):	East Pilbara; Roebourne

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
1	Hills with spinifex	6	60,661	29.5
3	Plateaux and breakaways with spinifex	2	2,537	1.2
5	Dissected plains with spinifex	1	1,664	0.8
8	Stony plains with spinifex	3	113,657	55.4
11	Spinifex sandplains	1	18,899	9.2
13	Alluvial plains with soft spinifex	1	110	0.1
14	Alluvial plains with tussock grasses or shrublands	1	1,249	0.6
17	River plains with woodlands and tussock grasses	1	5,983	2.9
18	Calcrete plains with shrublands or spinifex	1	701	0.3

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		Traverse assessment and resource condition											
			Total		Sde ⁻	No. of traverse points [#]	Soil erosion (%)				Perennial vegetation (%)			Scc [*] (cu)	Pcc ^{**} (cu)	
			ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor			
High	14	Horseflat	1,249	0.6	0	1	100	0	0	0	0	100	0	0	45	66
High	17	River	5,983	2.9	0	3	100	0	0	0	100	0	0	320	352	
Moderate	8	Boolgeeda	2,861	1.4	0	2	100	0	0	0	100	0	0	36	36	
Moderate	8	Macroy	107,163	52.2	0	155	97	3	0	0	92	7	1	1,310	1,340	
Moderate	13	Mallina	110	0.1	0	0	0	0	0	0	0	0	0	1	2	
Moderate	8	Satirist	3,633	1.8	0	4	100	0	0	0	100	0	0	60	60	
Low	1	Boolaloo	26,375	12.8	0	14	100	0	0	0	100	0	0	264	264	
Low	18	Calcrete	701	0.3	0	2	100	0	0	0	50	50	0	7	8	
Low	3	Oakover	150	0.1	0	1	100	0	0	0	100	0	0	1	1	
Low	3	Robe	2,387	1.2	0	0	0	0	0	0	0	0	0	22	23	
Low	11	Uaroo	18,899	9.2	0	41	98	2	0	0	88	12	0	215	222	
Very low	1	Capricorn	6,420	3.1	0	0	0	0	0	0	0	0	0	43	43	
Very low	1	Granitic	3,630	1.8	0	0	0	0	0	0	0	0	0	25	25	
Very low	5	Platform	1,664	0.8	0	2	100	0	0	0	100	0	0	12	12	
Very low	1	Rocklea	2,501	1.2	0	2	100	0	0	0	100	0	0	16	16	
Very low	1	Ruth	678	0.3	0	2	100	0	0	0	100	0	0	5	5	
Very low	1	Talga	21,057	10.2	0	30	100	0	0	0	100	0	0	136	136	

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition									Scc [†] (cu) (from table 2)	Pcc ^{**} (cu)
	Total		Sde [‡] ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)					
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor			
High	7,232	3.5	0	4	100	0	0	0	75	25	0	365	418	
Moderate	113,767	55.4	0	161	98	2	0	0	92	7	1	1,407	1,438	
Low	48,512	23.6	0	58	98	2	0	0	90	10	0	509	518	
Very low	35,950	17.5	0	36	100	0	0	0	100	0	0	237	237	
Total	205,461	100.0	0	259	98	2	0	0	93	7	^0	2,518	2,611	
Survey average for land systems traversed on this station					99	1	0	0	94	5	1			

[^] indicates minor value not reported in tables.

[‡] Area mapped as being severely degraded and eroded.

[#] Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

[†] Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

^{**} Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 0 (0.0% of station)

Number of traverse points 259

Pastoral resource condition :

Soil erosion

% nil 98

% minor 2

% moderate 0

% severe 0

Perennial vegetation

% good 93

% fair 7

% poor ^0

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing.

2,520

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing.

2,610

WANDANYA STATION

PASTORAL LEASE 3114/979

Area:	About 202,824ha (legal); 202,946 ha (computed)
Area surveyed:	Whole lease
Land Conservation District:	East Pilbara
Shire(s):	East Pilbara

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
1	Hills with spinifex	4	48,981	24.1
3	Plateaux and breakaways with spinifex	2	79,284	39.0
5	Dissected plains with spinifex	1	30,291	14.9
8	Stony plains with spinifex	1	9,657	4.8
11	Spinifex sandplains	2	12,520	6.2
12	Mulga hardpan plains	2	4,949	2.4
14	Alluvial plains with tussock grasses or shrublands	2	5,987	3.0
17	River plains with woodlands and tussock grasses	1	11,277	5.6

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		Sde [†]	No. of traverse points [#]	Soil erosion (%)				Perennial vegetation (%)			Scc [*] (cu)	Pcc ^{**} (cu)
			Total	ha			Soil erosion (%)				Perennial vegetation (%)				
							ha	%	Nil	Minor	Mod.	Severe	Good		
High	14	Pullgarah	189	0.1	0	1	100	0	0	0	0	0	100	3	7
High	17	River	11,277	5.5	0	10	90	0	10	0	90	10	0	632	663
Mod. high	14	Balfour	5,798	2.9	0	14	93	0	7	0	79	14	7	119	132
Moderate	8	Paterson	9,657	4.8	0	12	100	0	0	0	100	0	0	136	136
Low	5	Billygoat	30,291	14.9	0	56	100	0	0	0	94	2	4	260	263
Low	1	Bootaloo	1,150	0.6	0	0	0	0	0	0	0	0	0	12	12
Low	3	Coongimah	59,788	29.5	0	35	100	0	0	0	100	0	0	598	598
Low	11	Little Sandy	10,219	5.0	0	8	100	0	0	0	100	0	0	93	93
Low	3	Oakover	19,496	9.6	0	24	100	0	0	0	100	0	0	186	186
Low	12	Spearhole	3,728	1.8	0	6	100	0	0	0	100	0	0	34	34
Low	12	Zebra	1,221	0.6	0	0	0	0	0	0	0	0	0	13	14
Very low	11	Buckshot	2,301	1.1	0	1	100	0	0	0	100	0	0	17	17
Very low	1	McKay	4,488	2.2	0	4	100	0	0	0	100	0	0	28	28
Very low	1	Robertson	6,293	3.1	0	2	100	0	0	0	100	0	0	39	39
Very low	1	Rocklea	37,050	18.3	0	4	100	0	0	0	100	0	0	230	232

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition									Scc [*] (cu) (from table 2)	Pcc ^{**} (cu)
	Total		Sde [~] ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)					
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor			
High	11,466	5.6	0	11	91	0	9	0	82	9	9	635	670	
Moderately high	5,798	2.9	0	14	93	0	7	0	79	14	7	119	132	
Moderate	9,657	4.8	0	12	100	0	0	0	100	0	0	136	136	
Low	125,893	62.0	0	129	100	0	0	0	97	1	2	1,196	1,200	
Very low	50,132	24.7	0	11	100	0	0	0	100	0	0	314	316	
Total	202,946	100.0	0	177	99	0	1	0	96	2	2	2,400	2,454	
Survey average for land systems traversed on this station					97	2	1	0	88	6	6			

[^] indicates minor value not reported in tables.

