Great Victoria Desert 3 *(GVD3 – Great Victoria Desert Eastern subregion)*

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Subregional description and biodiversity values

Description and area

The eastern section is underlain by Devonian sediments of the Gunbarrel Basin, with extensive sandplains of deep Quaternary aeolian sands. Landforms consists of salt lakes and major valley floors with lake derived dunes. Sand plains with extensive seif dunes running east west, occasional outcropping (breakaways) and quartzite hills provide minor relief. Vegetation is primarily a Tree steppe of *Eucalyptus gongylocarpa*, Mulga and *E. youngiana* over hummock grassland dominated by *Triodia basedowii* on the aeolian sands, *Acacia*, dominates the colluvial soils with *Eremophila* and *Santalum* spp, halophytes are confined to edges of salt lakes and saline drainage systems. The climate is arid, with summer and winter rain averaging 150 –180mm. Subregional area is 5, 051, 155ha.

Dominant land use

(see Appendix B, key b)

Category	Description	Percentage of Subregion
x	Aboriginal Reserve	57.37
xiii	Conservation Reserves	9.76
ix	Unallocated Crown Land and Crown Reserves	32.87

Continental Stress Class

The Continental Stress Class for GVD3 is 6.

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

Rare Feature:
The Ecosystem at risk in GVD3 is Mirramiratjarra dune field (Unique dune formation, vegetation and drainage system).

Vertebrates at Risk:
Includes: Princess Parrot (*Polytelis alexandrae*), Slender-billed Thornbill (*Acanthiza iredalei*), Southern Marsupial Mole (*Notoryctes typhlops*), Great Desert Skink (*Egernia kintorei*).

Refugia:
Breakaways and ranges act as refugia.

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

In 1974 the Conservation Through Reserves Committee (CTRC) made recommendations for reserves within the Deserts and Nullarbor Plain (System 12) in the CTRC Green Book (Environmental Protection Authority 1974). Recommendations for reservation by the CTRC in GVD3 (Great Victoria Desert Nature Reserve) were implemented. The subregion is covered by a CALM Regional Management Plan, published in 1994, that provides an overview of the regions biota, addresses land and conservation issues, but was written to cover a third of WA and therefore was generalised in its attention to detail (Department of Conservation and Land Management 1994b). The reviews and strategies therein (for reserve development or management of weeds, feral animals, fire, mining, ecosystem rehabilitation & disease quarantine) do not address the specific needs of the subregions, or even bioregions, individually.

The Spinifex Agreement – signed between the State of Western Australia and the Pila Nguru (Aboriginal Corporation) is likely to influence biodiversity planning and management in GVD.

Wetlands

Wetlands of National significance (DIWA listings)

There are no Wetlands of National Significance identified in GVD3.

Wetlands of subregional significance

There are no wetlands of subregional importance identified within GVD3, primarily because of a lack of knowledge of the wetlands within the subregion.

Riparian zone vegetation

There is no identified riparian vegetation within GVD3.

Ecosystems at risk

Threatened ecological communities (TECs)

There are no Threatened Ecological Communities (TECs) in GVD3.

Other ecosystems at risk

Ecosystem	Status	NVIS[1]	Condition[2]	Trend[3]	Reliability[4]	Threatening Processes[5]
Mirramiratjarra dune field. Unique dune formation, vegetation and drainage system. (Ian Kealley pers. comm.)	V	43	ii	iv	i	iv, v (camels and rabbits)

[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)					
Notoryctes typhlops	E	ii	vi	ii	v (cats, foxes), vii
SCHEDULE 1; RARE/LIKELY TO BECOME EXTINCT, DIV 2 (BIRDS)					
Acanthiza iredalei iredalei	V	ii	vi	ii	v (cats, foxes), vii
Polytelis alexandrae	E	ii	vi	ii	v (cats, foxes), vii
SCHEDULE 1; RARE/LIKELY TO BECOME EXTINCT, DIV 3 (REPTILES)					
Egernia kintorei	V	i	iii	ii	vii, v (cats and foxes)

[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 GVD3.

