Mound Springs Heritage Survey

DATA SHEETS

for

BIOLOGICAL ASSESSMENT OF SOUTH AUSTRALIAN MOUND SPRINGS

prepared by

Social and Ecological Assessment Pty. Ltd.

for

South Australian Department of Environment and Planning

INTRODUCTION

The data sheets prepared by the consultants who undertook the Biological Assessment of South Australian Mound Springs are presented here as a single volume. Many of the sheets are very much incomplete, reflecting the enormous task which would be involved in the preparation of a truly comprehensive inventory. The sheets are presented in a format which will allow for progressive updating.

The springs are classified here as spring complexes, and every known spring complex is included in the file. The information provided is current to June 1984.

CONTENTS

ABBREVIATIONS OF REFERENCES USED IN DATA SHEETS

Al 84 — Alcock, C.R. 1984. Alien and Weedy Plants, in Survey of South Australian Mound Springs, Nature Conservation Society of South Australia.

Ca 79 — Casperson, K. 1979. Mound Springs of South Australia. Part 1: Physical features, history, biota and conservation requirements. South Australian Department of Environment and Planning.

Co 75 — Cobb, M.A. 1975. Sampling and measurement of mound springs,Great Artesian Basin, South Australia. Progress Rept. No.2: Marree, Curdimurka and Billa Kalina. Dept. of Mines Rept. 75/90.

Cunningham et al, 1981 — Cunningham, G.M., Mulham, W.E., Milthorpe, P.C. and Leigh, J.H. 1981. Plants of Western New South Wales. Soil Conservation Service of New South Wales.

De 79 — De Deckker, P. 1979. Ostracods from the mound springs area between Strangways and Curdimurka. Trans. Roy. Soc. S. Aust., 103:155-168.

DEP 78 — South Australian Department of Environment and Planning, 1978.

DME (year) — South Australian Department of Mines and Energy. Computer printout of borehole records with year of most recent data.

Do 84 — P. Donovan, consultant historian, pers. comm.

Dr 76 — Draper, J.J. and Jensen, H.R. 1976. The geochemistry of Lake Frome, a playa lake in South Australia. BMR Journal of Australian Geology and Geophysics, 1:83-104.

G 70 — Glover, C.J.M. 1970. The Taxonomy and Biology of Chamydogobius eremius (Zeitz, 1896). Unpubl. M.Sc. thesis, Univ. of Adelaide.

G 84 — Glover, C.J.M., South Australian Museum, pers. comm.

GNB — Geographical Names Board, South Australia, pers. comm.

H 81 — Harris, C. 1981. Oases in the desert: the mound springs of northern South Australia. Proc. Roy. Geogr. Soc. Aust'a. (S.A. Branch) Inc., Vol. 81 (1980-81):26-39.

Ha 82 — Habermehl, M.A. 1982 Springs in the Great Artesian Basin, Australia - their origins and nature. Bureau of Mineral Resources, Aust. Rept. 235.

Ho 81 — Holmes, J.W., Williams, A.F., Hall, J.W. and Henschke, C.J. 1981. Measurements of discharges from some of the mound springs in the desert of Northern South Australia. J. Hydrol. Vol. 49, No. 3-4:329-339.

Jessop (ed.) 1981 — Jessop, J. (ed. in chief). 1981. Flora of Central Australia. The Australian Systematic Botany Society, Reed Books, Sydney.

Jo 63 — Johns, R.K. and Ludbrook, N.H. 1963. Investigation of Lake Eyre. Geological Survey of South Australia, Report of Investigations, 24.

K 82 — Krieg, G.W. 1982. Stratigraphy and Tectronics of the Dalhousie Anticline, South West Wromanga Basin, in Moore, P.S. and Mount, T.J. (compilers) Eromanga Basin Symposium, summary papers. Geol. Soc. Aust. & Pet. Explor. Soc. Aust., Adelaide.

Ke 66 — Ker, D.S. 1966. The hydrology of the Frome Embayment in South Australia. Geological Survey of South Australia, Report of Investigations, 27.

LPP — South Australian Department of Lands Pastoral Plans.

NM — National Mapping Programme - maps.

McB 79 — McBriar, E.M. and Mooney, P.A. (eds.). 1979. Geological Monuments in South Australia, Part 2. Geographical Society of Aust., S.A. Division.

Mi 84 — Mitchell, B. 1984. Limnology of Mound Springs and Temporary Pools South and West of Lake Eyre, in Survey of South Australian Mound Springs, Nature Conservation Society of South Australia.

P 84 — Ponder, W.F. and Hershler, R. 1984. The Distribution, Significance and Conservation of the Hydrobiidae of the South Australian Mound Springs. A Report to Roxby Management Services and the South Australian Government, Australian Museum, Sydney.

RMS — Maps prepared by Roxby Management Services.

RMS 82 — Roxby Management Services Pty. Ltd. 1982. Olympic Dam Project. Draft Environmental Impact Statement.

RMS 83 — Roxby Management Services Pty. Ltd. 1983. Olympic Dam Project. Supplement to the Draft Environmental Impact Statement.

SEA 84 — Results of this survey by Social & Ecological Assessment Pty. Ltd.

Sy 84a — Symon, D.E. 1984a. Flora of the Mound Springs and Surrounding Areas, in Survey of South Australian Mound Springs. Nature Conservation Society of South Australia.

Sy 84b — Symon, D.E. 1984b. A checklist of plants of Dalhousie Springs and their immediate environs. J. Adelaide Bot. Gard. 7(1):128-134.

TB 84 — Thompson, R. and Barnett, S. 1984. Geology, Geomorphology and Hydrogeology, in Survey of South Australian Mound Springs. Nature Conservation Society of South Australia.

Wi 74 — Williams, A.F. 1974. Sampling and measurement of the Great Artesian Basin mound springs. Progress Report 1, Dalhousie Springs. S.A. Dept. of Mines and Energy, Rept. 74/204.

Wi 79 — Williams, A.F. 1979. Sampling and measurement of mound springs, Great Artesian Basin, South Australia. Progress Rept. No.3, Warrina, Oodnadatta, Billa Kalina and Curdimurka Sheets. Dept. of Mines and Energy Rept. 79/66.

Wi & H 78 — Williams, A.F. and Holmes, J.W. 1978. A novel method of estimating the discharge of water from mound springs of the Great Artesian Basin. J. Hydrol. Vol. 38, No.3-4:263-272.

Z 84 — W. Zeidler, South Australian Museum, pers. comm.

MAP REFERENCE:

(1) indicates position doubtful

(2) indicates existence doubtful

BERESFORD HILL SPRING COMPLEX (B)

SPRING GROUP..BERESFORD.HILL.SPRING.COMPLEX.(B)..... CODE .B/BH.....

		References
MAP REFERENCE:	SH 53-8 470-373	NM,LPP,RMS,Ha82
PASTORAL LEASE:	Stuarts Creek	Ca79
ACCESS:	By track from grid opposite Beresford Hill Railway Siding. North-west of Beresford Hill and 35 m below top of hill. Access is good.	DEP 78 Co 75
DESCRIPTION:	One active mound spring (3-4 m high, 80 m diam.) with no flow. Seepage only. Almost no tail on to plain. Small pool (6 m) at top in 1978.	Sy 84a DEP 78
SURROUNDING ENVIRONMENT:	Springs occur in general depression (claypan).	DEP 78
DISTURBANCE:	Horse/cattle camp obvious from manured side of the spring. Area described as thrashed and damaged. Cyperus laevigatus heavily trampled. Borrow pit between mound and Beresford Hill.	Sy 84a DEP 78
SPECIAL FEATURES/REMARKS:	Discovered by Major P.E. Warburton in 1858. Comparison between NM and LPP indicates possible confusion between Beresford Hill Spring and Warburton Spring. Beresford Hill itself is extinct Pleistocene mound. (Ponder refers to Beresford Hills).	H81 P84

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)	
001	3-4	80		22	6,600 4.35ppt		0.08	(1974) Co 75 DME (1978)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		4	4	Mi 84, p 84
aquatic vertebrates		0	0	G pers. comm.
vegetation		3	0	Sy84a,Al84,DEP78

* see attached species lists

BIOLOGICAL CHARACTERISTICS

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
ISOPODA				Mi84, P84
Phreatomerus latipes		X		
GASTROPODA				
Hydrobiidae (4 species) T2, F2a, F4, F5		X		P 84, Mi84
AMPHIPODA				
Gammaridae sp.		X		P 84, Mi84
OSTRACODA				
Nagarawa dirga		X		P 84, Mi84
Aquatic Vertebrates				
None found				G. pers.comm.
Flora				
Cyperus laevigatus				Sy 84a
Halosarcia sp.				
Spergularia rubra				

Comments:

SPRING GROUP. WARBURTON SPRINGS ..... CODE ..B/WS.....

		References
MAP REFERENCE:	SH 53-8 471-373	NM, LPP, RMS
PASTORAL LEASE:	Stuarts Creek	Ca79, Ha82, Co75
ACCESS:	Across claypan SE of Beresford Hill on track heading SSW from main Oodnadatta-Marree road.	Co75, DEP78
DESCRIPTION:	Two mound springs, one active and one extinct. Active mound has long tail with free-flowing water.	Co75, Sy84
SURROUNDING ENVIRONMENT:		
DISTURBANCE:	Whole area is heavily pugged and grazed (1978). It was once fenced and had wooden trough	Sy84 DEP 78
SPECIAL FEATURES/REMARKS:	Discovered by Major P.E. Warburton in 1858	H 81

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)	
001				26	6,600 3.96 ppt	7.8	0.03-0.9 0.02	(1974) Co75 DME (1978)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		4	4	Mi84, Z84, P84
aquatic vertebrates		0	0	De 79 G 70
vegetation		7	0	Sy84a, DEP78

* see attached species lists

BIOLOGICAL CHARACTERISTICS

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
ISOPODA				
Phreatomerus latipes		X		Mi84
AMPHIPODA				
Gammaridae sp.		X		Z84, Hi84
GASTROPODA				
Hydrobiidae (spp. Tq, F2a, F4, f5)		X		P84
OSTRACODA				
Nagarawa dirga		X		P84, Hi84, De79
Aquatic Vertebrates				
None Found				G70
Flora				
Cyperus laevigatus Schoenoplectus litoralis Polypogon monspeliensis Sporobolus sp. Haloscarcia spp. Phragmites australis				Sy84a DEP 78
Enchylaena tomentosa				
Atriplex sp.				

Comments:

SPRING GROUP...UNNAMED SPRING..... CODE .B/001.....

MAP REFERENCE: SH 53-8 Plotted on NM as possible spring; listed by Ca79 as spring.

PASTORAL LEASE: Stuarts Creek

ACCESS:

References

NM, Ca79

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

BILLA KALINA SPRING COMPLEX (BK)

SPRING GROUP BILLA KALINA (OR ELLEN) SPRINGS CODE BK/BK

MAP REFERENCE: SH 53-7 443 to 350 — References: Co75, NM, LLP; Ca79, Ha82

PASTORAL LEASE: Billa Kalina

ACCESS: Adjacent to main track from Coward Springs to Billa Kalina H.S. Track leaves main Marree-Oodnadatta road opposite Jersey Springs. — DEP78

DESCRIPTION: Extensive group of springs (5km x 2km). Numerous mounds varying from 1-2m high x 20m diam. to 4m high x 50m diam. Many extinct and non-active mounds. Some active low mounds. Mixture of forms including spring limestone mounds with craters and soft seeping mounds; also low mounds with extensive tails. — DEP78

SURROUNDING ENVIRONMENT: Springs either in creekbed of Margaret River and distributaries or clustered in salina and clay depression approx. 5km x 6km, bordered by low dunes and Margaret River floodplain; all set in gypseous-surfaced plain. — SEA84

DISTURBANCE: Spring nearest to ruins has a bore sunk into base that formerly piped to a trough. Bore still flowing. Other springs generally in good condition. One, in the middle of the complex, was formerly fenced. Broken channel walls and areas of sparse or renerating reeds in mud suggest past pugging. — DEP78

SPECIAL FEATURES/REMARKS: Deserves more intensive study with view to fencing or other management measures.

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)	
?					5.229			Co75 (1891)
001	0.5	4	600	24	4	7.6	1	SEA84
002	1.3	8	n.a.	n.a.	n.a. 5.47	n.a. 7.9	0.01	SEA84 DME (1978)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		3	3	Mi84 P84
aquatic vertebrates		1	0	
vegetation		11	0	SEA84, DEP78

* see attached species lists

BIOLOGICAL CHARACTERISTICS

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
AMPHIPODA				
Gammaridae sp.		X		P84
ISOPODA				
Phreatomerus latipes		X		Mi84
GASTROPODA				
Hydrobiidae (4 species: T2, F2a, F3d, F5)		X		P84
Aquatic Vertebrates				
Chlamydogobius eremius (Desert goby)				Mi84
Flora				
Juncus kraussii *				DEP78, DEA84
Cyperus laevigatus				
Phragmites australis				
Halosarcia indica ssp. leiostachya				
Halosarcia halocnemoides				
Sporobolus sp.				
Babbagia sp.				
Frankenia cinerea				
Myoporum acuminatus				
Atriplex spongiosa				
Nitraria billardieri				
Acacia victoriae				
Eragrostis dielsii				
Dactyloctenium radulans				
Scaevola depauperata				

Comments:
BK/001 and 002 are located in saline area at centre of complex
BK/003 is spring at "Old Billa Kalina" ruin
BK/004 is Ponder's site 761
BK/002 is near Ponder's site 762
BK/005 is Ponder's site 762

*Old Billa Kalina ruins spring only

refer to aerial photograph

LAKE BLANCHE SPRING COMPLEX (BL)

SPRING GROUP.....UNNAMED SPRINGS..... CODE ..BL/001.....

