Little Sandy Desert 2 *(LSD2 – Trainor subregion)*

MARK COWAN AND PETER KENDRICK
AUGUST 2001

Subregional description and biodiversity values

Description and area

The Trainor subregion is red centre desert on Neoproterozoic sedimentary basement (Officer Basin). Red Quaternary dune fields with abrupt Proterozoic sandstone ranges of Bangemall Basin. Shrub steppe of acacias, *Aluta maisonneuvei* and grevilleas over *Triodia schinzii* on sandy surfaces. Sparse shrub-steppe over *Triodia basedowii* on stony hills, with eucalypt and coolibah communities and bunch grasslands on alluvial deposits and drainage lines associated with ranges. The climate is Arid with episodic summer rainfall. Subregional area is 11,114,705ha.

Dominant land use

The dominant landuses are (xi) UCL and Crown reserves (95.87%), (ix) Grazing-Native pastures (1.93%), (xiii) conservation reserves (1.41%), and (x) Aboriginal Reserves (0.75%) (see Appendix B, key b).

Continental Stress Class

The Continental Stress Class for LSD2 is 6.

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

Rare Features:
Ecosystem type 545-Hummock grasslands, sparse low tree-steppe; mulga over *Triodia basedowii*. Total extent of this ecosystem is approximately 505 hectares and it is entirely in LSD2.

Ecosystems That Have Greater Than 85% of Total Extent Confined to LSD2:

Beard Veg Assoc	Description
178	Hummock grasslands, grass steppe; hard spinifex *Triodia basedowii*
194	Hummock grasslands, tree steppe; desert oak & hard spinifex between sandhills
215	Low woodland; mulga on dolerite
545	Hummock grasslands, sparse low tree-steppe; mulga over *Triodia basedowii*
1195	Mosaic: Low woodland; mulga in valleys/Hummock grasslands, shrub steppe; acacia species over *Triodia basedowii*

Centres of endemism:
The palaeo-drainage lines associated with Lake Disappointment may carry a unique troglofauna, but this is yet to be investigated.

Refugia:
Rudall River is classified as a refuge by Morton et al. (1995), in that it is a wetland that may provide refuge to animals during dry times (the Rudall flows in LSD1 for half of its length). Savory Creek could also be classed as refugia by the same criteria. Other ephemeral and permanent water sources could also be considered refuges, particularly the more reliable of these. Numerous rockholes, springs and soaks occur throughout LSD2, particularly in range country.

High Species and Ecosystem Diversity:
Arid zone reptiles, especially the genera *Ctenotus* and *Lerista* species. The area also displays high diversity within the *Acacia* and *Goodenia* genera.

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

Most of the 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 is 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; see Department of Conservation and Land Management 1994).

Wetlands

Wetlands of National significance (DIWA listings)

Name and Code	Description[1]	Condition[2]	Trend[3]	Reliability[4]	Threatening Processes[5]
Lake Disappointment WA052	B8	ii	iii-iv	ii	iv, v (feral cattle, camels, donkeys and rabbits), vii (vegetation around the lake has sustained some damage from fire)
Pools of the Durba Hills (Killagurra Spring, Durba Springs, Biella Spring) WA053	B17	iii	iv	ii	vi (introduction of serious environmental weed, date palm), v (camel, possibly rabbit grazing in vicinity), xii (cultural values degraded through vandalism of petroglyphs and historical points)

[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)

Name and Code	Location	Description[1]	Special Values[2]	Condition[3]	Trend[4]	Reliability[5]	Threatening Processes[6]
Rockholes and Pools of the Carnarvon Range - Virgin Spring	270040E, 7220332N	B17	v (new species of algae recently identified), iii (important drought refuges for a variety of taxa) Also have high cultural and historical values.	iii	iii	ii	xii (tourism), v (camels & donkeys)
Rockholes and Pools of the Carnarvon Range - Good Camp Rockhole	270318E, 7203935N	B17	v (new species of algae recently identified), iii (important drought refuges for a variety of taxa) Also have high cultural and historical values.	iii	iii	ii	xii (tourism), v (camels & donkeys)
Rockholes and Pools of the Carnarvon Range - Muirs Pool	267068E, 7202450N	B17	v (new species of algae recently identified), iii (important drought refuges for a variety of taxa) Also have high cultural and historical values.	iii	iii	ii	xii (tourism), v (camels & donkeys)
Rockholes and Pools of the Carnarvon Range - Yamad & Kadyara Waterholes	268578E, 7220307N	B17	v (new species of algae recently identified), iii (important drought refuges for a variety of taxa) Also have high cultural and historical values.	iii	iii	ii	xii (tourism), v (camels & donkeys)
Rockholes and Pools of the Carnarvon Range - Miringka & Wandam Waterholes	266694E, 7202565N	B17	v (new species of algae recently identified), iii (important drought refuges for a variety of taxa) Also have high cultural and historical values.	iii	iii	ii	xii (tourism), v (camels & donkeys)

