

## 2 The pastoral resources

### *Presentation of data*

We decided that the pastoral resources would be best described using both written text and a map. A suitable model existed in the map entitled *Native Pasture Communities* (scale of 1: 2,500,000) by Weston and Harbison (1980), and the accompanying written material in *Assessment of the Agricultural and Pastoral Potential of Queensland* (Weston *et al.* 1981).

Their interpretation of the pasture communities represented on the Queensland map had been made by Weston and Harbison on the basis of the soil information from the Atlas of Australian Soils sheets, and verified with local knowledge. Since this map of the pasture communities of Queensland is the most embracing and contemporary in northern Australia, and, as the base soil information is available for the whole of the region, we decided to work from it in extending to the remaining areas across the north.

While we encountered much encouragement in our work, there was also some disquiet about the way in which generalities made from maps can be misused; this often happens where the maps are developed at too broad a scale and important fine detail is lost. This point is particularly relevant in Central Australia, parts of the Victoria River District and Kimberley regions of the Northern Territory and Western Australia.

As our report is concerned with issues affecting the whole of all of northern Australia, our map is drawn at the broad regional scale of 1: 4,000,000. The base map, from which this has been produced, was at a scale of 1: 2,000,000 (derived from the Atlas of Australian Soils). Even this scale is inadequate to represent accurately the detail needed to deal with problems at the property or local area level. We realise that, for the Central Australia region of the Northern Territory, it is impossible, even at the scale of 1: 2,000,000, to portray an adequate regional picture of the pasture communities due to their fine mosaic. Maps drawn at scales of 1: 100,000 or 1: 250,000, and used currently in local land systems mapping, are more applicable but they do not cover the whole region.

### *Collation of data*

The map information was digitised onto MAPINFO using longitude and latitude on a Cartesian base at the scale of 1: 2,000,000. There are 5500 pasture community polygons for the whole study area.

Both the map information and that of the condition and productivity resources are contained in a Geographic Information System (GIS) data base named RIANAP, in MAPINFO and DBASE/FOXPRO formats.

### *Sources of maps and scales*

#### 1. *Queensland*

Native Pasture Communities – 1: 2 500 000  
Weston and Harbison (1980).

Atlas of Australian Soils, sheets 7,4, 10 (NE)  
– 1: 2 000 000  
CSIRO, various authors.

#### 2. *Northern Territory*

Pasture Lands of the Northern Territory,  
Australia – 1: 2 000 000  
Perry (1960) CSIRO, LRS No. 5.

Lands of the Ord–Victoria Area, WA and NT  
– 1: 1 000 000  
Stewart *et al.* (1970) CSIRO, LRS No. 28.

Lands of the Alice Springs Area, NT  
– 1: 1 000 000

Perry *et al.* (1962) CSIRO, LRS No. 6.

Survey of the Barkly Region – 1: 1 013 760  
Christian (1952) CSIRO, LRS No. 3.

Atlas of Australian Soils, sheets 8, 10 (NE,  
NW) – 1: 2 000 000  
CSIRO, various authors.

#### 3. *Western Australia*

Vegetation Survey of Western Australia  
Pilbara and Kimberley – 1: 1 000 000  
Beard (1975).

Lands of the Ord–Victoria Area, NT and  
WA – 1: 1 000 000

Stewart *et al.* (1970) CSIRO, LRS No. 28.

Lands and Pastoral Resources of the North  
Kimberley Area, WA. – 1: 1 000 000  
(1960) CSIRO, LRS No. 4.

General Report on Lands of the West  
Kimberley – 1: 1 000 000

Speck *et al.* (1964) CSIRO, LRS No. 9.

Atlas of Australian Soils, sheets 6, 9, 10 (NW) – 1: 2 000 000  
CSIRO, various authors.

Maps showing Pastoral Potential in the Kimberley Region, WA – 1: 500 000  
WA Dept. of Agriculture (1985).

Other complementary maps are listed in the bibliography.

In describing the pasture lands of northern Australia, we have tried to keep the identity of the locally known, or published, pasture types or communities. This preserves local common names and entities for which published or known recorded information exists. Their relationships are evident in the 24 generic community groupings into which they have been placed.

These groups have also been organised into the savanna categories and sub-categories which are now widely recognised at the continental level (Mott *et al.* 1985). These are: Tallgrass, with sub-categories Monsoon tallgrass and Tropical/subtropical tallgrass; Midgrass, with 5 sub-categories of pasture types; and Shortgrass, also with 5 sub-categories of pasture types.