[~] Area mapped as being severely degraded and eroded.

[#] Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

^{*} Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

^{**} Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 0 (0.0% of station)

Number of traverse points 177

Pastoral resource condition :

Soil erosion

% nil 99

% minor 0

% moderate 1

% severe 0

Perennial vegetation

% good 96

% fair 2

% poor 2

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing.

2,400

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing.

2,450

WARRAWAGINE STATION

PASTORAL LEASE 3114/1169

Area: About 410,780* ha (legal); 403,780 ha (computed)
Area surveyed: Whole lease
Land Conservation District: De Grey
Shire(s): East Pilbara

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
1	Hills with spinifex	5	18,277	4.5
3	Plateaux and breakaways with spinifex	2	119,390	29.6
5	Dissected plains with spinifex	1	29,100	7.2
8	Stony plains with spinifex	4	98,727	24.5
11	Spinifex sandplains	5	21,921	5.4
13	Alluvial plains with soft spinifex	1	37,543	9.3
14	Alluvial plains with tussock grasses or shrublands	1	50,394	12.5
17	River plains with woodlands and tussock grasses	1	28,320	7.0
	Mining	1	108	^0.0

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		Traverse assessment and resource condition										
			Total	Sde ⁻	No. of traverse points ^a	Soil erosion (%)				Perennial vegetation (%)			Scc ⁺ (cu)	Pcc ⁺⁺ (cu)	
						ha	%	ha	Nil	Minor	Mod.	Severe			Good
High	14	Pullgarah	50,394	12.5	240	89	65	21	7	7	43	21	36	1,340	1,938
High	17	River	28,320	7.0	0	13	100	0	0	0	92	8	0	1,515	1,666
Moderate	8	Boolgeeda	4,909	1.2	0	5	100	0	0	0	100	0	0	61	61
Moderate	8	Macroy	40,165	9.9	0	29	97	3	0	0	97	3	0	495	502
Moderate	13	Mallina	37,543	9.3	0	55	85	13	2	0	93	5	2	547	560
Moderate	11	Nita	4,495	1.1	0	0	0	0	0	0	0	0	0	72	75
Moderate	8	Paterson	53,232	13.2	0	116	91	5	3	1	82	9	9	701	750
Low	5	Billygoat	29,100	7.2	0	53	100	0	0	0	94	2	4	249	253
Low	1	Boolaloo	533	0.1	0	1	100	0	0	0	100	0	0	5	5
Low	3	Coongimah	42,375	10.5	0	12	92	8	0	0	100	0	0	421	424
Low	11	Little Sandy	11,928	3.0	0	0	0	0	0	0	0	0	0	107	108
Low	8	Lochinvar	421	0.1	0	0	0	0	0	0	0	0	0	4	4
Low	3	Oakover	77,015	19.1	0	50	100	0	0	0	92	2	6	715	733
Low	11	Uaroo	3,602	0.9	0	0	0	0	0	0	0	0	0	41	42
Very low	11	Buckshot	1,289	0.3	0	0	0	0	0	0	0	0	0	9	10
Very low	1	Capricorn	93	^0.0	0	0	0	0	0	0	0	0	0	1	1
Very low	11	Divide	607	0.2	0	0	0	0	0	0	0	0	0	5	5
Very low	1	Granitic	512	0.1	0	0	0	0	0	0	0	0	0	3	4
Very low	1	McKay	4,230	1.0	0	0	0	0	0	0	0	0	0	26	26
Very low	1	Rocklea	12,909	3.3	0	3	100	0	0	0	100	0	0	80	81
Nil		Mining	108	^0.0	0	0	0	0	0	0	0	0	0	0	0

* The legal area as lifted from the lease document would appear to be in error. DLI's SmartPlan system gives the legal area as 403,584 ha which accords well with the area calculated by the rangeland survey team.

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition									
	Total		Sde [~] ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)			Scc [·] (cu) (from table 2)	Pcc ^{**} (cu)
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor		
High	78,714	19.5	240	102	69	19	6	6	49	20	31	2,855	3,604
Moderate	140,344	34.7	0	205	91	7	2	0	88	7	5	1,876	1,948
Low	164,974	40.9	0	116	99	1	0	0	94	2	4	1,542	1,569
Very low	19,640	4.9	0	3	100	0	0	0	100	0	0	124	127
Nil	108	^0.0	0	0	0	0	0	0	0	0	0	0	0
Total	403,780	100.0	240	426	88	8	2	2	81	8	11	6,397	7,248
Survey average for land systems traversed on this station					89	7	2	2	78	10	12		

[^] indicates minor value not reported in tables.

[~] Area mapped as being severely degraded and eroded.

[#] Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

[·] Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

^{**} Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 240 (0.1% of station)

Number of traverse points 426

Pastoral resource condition :

Soil erosion

% nil 88

% minor 8

% moderate 2

% severe 2

Perennial vegetation

% good 81

% fair 8

% poor 11

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing.

6,400

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing.

7,250

WEELARRANA STATION

PASTORAL LEASE 3114/1255

Area: About 172,939 ha (legal); 175,397 ha (computed)
Area surveyed: Whole lease
Land Conservation District: East Pilbara
Shire(s): Meekatharra; Wiluna

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
1	Hills with spinifex	1	3,425	2.0
2	Hills with acacia shrublands	2	5,147	2.9
4	Plateaux and breakaways with acacia shrublands	1	2,589	1.5
7	Stony plains and low hills with acacia shrublands	1	3,583	2.0
10	Stony plains with acacia shrublands	2	2,091	1.2
11	Spinifex sandplains	3	32,906	18.8
12	Mulga hardpan plains	6	90,971	51.9
14	Alluvial plains with tussock grasses or shrublands	1	6,188	3.5
16	Alluvial plains with halophytic shrublands	1	3,712	2.1
18	Calcrete plains with shrublands or spinifex	2	21,372	12.2
20	Lake country with halophytic shrublands	1	3,413	1.9