Name and Code	Location	Description[1]	Special Values[2]	Condition[3]	Trend[4]	Reliability[5]	Threatening Processes[6]
Rockholes and springs of the Calvert Range	122° 45' E; 24° 00' S	B17	v (population of *Petrogale lateralis*, only one left in western desert, only one in LSD2), iii (important drought refuges for a variety of taxa). Also have high cultural and historical values.	iii	iii	ii	xii (tourism), v (camels & donkeys)
Savory Creek	121° 00' E; 23° 45' S to 122° 30' E; 23° 15' S	B2	ii (a large creek that flows across 250 km of LSD2, iii (important drought refuges for a variety of taxa). Also have high cultural and historical values.	iii	iii	ii	xii (tourism), v (camels & donkeys)
Salt lakes of the western Little Sandy Desert - Yanneri Lake	120° 30' E; 24° 27' S	B8	ii (large creek that flows across 250 km of LSD2),v (contains only known populations of *Halosarcia* sp. Yanneri Lake	iii	iii	ii	iv, v (camels), vii, xii (gypsum mining)
Salt lakes of the western Little Sandy Desert - Terminal Lake	120° 36' E; 24° 27' S	B8	Unknown	Unknown	vi	ii	iv, v (camels), vii, xii (gypsum mining)
Salt lakes of the western Little Sandy Desert - Lake Wilderness	121° 05' E; 24° 20' S	B8	Unknown	Unknown	vi	ii	iv, v (camels), vii, xii (gypsum mining)
Salt lakes of the western Little Sandy Desert - Lake Sunshine		B8	v (contains only known population of *Halosarcia* sp. Little Sandy Desert)	Unknown	vi	ii	Unknown threatening processes

[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]
Rudall River	ii	iii - iv	ii	iv, v (cattle, donkeys, camels and rabbits), vi (buffel grass), vii

[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 LSD2

Other ecosystems at risk

Community	Status	NVIS[1]	Condition[2]	Trend[3]	Reliability[4]	Threatening Processes[5]
Saline lakes of Little Sandy Desert	V	39	iii	iii	ii	v (rabbit, camel and donkey)
Riparian zone of Savory Creek	V	39	ii	iii	ii	v (rabbit, camel, donkey), vi
Permanent springs, Durba Hills (Durba Spring)	V	9, 38	iii	iii	iii	vi (weeds, date palms), v (feral grazers), xii (visitor impacts)

Community	Status	NVIS[1]	Condition[2]	Trend[3]	Reliability[4]	Threatening Processes[5]
Riparian zone and pools of upper Rudall River	V	19, 15, 38,	ii	iii	ii	vi (weeds, date palms), v (feral grazers)
Samphire communities, Lake Disappointment	V	39	iii	iv	ii	v (feral grazers), 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)					
Notoryctes caurinus	E	unknown	vi	ii	v (cats and foxes)
Notoryctes typhlops	E	unknown	vi	ii	v (cats and foxes)
Dasycercus cristicauda	V	unknown	vi	ii	viii, v (cats and foxes)
Macrotis lagotis	V	ii	iv	iii	v (predation by foxes and habitat destruction/competition from feral herbivores)
Petrogale lateralis lateralis	V	ii	iii	iii	v (foxes and cats)
SCHEDULE 1; RARE/LIKELY TO BECOME EXTINCT, DIV 2 (BIRDS)					
Polytelis alexandrae	V	unknown	vi	iii	v (foxes, cats)
SCHEDULE 1; RARE/LIKELY TO BECOME EXTINCT, DIV 3 (REPTILES)					
Morelia olivaceus barroni	V	unknown	vi	ii	Unknown Threatening Processes
SCHEDULE 4; OTHER SPECIALLY PROTECTED FAUNA. DIVISION 2 (BIRDS)					
Acanthiza iredalei iredalei	SP	unknown	vi	ii	iv (grazing of chenopods by introduced herbivores), v
OTHER SPECIES AT RISK WITHIN THE SUBREGION					
Macroderma gigas	Commonwealth	unknown	vi	unknown	Unknown threatening processes
Antechinomys laniger	Data deficient	unknown	vi	unknown	vii, v (cats and foxes)
Diplodactylus fulleri	P2	unknown	vi	iii	v, vii
Lerista macropisthopus remota	P2	unknown	vi	iii	v
Pseudomys chapmani	P4	unknown	vi	iii	vii, v (cats and foxes)
Sminthopsis longicaudata	P4	unknown	vi	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