SLIDE NOS. 1-4(001), 5(002).

		References
MAP REFERENCE:	SH 54-5 240-372	
PASTORAL LEASE:	Murnpeowie	
ACCESS:	Unknown	
DESCRIPTION:	Low mound with a single seep and short tail. There is a small pool with boarded edge at the source. The flow discharges into a smallish wetland/swamp.	SEA84
SURROUNDING ENVIRONMENT:	On the edge of a salt lake. Flat, barely vegetated with saline crust.	SEA84
DISTURBANCE:	Spring has at one stage been converted to a well with boards around its edge. Was once fenced. Appears in good condition.	SEA84
SPECIAL FEATURES/REMARKS:	No obvious cattle trails or use. Remoteness probably accounts for minimal impacts.	

PHYSICAL CHARACTERISTICS

spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)
001	1.5	16	300	22	6	6.8	0.2

SEA84

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates		0	0
aquatic vertebrates		0	0
vegetation		4	1

* see attached species lists

BIOLOGICAL CHARACTERISTICS

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
Aquatic Vertebrates				
Flora				
Cressa cretica Halosarcia sp. (prob. pergranulata) Polypogon monspeliensis Mimulus repens	X			SEA84

Comments:

Unusual to have no Cyperus laevigatus or other rushes/reeds.

COWARD SPRINGS COMPLEX (C)

SPRING GROUP..... ANNA SPRINGS ..... CODE C/AS .....

MAP REFERENCE: SH 53-8 505-341

PASTORAL LEASE: Stuarts Creek

ACCESS:

References: Co75, LPP, RMS, Ca79, Ha82.

DESCRIPTION: Two active mound springs. Visited by D. Ker (Dept. of Mines), Dec. 1961: — Co75

"Spring flows - no equipment, supply steady and small flow; blue-black clays adjacent to springs with surface limestone kumkarized and partly laterised." Forbes (1958) describes the springs as:

"The larger mound at Anna Spring is about 23 feet high and 140 feet across the top. There is a slightly raised central crater. Side slopes are about 11 degrees. About 200 feet east of the above is a low mound which contains water in its crater."

DISTURBANCE: No flow recorded in 1981. — RMS82

Has bore and well. — Z84

SPECIAL FEATURES/REMARKS:

Discovered by Major P.E. Warburton in 1858 and visited by Goyder in 1859-60. — H81, Co75

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)	
001	6-7	45					0.01	Co75
002	low							Co75
?					10.97			DME (1961)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		0	0	Z84
aquatic vertebrates	X			
vegetation		4		RMS84

* see attached species lists

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
Aquatic Vertebrates				
Flora				
Vegetation Fimbristylis sieberana Cyperus laevigatus Halosarcia Atriplex nummularia				
Comments:				

SPRING GROUP..... BLANCHE CUP SPRINGS (group includes The Bubbler) CODE C/BC .....

		References
MAP REFERENCE:	SH 53-8 422-352	Co75,NM,LPP, RMS,Ca79,Ha82
PASTORAL LEASE:	Stuarts Creek	
ACCESS:	From main Coward Springs-Stuart Creek road. Short distance east of Hamilton Hill.	Co75
DESCRIPTION:	About four active mounds. Blanche Cup has reedy pool; thin trickle of water escapes down slope in several places. It is up to 5m above the general ground level and 30m across; the pool being about 6m below the summit of the crater. The rock is white and hard.	Co75,TB84
SURROUNDING ENVIRONMENT:	Sand spreads and gravel surface within a gypseous depression with taller siliceous residuals and extinct Pleistocene mounds.	TB84
DISTURBANCE:	Shows signs of trampling by tourists (especially the rim). Shows signs of reduced flow (Blanche Cup itself).	Sy84a
SPECIAL FEATURES/REMARKS:	Stockyard associated with Bubbler. Discovered by Major P.E. Warburton.	H81

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)	
001(BC)	5	30		14 (pool)	5,900		0.1	Co75
11				28 (seeps)	7,000			DME(1974)
?					4.07 ptt	7.6		
002(Bub)				30	5,600		7.5	Co75
003				28	5,600			Co75
004					5,400		0.2	Co75
005	3	507			4,900		0.2	Co75

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		12	4	(1978)Mi84 De79 Z84
aquatic vertebrates		1	0	(1971)G84
vegetation		11	0	Sy84a, A184

* see attached species lists

(CONTINUED)

SPRING GROUP..... BLANCHE CUP SPRINGS (group includes The Bubbler) CODE ...C/BC.....

MAP REFERENCE:

PASTORAL LEASE:

ACCESS:

References

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)	
					2.84 ppt	7.6	0.19	DME (1977)
					Blanche Cup		0.23	RMS 82
					Bubbler		1.97	RMS 82
			1,675	Blanche Cup			0.20	Ho81
			11,700	The Bubbler			3.91	Ho81

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates			
aquatic vertebrates			
vegetation			

* see attached species lists

BLANCHE CUP

CODE ...C/BC.....

BIOLOGICAL CHARACTERISTICS

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
OSTROCODA				Mi84, De79*
*Nagarawa dirga		X		Z84
ISOPODA				
Phreatomerus latipes		X		Z84
AMPHIPODA				
Gammaridae sp.		X		Z84
GASTROPODA				
Hydrobiidae (4 species: T1, F2a, F3a, F5).	X	X	X	P84
CLADOCERA				
Chydoridae				Mi84
COPEPODA				
Mesocyclops leckarti				Mi84
HEMIPTERA				
Corixidae				
Micronecta sp.				
Notonectidae				
Anisops sp.				
Veliidae				
Microvelia sp.				
COLEOPTERA				
Laccophilus sp.				
unid. larvae				
DIPTERA				
Chironomidae				
Tanypodinae				
Stratiomyidae				
ODONATA ZYGOPTERA				
Amphipterygidae				
Calopterygidae				
Lestidae				
ODONATA ANISOPTERA				
Aeshnideae				
Corduliidae				
Gomphidae				

.../

Comments:

* Physical parameters at time of collection. T. 140°C; cond. 6,952 mmho — De79
Type locality for Nagarawa dirga.

BIOLOGICAL CHARACTERISTICS CONTINUED

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
LEPIDOPTERA Pyralidae Chlamydogobius eremius (Desert goby)				G84
Flora				
Potamogeton pectinatus Polypogon monspeliensis Cyperus laevigatus Bolboschoenus caldwellii Sporobolus virginicus Halosarcia sp. Phragmites australis Frankenia sp. Nitraria billardieri Myoporum acuminatum Babbagia dipterocarpa Helichrysum podolepidum Gnephosis gnephosioides Enneapogon avenaceus Enneapogon cylindrica Enneapogon clelandii Maireana appressa				Sy84a, Al84

Comments:

NB. Originally there were no fish, but Glover introduced C. eremius (Desert goby).

UNNAMED NEAR BLANCHE CUP

CODE .C/BC.....

BIOLOGICAL CHARACTERISTICS

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
OSTROCODA				
Nagarawa dirga		X		Mi84, De79
AMPHIPODA Gammaridae sp.		X		P84
IOSPODA				
Phreatomerus latipes		X		Mi84, p84.
GASTROPODA				
Hydrobiidae several outlets have 5 spp. collectively T1, F2a, F4, F3A, F5	X	X	X	p84
Aquatic Vertebrates				
Chlamydogobius eremius (Desert goby)				Mi84
Flora				

Comments:

CODE .../BC.....

THE BUBBLER (BLANCHE CUP)

BIOLOGICAL CHARACTERISTICS

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
OSTRACODA				
Nagarawa dirga				De79*
GASTROPODA				
Hydrobiidae 4 spp : T1, F2a, F3a, F5	X	X	X	P84
HEMIPTERA				
Anisops sp.				Mi84
DIPTERA				
Stratiomyidae				Mi84
OLIGOCHAETA				
Tubificidae				Mi84
ISOPODA Phraehomerus latipes		X		P84
AMPHIPODA Gammaridae sp.		X		P84
Aquatic Verbebrates				
Chlamydogobius eremius (Desert goby)				Mi84
Flora				

Comments:

* Physical parameters noted at time of collection: T.14^{o}C.
Cond. 6952 mmho.

SPRING GROUP..... COWARD SPRINGS ..... CODE C/CS .....

MAP REFERENCE: SH 53-8 484-357

PASTORAL LEASE: Stuarts Creek

ACCESS:

By good track from main Oodnadatta-Marree road, about 2-3 km from Coward Springs railway station

References: Co75, NM, LPP, RMS, Ca79, Ha82

DESCRIPTION:

One large active mound. Roughly circular with a trickle down one side. Most flow now emanates from a breakaway on the side of the mound. — Co75, Sy84a, DEP78

SURROUNDING ENVIRONMENT:

DISTURBANCE:

Top of mound is rather bogged and grazed. The breakaway area on the side of the mound was once protected by a fence, now derelict, with pipe to trough. — Sy84a, DEP78

SPECIAL FEATURES/REMARKS:

Discovered by Major P.E. Warburton in 1859. — H81.

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)	
001	5-7	52	16,100	28 28	6,500 6,811 3.96ppt	8.3 7.7	2.7 0.8 0.035 0.9	Ho81 (1984) Co75 De79 DME (1977)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		4	4	Mi84, P84 Z84, De79
aquatic vertebrates		2	0	G84
vegetation		14	0	Sy84a, DEP78

* see attached species lists

CODE C/CS

BIOLOGICAL CHARACTERISTICS

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
AMPHIPODA				
Gammaridae sp.		X		Mi84
GASTROPODA				
Hydrobiidae* (4 species: T1, F2a, F4, F5)		X		P 84
DECAPODA				
Caridina sp.				Mi84
DIPTERA				
Stratiomyidae				Mi84
OLIGOCHAETA				
Tubificidae				Mi84
ISOPODA				
Phreatomerus latipes		X		Z 84
OSTRACODA				
Nagarawa dirga		X		Mi84, P84
Heterocypns tatei				De79
Aquatic Vertebrates				
Chlamydogobius eremius (Desert goby)				Mi84, G84
Craterocephalus eyresii (Lake Desert Hardyhead)				
Flora				
Bolboschoenus caldwellii				
Cyperus laevigatus				
Phragmites australis				Sy. 84a
Juncus kraussii				DEP78
Halosarcia indica ssp. leiostachya				
Halosarcia halocnemoides ssp. longispicata				
Sporobolus virginicus				
Samolus repens				
Polypogon monspeliensis				

Comments:

* One of the Hydrobiids in Coward Springs Railway Bore is endemic to that spring only. (F3a).

BIOLOGICAL CHARACTERISTICS

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
Flora (Contd.)				
Nitraria billardieri Spergularia rubra Atriplex numularia Acacia salicina Myoporum acuminatum				Sy84a
Acacia victoriae				
Comments:				

SPRING GROUP.....ELIZABETH SPRINGS..... CODE ..C/ES.....

MAP REFERENCE: SH 53-8 482-363

PASTORAL LEASE: Stuarts Creek

ACCESS:

Cross country from main Oodnadatta-Marree road. Access good.

References: Co75, NM, LPP RMS, Ca79, Ha82 . Co75.

DESCRIPTION:

Several waning seeps. Springs on edge of limestone mound. Empty into an alluvial valley with sands and gravels in the creek-bed.

References: Co75, Sy84a Wi79

SURROUNDING ENVIRONMENT:

DISTURBANCE:

None reported.

SPECIAL FEATURES/REMARKS:

Ponder remarks (p.28) that a dam placed across outflow of one of Elizabeth Springs (his stn 768) coincided with/caused extinction of two spp. of hydrobiid.

Discovered by J.H. Stuart in 1859.

References: P84, H81

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)	
			81				0.02	Ho81
			99				0.05	"
			720				0.09	"
			8,600				2.51	"
				24.5	9,500		0.1	(1977) W 79
					6.0 ppt	8.7	0.1	DME (1977)
					3.17 "	7.4	0.02	DME (1974)
							0.2	(1974) Co75

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		4	4	Mi84, Z84, P84, De79
aquatic vertebrates		1	0	G84
vegetation		1 (+1)*	0	Sy84a, DEP78

* see attached species lists * (extinct)

BIOLOGICAL CHARACTERISTICS

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
ISOPODA				
Phreatomerus latipes		X		Mi84, P84, Z84
AMPHIPODA				
Gammaridae sp.		X		Z84, P84
GASTROPODA				
Hydrobiidae (4 species: F1, F2a, F4, F5)		X		P84, Mi84.
OSTRACODA				
Nagarawa dirga		X		P84, Mi84, De79, P84.
Aquatic Vertebrates				
Chlamydogobius eremius (Desert goby)				G84
Flora				
Phragmites australis				Sy84a
(Cyperus laevigatus)				DEP78

Comments:

SPRING GROUP HORSE SPRING CODE C/HS

	References
MAP REFERENCE: SH 53-8 498-346	Co79, NM, LPP, RMS, Ca79, Ha82
PASTORAL LEASE: Stuarts Creek	
ACCESS: From the main Coward Springs-Stuart Creek road for approximately 1 km over good stony ground. Access good.	Co75

DESCRIPTION:

Eight active mound springs. The largest of these average about 60' in diameter and 14' in height (non-active). There is a trickle of water from seven of the springs. — Co75

SURROUNDING ENVIRONMENT:

Close to Margaret River.