Analysis of appropriate management scenarios

Reservation priorities of ecosystems

Beard Veg Assoc	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
45	Shrublands; mallee scrub (Great Victoria Desert)				H
46	Shrublands; mallee scrub (e=?)				H
84	Hummock grasslands, open low tree & mallee steppe; marble gum & mallee (Eucalyptus youngiana) over hard spinifex Triodia basedowii between sandhills				L
85	Hummock grasslands, open low tree & mallee steppe; marble gum & mallee (Eucalyptus youngiana) over hard spinifex on sandplain	X			L
Beard Veg Assoc	Ecosystem Description	IUCN I-IV	Non IUCN Reserve	CALM Purchased Lease	Priority
92	Hummock grasslands, sparse tree steppe; bloodwood over hard spinifex Triodia basedowii				M
120	Succulent steppe with open low woodland; mulga & sheoak		X		L

125	Bare areas; salt lakes				L
128	Bare areas; rock outcrops				L
236	Hummock grasslands, shrub steppe; mulga and mallee (marble gum) over hard spinifex				H
239	Hummock grasslands, open medium tree & mallee steppe; marble gum (E. gonglocarpa & mallee (Eucalyptus youngiana) over hard spinifex Triodia basedowii between sandhills				H
676	Succulent steppe; samphire	X			L
	Mirramiratjarra dune field. Unique dune formation, vegetation and drainage system. (Ian Kealley pers. comm.)				H

Subregional constraints in order of priority

(see Appendix B, key g)

Other Subregional Constraints: These are primarily resource related in terms of management and research.

Competing Landuses: In particular prospective exploration and mining leases. Aboriginal Land Agreement will in all likelihood work in favour of biodiversity conservation.

Bioregional and subregional priority for reserve consolidation

Overall 9.4% of GVD is reserved in IUCN I-IV reserves and the bioregion is IBRA reservation Class 5 (i) (see Appendix D, and Appendix C, rank 4). GVD1 has 7.8%, GVD2 has 10.3%, and GVD3 has 8.4% areas within IUCN I-IV reservations. Threatening processes exist (such as changed fire regimes, feral predators, feral herbivores, mining interests and inadequate knowledge). Subregional bias is minimal with 7.8% of GVD1 and 35% of GVD1 vegetation systems in IUCN reserves. GVD3 is considered Class 4.

Reserve management standard

Rating for GVD3 is (ii) Fair (see Appendix C, rank 5), indicating that biodiversity values and or management issues poorly identified. Some resource degradation is occurring, though it is retrievable. Wildfire management is non-existent and impact of feral herbivores is unknown. Mining exploration activities are supervised.

Class	Purpose	Name	Category	Reserve Management Rank[1]
A	Conservation of Flora and Fauna	Great Victoria Desert Nature reserve	Nature Reserve	ii - iii

[1]Appendix C, rank 5

Off reserve conservation

Priority species or groups and existing recovery plans

Species	Specific Recovery Plan	General Recovery Plan
Polytelis alexandrae	No	Action Plan for Australian Birds
Acanthiza iredalei	No	Action Plan for Australian Birds
Egernia kintorei	Yes - National Threatened Species Recovery team	Action Plan for Australian Reptiles
Notoryctes typhlops	No	Action Plan for Australian Marsupials and Monotremes

Appropriate species recovery actions

For GVD3, there is a need for fire management (ix) to reduce the impact of large intense, summer wildfires on biota. Further research (xii) is required to determine species status, distribution and gain increased knowledge of subregion. Feral animal control (vii) would assist with extant Critical Weight Range species recovery.

Species	Recovery Actions[1]	Recovery Descriptions
Polytelis alexandrae	vii, ix, xii	Feral predator control important, further research into species ecology and habitat requirements is needed. Fire management may be necessary
Acanthiza iredalei	vii, ix, xii	Feral predator control important, further research into species ecology and habitat requirements is needed. Fire management may be necessary
Egernia kintorei	ix, vii, i, ii, xii	Fire management and feral animal control is very important. Habitat retention and protection through reserves and on other lands is required. Continued research on the species ecology is required.
Notoryctes typhlops	iii, vii, ix, xii	Habitat protection on other state lands, further research into the species ecology. Feral predator control and fire management are important

[1]Appendix B, key h.

