Central Kimberley 3 *(CK3 – Mount Eliza subregion)*

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Subregional description and biodiversity values

Description and area

The bioregion is hilly to mountainous country with parallel siliceous ranges of Proterozoic sedimentary rocks with skeletal sandy soils supporting *Triodia* spp. hummock grasses with scattered trees, and with earths on Proterozoic volcanics in valleys supporting ribbon grass (*Chrysopogon* spp.) with scattered trees. Open forests of river red gum (*Eucalyptus camaldulensis*) and *Pandanus* spp. occur along drainage lines. The climate is dry hot tropical and sub-humid to semi-arid with summer rainfall.

The Mount Eliza subregion is the Southwestern periphery of the Kimberley Craton. It is very rugged with intense folding and exposure of basement strata. The geology includes shales, granites, sandstones, dolerites and volcanics. The vegetation is primarily savannah woodland and there are scattered vine thickets towards western end. Annual rainfall is approximately 800 mm. Subregional area is 1, 003, 969 ha.

Broadscale vegetation mapping of the area describes the following components:

- *Bauhinia cunninghamii* (bauhinia) and / or deciduous species grassy low open-woodland.
- *Astrebla lappacea* (curly Mitchell grass) and / or *Astrebla pectinata* (barley Mitchell grass) tussock grassland sparsely wooded with *Acacia* spp. low trees.
- *Eucalyptus tectifica* (Darwin Box), *Eucalyptus flavescens* (wrinkle-leaved ghost gum) woodland with *Chrysopogon* spp. (ribbon grass) tussock grasses.
- *Eucalyptus brevifolia* (snappy gum), *Eucalyptus cadophora* subsp. *cadophora* (twin-leaved bloodwood low open-woodland with a *Triodia bitextura* ((curly spinifex) hummock grass ground layer.
- *Cochlospermum fraseri* (kapok), *Erythrophleum chlorostachys* (ironwood) and *Terminalia aridicola* (arid peach) +/- *Acacia* spp. +/- *Eucalyptus* spp. deciduous low open-woodland with sparse-tussock grasses.

Dominant land use

(see Appendix B, key b)

(ix) Grazing – Native pastures
(xiii) Conservation
(xi) UCL and Crown reserves

Continental Stress Class

The Continental Stress Class for CK3 is 6, however further assessment of the condition of the subregion may warrant it becoming class 5.

Known special values in relation to landscape, ecosystem, species and genetic values

Rare Features:

- The subregion is fox and rabbit free and essentially uninhabited.
- The exposed folding of the rock strata within the King Leopold Ranges is of particular note.

Centres of Endemism:

- The Declared Rare Flora *Eucalyptus mooreana* is found within this subregion.
- Rainforest patches are particularly important to invertebrates such as Camaenid land snails and annelids. Camaenid land snails have a large number of endemic species and some endemic genera showing strongly localised patterns of endemism. All the rainforest patches studied to date have endemic earthworm species associated with them.

Refugia:

The nature of this aspect is poorly known. 'Dry' rainforest patches provide dry season refuges along with riparian zones. Further research is required to define the extent to which this aspect may apply to sandstone country because of its ability to provide fire protection.

High Species and Ecosystem Diversity:

Sandstone community, Laterite rainforests. Rainforests are defined by their vegetation associations and are resource centres for a variety of faunal taxa that are either directly linked to rainforests or are more widely ranging species that are dependent on them. Examples include fruit pigeons and flying foxes.

Existing subregional or bioregional plans and/or systematic reviews of biodiversity and threats

The CTRC report in 1974 System 7 formed the basis of the Department's publication "Nature Conservation Reserves in the Kimberley" which has itself been incorporated in a Departmental Draft Regional Management Plan. These reports were focused on non-production lands and those areas not likely to be prospective for minerals. Action statements and strategies in the draft regional management plan do not go to the scale of subregion or even bioregion. Previous rainforest studies are applicable (McKenzie *et al* 1991).

There has been no systematic review of biodiversity but it is apparent that there are on-going changes to the status of fauna (particularly mammals) and plant taxa. There is reasonable evidence about continuing loss of species and changes to assemblages at the landscape level which are affecting vegetation structure (e.g. loss of shrub layer),

composition (e.g. perennial vs. annual grasses), vegetation cover, leaf litter, and organics in the upper soil horizon. It is generally recognised that flow-on effects of changes in the physical components of the environment, vegetation structure changes and other factors (e.g. exotic predators) can have significant effects on fauna. Work to date has been of a general nature.