DISTURBANCE:

Mostly very degraded and bare. Signs of grazing, but changes in hydrostatic pressure may be more responsible for the devastated state of the springs. Heavily grazed and pugged in 1978. Bore adjacent to springs. — Sy84a, DEP78, RMS82

SPECIAL FEATURES/REMARKS:

Largest pool surrounded by stone wall and the overflow fenced. — DEP78

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)	
001	4-5	18		27	6,100		0.12 0.05	RMS82 (1974) Co75
002				27	7,900		0.05	
				23	7,047			De79
					7.9ppt			DME (1974)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		7	4	Mi84, P84 De79
aquatic vertebrates		0	0	G84
vegetation		5	0	Sy84a

* see attached species lists

BIOLOGICAL CHARACTERISTICS

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
ISOPODA				
Phreatomerus latipes		X		Mi84, P84
OSTRACODA				
Nagarawa dirga		X		Mi84, P84, De79
AMPHIPODA				
Gammaridae sp.		X		Mi84, P84
HEMIPTERA				
Micronecta sp.				Mi84
DIPTERA				
Chironomidae sp.				Mi84
GASTROPODA				
Hydrobiidae (5 species: T1, F2a, F4, F3a, F5)		X		P84
Aquatic Vertebrates				
None found				G84
Flora				
Phragmites australis Cyperus laevigatus Halosarcia indica ssp. leiostachya Enchylaena tomentosa Spergularia rubra				Sy84a DEP78
Acacia sp. Atriplex sp.				
Comments:				

BIOLOGICAL CHARACTERISTICS (Continued)

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
CLADOCERA				
Macrothricidae				Mi84
Macrothrix spinosa				
ISOPODA				
Phreatomerus latipes		X		"
HEMIPTERA				
Corixidae				
Micronecta sp.				
Notonectidae				
Anisops sp.				
COLEOPTERA				
unid. larvae				"
DIPTERA				
Chironomidae sp.				
Ceratopogonidae sp.				
Aquatic Vertebrates				
Flora				
Comments:				

SPRING GROUP....JULIE SPRINGS..... CODE ..C/JU.....

MAP REFERENCE: SH 53-8 483-362

PASTORAL LEASE: Stuarts Creek

ACCESS:

Spring 1: Cross-country from main Oodnadatta-Marree road. Access good.
Spring 2: Cross-country from above road in a north-easterly direction. Access good in dry, but care needed in swampy area after rains.

References

Co75,LPP,NM, Ca79,Ha82

DESCRIPTION: Spring on level ground, with discharge from small hole.

Co75

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)
				30	6,000	7.2	1.7

(1974) Co75

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates		4	4
aquatic vertebrates	X		
vegetation	X		

P84

* see attached species lists

BIOLOGICAL CHARACTERISTICS

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
GASTROPODA				
Hydrobiidae (4 spp: T1, F2a, F4, F5)		X		P84
AMPHIPODA		X		P84
Gammaridae sp.				
ISOPODA		X		P84
Phreatomerus latipes				
OSTRACODA		X		P84
Nagarawa dirga				

Comments:

SPRING GROUP.....JERSEY SPRINGS (also called TRIGGS SPRING) CODE C/JS.....

		References
MAP REFERENCE:	SH 53-8 480-365	Co75,NM,LPP, RMS,Ca79,Ha82
PASTORAL LEASE:	Stuarts Creek	
ACCESS:	Cross-country from main Oodnadatta-Marree road. Access good.	Co75

DESCRIPTION: Several active non-mound springs with small pools. They occur in the centre of a depression incised by recent drainage within a plateau. — Co75,Sy84a

SURROUNDING ENVIRONMENT:

DISTURBANCE: This spring has been severely damaged by stock. Largest spring supposed to contain 6 inch diameter bore, but not seen in 1961. — Sy84a,Co75

SPECIAL FEATURES/REMARKS:
Formerly fenced with trough - now couple of fence posts remain and rusted wire of broken fence. — DEP78
Discovered by J.M. Stuart in 1859. — H81

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)
			10,500	26	6,400	7.6	1.71

Ho81 (1974) Co75

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		6	4	Mi84,Z84,P84
aquatic vertebrates	X			
vegetation		1 (+2)$^{\Delta}$		Sy84a,DEP78

* see attached species lists $^{\Delta}$ Extinct

CODE ..C/JS.....

BIOLOGICAL CHARACTERISTICS

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
ISOPODA Phreatomerus latipes		X		Mi84,P84,Z84
AMPHIPODA Gammaridae sp.		X		Z84,P84,Mi84
GASTROPODA Hydrobiidae (4 spp.: T1, F2a, F4, F5)		X		P84,Mi84,Z84
OSTRACODA Nagarawa dirga		X		P84,Mi84,Z84
Aquatic Vertebrates				
Chlamydogobius eremius (Desert goby)				Mi84
Flora				
Scirpus sp. (Cyperus laevigatus) (Juncus sp.)				Sy84a
Comments:				

CODE ....C/JS.....

UNNAMED NEAR JERSEY SPRINGS

BIOLOGICAL CHARACTERISTICS CONTINUED

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
ISOPODA Phreatomerus latipes CLADOCERA Daphniopsis pusilla		X		Mi84
Aquatic Vertebrates				
Flora				
Comments:				

SPRING GROUP KEWSON HILL CODE C/KH

MAP REFERENCE: SH 53-8 484-351

PASTORAL LEASE: Stuarts Creek

ACCESS:

References: NM,LPP,RMS, Ca79,Ha82

DESCRIPTION: Very large dome-like mound with several seeps issuing from sides. P84

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		4	4	Z84,P84
aquatic vertebrates		0	0	G84
vegetation	X			A184

* see attached species lists

BIOLOGICAL CHARACTERISTICS

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
AMPHIPODA Gammaridae sp.		X		Z84, P84
ISOPODA Phreatomerus latipes		X		P84, Z84
GASTROPODA Hydrobiidae (4 spp: T1, F2a, F4, F5)		X		P84, Z84
OSTRACODA Nagarawa dirga		X		P84, Z84
Aquatic Vertebrates				
None found				G84
Flora				
23 spp. collected but all are general arid zone plants.				A1 84

Comments:

SPRING GROUP..STRANGWAYS SPRINGS (also called Mt. Hamilton Springs or Hamilton Hill Homestead Springs) CODE C/SS

MAP REFERENCE: SH 53-8 496-345 and 495-347

PASTORAL LEASE: Stuarts Creek

ACCESS:

References: NM,RMS, Ca79, Ha82

DESCRIPTION:

Old Mount Hamilton Station ruins has a single mound capped by a crater with water but from which there is no flow. Flora suggests a calcareous rather than saline site.
Corresponds to description of Forbes (DME) in 1958.

Sy84a

Co75

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)	
002= Mt. Ham. Sp.	7	100		18	8,970	-		De79, Co75
					3.15 ppt	7.4		DME (1974)
001					6.9 ppt	-		DME (1978)
							0.12	RMS 82

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		4	4	Mi84, Z84, P84 De79
aquatic vertebrates		1	0	G 84
vegetation		4	0	Sy84A

* see attached species lists

BIOLOGICAL CHARACTERISTICS

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
GASTROPODA				
Hydrobiidae 4 spp: T2, F2a, F3a, F5)		X		P84, Z84
ISOPODA				
Phraetomerus latipes		X		P84, Z84, Mi84
AMPHIPODA				
Gammaridae sp.		X		P84, Z84, Mi84
OSTRACODA				
Nagarawa dirga		X		P84, De79, Mi84, Z84
Aquatic Vertebrates				
Chlamydogobius eremius (desert goby)				G84
Flora				
Halosarcia indica ssp. leicotachya Atriplex nummularia Enchylaena tomentosa Rhagodia sp. Myoporum acuminatum Acacia ligulata				Sy84a
Comments:				

SPRING GROUP..... WALKARINA SPRING ..... CODE C/WS .....

MAP REFERENCE: SH 53-8 509-346
PASTORAL LEASE: Stuarts Creek
ACCESS: Unknown

References: Co75, NM, RMS, Ca79, Ha82

DESCRIPTION:

A single seep (1961) Co75

SURROUNDING ENVIRONMENT:

DISTURBANCE:

None reported

SPECIAL FEATURES/REMARKS:

RMS could not locate from air P84

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)
							1-1.4 Co75 0.99 RMS82 (estimate from previous or later survey)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates		0	0
aquatic vertebrates	X		
vegetation	X		

Z84

* see attached species lists

LAKE CALLABONNA SPRING COMPLEX (CA)

SPRING GROUP.. MULLIGAN SPRINGS CODE .CA/MS.....

	References
MAP REFERENCE: SH 54-6 291-318 PASTORAL LEASE: Murnpeowie ACCESS:	NM,LPP,GNB Ca79,Ha82

DESCRIPTION: Low mound with very high, dense vegetation — SEA84

SURROUNDING ENVIRONMENT:
On the edge of Lake Callabonna - salt - encrusted plain with minor drainage lines from Flinders Ranges to west.

DISTURBANCE: No evidence of damage. No cattle dung or trails — SEA84

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)	
					3.16ppt	8.1		DME(1978)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		1	1	Z84
aquatic vertebrates		1	0	G84
vegetation		5	0	SEA84

* see attached species lists

BIOLOGICAL CHARACTERISTICS

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
GASTROPODA Hydrobiidae		X		Z84
Aquatic Vertebrates				
Craterocephalus eyresii (Lake Eyre hardyhead)				G84
Flora				
Bolboschoenus caldwellii Typha sp. Haloscarcia pergranulata Enchylaena tomentosa Atriplex sp. Heliotropium curassavicum				SEA84
Comments:				

SPRING GROUP UNNAMED SPRING CODE CA/001

		References
MAP REFERENCE:	SH 54-10 302-273 (1)	NM, LPP
PASTORAL LEASE:	Frome Downs (or Moolawatana)	
ACCESS:	Track from Moolawatana Homestead to Moolawatana Bore (may have disappeared in 1893 floods)	

DESCRIPTION: Located in channel overflow from Lake Callabonna to Lake Frome. Described as salt spring on LPP. SEA84

SURROUNDING ENVIRONMENT:

As for complex

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

Could not locate precisely on aerial photograph and flooded when inspected by helicopter. SEA84

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates			
aquatic vertebrates			
vegetation			

* see attached species lists

SPRING GROUP..... UNNAMED SPRING ..... CODE ....CA/002....

	References
MAP REFERENCE: SH 54-10 305-281 (1) PASTORAL LEASE: Frome Downs (or Moolawatana) ACCESS: Overland along fence line from CA/001	NM, LPP
DESCRIPTION: Located west of southern extension of Lake Callabonna Described as salt spring on LPP.	SEA 84
SURROUNDING ENVIRONMENT: As for complex	
DISTURBANCE:	
SPECIAL FEATURES/REMARKS: Aerial photograph (B & W) shows light trace which could be salt indicating spring at this location. Area flooded when inspected by helicopter.	SEA 84

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP..... UNNAMED SPRINGS: SUMMARY

SLIDES 26-39

CODE CA/001-009

		References
MAP REFERENCE:	SH 54-6 291 to 306 - 305 to 325 SH 54-10 3-2 to 305 - 273 to 281	NM,LPP,GNB
PASTORAL LEASE:	Variety of leases and Lake Callabonna Fossil Reserve	
ACCESS:	Problematic - perhaps west from Moolawatana Station along bore track to cross channel between Callabonna and Frome, thence up Central Peninsula of higher land in Lake Callabonna.	
DESCRIPTION:	At least five groups with low mounds covered in dense wetland vegetation. Contains pools and streams. Total number of springs may be in excess of 12.	SEA84
SURROUNDING ENVIRONMENT:	Located on edge of Lake Callabonna - salt - encrusted plain with minor drainage lines from Flinders Ranges to west.	
DISTURBANCE:	No evidence of disturbance.	SEA84
SPECIAL FEATURES/REMARKS:	Can only confirm springs at groups 003/004/008. Several more likely springs from aerial photorgaph. Should be clarified by ground-truthing and split further. Suggest further investigations.	SEA84

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)	
003/001	1-5	45	9,000	28	7	7.6	0.7	SEA84
003/002	3	40						

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		2	2	Z84
aquatic vertebrates		0	0	G84
vegetation		12	1	SEA84

* see attached species lists

BIOLOGICAL CHARACTERISTICS

Aquatic Invertebrates *	rare amongst springs	endemic to springs	generally rare	references
GASTROPODA				Z84
Hydrobiidae		X		
OSTRACODA				
Nagarawa dirga		X		
Aquatic Vertebrates				
Flora#				
Cyperus laevigatus (1) Halosarcia indica ssp. leiostachya (1) Halosarcia pergranulata (1) Phragmites australis (1) (2) Juncus krausii (1) (2) Bolboschoenus caldwellii (1) + Triglochin striatum (1) Sonchus sp. (1) Suaeda sp. (1) Maireana sp. (1) Enchylaena tomentosa (2) Myoporum acuminatum (1) (2)	X		X	SEA84

Comments:

* Zeidler's locations are not precise: molluscs and ostracods collected at group of several springs in the centre of lake probably CA/003 and/or CA/004; ostracods only in several springs at S.E. end of lake, probably CA/007.

\# Collected at two springs in CA/003 group; (1) other species name indicates present at CA/003/001, (2) indicates Ca/003/002.

\+ Triglochin striatum is new record for Central Australia.

SPRING GROUP..... UNNAMED SPRINGS ..... CODE ..CA/003.....

SLIDE NOS. 27-33

MAP REFERENCE: SH 54-6 302-318

PASTORAL LEASE: Lake Callabonna Fossil Reserve

ACCESS:

References: NM

DESCRIPTION: 3 or 4 outlets with significant flows and wetland areas. Lowish soft mounds.

SURROUNDING ENVIRONMENT:

As for complex.

DISTURBANCE: No evidence of disturbance, fences, cattle trails.

