Gibson Desert 2 *(GD2 Dune Field subregion)*

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Subregional description and biodiversity values

Description and area

Red dune fields mantling Permian strata of Gunbarrel Basin. Lateritised upland on flat-lying Jurassic and Cretaceous sandstones of Canning Basin. Mulga parkland over *Triodia basedowii* on lateritic "buckshot" plains. Mixed shrub steppe of Acacia, Hakea and Grevillea over *Triodia pungens* on red sand plains and dune fields. Lateritic uplands support shrub steppe in the north and mulga scrub in the south. Quaternary alluvia associated with palaeo-drainage features support Coolibah woodlands over bunch grasses. The climate is arid, with mainly summer rainfall, 200mm annually. Subregional area is 3, 198, 464ha.

Dominant land use
(see Appendix B, key b)

Description	Percentage of Subregion
Aboriginal Reserve	32.21%
Grazing - Leasehold	42.32%
Unallocated Crown Land and Crown Reserves	25.47%

Continental Stress Class

The Continental Stress Class for GD2 is 6.

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

Declared Rare and Priority Flora:
Includes: *Goodenia lyrata* and *Melaleuca nanophylla*

Rare and Specially Protected Fauna:
Include: Major Mitchell's Cockatoo (*Cacatua leadbeateri*), Princess Parrot (*Polytelis alexandrae*), Night Parrot (*Pezoporus occidentalis*), Bilby (*Macrotis lagotis*), Mulgara (*Dasycercus cristicauda*), Black-footed Rock-wallaby (*Petrogale lateralis*), and Woma (*Aspidites ramsayi*).

High Species and Ecosystem Diversity:
The Central Australian Deserts (of which the Gibson Desert is a part) are known to exhibit particularly high reptile species richness.

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

In 1974, the Conservation Through Reserves Committee (CTRC) made no recommendations for reserves within the GD2 subregion. Most of the GD 2 subregion is covered by a CALM Regional Management Plan, published in 1994, that provides an overview of the region's biota, addresses land and wildlife conservation issues, but was written to cover a third of WA and therefore was generalised in its attention to detail. The reviews and strategies therein (for reserve system development or management of weeds, fire, feral animals, mining, ecosystem rehabilitation & disease quarantine) do not address the specific needs of subregions, or even bioregions, individually.

Other ecosystems at risk

Wetlands

Wetlands of national significance (DIWA listings)

There are no wetlands of National Significance in GD2.

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

There are no wetlands of subregional significance identified in GD2.

Riparian zone vegetation

There is no true riparian vegetation in GD2.

Ecosystems at risk

Threatened ecological communities (TECs)

There are no Threatened Ecological Communities (TECs) in GD2.

Community	Status	NVIS[1]	Condition[2]	Trend[3]	Reliability[4]	Threatening Processes[5]
Gorge communities - desert ranges (D. Pearson pers. comm.)	V	43	ii-iii	iii	ii	iv, v (camels), 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 1 (MAMMALS)					
Macrotis lagotis	V	ii	iii	i-ii	v (foxes, cats)
Dasycercus cristicauda	V	ii	iii	ii	v (foxes, cats), vii
Petrogale lateralis	V	i	ii	iii	v (foxes, cats), vii
SCHEDULE 1; RARE/LIKELY TO BECOME EXTINCT, DIV 2 (BIRDS)					
Pezoporus occidentalis	CR	i	i	ii	v (foxes, cats)
Polytelis alexandrae	V	ii	vi	ii	vii
SCHEDULE 4; OTHER SPECIALLY PROTECTED FAUNA. DIVISION 2 (BIRDS)					
Cacatua leadbeateri	SP	ii	iii-iv	ii	ii, vii
SCHEDULE 4; OTHER SPECIALLY PROTECTED FAUNA. DIVISION 3 (REPTILES)					
Aspidites ramsayi	SP	i	iii	ii	iv, vii

[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]
PRIORITY 1					
Goodenia lyrata	1	unknown	vi	ii	iv, vii