Wetlands

Wetlands of National significance (DIWA listings)

There are no Wetlands of National Significance in CK3.

Wetlands of subregional significance (in addition to the DIWA listed wetlands)

Name	Location	Description[1]	Special Values[2]	Condition[3]	Trend[4]	Reliability[5]	Threatening Processes[6]
Windjana Gorge	17° 24' S, 124° 57' E	B2	ii.	iv	iv	ii	iv

[1]Appendix B, key d; [2]Appendix B, key c; [3]Appendix C, rank 2; [4]Appendix C, rank 3; [5]Appendix C, rank 1; [6]Appendix B, key e

Riparian zone vegetation

Name	Condition[1]	Trend[2]	Reliability[3]	Threatening Processes[4]
All fringing vegetation of riparian zones	iii	iii	ii	vii, iv, v (feral herbivores), x

[1]Appendix C, rank 2; [2]Appendix C, rank 3; [3]Appendix C, rank 1; [4]Appendix B, key e

Ecosystems at risk

Threatened ecological communities (TECs)

There are no Threatened Ecological Communities (TECs) in CK3.

Other ecosystems at risk

Ecosystem	Status	NVIS[1]	Condition[2]	Trend[3]	Reliability[4]	Threatening Process[5]
Rainforest patches of the Kimberley region	V	2	Variable	iii	iii	iv, vii, x
Savannah communities of which *Callitris intratropica* is a component.	V	11	ii	ii	iii	vii
Assemblages of permanent/ephemeral wetlands, damplands, and riparian habitat of the Kimberley region.	V	15, 38, 42	Unknown	iii	ii	iv, vii
Plant assemblages of sand plain seepage areas between/near sandstone ridges.	V	38	Unknown	vi	Unknown	iv, vii
Herbfields of sandstone pavements.	V	38	Unknown	vi	Unknown	iv, vii

[1]Appendix B, key f; [2]Appendix C, rank 2; [3]Appendix C, rank 3; [4]Appendix C, rank 1; [5]Appendix B, key e

Species at risk

Fauna

Species	Status	Condition[1]	Trend[2]	Reliability[3]	Threatening Processes[4]
SCHEDULE 1; RARE/LIKELY TO BECOME EXTINCT, DIV 2 (BIRDS)					
Erythrura gouldiae	E	Unknown	iii	ii	vii
Petrophassa smithii blaauwi	V	Unknown	vi	Unknown	vii
Erythrotriorchis radiatus	V	Unknown	vi	Unknown	Unknown threatening processes
Malurus coronatus coronatus	V	Unknown	vi	ii	vii, iv
SCHEDULE 4; OTHER SPECIALLY PROTECTED FAUNA. DIVISION 1 (MAMMALS)					
Rhinonicteris aurantius	S1	Unknown	vi	Unknown	Unknown threatening processes
SCHEDULE 4; OTHER SPECIALLY PROTECTED FAUNA. DIVISION 3 (REPTILES)					
Crocodylus johnstoni	S4	Unknown	iv	iii	Unknown threatening processes
OTHER SPECIES AT RISK WITHIN THE SUBREGION					
Dasyurus hallucatus	Near threatened	Unknown	iii	ii	Unknown threatening processes
Macroderma gigas	Near threatened	Unknown	vi	Unknown	Unknown threatening processes
Wyulda squamicaudata	Near threatened	Unknown	vi	Unknown	Unknown threatening processes
Neochmia ruficauda	Near threatened	Unknown	vi	Unknown	Unknown threatening processes
Phaps histrionica	Near threatened	Unknown	vi	Unknown	Unknown threatening processes
Falco hypoleucos	Near threatened	Unknown	vi	Unknown	Unknown threatening processes
Heteromunia pectoralis	Near threatened	Unknown	vi	Unknown	Unknown threatening processes
Ardeotis australis	Near threatened	Unknown	vi	Unknown	Unknown threatening processes

[1]Appendix C, rank 2; [2]Appendix C, rank 3; [3]Appendix C, rank 1; [4]Appendix B, key e

