Tanami Desert 1 *(TAN1 – Tanami 1 subregion)*

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Subregional description and biodiversity values

Description and area

Mainly red Quaternary sandplains overlying Permian and Proterozoic strata that are exposed locally as hills and ranges. The sandplains support mixed shrub steppes of *Hakea spp.*, desert bloodwoods, *Acacia spp.* and *Grevillea spp.* over soft spinifex (*Triodia pungens*) hummock grasslands. Wattle scrub over soft spinifex (*T. pungens*) hummock grass communities occur on the ranges. Alluvial and lacustrine calcareous deposits occur throughout. In the north they are associated with Sturt Creek drainage, and support ribbon grass (*Chrysopogon spp.*) and Flinders grass (*Iseilema spp.*) short-grasslands often as savannas with river red gum. The climate is arid tropical with summer rain. Subregional area is 3, 214, 599ha.

Dominant land use

The dominant land use is (xi) UCL and Crown reserves (see Appendix B, key b).

Continental Stress Class

The Continental Stress Class for TAN1 is 5.

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

There are no known special values within TAN1.

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" (Burbidge *et al.* 1991) which has itself been incorporated in a Departmental Draft Regional Management Plan (Portlock *et al.* 2001). 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.

Apart from specific survey work 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. The least is known about this bioregion out of all in the Kimberley.

Wetlands

Wetlands of National significance (DIWA listings)

Name and Code	Description[1]	Condition[2]	Trend[3]	Reliability[4]	Threatening Processes[5]
Lake Gregory System TAN001WA	B7, B8, B2	ii	vi	iii	iv, v (cattle), xii (substantial tree deaths have reduced availability of nesting material for water birds; possibly broadscale erosion in Northern Territory portion of catchment at least).

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

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

There are no Wetlands of Subregional Significance in TAN1.

Riparian zone vegetation

Name	Condition[1]	Trend[2]	Reliability[3]	Threatening Processes[4]
All fringing vegetation of riparian zones	Unknown	Unknown	ii	Unknown threatening processes

[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 TAN1.

Other ecosystems at risk

Ecosystem	Status	NVIS[1]	Condition[2]	Trend[3]	Reliability[4]	Threatening Process[5]
Assemblages of permanent/ephemeral wetlands, damplands, and riparian habitat of the southern Kimberley region.	V	15, 38, 42	Unknown	iii	ii	iv, vii
Widespread vegetation types and widespread threats such as changed fire regimes.	V	11	Variable	vi	ii	vii

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

Species at risk

Fauna

Species	Status	Condition[1]	Trend[2]	Reliability[3]	Threatening Processes[4]
SCHEDULE 1; RARE/LIKELY TO BECOME EXTINCT, DIV 1 (MAMMALS)					
Macrotis lagotis	V (Comm.)	Unknown	vi	ii	vii, xii (possibly predation)
SCHEDULE 1; RARE/LIKELY TO BECOME EXTINCT, DIV 2 (BIRDS)					
Erythrura gouldiae	E (Comm.) S1 (State)	Unknown	iii	ii	vii
OTHER SPECIES AT RISK WITHIN THE SUBREGION					
Falco hypoleucos	Near threatened (Comm.)	Unknown	vi	ii	Unknown threatening processes
Heteromunia pectoralis	Near threatened (Comm.)	Unknown	vi	ii	Unknown threatening processes
Phaps histrionica	Near threatened (Comm.)	Unknown	vi	ii	Unknown threatening processes
Ardeotis australis	Near threatened (Comm.)	Unknown	vi	ii	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

There are no declared rare or priority flora in TAN1.

Analysis of appropriate management scenarios

Reservation priorities of ecosystems

The following Tanami bioregion vegetation associations are not reserved within the bioregion:

Beard Veg Assoc	Description	Area (Ha.)
78	Hummock grasslands, low tree steppe; eucalypts over soft spinifex (*Triodia pungens*).	669
91	Hummock grasslands, sparse tree steppe; snappy gum (*Eucalyptus brevifolia*) over soft spinifex (*Triodia pungens*).	286,107
100	Hummock grasslands, shrub steppe; *Acacia delibrata* over soft spinifex (*Triodia pungens*).	59,458
101	Hummock grasslands, shrub steppe; *Acacia pachycarpa* over soft spinifex (*Triodia pungens*)	243,243
117	Hummock grasslands, grass steppe; soft spinifex (*Triodia pungens*).	12,840
Beard Veg Assoc	Description	Area (Ha.)
125	Bare areas; salt lakes.	27,411
133	Mixed short grass and spinifex.	50,789
134	Mosaic: Hummock grasslands, open low tree steppe; desert bloodwood? and feathertop spinifex (*Plectrachne schinzii*) on sandhills/Hummock grasslands, shrub steppe; mixed shrubs over spinifex between sandhills.	7,140
151	Sedgeland; sedges with open low trees; coolibah over various sedges.	164,045
155	Hummock grasslands, low tree steppe; eucalypts over soft spinifex (*Triodia pungens*) and feathertop spinifex (*Plectrachne schinzii*) between sandhills.	56,945
174	Hummock grasslands, shrub steppe; mixed shrubs over soft spinifex (*Triodia pungens*).	74,846
217	Hummock grasslands, steppe woodland; desert oak (*Allocasuarina decaisneana*) and soft spinifex (*Triodia pungens*).	63,343
218	Hummock grasslands, shrub steppe; corkwood (*Hakea spp.*) and *Acacia spp*. over soft spinifex (*Triodia pungens*).	1,915,600

848	Hummock grasslands, low tree steppe; eucalypts over curly spinifex (*Triodia bitextura*) on laterite sand plains.	349
849	Hummock grasslands, low tree steppe; snappy gum (*Eucalyptus brevifolia*) and bloodwood (*Eucalyptus spp*.) over soft spinifex (*Triodia pungens*).	571
895	Hummock grasslands, shrub steppe; mixed acacia over soft spinifex (*Triodia pungens*) (Tanami).	105,971
897	Spinifex, Mitchell grass (Astrebla spp.) and kangaroo grass (*Themeda australis*).	2,823
922	Hummock grasslands, low tree steppe; eucalypts over soft spinifex (*Triodia pungens*) and feather spinifex (*Plectrachne schinzii*) between sandhills.	17,402
1121	Mixed short grass and spinifex with scattered coolibah.	19,997
1271	Bare areas; claypans.	12,153
2175	Grass savannah on clay plains.	81,116

Poorly represented ecosystems subject to threat:

Assemblages of permanent/ephemeral wetlands, damplands, and riparian habitat of the southern Kimberley region.
Widespread vegetation types and widespread threats such as changed fire regimes.

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)

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 Tanami bioregion has a ranking priority under the preliminary bioregional NRS priorities of 1 (see Appendix D, and Appendix C, rank 4). There are no reserves within the component of the bioregion within Western Australia. There is a lack of adequate data on the condition of the bioregion.

Reserve management standard

There are no reserves within the Tanami bioregion.

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 Tanami subregion.
- Action is required to identify appropriate fire regimes.
- The effect of fire and cattle on critical weight range mammals, granivorous birds and vegetation composition and structure is of concern.
- 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 species recovery plans

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).

Appropriate recovery actions

Fire Management: Move to biodiversity driven approaches to fire management strategies. Further fire research is required.

Weed Control: Need to define weeds priorities. 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. Minimise loss of the mineral A horizon and protection of organic layers.

Ecosystems, existing recovery plans and appropriate recovery actions

This is a general savannah issue and fire is the main driver in addressing this. The next most important may well be predation of fauna by cats and occasionally foxes. Actions that are required are linked to management research and better-coordinated efforts between Government agencies, Traditional owners and the broader community.

Subregion priority for off reserve conservation

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

Conservation actions as an integral part of NRM

Existing NRM actions

There are no existing NRM actions that have been identified in TAN1.

Feasible opportunities for NRM

Environmental Management Systems and Ecologically Sustainable Product Marketing: Research is needed on the mechanism and impacts of threatening processes. Outputs of this should assess potential cost effective solutions.

Legislation: Improved implementation of existing legislation.

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

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

Research is required on this issue.

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 and 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. As an initial step a review of the Beard vegetation mapping database is warranted

Quantitative 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. An efficient methodology to undertake mapping needs to be designed.

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

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

Sources

References cited

No.	Author	Date	Title	Publication Details	Pub. Type
132	Burbidge, A.A., McKenzie, N.L. and Kenneally, K.F.	(1991).	Nature Conservation Reserves in the Kimberley Western Australia.	Department of Conservation and Land Management.	R
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
556	Portlock, C., Graham, G., Done, C., Gilmour, J. and Williamson, J.	(2001).	Kimberley Region Draft Regional Management Plan. (Unpubl)	Department of Conservation and Land Management.	R

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

Other relevant publications

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