Species Name	Status	Condition[1]	Trend[2]	Reliability[3]	Threatening Processes[4]
PRIORITY 1					
Daviesia arthripoda	1	unknown	vi	unknown	Unknown threatening processes
Ptilotus stipitatus	1	iii	iv	ii	Unknown threatening processes
Stemodia linophylla	1	unknown	vi	unknown	No known threats, common in LSD1 and LSD2
Tetratheca chapmanii	1	iii	iv	iii	No current threatening are known but there is potential for mining in future
PRIORITY 2					
Comesperma viscidulum	2	unknown	vi	unknown	No known threatening processes
Dampiera atriplicina	2	unknown	vi	unknown	No known threatening processes
Dampiera ramosa	2	unknown	vi	unknown	No known threats, common in subregion
Gonocarpus ephemerus	2	unknown	vi	unknown	No known threatening processes
Halosarcia sp. Little Sandy Desert		unknown	vi	unknown	Unknown threatening processes
Halosarcia sp. Yanneri		unknown	vi	unknown	xii (few populations)
Species Name	Status	Condition[1]	Trend[2]	Reliability[3]	Threatening Processes[4]
Ptilotus tetrandrus	2	unknown	vi	unknown	x (small population size)

[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 Assoc	Ecosystem Description	IUCN I-IV	Non-IUCN Reserve	CALM-Purchased Lease	Priority
11	Medium woodland; coolibah (*E. microtheca*)				H
18	Low woodland; mulga (*Acacia aneura*)				M
19	Low woodland; mulga between sandridges				M
29	Sparse low woodland; mulga, discontinuous in scattered groups				M
39	Shrublands; mulga scrub				M
40	Shrublands; acacia scrub, various species				H
41	Shrublands; teatree scrub				H
95	Hummock grasslands, shrub steppe; acacia & grevillea over *Triodia basedowii*				H
96	Hummock grasslands, shrub steppe; acacia species (+grevillea) over *Triodia basedowii* often between sandridges				H
98	Hummock grasslands, shrub steppe; kanji over soft spinifex & *T. basedowii*				M
99	Hummock grasslands, shrub steppe; *Acacia coriacea* & hakea over hard spinifex *Triodia basedowii*	X			H
111	Hummock grasslands, shrub steppe; *Eucalyptus gamophylla* over hard spinifex				L
117	Hummock grasslands, grass steppe; soft spinifex	X			L
125	Bare areas; salt lakes				M
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	X			M
136	Hummock grasslands, shrub steppe; mixed shrubs over spinifex between sandhills				M
139	Hummock grasslands, patchy shrub steppe; mulga over hard Spinifex on laterite				L
152	Hummock grasslands, grass steppe; soft & hard spinifex soft spinifex				H
157	Hummock grasslands, grass steppe; hard spinifex *Triodia wiseana*	X			L
158	Hummock grasslands, shrub steppe; kanji over *Triodia basedowii*	X			H
173	Hummock grasslands, shrub steppe; kanji over soft spinifex & *T. wiseana* on basalt				L
174	Hummock grasslands, shrub steppe; mixed shrubs over soft spinifex				M
178	Hummock grasslands, grass steppe; hard spinifex *Triodia basedowii*				H
194	Hummock grasslands, tree steppe; desert oak & hard spinifex between sandhills				H
198	Hummock grasslands, low open tree & shrub steppe; sparse snappy gum, *Acacia pachycarpa* & *A. victoriae* over *Triodia brizioides* on chert				L
199	Hummock grasslands, shrub steppe; mulga over soft spinifex *Triodia* on rises				H
215	Low woodland; mulga on dolerite				H
545	Hummock grasslands, sparse low tree-steppe; mulga over *Triodia basedowii*				H
676	Succulent steppe; samphire				M
Beard Veg Assoc	Ecosystem Description	IUCN I-IV	Non-IUCN Reserve	CALM-Purchased Lease	Priority
1195	Mosaic: Low woodland; mulga in valleys/Hummock grasslands, shrub steppe; acacia species over *Triodia basedowii*				H
2041	Succulent steppe with scrub; teatree over saltflats				M
2151	Low woodland; coolibah & paperbark (*Melaleuca* sp.)				H