Declared rare and priority flora

Species Name	Status	Condition[1]	Trend[2]	Reliability[3]	Threatening Processes[4]
DECLARED RARE FLORA					
Eucalyptus mooreana	V	Unknown	vi	Unknown	Unknown threatening processes
PRIORITY 1					
Erpodium australiense	1	Unknown	vi	Unknown	Unknown threatening processes
Fimbristylis pilifera	1	Unknown	vi	Unknown	Unknown threatening processes
PRIORITY 2					
Minuria macrorhiza	2	Unknown	vi	Unknown	Unknown threatening processes

[1]Appendix C, rank 2; [2]Appendix C, rank 3; [3]Appendix C, rank 1; [4]Appendix B, key e

Analysis of appropriate management scenarios

Reservation priorities of ecosystems

The following Central Kimberley ecosystems are not reserved anywhere within the bioregion:

Beard Veg Assoc	Description	Area (Ha.)
12	Medium woodland-tropical; Darwin stringybark (*Eucalyptus tetrodonta*) and Northern woollybutt (*Eucalyptus miniata*).	1,675
39	Shrublands; mulga scrub.	47
43	Low forest; mangroves.	141
53	Mosaic: Grasslands/pindan; Medium woodland with mixed tree scrub over? tall upland grass and *Plectrachne* spp.	20,665
60	Grasslands, tall bunch grass savannah woodland, Darwin box (*Eucalyptus tectifica*) and cabbage gum (*Eucalyptus grandifolia*) over ribbon grass (*Chrysopogon* spp.)	89,854
61	Grasslands, tall bunch grass savannah woodland, coolibah over ribbon grass (*Chrysopogon* spp.).	37,682
75	Grasslands, curly spinifex (*Triodia bitextura*), low tree savannah woodland; scarlet gum (*Eucalyptus phoenicea*) and *Eucalyptus ferruginea* over curly spinifex (*Triodia bitextura*).	1,793,559
77	Grasslands, curly spinifex (*Triodia bitextura*) and short grass low tree savannah; snappy gum (*Eucalyptus brevifolia*) over *Enneapogon* spp. and curly spinifex (*Triodia bitextura*).	424,117
116	Hummock grasslands, sparse low tree steppe; mixed low trees over *Triodia wiseana*.	789
126	Bare areas; freshwater lakes.	406
127	Bare areas; mudflats.	1,693
699	Shrublands, pindan; *Acacia eriopoda* shrubland with scattered low bloodwood (*Eucalyptus* spp.) and roughleaf bloodwood (*Eucalyptus setosa*) over soft (*Triodia pungens*) and curly spinifex (*Triodia bitextura*) on sandplain.	6,950
709	Hummock grasslands, shrub steppe; *Acacia* spp. over winged spinifex (*Triodia intermedia*) on stony laterite.	1,144
726	Grasslands, tall bunch grass savannah low tree; boab (*Adansonia gregorii*), bauhinia (*Bauhinia cunninghamii*) and beefwood (*Grevillea striata*) over Mitchell (*Astrebla* spp.) and ribbon/blue grass (*Chrysopogon* spp./*Bothriochloa* spp.) on black soil.	16,266
735	Hummock grasslands, sparse medium tree steppe; boab (*Adansonia gregorii*) over open *Triodia wiseana* on limestone.	104
742	Medium woodland; river red gum (*Eucalyptus camaldulensis*) and *Terminalia* spp.	2,844
743	Grasslands, tall bunch grass savannah sparse low tree; corkybark wattle (*Acacia suberosa*) and bauhinia (*Bauhinia cunninghamii*) over ribbon/blue grass (*Chrysopogon* spp./*Bothriochloa* spp.) on black soil.	15,798
754	Shrublands, pindan; pindan wattle (*Acacia tumida*) shrubland with Northern woollybutt (*Eucalyptus miniata*) and cabbage gum (*Eucalyptus grandifolia*) medium woodland over ribbon grass (*Chrysopogon spp.*) and curly spinifex (*Triodia bitextura*)	525