The generic groupings, or pasture communities, are coloured individually on the map, and those closely allied are presented in shades of their basic colour. The pasture communities, as they occur locally, have been called local pasture units (LPU) and each has been assigned a number (between 1 and 151). This number is cross-referenced between Tables 1 and 3, Appendix 1 and the map.

It is not always easy to determine the similarities between some of these local pasture units occurring in different parts of the north because pasture composition can vary considerably in space and time. These units are also circumscribed from the predominant pasture unit of the area, even though they may contain minor areas of other pasture types.

Considerable evolutionary change may be occurring in some communities because of differences in time and mode of land use in different regions. This is particularly evident in the 'ribbongrass-other species' pasture type in the Northern Territory; it was originally described by Perry (1960) as being signified by kangaroo grass (*Themeda australis*), but

this species is now substantially less dominant. In other cases, black speargrass (*Heteropogon contortus*) is increasing.

Some of these changes may be ecologically non-reversible, but may not represent an undesirable change in the sustainable resource status. A good example is the change last century from kangaroo grass dominance to black speargrass dominance in the now-called black speargrass pasture lands of Queensland. Some of the likely relationships between the entities have been indicated in Table 1. Details of the botanical composition of the pasture communities and Local Pasture Units can be found in Appendix 1.

The statistical areas used in compiling the data for the map, and the condition and productivity status of the pasture lands, are outlined in the supplementary map in Appendix 5. These are shires in Queensland, slightly modified local government regions in the Northern Territory, and areas relating to the CSIRO land use reports plus the vegetation map area of Beard (1975) for Western Australia. Base data for shires in Queensland may be obtained from the Queensland Department of Primary Industries BRAQ data base (Weston *et al.* 1981) and the RIANAP GIS of the Meat Research Corporation. For the Northern Territory, the areas closely follow the local government regions, with the exception of the Katherine region which has been split into two parts—Victoria River District and Gulf. The Alice Springs region has been expanded slightly northward into the Barkly region to accommodate a more natural division of pasture communities; this has been renamed Central Australia. These regions have good agreement with the State GIS of the Conservation Commission of the Northern Territory, but not with the Resource Impact Assessment (RIA) contained in the RIANAP GIS of the Meat Research Corporation. For Western Australia, the boundaries do not relate to local government areas, but there is good agreement with RIANAP.

Map areas may not absolutely agree with the community or LPU areas given in Table 3 because minor areas may be submerged within major areas.