Subregional constraints in order of priority

(see Appendix B, key g)

Competing Land Use: Prospective mining interests exist.

Economic Constraints: In terms of effective implementation of management objectives.

Other: We do not have fine enough resolution of biodiversity values to identify priorities of acquisition so further research is required.

Bioregional and subregional priority for reserve consolidation

The Little Sandy Desert is reservation Class 2 (see Appendix D, and Appendix C, rank 4) with 4.58% of area in conservation. There is considerable bias at the subregional level with only 1.4% of LSD2 (however LSD1 has 37.32% of its area) in the reserve system so reservation class 1 is more appropriate here. In LSD2 the priority for reserve consolidation is (ii), indicating that the reserve system is highly biased in terms of CAR criteria at the subregional level and is not comprehensive or representative in terms of ecosystem representation.

Reserve management standard

No feral predator programs are in place yet in the Little Sandy Desert. Wildfire management is not practicable. Buffel grass is widespread, common and increasing, probably to the exclusion of many native species. Mining exploration or operation activities are not always supervised. Feral herbivore grazing activities may be considerable (cattle, donkeys, camels and rabbits) and feral predator / herbivore or weed control is not undertaken. Therefore the overall reserve management system rank is (ii) (see Appendix C, rank 5) indicating that biodiversity values and management issues are poorly identified and resource degradation is occurring though it is recoverable.

Class	Purpose	Name	Category	Reserve Management[1]
A	National Park	Rudall River National Park	National Park	ii - iii

[1]Appendix C, rank 5

Off reserve conservation

Priority species or groups and existing recovery plans

Species	Threatening Processes[1]	Specific Recovery Plans	General Recovery Plans
Polytelis alexandrae	vii (large scale fires), v (introduced herbivores)	No	Action Plan for Australian Birds
Lerista macropisthopus remota	None known	No	Action Plan for Australian Reptiles
Diplodactylus fulleri	None known	No	Action Plan for Australian Reptiles
Morelia olivaceus barroni	v (predation of juveniles by introduced predators fox & cat)	No	Action Plan for Australian Reptiles
Acanthiza iredalei iredalei	iv (grazing of chenopods by introduced herbivores), v	No	Action Plan for Australian Birds
Macroderma gigas	xii (barbed wire fences)	No	Action Plan for Australian Bats
Macrotis lagotis	v (introduced predators - fox, cat), vii	Yes - National Threatened Species Recovery team	Action Plan for Australian Marsupials and Monotremes

Species	Threatening Processes[1]	Specific Recovery Plans	General Recovery Plans
Sminthopsis longicaudata	v (introduced predators - fox, cat)	No	Action Plan for Australian Rodents
Pseudomys chapmani	v (introduced predators - fox, cat)	No	Action Plan for Australian Rodents
Antechinomys laniger	v (introduced predators - fox, cat)	No	Action Plan for Australian Marsupials and Monotremes
Dasycercus cristicauda	v (introduced predators - fox, cat), vii	No	Action Plan for Australian Marsupials and Monotremes
Notoryctes typhlops	v (introduced predators - fox, cat), vii	No	Action Plan for Australian Marsupials and Monotremes
Notoryctes caurinus	v (introduced predators - fox, cat), vii	No	Action Plan for Australian Marsupials and Monotremes
Petrogale lateralis lateralis	v (introduced predators - fox, cat), vii	No	Action Plan for Australian Marsupials and Monotremes
Daviesia arthripoda	Unknown threatening processes	No	No
Ptilotus stipitatus	Unknown threatening processes	No	No
Stemodia linophylla	No known threats, common in LSD1 and LSD2	No	No
Tetratheca chapmanii	Unknown threatening processes, potential for mining in future	No	No
Comesperma viscidulum	Unknown threatening processes	No	No
Dampiera atriplicina	Unknown threatening processes	No	No
Dampiera ramosa	No known threats, common in subregion	No	No
Gonocarpus ephemerus	Unknown threatening processes	No	No
Halosarcia sp. Little Sandy Desert	Unknown threatening processes	No	No
Halosarcia sp. Yanneri	xii (few populations)	No	No
Ptilotus tetrandrus	xii (small population size)	No	No