759	Grasslands, tall bunch grass savannah woodland, coolibah over ribbon/blue grass (*Chrysopogon* spp./*Bothriochloa* spp.).	115
774	Grasslands, tall bunch grass savannah sparse low tree; corkybark wattle (*Acacia suberosa*) over Mitchell grass (*Astrebla* spp.) on black soil	26,840
802	Grasslands, high grass savannah woodland; Darwin box (*Eucalyptus tectifica*) and cabbage gum (*Eucalyptus grandifolia*) over mixed/white grass (*Sehima nervosum*) on basalt and dolerite.	204,242
804	Grasslands, tall bunch grass savannah low tree; bloodwood (*Eucalyptus* spp.) and cabbage gum (*Eucalyptus grandifolia*) over ribbon grass (*Chrysopogon* spp.).	77,959
805	Grasslands, curly spinifex (*Triodia bitextura*), savannah woodland; snappy gum (*Eucalyptus brevifolia*) and bloodwood (*Eucalyptus* spp.) over curly spinifex (*Triodia bitextura*) on limestone plateau.	6,334
807	Grasslands, tall bunch grass savannah sparse low tree; *Acacia* spp. over grass on black soil	689
809	Grasslands, tall bunch grass savannah woodland, longfruit bloodwood (*Eucalyptus polycarpa*) over *Aristida* spp., riverine.	12,733
811	Grasslands, high grass savannah low tree; Mt House box (*Eucalyptus argillacea*) and bloodwood (*Eucalyptus* spp.) over white grass (*Sehima nervosum*) on rolling basalt country.	51,044
812	Grasslands, high grass savannah woodland; bloodwood (*Eucalyptus* spp.) and Northern woollybutt (*Eucalyptus miniata*) over upland tall grass and curly spinifex (*Triodia bitextura*).	6,168
814	Hummock grasslands, low steppe woodland; silverleaf box (*Eucalyptus pruinosa*) and *Melaleuca* spp. over *Plectrachne* spp.	1,476
820	Grasslands, high grass savannah sparse low tree; snappy gum (*Eucalyptus brevifolia*) over upland tall grass and curly spinifex (*Triodia bitextura*) on granite.	1,087
Beard Veg Assoc	Description	Area (Ha.)
829	Mosaic: Grasslands, short bunch grass savannah, low tree, Mt House box (*Eucalyptus argillacea*) and bloodwood (*Eucalyptus* spp.) over *Enneapogon* spp. arid short grass/Grasslands; high grass savannah, white grass (*Sehima nervosum*).	12,574
834	Grasslands, tall bunch grass savannah, Mitchell (*Astrebla* spp.) and blue grass (*Bothriochloa* spp.).	25,220
835	Grasslands, high grass savannah woodland; Darwin box (*Eucalyptus tectifica*) and *Eucalyptus greeniana* over spinifex and white grass (*Sehima nervosum*).	56,869
837	Grasslands, short bunch grass savannah low tree; snappy gum (*Eucalyptus brevifolia*) over arid short grass on plains.	160,181
838	Grasslands, high grass savannah woodland; ghost gum (*Eucalyptus bella*) and longfruit bloodwood (*Eucalyptus polycarpa*) over spinifex and tall upland grass.	7,677
839	Grasslands, high grass savannah low tree; Mt House box (*Eucalyptus argillacea*) and bloodwood (*Eucalyptus* spp.) over upland tall grass.	9,370
840	Grasslands, tall bunch grass savannah, ribbon/blue grass (*Chrysopogon* spp./*Bothriochloa* spp.).	2,807
842	Mosaic: Grasslands, short bunch grass savannah, low tree, Mt House box (*Eucalyptus argillacea*) and bloodwood	103,036