SPECIAL FEATURES/REMARKS:

001 has large area of Bolboschoenus Caldwellii, which is very palatable to stock; indicates stock use in recent times is negligible.

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)	
001	1-5	45	9,000	28	7	7.6	0.7	SEA84
002	3	40						

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		2	2	Z84
aquatic vertebrates		0	0	G84
vegetation		12	1	SEA84

* see attached species lists

BIOLOGICAL CHARACTERISTICS

Aquatic Invertebrates *	rare amongst springs	endemic to springs	generally rare	references
GASTROPODA Hydrobiidae		X		Z84
OSTRACODA Nagarawa dirga		X		
Aquatic Vertebrates				
Flora#				
Cyperus laevigatus (1) Halosarcia indica ssp. leiostachya (1) Halosarcia pergranulata (1) Juncus krausii (1) (2) Phragmites australis (1) (2) Bolboschoenus caldwellii (1) + Triglochin striatum (1) Sonchus sp. (1) Suaeda sp. (1) Maireana sp. (1) Enchylaena tomentosa (2) Myoporum acuminatum (1) (2)	X		X	SEA84

Comments:

* Zeidler's locations are not precise: molluscs and ostracods collected at group of several springs in the centre of lake probably CA/003 and/or CA/004; ostracods only in several springs at S.E. end of lake, probably CA/007.

\# Collected at two springs in CA/003 group; (1) other species name indicates present at CA/003/001; (2) indicates CA/003/002.

\+ Triglochin striatum is new record for Central Australia.

SPRING GROUP..... UNNAMED SPRINGS

CODE CA/004

SLIDE NOS. 34, 35.

MAP REFERENCE: SH 54-6 302-321

PASTORAL LEASE: Lake Callabonna Fossil Reserve

ACCESS:

References

NM

DESCRIPTION: 3 or 4 springs, at least one with large densely-vegetated wetland; no tails.

SURROUNDING ENVIRONMENT:

As for complex.

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		2	2	Z84
aquatic vertebrates		0	0	G84
vegetation	X			

* see attached species lists

BIOLOGICAL CHARACTERISTICS

Aquatic Invertebrates*	rare amongst springs	endemic to springs	generally rare	references
GASTROPODA Hydrobiidae		X		Z84
OSTRACODA Nagarawa dirga		X		
Aquatic Vertebrates				
Flora				

Comments:

* Zeilder's locations are not precise: molluscs and ostracods collected at group of several springs in the centre of lake probably CA/003 and/or CA/004; ostracods only in several springs at S.E. end of lake, probably CA/007.

SPRING GROUP..... UNNAMED SPRING(S) ..... CODE CA/005

MAP REFERENCE: SH 54-6 306-325

PASTORAL LEASE: Lake Callabonna Fossil Reserve

ACCESS:

References

DESCRIPTION: From aerial photograph appears to be one major spring with broad tail and perhaps several other minor outlets.

SEA84

SURROUNDING ENVIRONMENT:

As for complex.

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP..... UNNAMED SPRING ..... CODE CA/006

SLIDE NO. 35a

MAP REFERENCE: SH 54-6 291-314 (2)

PASTORAL LEASE: Murnpeowie

ACCESS: (?) Overland from Mosquito Creek Bore

References

LPP

DESCRIPTION: May not be a spring. Aerial inspection showed green area next to minor creekbed (Mosquito Creek?), which may be spring or vegetated depression.

SEA84

SURROUNDING ENVIRONMENT:

As for complex.

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP..... UNNAMED SPRINGS

CODE CA/007

MAP REFERENCE: SH 54-6 307-3-5 (2)

PASTORAL LEASE: Murnpeowie (?)

ACCESS:

References

GNB

DESCRIPTION: Called Woolatchi Soak and marked as spring by Geological Names Board. Aerial photograph shows grey dark tail suggestive of chenopod rather than wetland vegetation.

SEA84

SURROUNDING ENVIRONMENT:

As for complex.

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP..... UNNAMED SPRINGS ..... CODE CA/008

SLIDE NOS. 36-39

MAP REFERENCE: SH 54-6 301-316(1) (2)

PASTORAL LEASE: Lake Callabonna Fossil Reserve

ACCESS:

References

DESCRIPTION: Aerial photograph shows three dark traces suggestive of springs.

SURROUNDING ENVIRONMENT:

As for complex.

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP..... UNNAMED SPRINGS ..... CODE .CA/009.....

MAP REFERENCE: SH 54-6 301-311 (1) (2)

PASTORAL LEASE: Lake Callabonna Fossil Reserve

ACCESS:

References

LPP

DESCRIPTION: Aerial photograph shows several green patches next to outflow channel of Lake Callabonna suggestive of springs.

SURROUNDING ENVIRONMENT:

As for complex.

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

LAKE CADIBARRAWIRRACANNA SPRING COMPLEX (CD)

SPRING GROUP CASTINE SPRING CODE CD/CS

MAP REFERENCE: SH 53-3 347-417 (1)

PASTORAL LEASE: Anna Creek

References: Wi79,NM,LPP, GNB,Ca79,Ha82

ACCESS:

Presumably cross-country from Anna Creek-Coober Pedy main road. — Wi79

DESCRIPTION:

From co-ordinates and photointerpretation, probably located in streambed of Engenina Creek. — SEA84

SURROUNDING ENVIRONMENT:

As for Oolgelima Spring.

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

Could not locate on aerial photograph or from helicopter. — SEA84

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		0		Z84
aquatic vertebrates	X			
vegetation		4		RMS84

* see attached species lists

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
Aquatic Vertebrates				
Flora				
Vegetation Halosarcia sp 1 Halosarcia sp 2 Potamogeton pectinatus Frankenia sp				
Comments:				

SPRING GROUP ...EURILYNA SPRING..... CODE ....CD/ES.....

SLIDE NOS. 143, 144

MAP REFERENCE: SH 53-3 341-416 (1)

PASTORAL LEASE: Anna Creek

ACCESS:

Presumably cross-country from Anna Creek-Coober Pedy main road.

References

NM,LPP,GNB, Ca79,Ha82

Wi79

DESCRIPTION:

SURROUNDING ENVIRONMENT:

As for Oolgelima Spring.

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

Could not locate on aerial photograph.

SEA84

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates		0	0
aquatic vertebrates	X		
vegetation		4	

Z84. P84.

RMS84

* see attached species lists

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
Aquatic Vertebrates				
Flora				
Vegetation Halosarcia sp 1 Halosarcia sp 2 Potamogeton pectinatus Frankenia sp				
Comments:				

SPRING GROUP ...GIDDI-GIDDINNA SPRINGS..... CODE ...CD/S.....

MAP REFERENCE: SH 53-3 315-434

References: Wi79,NM,LPP, GNB,Ca79,Ha82

PASTORAL LEASE: Anna Creek

ACCESS:

If location below is correct, a NE-SW trending track passes by or near springs. — SEA84

DESCRIPTION:

From co-ordinates and photointerpretation, probably located in or near creekbed of Giddi-Giddinna Creek which flows east into Lake Cadibarrawirracanna. — SEA84

SURROUNDING ENVIRONMENT:

As for Oolgelima Spring.

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

Water level reported to be 1 m below surface in May 1975. — Wi79

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)
					3.905		

DME(1919)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

79

SPRING GROUP ..... OOLGELIMA SPRING ..... CODE ..CD/OS.....

SLIDE NOS. 138-142

MAP REFERENCE: SH 53-3 327-422 (1)

PASTORAL LEASE: Anna Creek

ACCESS:

Presumably cross-country from Anna Creek-Coober Pedy road.

References: Wi79,NM,LPP, GNB,Ca79,Ha82

DESCRIPTION:

Seep/swamp (no mound) with dense wetland vegetation. No pools, but free water amongst reeds. SEA84

SURROUNDING ENVIRONMENT:

Gently undulating gypsum plain with some stony cover to north near tablelands.

DISTURBANCE:

Evidence of pugging in one small area. Otherwise okay. There is an old disused stockyard close by.

SPECIAL FEATURES/REMARKS:

Water described as slightly brackish. Water level 1 m below ground surface in May 1975. Wi79

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)
001			5,000				

SEA84

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		0		SEA84
aquatic vertebrates		0		SEA84
vegetation		0		SEA84

* see attached species lists

BIOLOGICAL CHARACTERISTICS

CODE ...CD/OS.....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
Aquatic Vertebrates				
Flora				
Cyperus laevigatus Halosarcia indica ssp. leiostachya Halosarcia halocnemoides Halosarcia pergranulata Phragmites australis Schoenoplectus litoralis Typha sp. Nitraria billardieri				SEA84
Comments:				

SPRING GROUP ...WIDIGIEDONA SPRING..... CODE ..CD/WS.....

MAP REFERENCE: SH 53-3 351-426 (1)

PASTORAL LEASE:

ACCESS:

References
DME,Ha82

DESCRIPTION:

From co-ordinates and photointerpretation, likely location on north-east shore of Lake Cadibarrawirracanna. SEA84

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

May be extinct. Z84

Unable to locate on aerial photograph. SEA84

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates		0	
aquatic vertebrates	X		
vegetation	X		

Z84

* see attached species lists

SPRING GROUP UNNAMED SPRINGS CODE CD/001

MAP REFERENCE: SH 53-3 323-424 (1) (2)

PASTORAL LEASE:

ACCESS:

References
NM,Ha82,Ca79

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

Could not be located on aerial photograph for certain - suggestive photopattern but without characteristic salt trace - may be extinct.

SEA84

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP ...UNNAMED SPRINGS..... CODE ...CD/002.....

MAP REFERENCE: SH 53-3 318-222 (2) (1)

PASTORAL LEASE:

ACCESS:

References

NM,Ha82,Ca79

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

Could not be located precisely on aerial photograph, although suggestive photopattern - may be extinct.

SEA84

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP UNNAMED SPRINGS CODE CD/003

MAP REFERENCE: SH 53-3 296-426 (2) (1)

PASTORAL LEASE:

ACCESS:

References

NM, Ha82

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

Could not be located on photograph. May be extinct.

SEA84

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP UNNAMED SPRINGS CODE CD/004

MAP REFERENCE: SH 53-3 299-429 (2) (1)

PASTORAL LEASE:

ACCESS:

References
NM, Ha82

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

Could not be located on photograph. May be extinct.

SEA84

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP ...UNNAMED SPRINGS..... CODE ...CD/005.....

MAP REFERENCE: SH 53-3 299-441 (2) (1)

PASTORAL LEASE:

ACCESS:

References
NM,Ha82

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

Could not be located precisely on photograph. May be extinct.

SEA84

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

MOUNT DENISON SPRING COMPLEX (D)

SPRING GROUP BREAKNECK SPRINGS CODE D/BN

MAP REFERENCE: SH 53-3 392-515 (1,2)

PASTORAL LEASE: The Peake

ACCESS:

References
LPP, GNB

DESCRIPTION:

Located in minor creekbed flowing N.E. from Coppertop Hill (from co-ordinates and photointerpretation). SEA84

SURROUNDING ENVIRONMENT:

As for Freeling Springs.

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

Could not locate on aerial photograph or from helicopter. SEA84

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP ..... BLIND SPRINGS ..... CODE ...D/BS.....

SLIDE NO. 177

MAP REFERENCE: SH 53-3 396-513 (1,2)

PASTORAL LEASE: The Peake

ACCESS:

References: LPP, GNB

DESCRIPTION:

Dry. From co-ordinates and photointerpretation it was located on north-eastern side of Coppertop Hill. — Z84, SEA84

SURROUNDING ENVIRONMENT:

As for Freeling Springs.

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

Could not locate on aerial photograph or from helicopter. — SEA84

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates		0	
aquatic vertebrates	X		
vegetation	X		

Z84

* see attached species lists

SPRING GROUP ..... COPPERTOP SPRINGS ..... CODE ..... D/CS .....

SLIDE NO. 178

MAP REFERENCE: SH 53-3 397-511 (1)

PASTORAL LEASE: The Peake

ACCESS:

References
LPP,GNB,Ca79

DESCRIPTION:

Dry. From co-ordinates and photointerpretation it was located on eastern side of Coppertop Hill. Z84 SEA84

SURROUNDING ENVIRONMENT:

As for Freeling Springs.

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

Could not locate spring on aerial photograph or from helicopter but noticed two or three deep square pits lined with stone - relict of copper mining? SEA84

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		0		Z84
aquatic vertebrates		0		G84
vegetation	X			

* see attached species lists

SPRING GROUP FREELING SPRINGS CODE D/FS

SLIDE NOS. 163, 164 (northern), 165-177

MAP REFERENCE: SH 53-3 390-519

References: Wi79,NM,LPP, GNB,Ca79,Ha82

PASTORAL LEASE: The Peake

ACCESS:

By track from main Marree-Oodnadatta road to Old Peake Telegraph Station. Access good.