[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

Beard Veg Type	Ecosystem Description	IUCN I-IV	Non-IUCN Reserve	CALM-Purchased Lease	Priority
18	Low woodland; mulga (*Acacia aneura*)				L
19	Low woodland; mulga between sandridges				L
39	Shrublands; mulga scrub				L
96	Hummock grasslands, shrub steppe; acacia species (+grevillea) over *Triodia basedowii* often between sandridges				L
125	Bare areas; salt lakes				L
134	Mosaic: Hummock grasslands, open low tree steppe; desert bloodwood and feathertop spinifex (on) sandhills/Hummock grasslands, shrub steppe; mixed shrubs over spinifex between sandhills				H
139	Hummock grasslands, patchy shrub steppe; mulga over hard spinifex on laterite				L
174	Hummock grasslands, shrub steppe; mixed shrubs over soft spinifex				L
217	Hummock grasslands, steppe woodland; desert oak (*Allocasuarina decaisneana* & soft spinifex (soft spinifex)				M
219	Hummock grasslands, grass steppe; soft & hard spinifex & *T. basedowii*				M

Beard Veg Type	Ecosystem Description	IUCN I-IV	Non-IUCN Reserve	CALM-Purchased Lease	Priority
230	Mosaic: Medium sparse woodland; desert oak between sand dunes/Hummock grasslands, grass steppe; hard spinifex *Triodia basedowii*				M
676	Succulent steppe; samphire				L
1217	Hummock grasslands, steppe woodland; desert oak & soft spinifex between sandhills				L
2041	Succulent steppe with scrub; teatree over saltflats				M
	Gorge communities - desert ranges (D. Pearson pers. comm.)				M

Subregional constraints in order of priority

(see Appendix B, key g)

Economic: In terms of resources to secure and adequately manage reserves

Competing Landuses: Mining interests have significant influence on Conservation Through Reserves establishment. Grazing leases are not currently stocked or operational.

Bioregional and subregional priority for reserve consolidation

Overall 12% of Gibson Desert bioregion is reserved in IUCN I-IV reserves and is classified as IBRA reservation class 4 (see Appendix D, and Appendix C, rank 4). The subregions have the following representation. GD1 has 14.7% and GD2 has 0% reserved in IUCN I-IV reserves. Subregional bias exists with 0% of GD2 reserved. Classification of GD2 = Class 3 as the reserve system is highly biased in terms of CAR criteria and is not comprehensive or representative in terms of ecosystem representation (no IUCN reserves in GD2). Higher rating is not considered appropriate, as threatening processes (fire and ferals) are not significant.

Reserve management standard

(see Appendix C, rank 5)

There are no reserves in GD2.

Off reserve conservation

Priority species or groups and existing recovery plans

Species	Threatening Processes[1]	Specific Recovery Plan	General Recovery Plan
Cacatua leadbeateri	vii	No	Action Plan for Australian Birds
Polytelis alexandrae	v (foxes, cats), vii	No	Action Plan for Australian Birds
Pezoporus occidentalis	v (foxes, cats), vii	Yes - IRP	Action Plan for Australian Birds
Macrotis lagotis	v (foxes, cats), iv (rabbits), vii	Yes – National Threatened Species Recovery team	Action Plan for Australian Marsupials and Monotremes
Dasycercus cristicauda	v (foxes, cats), iv (feral herbivores), vii	Yes - National Threatened Species Recovery team	Action Plan for Australian Marsupials and Monotremes
Petrogale lateralis	v (foxes, cats)	No	Action Plan for Australian Marsupials and Monotremes
Aspidites ramsayi	v (foxes, cats), vii	No	Action Plan for Australian Reptiles

[1]Appendix B, key e

Existing recovery plans

Dasycercus cristicauda is a species monitored by the National Threatened Species Recovery team. No existing State based recovery plans apply to individual species. Most species are included in National Action Plans including The Action Plan for Australian Birds (2000), The Action Plan for Australian Reptiles (1993), and Action Plan for Australian Marsupials and Monotremes (1996).