[1]Appendix B, key e

Appropriate species recovery actions

Species	Recovery Actions[1]	Recovery Descriptions
Polytelis alexandrae	i, ii, iii	Habitat retention through reserves or on other State lands or on private lands.
Lerista macropisthopus remota	i, ii, iii, xii	Habitat retention through reserves or on other State lands or on private lands. Research into current status and habitat requirements
Diplodactylus fulleri	i, ii, iii, xii	Habitat retention through reserves or on other State lands or on private lands. Research into current status and habitat requirements
Morelia olivaceus barroni	i, ii, iii, xii	Habitat retention through reserves or on other State lands or on private lands. Research into current status and habitat requirements. Juvenile stage may be vulnerable to predation by cats and foxes
Acanthiza iredalei iredalei	i, ii, iii	Habitat retention through reserves or on other State lands or on private lands.
Macroderma gigas	Recovery actions not known	Recovery actions not known
Macrotis lagotis	vii	Control of foxes, cats and dogs. Reduction of competition by feral herbivores

Species	Recovery Actions[1]	Recovery Descriptions
Sminthopsis longicaudata	vii, ix	Control of foxes and cats. Need to identify present conservation status.
Pseudomys chapmani	vii	Control of foxes and cats.
Antechinomys laniger	vii, ix, xii	Control of foxes and cats. Need to identify present conservation status.
Dasycercus cristicauda	ix, vii, i, ii, iii	Habitat retention through reserves or on other State lands. Control of foxes and cats.
Notoryctes typhlops?	i, ii, iii, vii	Habitat retention through reserves or on other State lands. Control of foxes and cats.
Notoryctes caurinus	i, ii, iii, vii	Habitat retention through reserves or on other State lands. Control of foxes and cat.s
Petrogale lateralis lateralis	vii	Control of foxes, cats and dogs. Reduction of competition by feral herbivores.
Ptilotus stipitatus	i, ii, iii	Habitat retention through reserves or on other State lands.
Tetratheca chapmanii	i, ii, iii	Habitat retention through reserves or on other State lands.
Dampiera atriplicina	i, ii, iii	Habitat retention through reserves or on other State lands.
Gonocarpus ephemerus	i, ii, iii	Habitat retention through reserves or on other State lands.

[1]Appendix B, key h.

Existing species recovery plans

There are no specific regional recovery plans for any of the above biota / systems but in broad terms they are covered under the Goldfields / Pilbara Regional Management Plans. Other Recovery Plans include The Action Plan for Australian Birds 2000; Action Plan for Australian Marsupials and Monotremes; The Action Plan for Australian Reptiles; The Action Plan for Australian Bats; Action Plan for Australian Rodents; and Bilby Recovery Plan.

Ecosystems and appropriate recovery actions

Beard Veg Assoc	Ecosystem Description	Recovery Actions[1]	Recovery Description
11	Medium woodland; coolibah (*E. microtheca*)	i, ii, iii, xii	Habitat retention or protection through reserves, on private lands or on other state land. Research.
40	Shrublands; acacia scrub, various species	i, ii, iii, xii	Habitat retention or protection through reserves, on private lands or on other state lands. Research.
41	Shrublands; teatree scrub	i, ii, iii, xii	Habitat retention or protection through reserves, on private lands or on other state lands. Research.
95	Hummock grasslands, shrub steppe; acacia & grevillea over *Triodia basedowii*	i, ii, iii, xii	Habitat retention or protection through reserves, on private lands or on other state lands. Research.
96	Hummock grasslands, shrub steppe; acacia species (+grevillea) over *Triodia basedowii* often between sandridges	i, ii, iii, xii	Habitat retention or protection through reserves, on private lands or on other state lands. Research.
99	Hummock grasslands, shrub steppe; *Acacia coriacea* & hakea over hard spinifex *Triodia basedowii*	i, ii, iii, xii	Habitat retention or protection through reserves, on private lands or on other state lands. Research.
152	Hummock grasslands, grass steppe; soft & hard spinifex soft spinifex	i, ii, iii, xii	Habitat retention or protection through reserves, on private lands or on other state lands. Research.
158	Hummock grasslands, shrub steppe; kanji over *Triodia basedowii*	i, ii, iii, xii	Habitat retention or protection through reserves, on private lands or on other state lands. Research.
178	Hummock grasslands, grass steppe; hard spinifex *Triodia basedowii*	i, ii, iii, xii	Habitat retention or protection through reserves, on private lands or on other state lands. Research.
194	Hummock grasslands, tree steppe; desert oak & hard spinifex between sandhills	i, ii, iii, xii	Habitat retention or protection through reserves, on private lands or on other state lands. Research.
199	Hummock grasslands, shrub steppe; mulga over soft spinifex *Triodia* on rises	i, ii, iii, xii	Habitat retention or protection through reserves, on private lands or on other state lands. Research.
215	Low woodland; mulga on dolerite	i, ii, iii, xii	Habitat retention or protection through reserves, on private lands or on other state lands. Research.