	(*Eucalyptus* spp.) over *Enneapogon* spp. short grass/Hummock grasslands, open low tree-steppe; snappy gum (*Eucalyptus brevifolia*) over Triodia wiseana and winged spinifex (*Triodia intermedia*).	
852	Grasslands, short bunch grass savannah low tree; snappy gum (*Eucalyptus brevifolia*) and bloodwood (*Eucalyptus* spp.) over arid short grass on plains.	6,834
855	Grasslands, tall bunch grass savannah low tree; mixed low trees over Mitchell (*Astrebla* spp.) and ribbon/blue grass (*Chrysopogon* spp./*Bothriochloa* spp.) on black soil	4,425
856	Grasslands, tall bunch grass savannah low tree; mixed low trees over ribbon/blue grass (*Chrysopogon* spp./*Bothriochloa* spp.) on black soil.	3,602
858	Mosaic: Grasslands, curly spinifex (*Triodia bitextura*), low tree savannah woodland; scarlet gum (*Eucalyptus phoenicea*) and *Eucalyptus ferruginea* over curly spinifex (Triodia bitextura)/grasslands, curly spinifex (*Triodia bitextura*), low tree savannah woodland; snappy gum (*Eucalyptus brevifolia*) over curly spinifex (*Triodia bitextura*) on sandstone.	332,894
864	Grasslands, tall bunch grass savannah low tree; bloodwood (*Eucalyptus* spp.) over ribbon grass (*Chrysopogon* spp.).	23,478
866	Grasslands, tall bunch grass savannah sparse low tree; bauhinia (Bauhinia cunninghamii) and coolibah over ribbon grass (*Chrysopogon* spp.) on black soil.	21,548
867	Grasslands, high grass savannah low woodland; Darwin box (*Eucalyptus tectifica*) and cabbage gum (*Eucalyptus grandifolia*) over white grass (*Sehima nervosum*) and/or upland tall grass.	116,204
868	Grasslands, curly spinifex (*Triodia bitextura*) and short grass low tree savannah; snappy gum (*Eucalyptus brevifolia*) and bloodwood (*Eucalyptus* spp.) over *Enneapogon* spp. and curly spinifex (*Triodia bitextura*) on granite.	231,787
869	Grasslands, tall bunch grass savannah low tree; bauhinia (*Bauhinia cunninghamii*) and coolibah over ribbon grass (*Chrysopogon* spp.) on black soil	10,349
870	Grasslands, tall bunch grass savannah low tree; snappy gum (*Eucalyptus brevifolia*) over ribbon grass (*Chrysopogon* spp.)	11,639
871	Mosaic: Grasslands, curly spinifex (*Triodia bitextura*), low tree savannah; snappy gum (*Eucalyptus brevifolia*) over curly spinifex (*Triodia bitextura*)/Hummock grasslands, grass steppe; winged spinifex (*Triodia intermedia*).	246,090
877	Grasslands, tall bunch grass savannah low tree; snappy gum (*Eucalyptus brevifolia*) and bloodwood (*Eucalyptus* spp.) over ribbon grass (*Chrysopogon* spp.).	50,687
883	Grasslands, curly spinifex (*Triodia bitextura*), low tree savannah; bloodwood (*Eucalyptus* spp.) over curly spinifex (*Triodia bitextura*).	27,988
884	Grasslands, tall bunch grass savannah low tree; cabbage gum (*Eucalyptus grandifolia*) and longfruit bloodwood (*Eucalyptus polycarpa*) over ribbon (*Chrysopogon* spp.) and blue grass (*Bothriochloa* spp.) on sandy plains	45,113
887	Grasslands, high grass savannah woodland; Darwin box (*Eucalyptus tectifica*) and cabbage gum (*Eucalyptus grandifolia*) over mixed/white grass (*Sehima nervosum*).	46,244
888	Grasslands, tall bunch grass savannah low woodland, Darwin box (*Eucalyptus tectifica*) and cabbage gum (*Eucalyptus grandifolia*) over ribbon grass (*Chrysopogon* spp.).	169,955
901	Grasslands, high grass savannah woodland; Darwin stringybark (*Eucalyptus tetrodonta*) and Northern woollybutt (*Eucalyptus miniata*) over upland tall grass and curly spinifex (*Triodia bitextura*).	1,893
905	Grasslands, high grass savannah woodland; cabbage gum (*Eucalyptus grandifolia*) and ghost gum (*Eucalyptus bella*) over mixed/white grass (*Sehima nervosum*), riverine.	3,350
906	Grasslands, high grass savannah woodland; bloodwood (*Eucalyptus* spp.), Darwin stringybark (*Eucalyptus tetrodonta*) and Northern woollybutt (*Eucalyptus miniata*) over white grass (*Sehima nervosum*) and tall upland grass on sandstone.	1,488
914	Grasslands, high grass savannah woodland; Darwin box (*Eucalyptus tectifica*) and *Eucalyptus greeniana* over kangaroo grass (*Themeda australis*) and white grass (*Sehima nervosum*).	4,578