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		No. of traverse points [#]	Traverse assessment and resource condition							Scc [*] (cu)	Pcc ^{**} (cu)	
			Total	Sde [~]		Soil erosion (%)				Perennial vegetation (%)					
						ha	%	ha	Nil	Minor	Mod.	Severe			Good
Mod. high	14	Balfour	6,188	3.5	0	19	79	5	11	5	16	21	63	81	141
Moderate	12	Cadgie	15,714	9.0	0	13	100	0	0	0	100	0	0	199	199
Moderate	16	Cundelbar	3,712	2.1	0	3	67	33	0	0	67	0	33	52	62
Moderate	12	Jamindie	36,542	20.8	0	35	94	3	3	0	63	23	14	396	457
Moderate	10	Sylvania	215	0.1	0	1	100	0	0	0	100	0	0	3	3
Moderate	18	Warri	16,775	9.6	0	46	93	0	7	0	28	30	42	193	280
Moderate	12	Washplain	2,427	1.4	0	4	100	0	0	0	100	0	0	48	48
Low	18	Calcrete	4,597	2.6	0	15	93	7	0	0	87	13	0	49	51
Low	7	Collier	3,583	2.0	0	0	0	0	0	0	0	0	0	33	34
Low	10	Ford	1,876	1.1	0	0	0	0	0	0	0	0	0	13	16
Low	4	Laterite	2,589	1.5	0	6	100	0	0	0	100	0	0	27	27
Low	11	Little Sandy	10,938	6.2	0	4	100	0	0	0	25	75	0	83	99
Low	12	Nooingnin	29,231	16.7	0	46	96	2	2	0	28	37	35	235	292
Low	12	Three Rivers	2,936	1.7	0	0	0	0	0	0	0	0	0	20	28
Low	12	Zebra	4,121	2.3	0	1	100	0	0	0	0	0	100	46	48
Very low	2	Augustus	4,348	2.5	0	0	0	0	0	0	0	0	0	20	20
Very low	11	Buckshot	2,021	1.2	0	0	0	0	0	0	0	0	0	15	15
Very low	2	Charley	799	0.5	0	0	0	0	0	0	0	0	0	5	5
Very low	11	Divide	19,947	11.3	0	6	100	0	0	0	83	17	0	154	160
Very low	1	Robertson	3,425	2.0	0	0	0	0	0	0	0	0	0	21	21
Very low	20	Weelarrana	3,413	1.9	0	6	100	0	0	0	34	33	33	21	26

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition										Scc [*] (cu) (from table 2)	Pcc ^{**} (cu)
	Total		Sde [~] ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)						
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor				
Moderately high	6,188	3.5	0	19	79	5	11	5	16	21	63	81	141		
Moderate	75,385	43.0	0	102	93	2	5	0	54	22	24	891	1,049		
Low	59,871	34.1	0	72	96	2	2	0	46	30	24	506	595		
Very low	33,953	19.4	0	12	100	0	0	0	58	25	17	236	247		
Total	175,397	100.0	0	205	94	2	3	^0	48	25	27	1,714	2,032		
Survey average for land systems traversed on this station					95	3	2	^0	50	24	26				

^ indicates minor value not reported in tables.

~ Area mapped as being severely degraded and eroded.

Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

* Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

** Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 0 (0.0% of station)

Number of traverse points 205

Pastoral resource condition :

Soil erosion

% nil 94
% minor 2
% moderate 3
% severe ^0

Perennial vegetation

% good 48
% fair 25
% poor 27

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing.

1,720

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing.

2,030

YALLEEN STATION

PASTORAL LEASE 3114/1013 + PART RESERVE 38991

Area:	About 314,824 ha (legal); 312,925 ha (computed)
Area surveyed:	374,898 ha (whole lease plus part reserve 38991)
Land Conservation District:	Roebourne-Port Hedland
Shire(s):	Ashburton

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
1	Hills with spinifex	4	257,662	68.7
3	Plateaux and breakaways with spinifex	4	22,333	5.9
5	Dissected plains with spinifex	2	8,223	2.2
8	Stony plains with spinifex	1	22,582	6.0
9	Stony gilgai plains with tussock grasses and spinifex	1	18,522	4.9
10	Stony plains with acacia shrublands	2	6,083	1.6
13	Alluvial plains with soft spinifex	1	9,941	2.7
14	Alluvial plains with tussock grasses or shrublands	1	9,697	2.6
15	Snakewood alluvial plains	2	2,875	0.8
17	River plains with woodlands and tussock grasses	1	14,165	3.8
18	Calcrete plains with shrublands or spinifex	1	2,815	0.8

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		Sde ⁻ ha	No. of traverse points [#]	Soil erosion (%)				Perennial vegetation (%)			Scc [*] (cu)	Pcc ^{**} (cu)
			Total ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor		
High	14	Brockman	9,697	2.6	0	15	100	0	0	0	67	20	13	415	510
High	15	Hooley	1,704	0.5	0	1	100	0	0	0	0	100	0	50	74
High	10	Kanjenjie	5,119	1.4	0	9	100	0	0	0	78	22	0	229	256
High	17	River	14,165	3.7	0	14	93	7	0	0	79	14	7	739	833
Mod. high	10	Paraburdoo	964	0.3	0	1	100	0	0	0	100	0	0	23	28
Mod. high	9	Wona	18,522	4.9	0	36	100	0	0	0	53	8	39	411	561
Moderate	8	Boolgeeda	22,582	5.9	0	26	100	0	0	0	96	4	0	279	282
Moderate	15	Sherlock	1,171	0.3	0	0	0	0	0	0	0	0	0	18	23
Moderate	13	Urandy	9,941	2.7	0	9	89	11	0	0	67	33	0	158	174
Low	18	Calcrete	2,815	0.8	0	7	100	0	0	0	100	0	0	31	31
Low	3	Nanutarra	5,715	1.5	0	0	0	0	0	0	0	0	0	53	54
Low	3	Oakover	3,899	1.0	0	2	100	0	0	0	100	0	0	36	37
Low	3	Robe	9,434	2.5	0	14	100	0	0	0	86	7	7	88	90
Very low	1	Capricorn	8,936	2.4	0	0	0	0	0	0	0	0	0	59	60
Very low	5	Egerton	985	0.3	0	2	100	0	0	0	100	0	0	8	8
Very low	3	Kumina	3,285	0.9	0	1	100	0	0	0	100	0	0	25	25
Very low	1	McKay	25,459	6.8	0	6	100	0	0	0	100	0	0	159	159
Very low	1	Newman	53,891	14.4	0	11	100	0	0	0	100	0	0	251	251
Very low	5	Platform	7,238	1.9	0	14	100	0	0	0	100	0	0	54	54
Very low	1	Rocklea	169,376	45.2	0	71	100	0	0	0	98	1	1	1,054	1,059