Ecosystems and existing recovery plans

Ecosystem	Specific Recovery Plan	General Recovery Plan
Mirramiratjarra dune field. Unique dune formation, vegetation and drainage system. (Ian Kealley pers. comm.)	No	No

Appropriate ecosystem recovery actions

Ecosystem	Recovery Actions[1]	Recovery Descriptions
Mirramiratjarra dune field. Unique dune formation, vegetation and drainage system. (Ian Kealley pers. comm.)	ix, xii, vii, i, iii	Fire management. Research. Feral animal control. Habitat retention through reservation or protection on other state lands.

[1]Appendix B, key h.

Subregion priority for off reserve conservation

The subregional priority for off park conservation is (iv) (see Appendix C, rank 6), indicating that limited off park measures are required. The Spinifex Agreement, once implementation commences, will see all lands associated with this agreement managed for conservation. There are no major conflicting land uses as much of GVD3 is UCL, Aboriginal Reserve or Conservation Reserve. Mineral exploration and possible mine establishment is considered the main conflicting land use.

Conservation actions as an integral part of NRM

Existing NRM actions

Industry Codes of Practice: Particularly for the mining exploration industry.

Feasible opportunities for NRM

Legislation: Including duty of care for leasehold and other lands.

Threat Abatement Planning as Part of NRM: e.g. Vegetation and threatened species management plans, pest management, and fire management plans.

Capacity Building Required With Community, Landholders, Industry and Institutions

Impediments or constraints to opportunities

A number of impediments exist including the Land Administration Act and the negotiations with the Spinifex Land Agreement people. Conservation Through Reserves is limited through mining leases and tenements. There is a 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.

Subregions where specific NRM actions are a priority to pursue

The NRM priority for GVD3 has a rank of (iv) (see Appendix C, rank 7), indicating that NRM instruments in place with some achieved biodiversity outcomes.

Data gaps

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

Vegetation and Regional Ecosystem Mapping: Regolith mapping is unavailable at better than 1:250000 resolution.

Systematic Fauna Survey: There has been no systematic biological survey of the subregion although there have been a number of localised studies with some being both intensive and long term. This particularly relates to work on reptile ecology by Eric Pianka (Pianka 1996) and McKenzie and Burbidge's work (1979) that compiled a basic species inventory for a number of reserves and proposed reserves.

Floristic Data: There is little fine scale floristic data available for the subregion as a whole.

Ecological and Life History Data: Reports on the ecological requirements and a recovery plan have been produced for the Great Desert Skink (McAlpin 2001). There are few data on habitat requirements of virtually all invertebrate species, most ephemeral plants, persisting Critical Weight Range mammals and uncommon vertebrate and plant species. There are no data to provide regional context on life history (including population trend) of any species.

Other Priority Data Gaps Include:

- No quantitative data on the affect of exotic predators, introduced herbivores or weed colonisation.

Source

References cited

No.	Author	Date	Title	Publication Details	Pub. Type
181	Cogger, H., Cameron, E., Sadlier, R. and Eggler, P.	(1993).	The Action Plan for Australian Reptiles.	Australian Nature Conservation Agency, Canberra.	R
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
271	Environmental Protection Authority	(1974).	Conservation Reserves in Western Australia - Report of the Conservation through Reserves Committee to the Environmental Protection Authority "CTRC Green Book".	Environmental Protection Authority, Perth.	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
484	McAlpin, S.	(2001).	A Recovery Plan for the Great Desert Skink (*Ergernia kintorei*) 2001-2011.	Arid lands Environment Centre.	R
490	McKenzie, N.L. and Burbidge, A.A. (eds)	(1979).	The Wildlife of some existing and proposed reserves in the Gibson, Little Sandy and Great Victoria deserts.	Western Australian Wildlife Research Bulletin 8.	J
552	Pianka, E.R.	(1996).	Long-Term Changes in Lizard Assemblages in the Great Victoria Desert, Dynamic Habitat Mosaics in Response to Wildfires.	Academic Press.	B

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

Other Relevant Publications

See reference numbers 040, 062, 075, 081, 098, 101, 107, 133, 167, 171, 172, 241, 268, 272, 278, 306, 370, 547, 649, 685 and 686 in Appendix A.