Poorly represented ecosystems subject to threat:

Savannah communities of which *Callitris intratropica* is a component.
Assemblages of permanent/ephemeral wetlands, damplands, and riparian habitat of the Kimberley region.
Plant assemblages of sand plain seepage areas between/near sandstone ridges.
Herbfields of sandstone pavements.
Perched spring-fed peat-based swamps on hill slopes of the Durack Range area.
Naturally protected valley systems of the Saw and Durack Ranges.
Flora and fauna assemblages of Lake Gladstone.

Note: the lack of study in some areas precludes statements about the level of reservation required.

Subregional constraints in order of priority

(see Appendix B, key g)

Economic Constraints: Land prices for pastoral leases.

Competing Land Uses: Pastoral production.

Other: Our knowledge of biodiversity patterns across the subregion's landscape does not have enough resolution to accurately define all acquisition priorities on the ground.

Bioregional and subregional priority for reserve consolidation

The Central Kimberley bioregion has a ranking priority under the preliminary bioregional NRS priorities of 1 (see Appendix D, and Appendix C, rank 4). However this may need to be reviewed in light of the declaration of the King Leopold Ranges Conservation Park. It can also be argued that there is a bias in the reserve system because some ecosystems not reserved are those that are being grazed and have been grazed the longest and are often burnt the most often (or the most frequency x intensity). The ranking between the three subregions is the Hart subregion having the highest priority for investigation of possible reservation options and then the Pentecost subregion followed by the Mt Eliza subregion.

Reserve management standard

The bioregion is ranked at poor (i) to fair (ii) (see Appendix C, rank 5). Apart from the donkey control program undertaken by the Department of Agriculture (WA) there are no concerted feral animal control programs in place. There is limited strategic aerial prescribed. Extent of other threatening processes, for example weeds, yet to be determined. Due to uncontrolled stock access, changes are occurring within parks.

Conservation Estate	Rank[1]	Issues
Conservation Parks		
King Leopold Range (Part)	ii	Location makes the park accessible. Full extent of threatening processes (Fire, weeds, feral animals) need to be documented. Stock impact occurring.

[1]Appendix C, rank 5

Off reserve conservation

Priority species or groups

- Threatening processes operate from the species to landscape level.
- Little is known of the status of critical weight range mammals in the Mount Eliza subregion.
- Action is required to identify appropriate fire regimes.
- The effect of fire and cattle on critical weight range mammals, granivorous birds and savannah composition and structure is of concern.
- Changed grassland structures are of concern.
- There is evidence that changes have, and continue, to occur for the balance between annual and perennial grasses.
- Landscape level threatening processes also bring about changes to the organic profile layer in soils, water infiltration rates and surface flow velocity after rain.
- Impacts on rainforest patches of inappropriate fire regimes and specifically rainforest fire / cattle interaction is of concern.
- There have been changes to riparian zones due to the impact of changed fire regimes, grazing and the indirect effects from changed hydrology.
- Action is required to identify what is at risk and components of the biota at most risk then recommend and research appropriate management.
- Little is known of the distribution, status and impact of weed species.

Existing recovery plans

Other Planning Opportunities: Move to biodiversity driven approaches to fire management strategies. Avoid frequent, broad scale, hot, late dry-season burning in savannah.

Industry Codes of Practice: Need to define weeds priorities both in an agricultural resource sense and an environmental sense. Resources required for already identified State and regional weed strategies.
Capacity Building: Need organisational responsibility for coordinating management efforts across tenure and management responsibilities. Local adoption of strategies. Capacity building in pastoral industry and Aboriginal groups to optimise biodiversity and savannah productivity. Minimise loss of the mineral A horizon and protection of organic layers.

Environmental Management Systems: Removal of feral stock from conservation estate and management of stock on other lands e.g. close order husbandry of cattle herds to prevent overgrazing. Eradication of feral animals especially cattle, donkeys and pigs.

Appropriate species recovery actions

The Action Plan for Australian Bats.
The Action Plan for Australian Birds 2000.
Action Plan for Australian Marsupials and Monotremes.
Gouldian Finch Recovery Plan.
Draft Kimberley Region Management Plan (various strategies).

Ecosystems and appropriate recovery actions

This is a general savannah issue and fire is the main driver in addressing this. The next most important, and linked, issue is grazing. Actions that are required are linked to management research and better-coordinated efforts between Government agencies, the pastoral grazing industry, Traditional owners and the broader community.

Existing ecosystem recovery plans

There are no existing recovery plans relevant to Ecosystems at Risk in CK3.