Table 3. Pastoral resource summary

Pastoral potential	Area		Sde [~] ha	No. of traverse points	Traverse assessment and resource condition								Scc [*] (cu) (from table 2)	Pcc ^{**} (cu)
	Total				Soil erosion(%)				Perennial vegetation (%)					
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor			
High	30,685	8.2	0	39	97	3	0	0	71	21	8	1,433	1,673	
Moderately high	19,486	5.2	0	37	100	0	0	0	54	8	38	434	589	
Moderate	33,694	9.0	0	35	97	3	0	0	83	17	0	455	479	
Low	21,863	5.8	0	23	100	0	0	0	92	4	4	208	212	
Very low	269,170	71.8	0	105	100	0	0	0	98	1	1	1,610	1,616	
Total	374,898	100.0	0	239	99	1	0	0	85	7	8	4,140	4,569	
Survey average for land systems traversed on this station					99	1	^0	0	83	8	9			

[^] indicates minor value not reported in tables.

[~] Area mapped as being severely degraded and eroded.

[#] Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

^{*} Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

^{**} Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 0 (0.0% of station)

Number of traverse points 239

Pastoral resource condition :

Soil erosion

% nil 99

% minor 1

% moderate 0

% severe 0

Perennial vegetation

% good 85

% fair 7

% poor 8

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing.

4,140

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing.

4,570

YANDEYARRA ABORIGINAL RESERVE

RESERVES 23046, 31427 AND 31428

Area:	About 496,369 ha (legal); 495,174 ha (computed)
Area surveyed:	Whole reserves
Land Conservation District:	Roebourne-Port Hedland
Shire(s):	East Pilbara

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of reserve
1	Hills with spinifex	8	161,652	32.7
3	Plateaux and breakaways with spinifex	1	143	^0.0
5	Dissected plains with spinifex	1	2,569	0.5
8	Stony plains with spinifex	3	228,872	46.2
9	Stony gilgai plains with tussock grasses and spinifex	2	28,578	5.8
11	Spinifex sandplains	2	31,367	6.3
13	Alluvial plains with soft spinifex	1	239	^0.0
17	River plains with woodlands and tussock grasses	1	33,512	6.8
18	Calcrete plains with shrublands or spinifex	1	8,242	1.7

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		Traverse assessment and resource condition										
			Total		Sde [~]	No. of traverse points [#]	Soil erosion (%)				Perennial vegetation (%)			Scc [~] (cu)	Pcc [~] (cu)
			ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor		
High	17	River	33,512	6.8	0	17	88	12	0	0	88	12	0	1,792	1,971
Mod. high	9	Wona	2,641	0.5	0	0	0	0	0	0	0	0	0	59	80
Moderate	8	Boolgeeda	19,280	3.9	0	4	100	0	0	0	75	25	0	236	241
Moderate	13	Mallina	239	^0.0	0	0	0	0	0	0	0	0	0	3	4
Moderate	8	Macroy	206,385	41.7	0	149	98	1	1	0	96	2	2	2,541	2,580
Moderate	8	Satirist	3,207	0.6	0	3	100	0	0	0	100	0	0	51	53
Moderate	9	White Springs	25,937	5.2	0	52	98	2	0	0	72	13	15	439	509
Low	1	Boolaloo	47,011	9.6	0	22	100	0	0	0	100	0	0	470	470
Low	18	Calcrete	8,242	1.7	0	1	100	0	0	0	100	0	0	89	92
Low	11	Gregory	4,029	0.8	0	0	0	0	0	0	0	0	0	32	37
Low	3	Robe	143	^0.0	0	1	100	0	0	0	100	0	0	1	1
Low	11	Uaroo	27,338	5.5	0	32	100	0	0	0	100	0	0	322	322
Very low	1	Black	518	0.1	0	0	0	0	0	0	0	0	0	2	2
Very low	1	Capricorn	15,356	3.1	0	0	0	0	0	0	0	0	0	102	102
Very low	1	Granitic	8,631	1.7	0	1	100	0	0	0	100	0	0	59	60
Very low	1	McKay	10,994	2.2	0	0	0	0	0	0	0	0	0	68	69
Very low	5	Platform	2,569	0.5	0	0	0	0	0	0	0	0	0	19	19
Very low	1	Rocklea	48,780	9.9	0	1	100	0	0	0	100	0	0	303	305
Very low	1	Ruth	12,341	2.5	0	0	0	0	0	0	0	0	0	86	88
Very low	1	Talga	18,021	3.6	0	23	100	0	0	0	96	4	0	116	116

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition									Scc [*] (cu) (from table 2)	Pcc ^{**} (cu)
	Total		Sde [†] ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)					
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor			
High	33,512	6.8	0	17	88	12	0	0	88	12	0	1,792	1,971	
Moderately high	2,641	0.5	0	0	0	0	0	0	0	0	0	59	80	
Moderate	255,048	51.6	0	208	98	1	1	0	90	5	5	3,270	3,387	
Low	86,763	17.5	0	56	100	0	0	0	100	0	0	914	922	
Very low	117,210	23.6	0	25	100	0	0	0	96	4	0	755	761	
Total	495,174	100.0	0	306	98	1	1	0	91	5	4	6,790	7,121	
Survey average for land systems traversed on this reserve					99	1	^0	0	91	6	3			

[^] indicates minor value not reported in tables.

[†] Area mapped as being severely degraded and eroded.

[#] Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

^{*} Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

^{**} Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Reserve summary

Severely degraded and eroded (ha) 0 (0.0% of reserve)

Number of traverse points 306

Pastoral resource condition :

Soil erosion

% nil 98

% minor 1

% moderate 1

% severe 0

Perennial vegetation

% good 91

% fair 5

% poor 4

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing.

6,790

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing.