Table 1 The pasture lands of northern Australia

Description	Region (1)	Report (2)	Condition assessed 1991	LPU (3)
<b>TALLGRASS PASTURE LANDS</b>				
<b>Monsoon tallgrass pastures</b>				
Coastal and seasonally flooded lowland pastures				
Rice grass ( <i>Xerochloa</i> ) grassland (Y)*	NT/D	P	+	1
= Lowland tallgrass	NT/VRD	EK/VRD	+	2
Wanderrie grass ( <i>Eriachne</i> ) (Ke)*	NT/D	P	+	3
Cockatoo grass = Marrakai mid-height grassland	WA/NK	NK	+	4
Fringing tallgrass (not mapped)	WA/EK	EK/VRD		5
= Fringing pastures (not mapped)	WA/NK	NK		6
Perennial tallgrass pastures				
Ribbon grass-golden beardgrass ( <i>Chrysopogon</i> )*				
Golden beardgrass ( <i>Chrysopogon</i> )	NT/D	P,CC	+	7
Upland tallgrass (K) = Tippera tallgrass	NT/G	P		8
Ribbongrass	WA/NK	NK	+	9
Whitegrass ( <i>Sehima nervosum</i> )	WA/EK	EK	+	10
Whitegrass	WA/NK	NK	+	11
Whitegrass-plume sorghum-ribbongrass	WA/EK	EK	+	12
Whitegrass-annual sorghum (WGAS)	WAWK	WK	+	13
Plume/native/perennial sorghum ( <i>Sorghum plumosum</i> )*				
Native sorghum	Qld	W	+	14
= Plume sorghum, perennial sorghum	WA/NK	NK	+	15
Annual tallgrass pastures				
Annual sorghum ( <i>Sorghum intrans</i> , <i>S. Stipoideum</i> , et al)*				
Annual sorghum	NT/D	P	+	16
Annual sorghum	NT/VRD	EK/VRD	+	17
Annual sorghum	NT/G	P	+	18
Annual sorghum	NT/BT	CC		19
Annual sorghum	WA/EK	EK/VRD	+	20
Annual sorghum	WA/NK	NK	+	21
<i>Schizachyrium</i> – other tallgrasses*				
Tropical plains and low hills	Qld	W	+	22
Northern flooded alluvial plains	Qld	W	+	23
Curly spinifex- <i>Schizachyrium</i>	NT/G	CC	+	24
<b>Tropical/subtropical tallgrass pastures</b>				
Perennial tallgrass pastures				
Rainforest derived pastures (a)#*	Qld	W	+	25
Heathland pastures (c)*	Qld	W	+	26
Blady grass ( <i>Imperata cylindrica</i> )*	Qld	W	+	27
Black/bunch speargrass ( <i>Heteropogon contortus</i> )*				
Northern (Bowen and north)	Qld	W	+	28
Central (Proserpine – Calliope)	Qld	W	+	29
Southern (Miriam Vale and south)	Qld	W	+	30
Ribbongrass/golden beardgrass ( <i>Chrysopogon</i> )*				
<i>Chrysopogon</i> – other species	Qld		+	31
Tippera tallgrass ( <i>Chrysopogon</i> )	NT/VRD	EK/VRD	+	32
<i>Chrysopogon</i> – other species	NT/G	P	+	33
<i>Chrysopogon</i> – other species	NT/BT	CC		34
Ribbongrass	WA/EK	EK/VRD	+	35
Ribbongrass (RGa)	WAWK	WK	+	36
Ribbongrass-curly/soft spinifex (RGb)	WAWK	WK	+	37
Whitegrass-annual sorghum (WGAS)(see LPU 13)	WAWK	WK	+	38
Whitegrass – bundle-bundle (WGBB)	WAWK	WK	+	39
Frontage grass pasture land (FG)	WAWK	WK	+	40

Table 1 The pasture lands of northern Australia: continued

Description	Region (1)	Report (2)	Condition assessed 1991	LPU (3)
<b>MIDGRASS PASTURE LANDS</b>				
Pastures of eucalypt open forest and woodland				
<i>Aristida-Bothriochloa</i> pastures*				
<i>Aristida-Chrysopogon</i> (d)				
Einasleigh western slopes	Qld	W	+	41
Paperbark teatree	Qld	W	+	42
<i>Aristida pruinosa</i> three-awn (P)	NT/VRD	P,EK/VRD	+	43
<i>Aristida pruinosa</i> three-awn (P)	NT/G	P	+	44
<i>Aristida pruinosa</i> three-awn (P)	NT/BT	P,BT	+	45
<i>Aristida pruinosa</i> three-awn	WA/EK	EK/VRD	+	46
<i>Aristida-Triodia pungens</i> (e)	Qld	W	+	47
<i>Aristida-Cleistochloa</i> (f)	Qld	W	+	48
<i>Aristida-Thyridolepis</i> (g)	Qld	W	+	49
<i>Bothriochloa-Chloris-Aristida-Eragrostis</i> (h)				
Central	Qld	W	+	50
Southern	Qld	W	+	51
<i>Aristida-Eragrostis</i> (i)				
Southern sandy	Qld	W		52
Cypress pine	Qld	W	+	53
<i>Bothriochloa-Stipa-Danthonia</i> (j) granite-traprock	Qld	W	+	54
Kerosene grass ( <i>Aristida hygrometrica</i> )	W/ANK	NK	+	55
Seasonal riverine plains pastures*				
Channel pastures	Qld	W	+	56
<i>Eragrostis-Eulalia-Cenchrus</i>	NT/BT	CC	+	57
<i>Eragrostis-Eulalia-Cenchrus</i>	NT/CA	GB		58
Pastures of <i>Acacia</i> spp. open forest and woodland				
Brigalow ( <i>Acacia harpophylla</i> )#*				
Northern #	Qld	W	+	59
Central #	Qld	W	+	60
Southern and belah #	Qld	W	+	61
Gidgee ( <i>Acacia cambagei</i> )*				
Central (k)#	Qld	W	+	62
Western	Qld	W	+	63
South-western	Qld	W	+	64
Grasslands on clay soils				
Bluegrass grassland pastures				
Queensland bluegrass ( <i>Dichanthium sericeum</i> )*				
Central	Qld	W	+	65
Southern	Qld	W	+	66
Bluegrass-browntop ( <i>Dichanthium fecundum-Eulalia aurea</i> )*				
Tropical bluegrass-browntop	Qld	W	+	67
Bluegrass-golden beardgrass	NT/VRD	EK/VRD	+	68
Bluegrass-golden beardgrass	NT/G	CC	+	69
Bluegrass	WA/EK	EK/VRD	+	70
Bluegrass	W/ANK	NK	+	71
Tussock grassland pastures				
Mitchell grass ( <i>Astrebla</i> spp.)*				
Rolling downs (p)				
Northern	Qld	W	+	72
Southern	Qld	W	+	73
Southern flooded alluvials	Qld	W	+	74
Plains mitchell grass (M)	NT/VRD	P,EK/VRD	+	75
Plains mitchell grass	NT/BT	P,BT	+	76
Plains mitchell grass	NT/CA	GB		77
Mitchell grass plains	WA/EK	EK/VRD	+	78
Black soil plains (BSP)	W/ANK	WK	+	79
Chichester Range basalitics	W/PIL	WADA	+	80
Stony downs (q)	Qld	W	+	81
Ashy downs (r)	Qld	W	+	82
= drybog	NT/BT	BT	+	83
Mitchell grass - other grasses (Mo)	NT/VRD	P,EK/VRD	+	84
Inferior mitchell grass	NT/G	P,CC		85
Inferior mitchell grass (Mi)	NT/BT	P,BT	+	86
Mitchell grass-gidgee	NT/BT	BT,CC		87
Mitchell grass-gidgee	NT/CA	AS,CC		88
Clayey stony slopes	NT/CA	GB		89