DESCRIPTION:

A line of small but distinct seepages or pools are on flattish ground at the base of the range. Each has a long tail. The ground around these springs is generally firm and free of pugging. — Wi79,Sy84a, SEA84

SURROUNDING ENVIRONMENT:

Springs occur right at the edge of the rugged uplifted Precambrian Peake and Denison Ranges and the low angle gibber plain and dissected tableland of the Great Artesian Basin. — Wi79,SEA84

DISTURBANCE:

At least one of the springs has been dug out to form a deepish pool. No trampling by cattle noted. — Sy84a,SEA84

SPECIAL FEATURES/REMARKS:

Stuart (1862) described them as the largest springs he had yet seen .... with immense flow and surrounded by beautiful country. He had discovered them in 1859. — Wi79

Ruins of old Peake Repeater Station. — H81

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)	
001	-	-		23	4,000		<0.1	Wi79
002	-	-		22	6,000		<0.1	Wi79
003	-	-		26	4,100		0.1	Wi79
004	-	-		21	4,000		<0.1	Wi79
005	-	-		25	4,300		0.1	Wi79
006	-	-		29.5	3.5 ppt	7.6	1	SEA84
007	-	-		28.5	3.5 ppt	7.2	0.3	SEA84
					2.34ppt	7.9	0.01	DME(1974)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		4	4	Z84
aquatic vertebrates		3	0	G84
vegetation		18	2	Sy84a,SEA84

* see attached species lists

BIOLOGICAL CHARACTERISTICS

CODE D/FS .....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
OSTRACODA				
Nagarawa dirga		X		P84
AMPHIPODA				
Gammaridae sp.		X		Z84, P84
ISOPODA				
Phreatomerus latipes		X		Z84, P84
GASTROPODA				
Hydrobiidae (5 species: T3,T4,F26 F3c,F5)	X	X	X	P84
Aquatic Vertebrates				
Chlamydogobius eremius (Desert goby)				G84
Craterocephalus stercusmuscarum (Mitchellian hardyhead)				
Lepiopotherapon unicolor (Spangled perch)	X			SEA84
Flora				
Cyperus gymnocaulos				Sy84a and SEA84
Cyperus laevigatus				
Phragmites australis				
Juncus kraussii				
Gahnia trifida	X			
Baumea juncea	X			
Halosarcia pergranulata				
Sporobolus virginicus				
Samolus repens				
Bolboschoenus caldwellii				
Halosarcia indica ssp. leiostachya				
Sclerostegia disarticulata				
Nitraria billardieri				
Trianthema triquetra				
Sonchus oleraceus				
Phoenix sp.				
Frankenia cinerea				
Acacia sp.				
Eragrostis diellii				
Dactyloctenium radulans				
Curcubitacea sp.				

Comments:

Hydrobiid species T4 and subspecies F26 and F3c are endemic to the Freeling group. T3 found otherwise in D/001, The Fountain and Big Perry. P84

SPRING GROUP KERLATROABOARNTALLINA SPRINGS (Mt. Kingston Bore) CODE D/KS

MAP REFERENCE: SH 53-3 388-527

References: Wi79, LPP, GNB

PASTORAL LEASE: The Peake

ACCESS:

From Peake Telegraph Station if Peake Creek crossing passable. Otherwise south from track along the Nearles River.

DESCRIPTION:

Number of damp patches on edge of range along fault line.

SURROUNDING ENVIRONMENT:

As for Freeling Springs.

DISTURBANCE:

Has a bore, but is not now used. — Chugg 53 (cited in Wi79)

SPECIAL FEATURES/REMARKS:

Dry. Has a typical hydrochemistry and may have source other than Great Artesian Basin. — P84

Not visible from helicopter. — SEA84

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)
					3.20		

DME (1953)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates		0	0
aquatic vertebrates	X		
vegetation	X		

Z84, P84

* see attached species lists

SPRING GROUP MURRA MURRANA SPRINGS ..... CODE D/MM .....

MAP REFERENCE: SG 53-3 395-502 (2)

PASTORAL LEASE: The Peake

ACCESS:

References

LPP, GNB

DESCRIPTION:

Located in creekline (Blyth Creek, a tributary of Peake Creek).

SEA84

SURROUNDING ENVIRONMENT:

As for Feeling Springs.

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP MUD SPRINGS CODE D/MS

MAP REFERENCE: SH 53-3 397-510 (1,2)

PASTORAL LEASE: The Peake

ACCESS:

References: LPP, GNB

DESCRIPTION:

Extinct. From co-ordinates and photointerpretation was probably located on eastern edge of Coppertop Hill. Z84, SEA84

SURROUNDING ENVIRONMENT:

As for Freeling Springs.

DISTURBANCE:

Could not locate on aerial photograph or from helicopter. SEA84

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		0	0	Z84
aquatic vertebrates		0	0	G84
vegetation	X			

* see attached species lists

SPRING GROUP SANDY CREEK SPRINGS CODE D/SS

MAP REFERENCE: SH 53-3 393-515 (1,2)

PASTORAL LEASE:

ACCESS:

References
LPP, GNB

DESCRIPTION:

Extinct. From co-ordinates was located in gully on northern side of Coppertop Hill. Z84 SEA84

SURROUNDING ENVIRONMENT:

As for Freeling Springs.

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

Could not locate on aerial photograph or from helicopter. SEA84

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates		0	
aquatic vertebrates	X		
vegetation	X		

Z84

* see attached species lists

SPRING GROUP WILLPAROONA SPRINGS CODE D/WS

SLIDE NO. 162

MAP REFERENCE: SH 53-3 388-524 (1,2)

References: LPP, GNB

PASTORAL LEASE: The Peake

ACCESS:

DESCRIPTION:

From co-ordinates and photointerpretation, probably located in creekline along eastern side of Mt. Kingston. SEA84

SURROUNDING ENVIRONMENT:

As for Freeling Springs.

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

Could not locate on aerial photograph or from helicopter. SEA84

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP UNNAMED SPRING ..... CODE D/001 .....

MAP REFERENCE: SH 53-3 382-522

PASTORAL LEASE: The Peake

ACCESS:

References
Ha82

DESCRIPTION:

Located in streambed of Peake Creek about 11 km N of main Freeling group. Ponder's site 666.

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates		4	4
aquatic vertebrates	X		
vegetation	X		

P84

* see attached species lists

BIOLOGICAL CHARACTERISTICS CODE D/001

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
GASTRAPODA				
Hydrobiidae (Isp:T3)	X	X		P84
AMPHIPODA				
Gammaridae sp.				P84
ISOPODA				
Phreatomerus latipes				P84
OSTRACODA				
Nagarawa dirga		X		P84
Aquatic Vertebrates				
Flora				

Comments:

Hydrobiid T3 found otherwise in the Freeling Group, Big Perry and The Fountain. P84

SPRING GROUP UNNAMED SPRINGS ..... CODE D/002 .....

MAP REFERENCE: SG 53-15 384-531

PASTORAL LEASE: The Peake

ACCESS:

References
NM,LPP,GNB,
Ca79,Ha82

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

Could not locate on aerial photograph or from helicopter.

SEA84

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

DALHOUSIE SPRING COMPLEX (DA)

SPRING GROUP BEES SPRING ..... CODE DA/BS .....

MAP REFERENCE: SG 53-11 341-704 (1,2)

PASTORAL LEASE: Dalhousie

ACCESS:

References

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP DALHOUSIE PILE ..... CODE DA/DP .....

MAP REFERENCE: SG 53-11 342-707

PASTORAL LEASE: Dalhousie

ACCESS:

References

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP DALHOUSIE SPRINGS ..... CODE DA/DS .....

MAP REFERENCE: SG 53-11 340 to 350 - 710 to 723

PASTORAL LEASE: Dalhousie

ACCESS:

By track from the main Oodnadatta track via Abminga Railway Siding — McB79

References

DESCRIPTION:

Extensive network of interconnected springs (about 60) with high flows. Many large, deep pools. Dense reeds and rushes surround the springs. Outflows occur via faults due to tectonic activity More than 70 discrete springs maintaining total wetland area of 8.8km² Local saline areas. Various forms including limestone mounds and "mud heaps" or soft mounds. — L83,Wi74 K83 Wi & H78 Sy84a McB79

SURROUNDING ENVIRONMENT:

Area consists of a dissected limestone plateau, the remnants of which are mesas. Springs are located 5-20 m below the mesas in a valley. About 50 km from western edge of Simpson Desert.

DISTURBANCE:

There has been quite serious trampling by not only cattle but also feral animals such as horses, donkeys. Grazing by rabbits on drier areas. Attempts at irrigated lucerne production (failed) and date farming proposal.

SPECIAL FEATURES/REMARKS:

Flow from these springs is estimated to be 80-90% of the total water lost from Great Artesian Basin aquifers via mound springs in South Australia; total estimated discharge is 670 litres per second c.f. 100-200 litres per second for entire Lake Eyre group (Marree-Oodnadatta). — Wi74,H82

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)	
range of totals for all springs			see above	29 - 44	0.65 - 2 0.68	7-8	6.3×10^6	Wi74 DME (1963) for Witcherrie Spring
							individually ≤165.5	Wi74

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		1	1	Z84
aquatic vertebrates		6	4	G84
vegetation		> 50	15	Sy84a

* see attached species lists

BIOLOGICAL CHARACTERISTICS

CODE DA/DS .....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
GASTROPODA Hydrobiidae		X		Z84
Aquatic Vertebrates				
Neosilurus sp. (Dalhousie catfish)	X	X		G84
Craterocephalus eyresii (Lake Eyre Hardyhead)				
Craterocephalus dalhousiensis (Dalhousie hardyhead)	X	X		
Lepiopotherapon unicolor (Spangled perch)	X			
Mogurnda mogurnda (Purple-spotted gudgeon)	X			
Chlamydogobius eremius (Desert goby)				
Flora				
Eleocharis geniculata	X		X	Sy84b
Fimbristylis ferruginea	X			
Imperata cylindrica	X			
Isolepis hookerana	X			
Frankenia muscosa	X		X	
Hemichroa diandra				
Cressa cretica				
Melaleuca glomerata				
Myoporum acuminatum				
Acacia salicina				
Pimelea microcephala(sandy)				
Zygophyllum crassissimum		X ?	X	
Maireana lenhmarii		X ?	X	
Enchylaena tomentosa				
Sclerolaena clelandii			X	
Sporobolus virginicus				

Comments:

Refer to Symon's paper for discussion of rarity status. Sy84b

Flora contd/...	rare amongst springs	endemic to springs	generally rare	references
Typha domingensis				
Phragmites australis				
Cyperus gymnocaulos				
Juncus kraussii				
Sonchus oleraceus				
Sonchus hydrophilus				
Senecio aff. cunninghamii				
Samolus repens				Sy84b
Hydrocotyle verticillata	X			
Polygonum salicifolium	X			
Cyperus laevigatus				
Bolboschoenus caldwellii				
Eleocharis pallens				
Baumea arthrophylla	X		X	
Lemna disperma	X			
Frankenia pauciflora				
Pheonix dactylifera				
Polypogon monspeliensis				
Acacia salicina				
Amyema preissii				
Chara sp.				
Babbagia dipterocaspa				
Atriplex nummularia				
Nitraria billardieri				
Halosarcia fontinalis	X		X	
Halosarcia halocnemoides ssp. longispicata				
Halosarcia indica var. leiostachya				
Halosarcia pluriflora				
Halosarcia undulata				
Heliotropium curassauicum				
Lawrencia glomerata				
Goodenia anfracta			X	
Nicotiana burbidgeæ		X ?	X	
Maireana appressa				
Maireana pentatropis				
Minuria cunninghamii				
Pluchea rubelliflora				
Selenothamnus squamatus				
Zygophyllum compressum				
Zygophyllum ammophilum				
Sclerolaena diacantha				
Sclerolaena clelandii				
Sclerolaena constricta				

Comments:

Refer to Symon's paper for discussion of rarity status.

BIOLOGICAL CHARACTERISTICS

CODE DA/DS .....

Flora contd/...	rare amongst springs	endemic to springs	generally rare	references
Sclerolaena lanicuspis Sclerostegia tenusi Scavola collaris Scaevola spinicems Pittosporum phylliraeoides				

Comments:

Refer to Symon's paper for discussion of rarity status.

SPRING GROUP MT. JESSIE SPRING CODE DA/JS

MAP REFERENCE: SG 53-11 338-707

PASTORAL LEASE:

ACCESS:

References

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP MISSIONARY SPRINGS ..... CODE DA/MS .....

MAP REFERENCE: SG 53-11 339-708

PASTORAL LEASE:

ACCESS:

References

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

MOUNT DUTTON SPRING COMPLEX (DU)

SPRING GROUP..... BIG CADNA-OWIE SPRINGS ..... CODE DU/BC .....

SLIDE NOS. 113-115

	References
MAP REFERENCE: SG 53-15 364-545 (1) PASTORAL LEASE: Allandale ACCESS: Cross-country SW of Mt. Dutton. There is probably a track from Ockenden bore and spring.	Wi79, LPP, GNB, Ha82
DESCRIPTION: Flows from small escarpment down a slope on to a flat area which supports a swamp.	Wi79, SEA84
SURROUNDING ENVIRONMENT: Mainly stone ridges with sandy slopes and flats, sometimes with gypseous crusting. An older gypcrete surface forms low discontinuous escarpments.	Wi79
DISTURBANCE: The spring tail and swamp was surrounded by a now derelict fence. A large steel pipe (1 m diam.) has been placed in the spring outlet. Much of spring severely damaged by stock.	SEA84 P84
SPECIAL FEATURES/REMARKS: N.B. SEA84 and Z 84 disagree about the description of this spring. It is possible there are two similar springs in the same approximate location. P84(App.8) notes existence of unnamed spring near Big Cadna-owie at 365546 listed by Wi79. Inconclusive on aerial photograph (BC/002)	SEA 84

PHYSICAL CHARACTERISTICS

spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)	
BC/001	-	-	650	24	5,200		1.6	(1977) Wi79
001			2,000	27	3 ppt	7.4	5	SEA84
							0.6-1.3	(1953) Wi79
					2.9 ppt		0.63	DME (1954)
			12,700				1.60	HO81

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		2	2	Z84, P84
aquatic vertebrates		0	0	SEA84
vegetation		7	0	SEA84

* see attached species list:

BIOLOGICAL CHARACTERISTICS

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
GASTROPODA				
Hydrobiidae : sp. F6 *	X	X	X	P84
OSTRACODA				Z84
Nagarawa dirga		X		
Aquatic Vertebrates				
Flora				
Cyperus gymnocaules				SEA84
Cyperus laevigatus				
Phragmites australis				
Chara sp.				
Halosarcia indica ssp. leiostachya				
Enchylaena tomentosa				
Nitraria billardieri				
Atriplex spongiosa				
Acacia ligulata				

Comments:

* Hydrobiid species F6 is endemic to Big Cadna-owie. Ponder notes that the status of the species is questionable. Because it is geographically isolated and obviously closely related to Sp. F5, it could be regarded as a sub-species. However has sufficient morphological distinctness to be regarded as true species at this stage - maybe only recently evolved from F5. Stock damage has reduced available habitat and population only comprised a few individuals. Snails still present in 1984, sp? P84 SEA84

SPRING GROUP BLIND SPRINGS CODE DU/Bs

MAP REFERENCE: SG 53-15 377-543 (1,2)

PASTORAL LEASE:

ACCESS: If correct below near main Oodnadatta Track and Nappanurra Waterhole.