7,120

YARRALOOA STATION

PASTORAL LEASE 3114/1127

Area:	About 223,871 ha (legal); 223,456 ha (computed)
Area surveyed:	Whole lease
Land Conservation District:	Roebourne-Port Hedland
Shire(s):	Ashburton

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
1	Hills with spinifex	4	25,548	11.4
3	Plateaux and breakaways with spinifex	2	35,262	15.8
6	Stony plains and hills with spinifex	1	1,046	0.5
8	Stony plains with spinifex	3	64,904	29.0
11	Spinifex sandplains	1	9,889	4.4
13	Alluvial plains with soft spinifex	2	20,728	9.3
14	Alluvial plains with tussock grasses or shrublands	1	15,838	7.1
15	Snakewood alluvial plains	1	8,283	3.7
17	River plains with woodlands and tussock grasses	2	41,580	18.6
19	Coastal plains, dunes, mudflats and beaches	1	378	0.2

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		No. of traverse points ^a	Traverse assessment and resource condition							Scc ^c (cu)	Pcc ^d (cu)	
			Total	Sde ^b		Soil erosion (%)				Perennial vegetation (%)					
						ha	%	ha	Nil	Minor	Mod.	Severe			Good
High	14	Horseflat	15,838	7.0	1,191	49	49	8	16	27	4	18	78	324	834
High	17	River	6,606	3.0	0	6	100	0	0	0	100	0	0	389	389
Mod. high	17	Cane	34,974	15.6	2,085	46	48	15	22	15	39	13	48	715	1,128
Mod. high	19	Onslow	378	0.2	0	0	0	0	0	0	0	0	0	9	10
Moderate	8	Boolgeeda	16,728	7.5	0	15	100	0	0	0	100	0	0	209	209
Moderate	13	Mallina	8,746	3.9	0	21	95	0	5	0	71	0	29	113	131
Moderate	8	Peedamulla	24,184	10.8	0	20	100	0	0	0	85	5	10	308	327
Moderate	15	Sherlock	8,283	3.7	0	22	95	5	0	0	50	0	50	117	159
Moderate	8	Stuart	23,992	10.7	0	16	100	0	0	0	81	13	6	321	343
Moderate	13	Urandy	11,982	5.4	0	21	100	0	0	0	85	10	5	199	210
Low	3	Nanutarra	24,516	11.0	0	4	100	0	0	0	75	0	25	222	233
Low	3	Robe	10,746	4.8	0	14	100	0	0	0	86	7	7	100	102
Low	6	Tanpool	1,046	0.5	0	0	0	0	0	0	0	0	0	9	10
Low	11	Uaroo	9,889	4.4	0	2	100	0	0	0	100	0	0	114	116
Very low	1	Capricorn	11,799	5.3	0	4	100	0	0	0	100	0	0	79	79
Very low	1	McKay	171	0.1	0	0	0	0	0	0	0	0	0	1	1
Very low	1	Newman	11,585	5.2	0	10	100	0	0	0	100	0	0	54	54
Very low	1	Rocklea	1,993	0.9	0	0	0	0	0	0	0	0	0	12	12

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition										Scc [†] (cu) (from table 2)	Pcc ^{**} (cu)
	Total		Sde [~] ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)						
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor				
High	22,444	10.0	1,191	55	54	7	15	24	15	16	69	713	1,223		
Moderately high	35,352	15.8	2,085	46	48	15	22	15	39	13	48	724	1,138		
Moderate	93,915	42.0	0	115	98	1	1	0	78	4	18	1,267	1,379		
Low	46,197	20.7	0	20	100	0	0	0	85	5	10	445	461		
Very low	25,548	11.5	0	14	100	0	0	0	100	0	0	146	146		
Total	223,456	100.0	3,276	250	79	5	8	8	59	8	33	3,295	4,347		
Survey average for land systems traversed on this station					84	7	4	5	68	11	21				

[^] indicates minor value not reported in tables.

[~] Area mapped as being severely degraded and eroded.

[#] Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

[†] Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

^{**} Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 3,276 (1.5% of station)

Number of traverse points 250

Pastoral resource condition :

Soil erosion

% nil 79

% minor 5

% moderate 8

% severe 8

Perennial vegetation

% good 59

% fair 8

% poor 33

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing. 3,300

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing. 4,350

YARRIE STATION

PASTORAL LEASE 3114/1215

Area: About 257,022 ha (legal); 256,858 ha (computed)

Area surveyed: Whole lease

Land Conservation District: De Grey

Shire(s): East Pilbara

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of station
1	Hills with spinifex	5	106,040	41.3
3	Plateaux and breakaways with spinifex	2	8,328	3.2
8	Stony plains with spinifex	4	85,755	33.4
11	Spinifex sandplains	1	42,197	16.4
13	Alluvial plains with soft spinifex	2	9,397	3.7
14	Alluvial plains with tussock grasses or shrublands	1	1,801	0.7
17	River plains with woodlands and tussock grasses	1	3,340	1.3

Table 2. Rangeland inventory and condition summary

Pastoral potential	Land type	Land system	Area		Sde ⁻ ha	No. of traverse points [#]	Traverse assessment and resource condition							Scc ¹ (cu)	Pcc ² (cu)
			Total				Soil erosion (%)				Perennial vegetation (%)				
			ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor		
High	13	Paradise	4,477	1.7	0	18	55	39	6	0	61	28	11	118	144
High	17	River	3,340	1.3	0	1	100	0	0	0	100	0	0	179	196
Mod. high	14	Balfour	1,801	0.7	0	9	56	33	11	0	56	0	44	31	41
Moderate	8	Boolgeeda	9,251	3.6	0	18	100	0	0	0	100	0	0	116	116
Moderate	8	Macroy	74,258	28.9	0	68	96	4	0	0	86	13	1	889	928
Moderate	13	Mallina	4,920	1.9	0	8	50	50	0	0	75	25	0	68	73
Moderate	11	Nita	42,197	16.4	0	17	100	0	0	0	100	0	0	703	703
Moderate	8	Taylor	1,569	0.6	0	7	100	0	0	0	86	14	0	19	20
Low	3	Callawa	8,219	3.2	0	8	100	0	0	0	100	0	0	78	78
Low	8	Lochinvar	677	0.3	0	0	0	0	0	0	0	0	0	6	6
Low	3	Oakover	109	0.0	0	0	0	0	0	0	0	0	0	1	1
Very low	1	Capricorn	39,353	15.3	0	21	100	0	0	0	100	0	0	262	262
Very low	1	Granitic	21,982	8.6	0	22	100	0	0	0	100	0	0	152	152
Very low	1	McKay	664	0.3	0	0	0	0	0	0	0	0	0	4	4
Very low	1	Rocklea	39,171	15.3	0	20	100	0	0	0	100	0	0	245	245
Very low	1	Talga	4,870	1.9	0	2	100	0	0	0	100	0	0	31	31

Table 3. Pastoral resource summary

Pastoral potential	Area			Traverse assessment and resource condition									Scc [*] (cu) (from table 2)	Pcc ^{**} (cu)
	Total		Sde [~] ha	No. of traverse points	Soil erosion(%)				Perennial vegetation (%)					
	ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor			
High	7,817	3.0	0	19	58	37	5	0	63	26	11	297	340	
Moderately high	1,801	0.7	0	9	56	33	11	0	56	0	44	31	41	
Moderate	132,195	51.5	0	118	94	6	0	0	89	10	1	1,795	1,840	
Low	9,005	3.5	0	8	100	0	0	0	93	7	0	85	85	
Very low	106,040	41.3	0	65	100	0	0	0	100	0	0	694	694	
Total	256,858	100.0	0	219	91	8	1	0	89	8	3	2,902	3,000	
Survey average for land systems traversed on this station					94	4	1	^0	89	7	4			

^ indicates minor value not reported in tables.