Table 1 The pasture lands of northern Australia: continued

Description	Region (1)	Report (2)	Condition assessed 1991	LPU (3)
<b>Grasslands on sands and skeletal soils</b>				
<b>Hummock grasslands</b>				
Spiniflex ( <i>Triodia</i> , <i>Plectrachne</i> spp.)*				
Curly spiniflex ( <i>Plectrachne pungens</i> )				
NT Darwin region	NT/D	P	+	90
NT Gulf	NT/G	P	+	91
Barkly	NT/BT	CC	+	92
East Kimberley	WA/EK	EK/VRD	+	93
North Kimberley	WA/NK	NK	+	94
West Kimberley	WAWK	WK	+	95
Curly spiniflex – ribbongrass (CSRG Pindan)	WAWK	WK	+	96
Curly spiniflex – annual sorghum	WA/NK	NK		97
Curly/soft spiniflex ( <i>Plectrachne</i> spp./ <i>Triodia pungens</i> )				
Curly/soft spiniflex	NT/VRD	CC	+	98
Curly/soft spiniflex	NT/BT	BT	+	99
Curly/soft spiniflex	NT/CA	AS,CC		100
Soft spiniflex ( <i>Triodia pungens</i> )				
North-west (u)	Qld	W	+	101
Eastern-central (s)	Qld	W	+	102
Soft spiniflex plains (Ss)	NT/VRD	P,EK/VRD	+	103
Soft spiniflex plains	NT/G			104
Soft spiniflex plains	NT/BT	P,BT	+	105
Soft spiniflex plains	NT/CA	AS,CC		106
Soft spiniflex plains	WA/EK	EK/VRD	+	107
West Kimberley (SS)	WAWK	WK	+	108
Hard spiniflex ( <i>Triodia</i> spp.)				
Western dunefields (t)	Qld	W	+	109
Western acacia/eucalypt (t)	Qld	W	+	110
Sandplains (Sh)	NT/VRD	P,EK/VRD	+	111
Sandplains	NT/BT	P,BT	+	112
Sandplains (Sh)	NT/CA	GB,AS		113
Dune fields (Sd)	NT/BT	P,BT		114
Dune fields (Sd)	NT/CA	GB,AS		115
Pilbara	WA/PIL	PIL	+	116
East Kimberley	WA/EK	EK/VRD	+	117
Lobed spiniflex (LS)	WAWK	WK	+	118
Limestone spiniflex	NT/VRD	CC		119
Limestone spiniflex (LmSS)	WAWK	WK	+	120
Spiniflex on small hills	NT/CA	GB		121
Hard/soft spiniflex				
Central Australia	NT/CA	CC		122
Pilbara	WA/PIL	PIL	+	123
<b>SHORTGRASS PASTURE LANDS</b>				
<b>Perennial shortgrass pastures</b>				
Pastures with top-feed – <i>Acacia</i> spp. woodland/shrubland				
Mulga ( <i>Acacia aneura</i> ) – perennial shortgrass*				
Soft and hard mulga (m)	Qld	W	+	124
Mulga on residuals (n)	Qld	W	+	125
Mulga shrubland (=m)	NT/CA	GB		126
Mixed <i>Acacia</i> – other genera woodland	NT/CA	GB,P		127
Georgina gidgee ( <i>Acacia georginae</i> ) – shortgrass*				
Georgina gidgee South-west (l)	Qld	W	+	128
Georgina gidgee	NT/CA	GB		129
Pastures without top-feed				
Tussock grass – soft spiniflex*				
WA/PIL	WA/PIL	PIL	+	130
Saltwater couch pastures ( <i>Sporobolus virginicus</i> )*				
Littoral (b)	Qld	W	+	131
Coastal country (C)	NT/D	P	+	132
Coastal country (C)	NT/VRD	P,EK/VRD	+	133
Coastal country (C)	NT/G	P,BT	+	134