References

GNB

DESCRIPTION:

From co-ordinates and photo-interpretation probably located in stream bed of minor drainage line into The Neales.

SURROUNDING ENVIRONMENT:

As for Big Cadna-owie.

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP....CADNA-OWIE SPRINGS or MacELLISTER SPRINGS CODE ..DU/CS.....

Slide Nos. 116-120

	References
MAP REFERENCE: SG 53-15 361-545 (1)	LPP,GNB, Ha82
PASTORAL LEASE: Allandale	
ACCESS:	
Road passes by spring.	SEA84

DESCRIPTION:

Active mound with good flow from a single outlet. Seems typical of the active mounds in the Mt. Dutton area. Located on nitre bush plain south of Mt. Dutton. SEA84

SURROUNDING ENVIRONMENT:

As for Big Cadna-owie

DISTURBANCE:

Road and numerous cattle tracks, remains of old fence. SEA84

SPECIAL FEATURES/REMARKS:

Spring has mature river red gum nearby SEA84

PHYSICAL CHARACTERISTICS

spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)	
001	5	15	500	27	2	7	2	SEA84

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		0	0	SEA84
aquatic vertebrates		0	0	SEA84
vegetation		10	1	SEA84

* see attached species list

CODE DU/CS .....

BIOLOGICAL CHARACTERISTICS

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
Aquatic Vertebrates				
Flora				
Typha domingensis				SEA84
Cyperus gymnocaulos				
Cyperus laevigatus				
Chara sp.				
Bolboschoenus litoralis				
Potamogeton pectinatus				
Sporobolus sp.				
Phoenix dactylifera				
Nitraria billardieri				
Diplachne fusca				
Eucalyptus camaldulensis	X			
Comments:				

SPRING GROUP..... MT. DUTTON SPRINGS ..... CODE DU/DS .....

SLIDES 121-123? (aerials)

	References
MAP REFERENCE: SG 53-15 365-552 (1) PASTORAL LEASE: Allandale ACCESS: Just north of main road from William Creek to Oodnadatta - north of Mt. Dutton.	Wi79,LPP,GNB, Ca79, Ha82. Wi79

DESCRIPTION:

A 5x10 m seep lined by limestone blocks. — Wi79

SURROUNDING ENVIRONMENT:

Adjacent to area of basement outcrops. Cadna-owie formation aquifer fairly close to ground level. — Wi79

DISTURBANCE:

Much disturbed by cattle — Wi79

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)
001			120	24.5	5,900		0.01

Wi79

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates		0	0
aquatic vertebrates	X		
vegetation	X		

Z84

* see attached species list

SPRING GROUP.....LITTLE CADNA-OWIE SPRING..... CODE ...DU/LC.....

SLIDES 121-123?

	References
MAP REFERENCE: SG 53-15 366-554 (1) PASTORAL LEASE: Allandale	Wi79,LPP,GNB Ha82.
ACCESS: Just north of main road from William Creek to Oodnadatta. North-west of Mt. Dutton R.S.	Wi79

DESCRIPTION:

SURROUNDING ENVIRONMENT:

Adjacent to area of basement outcrops. Cadnaowie Formation aquifer fairly close to ground level. — Wi79

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)
					2.27		

DME (1953)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates		1	1
aquatic vertebrates	X		
vegetation	X		

Z84

* see attached species list

CODE .DU/LC.....

BIOLOGICAL CHARACTERISTICS

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
OSTRACODA Nagarawa dirga		X		Z84
Aquatic Vertebrates				
Flora				
Comments: No hydrobiids (P84)				

SPRING GROUP....OCKENDEN SPRING..... CODE ..DU/OS.....

	References
MAP REFERENCE: SG 53-15 372-548	Wi79,NM,LPP, GNB, Ca79, Ha82.
PASTORAL LEASE: Allandale	
ACCESS:	
Just north of main William Creek-Oodnadatta road, south of Mt. Dutton R.S.	Wi79

DESCRIPTION:

Small mound a few metres in diameter. Wi79

SURROUNDING ENVIRONMENT:

Low angle gibber slopes and flats in vicinity of spring. It is located on the edge of a stream.

DISTURBANCE:

Has bore to depth of 45 m. Wi79

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		0	0	Z84
aquatic vertebrates		0	0	G84
vegetation	X			

* see attached species list

LAKE EYRE SPRING COMPLEX (L)

SPRING GROUP..... EMERALD SPRINGS ..... CODE L/ES .....

	References
MAP REFERENCE: SH 53-8 513-359 PASTORAL LEASE: Stuart Creek ACCESS: Track to Spring from just west of Stuart Creek crossing.	Wi79, Co75, NM, LPP, RMS, Ca79, Ha82. Wi79

DESCRIPTION:
Large mound with a large closed pool at top covered in reeds. Wi79
Good fence

SURROUNDING ENVIRONMENT:
Area of low NS trending sand dunes and claypans. Spring flows out on to a long claypan underlain by shelly sands and clays. Wi79

DISTURBANCE:
Flow is tapped by two pipes driven into the side of the mound. Wi79

SPECIAL FEATURES/REMARKS:
Babbage (1858) recorded flow rate of 9.3 l/sec, Goyder (1860) 1.1 l/sec. Fenced.

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)	
		40		30	4,200		2.2	(1977) Wi79
			27,900				3.1	Ho 81

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		4	4	Z84, P84
aquatic vertebrates	X			
vegetation		6		RMS 84

* see attached species lists

BIOLOGICAL CHARACTERISTICS

CODE L/ES .....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
ISOPODA				
Phreatomerus latipes				Z 84 P 84
AMPHIPODA				
Gammaridae sp.				Z 84 P 84
GASTROPODA				
* Hydrobiidae (1sp.:Flc)	X	X		P 84 Z 84
OSTRACODA				
Nagarawa dirga				P 84
Aquatic Vertebrates				
Flora				
Sporobolus virginicus				
Phragmites				
Cyperus laevigatus				
Babbagia dipterocarpa				
Atriplex nummularia				
Potamogeton pectinatus				

Comments:

* Subspecies Flc is found only at Emerald Springs. Flb is found generally in Hermit Hill area; Flc at Welcome and Davenport Springs.

SPRING GROUP ....FRED SPRINGS (east) (or Tinta Dintana Springs) CODE .....L/FE.....

MAP REFERENCE: SH 53-8 536-342

PASTORAL LEASE: Stuarts Creek

References: Co75, NM, LPP, RMS, Ca79, Ha82

ACCESS:

Cross-country from point on Maree-Oodnadatta road (co-ords 535342) passing stockyard. — Co75

DESCRIPTION:

Large mound springs (4 m x 50 m), roughly oval in shape. Generally only moist soil, except NW corner which has a flowing bore and pools. Main spring in easterly group is fenced; contains a small pool with Cyperus and heavily grazed out. — Co75

SURROUNDING ENVIRONMENT:

Clayey and sandy flats, surrounded by sand-hills and gypseous clay banks. Also dams of dense brittle limestone.

DISTURBANCE:

Spring has a pipe and wooden trough. Grazing is heavy. — Co75, RMS 84

SPECIAL FEATURES/REMARKS:

Discovered by Goyder — H 81

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)
001	8	30 x 130		28	3,100 1.77 ppt	7.5	0.2 0.41 0.23

Co75, DME (1974), RMS82 (1981) (Combined East and West)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		1	1	Z84
aquatic vertebrates	X			
vegetation		2	0	DEP78, RMS84

BIOLOGICAL CHARACTERISTICS

CODE L/FE.....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
OSTRACODA Nagarawa dirga		X		Z 84
Aquatic Vertebrates				
Flora				
Cyperus laevigatus Nitraria billardieri Phragmites				DEP78 RMS84
Comments:				

SPRING GROUP. FRED SPRINGS (west) (or Tinta Dintana Springs) CODE L/FW

	References
MAP REFERENCE: SH 53-8 536-342 PASTORAL LEASE: Stuarts Creek	Co75,NM,LPP, RMS,Ca79,Ha82
ACCESS: Cross-country from point on Marree-Oodnadatta road (co-ords 535342) passing stockyard.	Co75
DESCRIPTION: Large elongated mound spring (~4 m x 50 m). It has two seeps, one on the top of the mound and the other in the NE corner.	Co75
SURROUNDING ENVIRONMENT: As for Fred Springs (east).	Co75
DISTURBANCE: Heavily degraded by stock - bogging.	DEP78
SPECIAL FEATURES/REMARKS: Fenced with overflow to trough - in good order. Discovered by Goyder	DEP78 H81

PHYSICAL CHARACTERISTICS

spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)	
001	4	30 x 60			1.75 ppt	7.1	0.4 0.02	DME (1974)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		0	0	Z84 P84
aquatic vertebrates	X			
vegetation		4	0	DEP78 RMS84

* see attached species lists

BIOLOGICAL CHARACTERISTICS

CODE ...L/FW.....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
Aquatic Vertebrates				
Flora				
Vegetation Sporobolus virginicus Phragmites Cyperus laevigatus Nitraria billardieri				
Comments:				

SPRING GROUP ..... GOSSE SPRINGS ..... CODE ..L/GS.....

MAP REFERENCE: SH 53-8 542-349

PASTORAL LEASE: Finniss Springs

ACCESS:

Cross-country along old fenceline from Smith Springs - generally gibber plain (soft in parts) and clay hardpan with sand dunes towards the north.

References: Co75,NM,LPP, RMS,Ca79,Ha82

DESCRIPTION:

Several mounds of various sizes, some active and others not, covering an area of 300m². Have open bubbling pools with rushes. Others only have seeps. — Co75

SURROUNDING ENVIRONMENT:

A relatively flat whitish stony plain, bounded on the north and south by sand dunes and on the east by a low escarpment. — DEP78

DISTURBANCE:

There was once a bore in one of the springs. No longer evident. No cattle damage reported. Flow has reduced 10 fold between 1974 and 1981. — Co75; RMS82

SPECIAL FEATURES/REMARKS:

Discovered by Goyder — H81

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)	
							0.23	RMS 82 (1981)
	2	elongate		30	3,000	8	2.5	Co75
	6	elongate						Co75
	<2			31	3,300	8	2.5	Co75
					1.73 ppt			DME (1961)
					1.71 ppt	7.1		DME (1974)
					2.20 ppt			DME (1978)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		1		Z 84 P 84
aquatic vertebrates	X			
vegetation		4	0	DEP78,RMS 84

BIOLOGICAL CHARACTERISTICS

CODE L/GS.....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
OSTRACODA (only in Gosse Stn 696C + E) Nagatawa dirga		X		Z84
Aquatic Vertebrates				
Flora				
Cyperus laevigatus Sporobolus virginicus Phragmites Potomogeton pectinatus				DEP 78 RMS 84
Comments:				

SPRING GROUP ...JACOBS SPRING..... CODE L/JS

MAP REFERENCE: SH 53-8 522-347 (1)

PASTORAL LEASE: Stuart Creek

ACCESS:

References: Co75, LPP, RMS, Ca79, Ha82

DESCRIPTION:

A single large mound in a sandy flat. Central pool dominated by Typha and surrounded by a small fenced wetland of dense Cyperus laevigatus. — RMS 84

SURROUNDING ENVIRONMENT:

DISTURBANCE:

Has an old bore. — Co75

SPECIAL FEATURES/REMARKS:

Ker 1961 - "Water level at surface (100' bore) but not flowing." — in Co75

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)	
					2.80 ppt			DME (1978)
							0	RMS 82

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		0	0	P84
aquatic vertebrates	X			
vegetation		2		RMS 84

SPRING GROUP ..... McLACHLAN SPRINGS ..... CODE ..... L/MS .....

MAP REFERENCE: SH 53-8 539-349

PASTORAL LEASE: Stuarts Creek

ACCESS:
Cross-country due west of Gosse Springs, includes crossing of sand dunes.

References
Co75, LPP, RMS, Ca79, Ha84

DESCRIPTION:

Minor gully seeps with rushes and damp soil. Main springs not described due to L. Eyre flooding.
A series of widely spaced active and waning seeps in a line along the edge of an outcropping basement ridge adjacent to a shallow flood plain. Co75

SURROUNDING ENVIRONMENT:

Outcrop of quartzite, sandstone, and limestone. Springs occur at the junction of these rocks with the Cretaceous clays. Co75

DISTURBANCE:

Moderately grazed (similar to Gosse) RMS84

SPECIAL FEATURES/REMARKS:

Discovered by Goyder

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		1		Z84 P 84
aquatic vertebrates	X			
vegetation		4		RMS 84

BIOLOGICAL CHARACTERISTICS

CODE L/MS .....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
OSTRACODA (only in northernmost spring) Nagarawa dirga		X		Z 84
Aquatic Vertebrates				
Flora				
Sporobulus virginicus Phragmites Cyperus laevigatus Nitraria billardieri				

Comments:

No hydrobiids

P 84

SPRING GROUP PRISCILLA SPRINGS CODE L/PS

MAP REFERENCE: SH 53-8 528-336

PASTORAL LEASE: Stuarts Creek

ACCESS:
From Marree-Oodnadatta road along road to Stuarts Creek (turnoff at 535345) then cross country from stock pen keeping to the south of creeks draining north. Gibber plain, generally quite hard.