Beard Veg Assoc	Ecosystem Description	Recovery Actions[1]	Recovery Description
545	Hummock grasslands, sparse low tree-steppe; mulga over *Triodia basedowii*	i, ii, iii, xii	Habitat retention or protection through reserves, on private lands or on other state lands. Research.
1195	Mosaic: Low woodland; mulga in valleys/Hummock grasslands, shrub steppe; acacia species over *Triodia basedowii*	i, ii, iii, xii	Habitat retention or protection through reserves, on private lands or on other state lands. Research.
2151	Low woodland; coolibah & paperbark (*Melaleuca* sp.)	i, ii, iii, xii	Habitat retention or protection through reserves, on private lands or on other state lands. Research.

Existing ecosystem recovery plans

There are no recovery plans for ecosystems at risk in LSD2.

Subregion priority for off reserve conservation

The subregional priority for off park conservation in LSD2 is (ii) (see Appendix C, rank 6), indicating that significant off park effort is needed, resource constraints exist, and there is limited community capacity.

Conservation actions as an integral part of NRM

Existing NRM actions

Threat Abatement Planning: Vegetation management plans, and pest management.

Industry Codes of Practice: Particularly in relation to mining and exploration activities.

Feasible opportunities for NRM

No further NRM actions are required.

Impediments or constraints to opportunities

A number of impediments exist including the Land Administration Act and operations of the Pastoral Land Board, so Conservation Through Reserves is limited through mining leases and tenements. There is a need to increase awareness of conservation values through education of various industry groups (mining, pastoral) and the public in general. Limited financial resources are also a major constraint. Recreational users of the Canning Stock Route are causing localised degradation of camping areas and tracks.

Subregions where specific NRM actions are a priority to pursue

The subregional priority for NRM in LSD2 is (ii) (see Appendix C, rank 7), indicating that there are significant constraints to integrate conservation as part of a production / development system.

Data gaps

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

Ecological and Life History Data: There is little data on habitat requirements of virtually all invertebrate species, most ephemeral plants, persisting CWR mammals, and uncommon vertebrate- and plant-species. There are no data to provide a regional context on life-history (including population-trend) of any species.

Other Priority Data Gaps Include:

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

Vegetation and Regional Ecosystem Mapping: There is no regolith mapping for any of the subregion at better than 1:250,000.

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	(1994).	Goldfields Region Management Plan 1994-2004. Management Plan No. 27.	Department of Conservation and Land Management.	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
452	Lee, A.K.	(1995).	The Action Plan for Australian Rodents	Environment Australia - Biodiversity Group, Threatened Species and Communities Section	B
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
519	Morton S.R., Short, J. and Barker, R.D. with an Appendix by Griffin, G.F. and Pearce, G.	(1995).	Refugia for Biological Diversity in Arid and Semi Arid Australia. Biodiversity Series, Paper No 4. Biodiversity Unit.	Department of Environment Sport and Territories. Canberra	R

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

Other relevant publications

See reference numbers 026, 075, 091, 094, 098, 101, 118, 148, 166, 173, 181, 182, 189, 211, 231, 232, 241, 258, 260, 268, 278, 281, 298, 313, 354, 383, 387, 406, 419, 459, 483. 493, 519, 526, 562, 577, 634, 635, 636, 637, 638, 647, 685, 686 and 699 Appendix A.