Table 1 The pasture lands of northern Australia: continued

Description	Region (1)	Report (2)	Condition assessed 1991	LPU (3)
Littoral (Lt)	WA/WK	WK	+	135
Littoral	WA/EK	EK/VRD	+	136
Littoral	WA/NK	NK	+	137
<b>Annual shortgrass – forb pastures</b>				
Pastures with top-feed – <i>Acacia</i> spp. shrubland				
Mulga – annual shortgrass*				
Mulga – whitewood	Qld	W	+	138
Mulga shrubland	NT/CA	GB,CC		139
Mulga shrubland	WA/PIL	PIL	+	140
Mixed <i>Acacia</i> spp. on low hills (Hh)	NT/CA	GB,P		141
<i>Eremophila</i> – <i>Cassia</i> low shrubland	WA/PIL	PIL	+	142
Pastures without top-feed				
Annual shortgrass – low open woodland*				
Northern calcareous pastures (= arid shortgrass)	NT/VRD	P,EK/VRD	+	143
Southern calcareous pastures (= Ca shrubby grass/nd)	NT/CA	P,GB		144
Shortgrass grassland (= arid shortgrass)	WA/EK	EK/VRD	+	145
Shortgrass grassland – ribbongrass (SGa)	WA/WK	WK	+	146
Shortgrass – curly spinifex (SGb)	WA/WK	WK	+	147
<b>SHRUB PASTURE LANDS</b>				
<b>Chenopod shrubland pastures</b>				
Southern bluebush (A) = chenopod shrubland	NT/CA	P,GB		148
Northern bluebush	NT/VRD	CC		149
Northern bluebush (B)	NT/BT	P,BT	+	150
Saltbush–bluebush samphire	WA/PIL	PIL	+	151

**Legend****(1) Regions**

Qld = Queensland  
 NT/D = Northern Territory, Darwin  
 NT/VRD = Northern Territory, Victoria River District  
 NT/G = Northern Territory, Gulf of Carpentaria  
 NT/BT = Northern Territory, Barkly Tableland  
 NT/CA = Northern Territory, Central Australia  
 WA/EK = Western Australia, East Kimberley  
 WA/NK = Western Australia, North Kimberley  
 WA/WK = Western Australia, West Kimberley  
 WA/PIL = Western Australia, Pilbara

**(2) Reports**

AS = Alice Springs, CSIRO (1962)  
 BT = Barkly, CSIRO (1952)  
 CC = Conservation Commission of N. Territory (1991)  
 D = Katherine-Darwin, CSIRO (1946)  
 EK/VRD = East Kimberley, Victoria River District, CSIRO 1970  
 GB = Bastin (1988)  
 NK = Northern Kimberley, CSIRO (1960)  
 P = Perry, CSIRO (1960)  
 PIL = Pilbara, Beard (1975)  
 W = Weston *et al.* (1981)  
 WADA = Western Australian Dept. of Agriculture (1974)  
 WK = West Kimberley, CSIRO (1964)

(3) LPU = Local Pasture Unit (Pasture communities as they occur locally)

Species composition for each LPU is given in Appendix 1

+ indicates that condition was assessed

() alphabetic codes after pasture/area names are those given in the relevant reports

# pastures developed on cleared land

\* Pasture communities with unique map colour