References: Co75, NM, LPP, RMS, Ca79, Ha82

DESCRIPTION:
An average sized mound with a seep to the south. — Co75

SURROUNDING ENVIRONMENT:
Low-lying flat sandy drainage line cut into a dissected pine plain. — Co75

DISTURBANCE:
Top of mound has a concrete lined 3/4m diameter well with a wooden surround. Water runs into a trough. — Co75

SPECIAL FEATURES/REMARKS:
Shells only of 4 spp. hydrobiids and ostracd Nagarawa dirga — P84
Discovered by J M Stuart in 1859 — H 81

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)	
001		70		26	5,500	7.6	0.3	Co75
002 (seep)							0.2	Co75
					4.4 ppt		0.30	DME (1974)
							0.23	RMS 82 (1981)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		0 *	0	Z 84 P 84
aquatic vertebrates	X			
vegetation		4		RMS 84

* Hydrobiid shells present: F5, F1b, F4, T1

BIOLOGICAL CHARACTERISTICS

CODE L/PS .....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
Aquatic Vertebrates				
Flora				
Vegetation Cyperus laevigatus Nitraria billardieri Halosarcia 2 Atriplex nummularia				
Comments:				

SPRING GROUP ..... SMITH SPRINGS ..... CODE L/SS .....

MAP REFERENCE: SH 53-8 544-344

PASTORAL LEASE: Finniss Springs

ACCESS:
Initially by track leaving Marree-Oodnadatta road immediately west of Gregory Creek then cross country. Generally access is over gibber plain (often soft) and clay hardpan.

References
Co75, NM, LPP, RMS, Ca79, Ha82

DESCRIPTION:
Mound with bubbling pool (5 m diam) and seeps. Contains a bore and rushes. A low grassed mound (30-40 m across) with minor seeps. Several extinct grassed mounds (60-70 m²). A seep with a bore. — Co75

SURROUNDING ENVIRONMENT:
Brown stony gibber plain with small circular-oval clay hardpans. — Co75

DISTURBANCE:
One spring has a bore (badly corroded). Flows reduced considerably over last decade. — Co75, RMS 82

SPECIAL FEATURES/REMARKS:
Discovered by Goyder — H 81

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)	
001				26.5	2,800	7.5	0.2	Co75
					1.92 ppt			DME (1978)
							0.12	RMS 82 (1981)
							0.29	RMS 82 (1974)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		0	0	P84
aquatic vertebrates	X			
vegetation		4		

BIOLOGICAL CHARACTERISTICS

CODE ...L/SS.....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
Aquatic Vertebrates				
Flora				
Vegetation Cyperus gymnocanlos				
Comments:				

SPRING GROUP ..... UNNAMED SPRINGS ..... CODE ..L/001.....

MAP REFERENCE: SH 53-8 543-345

PASTORAL LEASE: Finniss Springs

ACCESS:

1 km NNW Smith Springs

References

NM,LPP,Ha82

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

SPRING GROUP UNNAMED SPRINGS ..... CODE L/002.....

MAP REFERENCE: SH 53-8 527-341 (1,2)

PASTORAL LEASE: Stuarts Creek

ACCESS:

References

LPP

DESCRIPTION:
From grid reference, located in or near bed of Priscilla Creek.
Unable to locate on any other map.

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

SPRING GROUP ..... UNNAMED SPRINGS ..... CODE .L/.003.....

MAP REFERENCE: SH 53-8 519-328 (1,2)

PASTORAL LEASE: Stuarts Creek

ACCESS:

References

LPP

DESCRIPTION:

According to grid reference, located on side of Stuart Creek. Doubtful existence and probably not legitimate extension of Lake Eyre group.

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

SPRING GROUP UNNAMED SPRINGS CODE L/004

MAP REFERENCE: SH 53-8 525-365 (1,2)

PASTORAL LEASE: Unallocated crown land

ACCESS:

References
RMS

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

SPRING GROUP ..... UNANAMED SPRINGS ..... CODE ..... L/005 .....

MAP REFERENCE: SH 53-8 535-362 (1,2)

PASTORAL LEASE: Unallocated crown land

ACCESS:

References

RMS

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

SPRING GROUP ....UNNAMED SPRINGS..... CODE ...L/006.....

MAP REFERENCE: SH 53-8 540-358 (1,2)

PASTORAL LEASE: Unallocated crown land

ACCESS:

References

RMS

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

SPRING GROUP ..... UNNAMED SPRINGS ..... CODE ..... L/007 .....

MAP REFERENCE: SH 53-8 542-357 (1,2)

PASTORAL LEASE:

ACCESS:

References

RMS

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

SPRING GROUP UNNAMED SPRINGS CODE L/008

MAP REFERENCE: SH 53-8 566-353 (2)

PASTORAL LEASE: Finniss Springs

ACCESS:

References
NM,Ca79

DESCRIPTION:

Located along Morris Creek, a minor tributary into Lake Eyre

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

SPRING GROUP ..... UNNAMED SPRINGS ..... CODE .....L/.009.....

MAP REFERENCE: SH 53-8 587-359 (2)

PASTORAL LEASE: Muloorina

ACCESS:

References

NM

DESCRIPTION:

Located at head of minor tributary to Welcome Creek, SW Lake Eyre South

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

LAKE EYRE NORTH SPRING COMPLEX (LN)

SPRING GROUP ..... UNNAMED SPRINGS ..... CODE .....LN/001.....

MAP REFERENCE: SH 53-4 541-434 (1)

PASTORAL LEASE: Unallotted crown land

ACCESS:

References

Ha82

DESCRIPTION:

According to coordinates, located on eastern shore of Hunt Peninsula

SURROUNDING ENVIRONMENT:

Within Lake Eyre North, at southern end, usually in dry salt-encrusted claypan

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP ..... UNNAMED SPRINGS ..... CODE .....LN/002.....

MAP REFERENCE: SH 53-4 507-431 (1)

PASTORAL LEASE:

ACCESS:

References

Ha82

DESCRIPTION:

According to coordinates, located in Belt Bay, south-western Lake Eyre North

SURROUNDING ENVIRONMENT:

As for LN/001

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (1/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP UNNAMED SPRINGS CODE LN/003

MAP REFERENCE: SH 53-4 510-438 (1)

PASTORAL LEASE: Unallocated crown land

ACCESS:

References

Jo63,Ha82

DESCRIPTION:

According to coordinates located in south-western Lake Eyre North

SURROUNDING ENVIRONMENT:

As for LN/001

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP ..... UNNAMED SPRINGS ..... CODE ..LN/004.....

MAP REFERENCE: SH 53-4 508-459 (1)

PASTORAL LEASE: Unallocated crown land

ACCESS:

References

Jo63,Ha82

DESCRIPTION:

According to coordinates, located in Halligan Bay, south-western Lake Eyre North.

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

LAKE FROME SPRING COMPLEX (F)

SPRING GROUP..... UNNAMED SPRINGS ..... CODE E/QQ1-008 ....

SLIDES 40-45

MAP REFERENCE: SH 54-10 290 to 297 176 to 238

PASTORAL LEASE: Unallocated Crown Land

ACCESS:

References: Dr76, Ha82, Ke66

DESCRIPTION:

Isolated groups of small, low mounds in Lake Frome itself. Many are either extinct or waning seeps. Form a string along eastern shoreline of lake. — Dr76, SEA84

SURROUNDING ENVIRONMENT:

Salt lake.

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)	
001	0.5 - 3	1 - 15	-	-	1.5-3.2		seeps	Dr76
	3	12			-		seep	SEA84

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		0	0	Z84
aquatic vertebrates		0	0	SEA84
vegetation		1	0	SEA84

* see attached species lists

SPRING GROUP..... UNNAMED SPRINGS ..... CODE F/001 .....

MAP REFERENCE: SH 54-10 290-174 (1)

PASTORAL LEASE: Unallocated Crown Land

ACCESS:

References: Ha82, Dr76

DESCRIPTION:

Z describes springs in similar location as long extinct.

Z84

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates		0	0
aquatic vertebrates		0	0
vegetation	X		

Z84

* see attached species list

SPRING GROUP..... UNNAMED SPRINGS ..... CODE F/002 .....

MAP REFERENCE: SH 54-10 290-179 (1)

PASTORAL LEASE: UNALLOCATED CROWN LAND

ACCESS:

References

Ha82, Dr76

DESCRIPTION:

Z describes springs in this general location as long extinct.

Z84

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates		0	0
aquatic vertebrates		0	0
vegetation	X		

* see attached species lists

SPRING GROUP..... UNNAMED SPRINGS ..... CODE F/003 .....

MAP REFERENCE: SH 54-10 290-206 (1) (2)

PASTORAL LEASE: UNALLOCATED CROWN LAND

ACCESS:

References

Ke66, Ha82

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

Cannot locate accurately on aerial photograph.

SEA84

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species list

SPRING GROUP..... UNNAMED SPRINGS ..... CODE F/004

MAP REFERENCE: SH 54-10 293-210 (1) (2)

PASTORAL LEASE: UNALLOCATED CROWN LAND

ACCESS:

References

Ke66, Ha82

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

Cannot locate on aerial photograph

SEA84

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species list

SPRING GROUP..... UNNAMED SPRINGS ..... CODE .F/005.....

MAP REFERENCE: SH 54-10 297-217 (1)

PASTORAL LEASE:

ACCESS:

References: Ke66, Ha82, Dr76

DESCRIPTION:

Z describes group in similar location as group of small mounds - only western ones with water. — Z84

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

Cannot determine location precisely on aerial photograph. — SEA84

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates		0	0
aquatic vertebrates	X		
vegetation	X		

Z84

* see attached species lists

SPRING GROUP..... UNNAMED SPRINGS ..... CODE .F/006.....

MAP REFERENCE: SH 54-10 297-220 (1) (2)

PASTORAL LEASE: Unallocated Crown Land

ACCESS:

References: DME,Ke66,Ha82

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

Aerial photograph shows dubious pattern may be extinct spring — SEA84

PHYSICAL CHARACTERISTICS — DME70

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)
001?					37.64 may be water in lake itself		

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP..... UNNAMED SPRINGS ..... CODE ..... F/007 .....

MAP REFERENCE: SH 54-10 297-224 (1)

PASTORAL LEASE: Unallocated Crown Land

ACCESS:

References

DME,Ke66,Ha82, Dr76

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

Aerial photograph shows a possible spring at this general location.

SEA84

PHYSICAL CHARACTERISTICS

spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)
001?					39.59 may be water in lake itself		

DME70

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP..... UNNAMED SPRING ..... CODE .F/008.....

MAP REFERENCE: SH 54-10 295-239 (1)

PASTORAL LEASE:

ACCESS:

References: Ke66, Ha82, Dr76

DESCRIPTION:

Waning mound, saturated with small single seep (25cm diam.) of negligible discharge rate at top. Sparsely vegetated with samphire. Mound formed on island in the lake filled with recent rain. SEA84

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

Z describes two small mounds with very little water in this location. Z84

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)
001	3	12	-	-	-	-	-

SEA84

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates		0	0
aquatic vertebrates		0	0
vegetation		1	0

SEA84, Z84

* see attached species lists

CODE F/008

BIOLOGICAL CHARACTERISTICS

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
None found				Z84
Aquatic Vertebrates				
Flora				
Halosarcia pergranulata				SEA84
Comments:				

FRANCIS SWAMP SPRING COMPLEX (FS)

SPRING GROUP..... BIG DEPOT SPRING ..... CODE ...FS/FS/BD...

MAP REFERENCE: SH 53-7 434 383

PASTORAL LEASE: Anna Creek

ACCESS:

As for FS/SC - take right hand track at Leonards Bore.

References

LPP, NM

DESCRIPTION:

SURROUNDING ENVIRONMENT:

As for FS/FS/SC

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP BISHOP SPRING CODE FS/FS?BS

MAP REFERENCE: SH 53-7 432 390

PASTORAL LEASE: Anna Creek

ACCESS: As for FS/SC - taking left hand fork at Leonards Bore.

References

LPP, NM

DESCRIPTION:

SURROUNDING ENVIRONMENT:
As for FS/FS/SC

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP..... EMILY SPRING ..... CODE . FS/ES .....

MAP REFERENCE: SH 53-7 443 401

PASTORAL LEASE: Anna Creek

ACCESS:

References: Co75,LPP,CA79, Ha82

DESCRIPTION:

Near southern shore of Lake William. From aerial photograph appears to be a large area similar to William Spring and possibly as old. SEA84

SURROUNDING ENVIRONMENT:

Red sandhill plain to south and west. Salt lake to north.

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

Ker (1962) noted "Spring in sandhill with very small flow". Ke62

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)
					5.18		

DME (1962)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species list

SPRING GROUP FRANCIS SPRING CODE FS/FS/FS

MAP REFERENCE: SH 53-7 429 395

PASTORAL LEASE: Anna Creek

ACCESS:

As for FS/FS/NS, take right fork at Leonards Bore, about 1km down track.