~ Area mapped as being severely degraded and eroded.

Where there are inadequate observations for a land system the carrying capacity calculations are based on averages for the system over the whole survey area.

* Suggested carrying capacity (cattle units) over the dry season, following an effective summer season.

** Potential carrying capacity (cattle units) over the dry season, assuming all land systems are in good condition.

Station summary

Severely degraded and eroded (ha) 0 (0.0% of station)

Number of traverse points 219

Pastoral resource condition :

Soil erosion

% nil 91

% minor 8

% moderate 1

% severe 0

Perennial vegetation

% good 89

% fair 8

% poor 3

Suggested carrying capacity (cu) for present condition over the dry season, following an effective summer season, and assuming that the lease is fully developed for grazing.

2,900

Potential carrying capacity (cu) over the dry season, assuming all land systems are in good condition, and that the lease is fully developed for grazing.

3,000

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Appendix

Land system summaries for non-pastoral lands

ABYDOS ABORIGINAL RESERVE

RESERVE 22626

Area:	About 56,337 ha (legal); 56,486 ha (computed)
Area surveyed:	Whole reserve
Land Conservation District:	Roebourne-Port Hedland
Shire(s):	East Pilbara

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of reserve
1	Hills with spinifex	5	10,435	18.5
3	Plateaux and breakaways with spinifex	1	352	0.6
5	Dissected plains with spinifex	1	2,864	5.1
8	Stony plains with spinifex	1	42,530	75.3
17	River plains with woodlands and tussock grasses	1	305	0.5

Table 2. Rangeland inventory and condition summary

Land type	Land system	Area		No. of traverse points	Traverse assessment and resource condition								
		Total			Sde [^]	Soil erosion (%)				Perennial vegetation (%)			
		ha	%			ha	Nil	Minor	Mod.	Severe	Good	Fair	Poor
1	Boolaloo	4,130	7.3	0	0	0	0	0	0	0	0	0	0
1	Capricorn	375	0.7	0	0	0	0	0	0	0	0	0	0
1	Granitic	1,200	2.1	0	0	0	0	0	0	0	0	0	0
1	Rocklea	156	0.3	0	0	0	0	0	0	0	0	0	0
1	Talga	4,574	8.1	0	2	100	0	0	0	100	0	0	0
3	Robe	352	0.6	0	0	0	0	0	0	0	0	0	0
5	Platform	2,864	5.1	0	8	100	0	0	0	100	0	0	0
8	Macroy	42,530	75.3	0	58	100	0	0	0	100	0	0	0
17	River	305	0.5	0	0	0	0	0	0	0	0	0	0
Total		56,486	100.0	0	68	100	0	0	0	100	0	0	0
Survey average for land systems traversed on this reserve						99	1	^0	0	95	4	1	

[^] indicates minor value not reported in tables.

⁻ Area mapped as being severely degraded and eroded.

Reserve summary

Severely degraded and eroded (ha)	0	
Number of traverse points	68	
Resource condition :	Soil erosion	Perennial vegetation
	% nil	% good
	100	100

CANE RIVER CONSERVATION RESERVE

(Part) RESERVE 46122

Area:	About 147,843 ha (legal); 148,132 ha (computed)
Area surveyed:	The portion that was formerly Cane River pastoral lease
Land Conservation District:	Ashburton
Shire(s):	Ashburton

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of reserve
1	Hills with spinifex	3	24,458	16.5
2	Hills with acacia shrublands	1	1,781	1.2
3	Plateaux and breakaways with spinifex	2	4,766	3.2
7	Stony plains and low hills with acacia shrublands	1	417	0.3
8	Stony plains with spinifex	3	73,944	49.9
11	Spinifex sandplains	2	36,493	24.7
17	River plains with woodlands and tussock grasses	2	6,273	4.2

Table 2. Rangeland inventory and condition summary

Land type	Land system	Area			Traverse assessment and resource condition								
		Total		Sde [*] ha	No. of traverse points	Soil erosion (%)				Perennial vegetation (%)			
		ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor	
1	Boolaloo	372	0.3	0	0	0	0	0	0	0	0	0	0
1	Capricorn	6,375	4.3	0	3	100	0	0	0	100	0	0	0
1	Houndstooth	17,711	12.0	0	31	97	3	0	0	97	3	0	0
2	Augustus	1,781	1.2	0	0	0	0	0	0	0	0	0	0
3	Nanutarra	1,354	0.9	0	0	0	0	0	0	0	0	0	0
3	Robe	3,412	2.3	0	0	0	0	0	0	0	0	0	0
7	Collier	417	0.3	0	0	0	0	0	0	0	0	0	0
8	Boolgeeda	380	0.3	0	0	0	0	0	0	0	0	0	0
8	Peedamulla	2,260	1.5	0	9	89	11	0	0	78	11	11	0
8	Stuart	71,304	48.1	0	87	97	1	1	1	89	5	6	0
11	Giralia	4,054	2.7	0	4	100	0	0	0	100	0	0	0
11	Uaroo	32,439	21.9	0	43	100	0	0	0	100	0	0	0
17	Cane	2,201	1.5	0	4	75	25	0	0	100	0	0	0
17	River	4,072	2.7	0	1	100	0	0	0	100	0	0	0
Total		148,132	100.0	0	182	96	2	1	1	94	3	3	0
Survey average for land systems traversed on this reserve						96	2	1	1	87	8	5	0

* Area mapped as being severely degraded and eroded.