Appropriate species recovery actions

Species	Recovery Actions[1]	Recovery Descriptions	Constraints
Cacatua leadbeateri	i, ii, iii, ix	Habitat retention through reserves or on other State lands or on private lands, fire management.	Insufficient resources to implement management activities.
Polytelis alexandrae	i, ii, iii, ix	Habitat retention through reserves or on other State lands or on private lands, fire management	Insufficient resources to implement management activities.
Pezoporus occidentalis	i, ii, iii, vii, ix	Habitat retention through reserves or on other State lands or on private lands, feral predator control, fire management.	Insufficient resources to implement management activities.
Macrotis lagotis	i, ii, iii, vii, x, ix	Habitat retention through reserves or on other State lands or on private lands, feral predator control, fire management. Translocation from secure populations	Insufficient resources to implement management activities.
Dasycercus cristicauda	i, ii, iii, vii, ix	Habitat retention through reserves or on other State lands or on private lands, feral predator control, fire management	Insufficient resources to implement management activities.
Petrogale lateralis	i, ii, iii, vii, x, ix	Habitat retention through reserves or on other State lands or on private lands, feral predator control essential. Translocation from secure populations	Insufficient resources to implement management activities.
Aspidites ramsayi	i, ii, iii, vii, ix	Habitat retention through reserves or on other State lands or on private lands, feral predator control.	Insufficient resources to implement management activities.

[1]Appendix B, rank h.

Ecosystems and appropriate recovery actions

Beard Veg Assoc	Ecosystem	Recovery Actions[1]	Recovery Descriptions	Constraints
134	Mosaic: Hummock grasslands, open low tree steppe; desert bloodwood and feathertop spinifex (on) sandhills/Hummock grasslands, shrub steppe; mixed shrubs over spinifex between sandhills	ix, xii, vii, i, iii	Fire management, research, feral animal control, habitat retention on reserves and protection on other state lands.	Insufficient resources to implement management activities.

[1]Appendix B, rank h.

Subregion priority for off reserve conservation

The subregional rank for off reserve conservation is (ii – iii) (see Appendix C, rank 6), indicating that there is a range of off park measures required, limited resources, there is capacity for community involvement. There are no major conflicting land uses as much of GD2 is UCL and Aboriginal Reserve. Mineral exploration and possible mine establishment are considered the main conflicting land use. Grazing leases within the subregion are not in operation.

Existing NRM actions

Industry Codes of Practice: Pertaining to mining and exploration.

Feasible opportunities for NRM

Legislation: Including duty of care for leasehold and other lands

Threat Abatement Planning: Vegetation and threatened species management plans, pest management, and fire management plans.

Capacity Building: Particularly developing relationships with Aboriginal communities.

Conservation actions as an integral part of NRM

Impediments or constraints to opportunities

A number of impediments exist including the Land Administration Act and the operations of the Pastoral Land Board, although this only impacts a small portion of GVD2, CTR could be limited through mining leases and tenements; although not currently a major factor.

Need to increase awareness of conservation values through education of various industries (mining) and the public in general. Limited financial resources are also a major constraint. Developing association with Aboriginal communities is essential.

Subregions where specific NRM actions are a priority to pursue

GD2 has an NRM priority of rank of (ii) (see Appendix C, rank 7), which indicates that there are significant constraints to implement NRM, primarily due to the subregions isolation and resource requirements to implement NRM.

Data gaps

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

Vegetation and Regional Ecosystem Mapping: There has been no bioregional survey of flora or fauna.

Systematic Fauna Survey: No survey work has been completed. Survey work has been confined to individual species and opportunistic collection, data is confined to vertebrates and is sparse.

Floristic Data: Floristic survey is also restricted to opportunistic collections, mostly confined to access routes.

Ecological and Life History: There are few data on habitat requirements of virtually all invertebrate species, most ephemeral plants, persisting CRW mammals, and uncommon vertebrate and plant species.

Other Priority Data Gaps Include:

- No quantitative data present on the affect of exotic predators / herbivores, weed invasion, fire, mineral extraction or other threatening processes.

Source

References cited

No.	Author	Date	Title	Publication Details	Pub. Type
231	Department of Conservation and Land Management	(1994b).	Goldfields Region Management Plan 1994-2004. Management Plan No. 27.	Department of Conservation and Land Management.	R
181	Cogger, H., Cameron, E., Sadlier, R. and Eggler, P.	(1993).	The Action Plan for Australian Reptiles.	Australian Nature Conservation Agency, Canberra.	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

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

Other relevant publications

See reference numbers 053, 054, 063, 075, 081, 090, 091, 098, 099, 101, 104, 105, 115, 116, 118, 119, 131, 140, 141, 170, 211, 232, 241, 258, 268, 272, 278, 313, 321, 370, 420, 459, 486, 490, 497, 519, 526, 545, 546, 548, 584, 607, 627, 628, 638, 685, and 686 in Appendix A.