Subregion priority for off reserve conservation

The priority for off park conservation is (ii) (see Appendix C, rank 6), indicating that a large off park effort needed, and resource constraints and limited community capacity exist.

Conservation actions as an integral part of NRM

Existing NRM actions

Legislation: Pastoral lease inspections are undertaken by the Department of Agriculture and leaseholders notified of any problems via the Pastoral Lands Board. Final scenario is that the Commissioner for Soil Conservation can institute formal proceedings if issues are not being addressed. The last is rarely undertaken.

Threat Abatement Planning as Part of NRM: Concerted and coordinated effort by the Department of Agriculture in the control of donkeys.

Capacity Building: Land Conservation District Committees established and provide a venue for discussion on conservation matters.

Integration with Property Management Planning, Catchment Planning and Landcare: Land Conservation District Committees provide an opportunity for integration of land management activities.

Feasible Opportunities for NRM

Environmental Management Systems: Research is needed on the mechanism and impacts of threatening processes. Outputs of this should assess potential cost / effective solutions. There has been some development in the co-ordination of multiple research initiatives and communication of this; Environmental planning across tenure (weeds, fire and feral animals) coordinated through Land Conservation District Committee.

Legislation: Improved implementation of existing legislation.

Capacity Building: Improved communication required between all stakeholders and an acknowledgement of differing land management objectives.

Other Planning Opportunities: Shire plan incorporating biodiversity objectives incorporating an acknowledgement of the worth of the natural environment e.g. tourism including the cost of management such as making national parks accessible.

Integration with Property Management Planning, Catchment Planning and Landcare:
Development of catchment and regional plans involving all stakeholders.

Impediments or constraints to opportunities

A limited financial resource is a major constraint. The number of people available to implement strategies is a constraint. There is a need to increase awareness of conservation values throughout the community.

Subregions where specific NRM actions are a priority to pursue

A more coordinated approach to land management would be to give priority to the Hart subregion and given the relatively small number of stakeholders could be achieved in the short term. The Mt Eliza subregion would be more complex followed by the Pentecost subregion. The rank for all subregions is (ii) (see Appendix C, rank 7), indicating that there are significant constraints to integrate conservation as part of production / development system.

Data gaps

Gaps in data needed for the identification of biodiversity values and management responses

Vegetation and Regional Ecosystem Mapping: Much finer scale (at 100,000:1 or better) vegetation / regional ecosystem mapping required for most of the widespread surfaces. This needs to align with soil maps and environmental geology maps and these do not yet exist at better than 1:250 000 scale.

Systematic Fauna Survey: No systematic quadrat based fauna and / or flora sampling programme across the subregion to provide a basis for modeling species distribution and status.

Floristic Data: Data is sparse. Some potential for adapting WARMS monitoring methodology.

Ecological and Life History Data: Data is lacking on the habitat requirements of fauna species.

Other Priority Data Gaps:
Further research is required on the conservation status of many fauna and flora taxa as well as the effects of threatening processes such as exotic predators (cats), stock (cattle, donkeys and pigs), fire and weeds.

Sources

References cited

No.	Author	Date	Title	Publication Details	Pub. Type
714	Dostine, Peter	(1998).	Gouldian finch recovery plan, *Erythrura gouldiae*	Parks & Wildlife Commission of the Northern Territory, Darwin	R
258	Duncan, A., Barry Baker, G. and Montgomery, N.	(1999).	The Action Plan for Australian Bats.	Environment Australia.	R
298	Garnett, S.T. and Crowley, G.M.	(2000).	The Action Plan for Australian Birds.	Environment Australia, Canberra.	R
483	Maxwell, S., Burbidge, A.A. and Morris, K. (eds).	(1996).	The 1996 Action Plan for Australian Marsupials and Monotremes. Wildlife Australia Endangered Species Program Project Number 50.	Environment Australia, Canberra.	R
495	McKenzie, N.L., Johnston, R.B. and Kendrick, P.G. (Eds.)	(1991).	Kimberley Rainforests of Australia.	Surrey Beatty and Sons.	B

R = Report; J = Journal article; O = Other.

Other relevant publications

See reference numbers 018, 094, 100, 118, 132, 173, 551, 556, 626, 634, 635, 636, 637, 648, 692 and 693 in Appendix A.