Reserve summary

Severely degraded and eroded (ha)	0
Number of traverse points	182
Resource condition :	
Soil erosion	
% nil	96
% minor	2
% moderate	1
% severe	1
Perennial vegetation	
% good	94
% fair	3
% poor	3

KARIJINI NATIONAL PARK

RESERVE A30082

Area: About 627,441 ha (legal); 624,377 ha (computed)
Area surveyed: Whole reserve
Land Conservation District: Ashburton
Shire(s): Ashburton

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of reserve
1	Hills with spinifex	4	349,085	55.8
2	Hills with acacia shrublands	1	31,641	5.1
3	Plateaux and breakaways with spinifex	2	1,123	0.2
4	Plateaux and breakaways with acacia shrublands	1	3,729	0.6
5	Dissected plains with spinifex	2	43,128	6.9
6	Stony plains and hills with spinifex	1	16,155	2.6
7	Stony plains and low hills with acacia shrublands	1	3,760	0.6
8	Stony plains with spinifex	1	125,037	20.0
9	Stony gilgai plains with tussock grasses and spinifex	1	1,048	0.2
10	Stony plains with acacia shrublands	1	16,346	2.6
12	Mulga hardpan plains	3	29,281	4.7
13	Alluvial plains with soft spinifex	1	494	0.1
14	Alluvial plains with tussock grasses or shrublands	1	417	0.1
17	River plains with woodlands and tussock grasses	1	2,740	0.4
18	Calcrete plains with shrublands or spinifex	2	393	0.1

Table 2. Rangeland inventory and condition summary

Land type	Land system	Area		Traverse assessment and resource condition								
		Total	Sde ⁻	No. of traverse points	Soil erosion (%)				Perennial vegetation (%)			
					ha	%	ha	Nil	Minor	Mod. Severe	Good	Fair
1	Capricorn	17,615	2.8	0	5	100	0	0	0	100	0	0
1	McKay	17,017	2.7	0	3	100	0	0	0	100	0	0
1	Newman	233,496	37.4	0	43	100	0	0	0	100	0	0
1	Rocklea	80,957	13.0	0	23	96	4	0	0	100	0	0
2	Marandoo	31,641	5.1	0	0	0	0	0	0	0	0	0
3	Kumina	5	0.0	0	0	0	0	0	0	0	0	0
3	Robe	1,118	0.2	0	0	0	0	0	0	0	0	0
4	Table	3,729	0.6	0	0	0	0	0	0	0	0	0
5	Egerton	15,823	2.5	0	7	100	0	0	0	100	0	0
5	Platform	27,305	4.4	0	10	100	0	0	0	100	0	0
6	Nirran	16,155	2.5	0	29	86	14	0	0	97	3	0
7	Prairie	3,760	0.6	0	0	0	0	0	0	0	0	0
8	Boolgeeda	125,037	20.0	0	87	100	0	0	0	99	1	0
9	Wona	1,048	0.2	0	0	0	0	0	0	0	0	0
10	Paraburdoo	16,346	2.6	0	20	90	10	0	0	85	5	10
12	Jamindie	19,236	3.1	0	0	0	0	0	0	0	0	0
12	Jurrawarrina	564	0.1	0	0	0	0	0	0	0	0	0
12	Wannamunna	9,481	1.5	0	10	100	0	0	0	100	0	0
13	Urandy	494	0.1	0	0	0	0	0	0	0	0	0
14	Turee	417	0.1	0	0	0	0	0	0	0	0	0
17	River	2,740	0.4	0	0	0	0	0	0	0	0	0
18	Calcrete	358	0.1	0	0	0	0	0	0	0	0	0
18	Warri	35	0.0	0	0	0	0	0	0	0	0	0

Total	624,377	100.0	0	237	97	3	0	0	98	1	1
Survey average for land systems traversed on this reserve					97	2	0	0	87	5	4

^ indicates minor value not reported in tables.

~ Area mapped as being severely degraded and eroded.

Reserve summary

Severely degraded and eroded (ha)	0		
Number of traverse points	237		
Resource condition :		Soil erosion	Perennial vegetation
		% nil	% good
	97		98
	3	% minor	% fair
			1
	0	% moderate	% poor
			1
	1	% severe	

MEENTHEENA CONSERVATION RESERVE

RESERVE NUMBER YET TO BE ALLOCATED

Area:	About 225,705 ha (legal); 225,215 ha (computed)
Area surveyed:	Whole reserve (formerly Meentheena pastoral lease less part that has been transferred to and amalgamated with Corunna Downs)
Land Conservation District:	De Grey
Shire(s):	East Pilbara

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of reserve
1	Hills with spinifex	5	178,948	79.4
3	Plateaux and breakaways with spinifex	1	7,133	3.2
5	Dissected plains with spinifex	1	266	0.1
8	Stony plains with spinifex	3	36,200	16.1
17	River plains with woodlands and tussock grasses	1	2,320	1.0
18	Calcrete plains with shrublands or spinifex	1	348	0.2

Table 2. Rangeland inventory and condition summary

Land type	Land system	Area			Traverse assessment and resource condition							
		Total		Sde [†] ha	No. of traverse points	Soil erosion (%)				Perennial vegetation (%)		
		ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor
1	Capricorn	29,041	12.9	0	20	100	0	0	0	95	5	0
1	Granitic	29,124	12.9	0	1	100	0	0	0	100	0	0
1	McKay	3,599	1.6	0	0	0	0	0	0	0	0	0
1	Rocklea	116,905	51.9	0	79	100	0	0	0	99	1	0
1	Talga	279	0.1	0	0	0	0	0	0	0	0	0
3	Coongimah	7,133	3.2	0	0	0	0	0	0	0	0	0
5	Billygoat	266	0.1	0	1	100	0	0	0	100	0	0
8	Macroy	31,973	14.2	0	50	100	0	0	0	98	2	0
8	Paterson	2,655	1.2	0	0	0	0	0	0	0	0	0
8	Taylor	1,572	0.7	0	9	100	0	0	0	100	0	0
17	River	2,320	1.0	0	5	100	0	0	0	100	0	0
18	Calcrete	348	0.2	0	2	100	0	0	0	100	0	0
Total		225,215	100.0	0	167	100	3	0	0	98	2	0
Survey average for land systems traversed on this reserve						99	1	0	0	96	3	1

[†] Area mapped as being severely degraded and eroded.

Reserve summary

Severely degraded and eroded (ha)	0
Number of traverse points	167
Resource condition :	
Soil erosion	
% nil	100
Perennial vegetation	
% good	98
% fair	2

MILLSTREAM-CHICHESTER RANGE NATIONAL PARK

RESERVES 30071 AND 38333

Area:	About 238,290 ha (legal); 237,670 ha (computed)
Area surveyed:	Whole reserves
Land Conservation District:	Roebourne-Port Hedland
Shire(s):	Ashburton

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of reserve
1	Hills with spinifex	6	182,426	76.8
3	Plateaux and breakaways with spinifex	2	3,893	1.6
6	Stony plains and hills with spinifex	1	1,230	0.5
8	Stony plains with spinifex	3	15,925	6.7
9	Stony gilgai plains with tussock grasses and spinifex	1	24,185	10.2
15	Snakewood alluvial plains	1	2,185	0.9
17	River plains with woodlands and tussock grasses	1	6,714	2.8
18	Calcrete plains with shrublands or spinifex	1	1,112	0.5

Table 2. Rangeland inventory and condition summary

Land type	Land system	Area		Traverse assessment and resource condition									
		Total		Sde [†]	No. of traverse points	Soil erosion (%)				Perennial vegetation (%)			
		ha	%			ha	Nil	Minor	Mod.	Severe	Good	Fair	Poor
1	Boolaloo	480	0.2	0	0	0	0	0	0	0	0	0	0
1	Capricorn	66,107	27.8	0	1	100	0	0	0	100	0	0	
1	McKay	13,110	5.5	0	4	100	0	0	0	100	0	0	
1	Newman	429	0.2	0	0	0	0	0	0	0	0	0	
1	Rocklea	99,279	41.8	0	10	100	0	0	0	90	0	10	
1	Ruth	3,021	1.3	0	0	0	0	0	0	0	0	0	
3	Oakover	537	0.2	0	0	0	0	0	0	0	0	0	
3	Robe	3,356	1.4	0	4	100	0	0	0	100	0	0	
6	Bonney	1,230	0.5	0	0	0	0	0	0	0	0	0	
8	Boolgeeda	8,640	3.6	0	0	0	0	0	0	0	0	0	
8	Pyramid	5,230	2.2	0	0	0	0	0	0	0	0	0	
8	Satirist	2,055	0.9	0	0	0	0	0	0	0	0	0	
9	Wona	24,185	10.2	0	24	100	0	0	0	58	25	17	
15	Sherlock	2,185	0.9	0	0	0	0	0	0	0	0	0	
17	River	6,714	2.8	0	0	0	0	0	0	0	0	0	
18	Calcrete	1,112	0.5	0	3	100	0	0	0	100	0	0	
Total		237,670	100.0	0	46	100	0	0	0	76	13	11	
Survey average for land systems traversed on this reserve						100	0	0	0	70	13	17	

[†] Area mapped as being severely degraded and eroded.

Reserve summary

Severely degraded and eroded (ha)	0
Number of traverse points	46
Resource condition :	
Soil erosion	
% nil	100
Perennial vegetation	
% good	77
% fair	13
% poor	11

MUNGAROONA RANGE NATURE RESERVE

RESERVE 31429

Area:	About 105,842 ha (legal); 105,845 ha (computed)
Area surveyed:	Whole reserve
Land Conservation District:	Roebourne-Port Hedland
Shire(s):	Ashburton

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of reserve
1	Hills with spinifex	4	100,683	95.6
3	Plateaux and breakaways with spinifex	1	52	0.1
8	Stony plains with spinifex	2	1,512	1.4
9	Stony gilgai plains with tussock grasses and spinifex	1	2,234	2.1
17	River plains with woodlands and tussock grasses	1	793	0.8

Table 2. Rangeland inventory and condition summary

Land type	Land system	Area			Traverse assessment and resource condition								
		Total		Sde [†] ha	No. of traverse points	Soil erosion (%)				Perennial vegetation (%)			
		ha	%			Nil	Minor	Mod.	Severe	Good	Fair	Poor	
1	Boolaloo	943	0.9	0	0	0	0	0	0	0	0	0	0
1	Capricorn	18,703	17.7	0	0	0	0	0	0	0	0	0	0
1	McKay	2,276	2.1	0	0	0	0	0	0	0	0	0	0
1	Rocklea	79,332	74.8	0	0	0	0	0	0	0	0	0	0
3	Robe	52	0.1	0	0	0	0	0	0	0	0	0	0
8	Boolgeeda	281	0.3	0	0	0	0	0	0	0	0	0	0
8	Macroy	1,231	1.2	0	0	0	0	0	0	0	0	0	0
9	Wona	2,234	2.1	0	0	0	0	0	0	0	0	0	0
17	River	793	0.8	0	0	0	0	0	0	0	0	0	0
Total		105,845	100.0	0	0	0	0	0	0	0	0	0	0
Survey average for land systems traversed on this reserve						99	1	0	0	91	6	3	

[†] Area mapped as being severely degraded and eroded.

Reserve summary

Reserve was not traversed so no condition summary is available.

WOODSTOCK ABORIGINAL RESERVE

RESERVE 22627

Area:	About 97,660 ha (legal); 96,764 ha (computed)
Area surveyed:	Whole reserve
Land Conservation District:	Roebourne-Port Hedland
Shire(s):	East Pilbara

Table 1. Summary of land types

No.	Land type	No. of land systems	Area (ha)	% of reserve
1	Hills with spinifex	5	29,828	30.8
3	Plateaux and breakaways with spinifex	1	76	0.1
8	Stony plains with spinifex	1	63,516	65.6
17	River plains with woodlands and tussock grasses	1	3,344	3.5

Table 2. Rangeland inventory and condition summary

Land type	Land system	Area			No. of traverse points	Traverse assessment and resource condition						
		Total		Sde [†]		Soil erosion (%)				Perennial vegetation (%)		
		ha	%			ha	Nil	Minor	Mod.	Severe	Good	Fair
1	Boolaloo	2,220	2.3	0	3	100	0	0	0	100	0	0
1	Capricorn	110	0.1	0	0	0	0	0	0	0	0	0
1	Granitic	23,140	23.9	0	0	0	0	0	0	0	0	0
1	Rocklea	2,290	2.4	0	0	0	0	0	0	0	0	0
1	Talga	2,068	2.1	0	1	100	0	0	0	100	0	0
3	Oakover	76	0.1	0	0	0	0	0	0	0	0	0
8	Macroy	63,516	65.6	0	56	98	2	0	0	93	7	0
17	River	3,344	3.5	0	0	0	0	0	0	0	0	0
Total		237,670	100.0	0	46	100	0	0	0	76	13	11
Survey average for land systems traversed on this reserve						100	0	0	0	70	13	17

[†] Area mapped as being severely degraded and eroded.

Reserve summary

Severely degraded and eroded (ha)	0
Number of traverse points	60
Resource condition :	
Soil erosion	
% nil	98
% minor	2
Perennial vegetation	
% good	93
% fair	7