References

LPP, NM

DESCRIPTION:

SURROUNDING ENVIRONMENT:

As for FS/FS/NS

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)
					5.35ppt		

DME (1981)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP..... LITTLE DEPOT SPRING ..... CODE .FS/FS/LD .....

MAP REFERENCE: SH 53-7 434 384

PASTORAL LEASE: Anna Creek

ACCESS:

As for Big Depot Spring

References

LPP, NM

DESCRIPTION:

SURROUNDING ENVIRONMENT:

As for FS/FS/SC

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP..... LLOYD SPRING ..... CODE ..FS/FS/LL.....

MAP REFERENCE: SH 53-7 432 394

PASTORAL LEASE: Anna Creek

ACCESS:

As for FS/FS/NS, take left-hand fork at Leonards Bore about 3km down track.

References

LPP, NM

DESCRIPTION:

SURROUNDING ENVIRONMENT:

As for FS/FS/NS

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP..... LEONARD SPRING ..... CODE .FS/FS/LS .....

MAP REFERENCE: SH 53-7 431 395

PASTORAL LEASE: Anna Creek

ACCESS:

As for FS/FS/NS - take left-hand fork at Leonards Bore, about 1km down track.

References

LPP

DESCRIPTION:

SURROUNDING ENVIRONMENT:

As for FS/FS/NS

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP..... MARGARET SPRING ..... CODE . FS/MS .....

MAP REFERENCE: SH 53-7 436 380

PASTORAL LEASE: Anna Creek

ACCESS:

Via Big Depot Spring (FS/FS/BD)

References

P84, Z84

DESCRIPTION:

SURROUNDING ENVIRONMENT:

As for FS/FS/SC

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		0	0	P84, Z84
aquatic vertebrates	X			
vegetation	X	5	0	RMS 87

* see attached species list.

* 3 species of hydrobiids and ostracods extinct (shells only found)

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
Aquatic Vertebrates				
Flora				
Vegetation Phragmites Cyperus laevigatus Nitraria billardieri Scirpus maritimus Enchylaena tomentosa				
Comments:				

SPRING GROUP..... UNNAMED SPRINGS FRANCIS SWAMP (NORTH) CODE FS/FS/NS

** Some numbered, from FS/FS/051. See photograph and maps

	References
MAP REFERENCE: SH 53-7 435 392 PASTORAL LEASE: Anna Creek ACCESS: Via Anna Creek Station and Anna Creek Bore Springs on eastern side of Anna Creek south to Wishart Spring (approx). Here meet boundary with south central springs.	Co75
DESCRIPTION: Minor to significant sized mounds (extinct) occur throughout the swamp characterised by gypsiferrous soils, damp in places. Greasy clay under white salt surface.	Co75
SURROUNDING ENVIRONMENT: Flat white salt-surfaced area on western side of Anna Creek. White moderately high quartz sand dunes on the east and red lower quartz sand dunes on the west. Areas of raised dissected 'peneplain' of travertinous material occur especially on eastern margins.	Co75
DISTURBANCE:	
SPECIAL FEATURES/REMARKS: 051 hard water with pool 052 soft mound.	

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)	
051	0	3	-	24.5	5.43/8500	7.9	0.8	Wi79,DME(77)
052	1 - 2	2.5		27	5.20/9500	7.4	0.04	Wi79,DME(77)
				25	14,000			Co75

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		4	4	P84
aquatic vertebrates	X			
vegetation	X			

* see attached species lists.

** Unnamed springs northern and south central (see FS/FS/SC) are all in FS/FS group. For convenience numbering for the first 50 springs in the south central area has been reserved as FS/FS/001-050. Similarly for northern area FS/FS/051-100

CODE FS/FS/NS

BIOLOGICAL CHARACTERISTICS

Aquatic Invertebrates *	rare amongst springs	endemic to springs	generally rare	references
GASTROPODA				
Hydrobiids 4 spp : T2, F2a, F3d, F5		X		P84, Z84
ISOPODA				
Phreatomerus latipes		X		P84, Z84
AMPHIPODA				
Gammaridae sp.		X		P84, Z84
OSTRACODA				
Nagarawa dirga		X		P84, Z84

Comments:

* Ponder's records at his site 721 P84

SPRING GROUP: UNNAMED SPRINGS (FRANCIS SWAMP-SOUTH CENTRAL) CODE: FS/FS/SC

SLIDE NOS. 86-99 ** Some numbered - see aerial photographs

MAP REFERENCE: SH53-7 432 to 434 - 384 to 386

PASTORAL LEASE: Anna Creek

ACCESS: By station track along eastern margin of Anna Creek. Keep to right, heading south along track. Pass derelict buildings and relatively new windmill at co-ords 429412. Pass Anna Creek bore a further 6 km south. Track is fair to good. Springs are in the swamp off the track west of the confluence of Anna and Warriners Creek.

References: Co75, Wi79, LPP CA79, Ha82

DESCRIPTION:
Minor to significant-sized mounds occur through the 'swamp'. Many are extinct or waning. Lower mounds appear more active. These have pools, long tails and significant wetlands. Higher mounds are limestone and probably represent an earlier period of mound building activity. SEA84 Co75

SURROUNDING ENVIRONMENT:
Flat white salt surfaced area on the western side of Anna Creek, Warriners Creek and their confluence. White dunes to the east and red to the west.

DISTURBANCE:
No disturbance noted. SEA84

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)	
001	1	11	750	23	4.2	7.2	1	SEA84
002	-	-	1,600	-	-	-	?	SEA84
003	3.5	25	-	23	5	7	0.1	SEA84

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		4	4	Z84, P84, SEA84
aquatic vertebrates		1	1	SEA84
vegetation		13	3	SEA84

* see attached species lists

** Numbering commenced with FS/FS/001 and has reached FS/FS/006. Can continue to FS/FS/050, at which point the northern unnamed springs (FS/FS/NS) began at FS/FS/051. Should you need more numbers start again at FS/FS/101.

CODE .FS/FS/SC.....

BIOLOGICAL CHARACTERISTICS*

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
AMPHIPODA				
Gammaridae sp.		X		Z84, P84
ISOPODA				
Phreatomerus latipes		X		Z84, P84
GASTROPODA				
Hydrobiidae T2 F2a F3d F5		X		P84
OSTRACODA				
Nagarawa dirga		X		P84
Aquatic Vertebrates +				
Chlamydogobius eremius (Desert goby)				SEA84
Flora !				
Cyperus laevigatus				SEA84
Schoenoplectus litoralis				
Halosarcia indica ssp. leiostachya				
Halosarcia halocnemoides				
Samolus repens				
Sarcocornia quinqueflora				
Juncus krausii				
Goodenia sp. aff. Serenothamnus squamatus	X		X	
Phragmites australis				
Sporobolus sp.				
Gahnia trifida	X			
Baumea juncea	X			

Comments:

* Invertebrates based on records at Ponders site 721, an unnamed spring in this area. Hydrobiids, isopods and ostracods also collected. — P84, SEA84

\+ Desert goby occurred in FS/001 and /004 — SEA84

! Flora is total list for 4 springs FS/001-004 within 500m of each other. — SEA84

refer to aerial photograph.

SPRING GROUP..... TWO SISTERS SPRINGS ..... CODE .FS/FS/TS.....

MAP REFERENCE: SH 53-7 435 387

PASTORAL LEASE: Anna Creek

ACCESS:

References

LPP, NM

DESCRIPTION:

Two springs at confluence of Anna and Warriners Creek.

SURROUNDING ENVIRONMENT:

As for FS/FS/SC

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP..... TOM TOM SPRING ..... CODE .FS/FS/FT.....

MAP REFERENCE: SH 53-7 433 390

PASTORAL LEASE: Anna Creek

ACCESS:

References

LPP, NM

DESCRIPTION:

SURROUNDING ENVIRONMENT:

As for FS/FS/SC

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP..... WISHART SPRING ..... CODE .FS/FS/WI.....

MAP REFERENCE: SH 53-7 434 389

PASTORAL LEASE:

ACCESS:

References

LPP

DESCRIPTION:

SURROUNDING ENVIRONMENT:

As for FS/FS/NS

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP..... WILLIAM SPRING ..... CODE ..FS/WS.....

SLIDE No. 100

	References
MAP REFERENCE: SH 53 441-406 (1) PASTORAL LEASE: Anna Creek	Wi79, Ca79, Ha82, LPP
ACCESS: Cross country along west side of Lake William from main Marree-Oodnadatta road.	Wi79

DESCRIPTION:

Large non-active mound with a small area of wetland vegetation in its crater. No free water. — SEA84

SURROUNDING ENVIRONMENT:

On edge of large salt pan.

DISTURBANCE:

Condition appeared good. — SEA84

SPECIAL FEATURES/REMARKS:

Flew low over the mound and spotted clumps of what appeared to be Gahnia trifida. — SEA84

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)
001	10	50					

SEA84

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		0		SEA84
aquatic vertebrates		0		SEA84
vegetation		1		SEA84

* see attached species lists

HERMIT HILL SPRING COMPLEX (H)

SPRING GROUP....BOPEECHEE SPRINGS (or Zeke Springs).... CODE H/BO.....

	References
MAP REFERENCE: SH 53-8 546-322 PASTORAL LEASE: Finniss Springs ACCESS: By track leaving Marree-Oodnadatta road 0.32 km east of Bopeechee Railway Station. Track in relatively good condition.	Co75,NM,LPP, RMS,Ca79,Ha82 Co75,DEP78
DESCRIPTION: One active spring with old bore casing and rushes. Bubbles continuously. Other springs (mainly coalescing seeps) occur nearby. RMS map shows about seven outlets. SURROUNDING ENVIRONMENT: Creek bed of gypsiferrous sands. DISTURBANCE: One spring contains an old bore (disused) and trough. Phragmites is heavily grazed in preference to other species. Sump and long stone trough. SPECIAL FEATURES/REMARKS:	Co75 Co75 DEP78

PHYSICAL CHARACTERISTICS

spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)	
001				25	3,700	7.5	0.29 1	RMS 82 Co75
002				24	4,900		1.5 - 2 (total)	
					2.27ppt 2.40ppt	7.2	2.0	DME (1974) DME (1978)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		4	4	Z84, P84
aquatic vertebrates	X			
vegetation		6	0	DEP78,RMS84

* see attached species lists

CODE H/BO .....

BIOLOGICAL CHARACTERISTICS

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
AMPHIPODA				
Gammaridae sp.		X		Z 84 P84
ISOPODA				
Phreatomerus latipes		X		Z 84 P84
GASTROPODA				
Hydrobiidae 2sp: T1,F16	X	X	X	P 84 284
OSTRACODA				
Nagarawa dirga		X		Z 84 P84
Aquatic Vertebrates				
Flora				
Phragmites				
Cyperus laevigatus				DEP78,
Fimbristylis siebesana				RMS,84
Baumea juncea	X			
sporobulus virginicus				
Halosarcia 2				

Comments:

SPRING GROUP BEATRICE SPRINGS CODE H/BS

MAP REFERENCE: SH 53-8 544330

PASTORAL LEASE: Finniss Springs

ACCESS:

By track leaving Marree-Oodnadatta road 0.32 km east of Bopeechee Railway Station. Track in good condition.

References

Co75,NM,LPP
RMS,Ca79,Ha82

DESCRIPTION:

Main spring is a low reed covered mound with a reasonably good discharge. Many other small mound springs occur in the region, but these are all either seeps or dry. Co75

SURROUNDING ENVIRONMENT:

Flat lying creek bed, sandy soil with boulders of gritty calcareous rock. Extinct mound (100 m diam.) to the east.

DISTURBANCE:

Main spring has 10 cm diam. bore, badly corroded, and flowing at about 1.5 1/sec. Has caused reduction in spring flows. Co75
RMS 82

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (1/sec)	
001	low			27	4,000	8	1.5 0.29	(1974) Co75 RMS 82

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		1	1	Z 84 P84
aquatic vertebrates	X			
vegetation		3		RMS 84

* see attached species lists

BIOLOGICAL CHARACTERISTICS

CODE H/BS .....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
OSTRACODA Nagarawa dirga		X		Z 84
Aquatic Vertebrates				
Flora				
Cyperus gymnocaulos Sporobolus virginicus Cyperus laevigatus				RMS 84
Comments:				

SPRING GROUP ..DEAD.BOY.SPRINGS..... CODE .....H/DB.....

MAP REFERENCE: SH 53-8 549-333

PASTORAL LEASE:

ACCESS:

References

RMS

DESCRIPTION:

RMS map shows 5 spring outlets

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

Has atypical hydrochemistry and may not be connected with the great artesian basin

p84

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (1/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		4	4	Z 84, p84
aquatic vertebrates	X			
vegetation		1		RMS 84

* see attached species lists

BIOLOGICAL CHARACTERISTICS

CODE H/DB

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
AMPHIPODA				
Gammaridae sp.		X		Z 84 p84
ISOPODA				
Phreatomerus latipes		X		p84 284
GASTROPODA				
Hydrobiidae 2spp:T1,F16	X	X	X	p84
OSTRACODA				
Nagarawa dirga		X		p84 284
Aquatic Vertebrates				
Flora				
Cyperus laevigatus				RMS,84

Comments:

SPRING GROUP HERMIT SPRINGS (also called Finniss Spring) CODE H/HS

MAP REFERENCE: SH 53-8 552-336

PASTORAL LEASE: Finniss Springs

ACCESS:

By track leaving Marree-Oodnadatta road at approximate co-ords 555331 passing derelict stockyard and homestead. Cross country to springs.

References: Co75, NM, LPP, RMS, Ca79, Ha82

DESCRIPTION:

Group of coalescing seeps with no obvious dominant outflow. Characterised by rushes and black organic silt. Some contain peat in a reasonable state. RMS map shows about 80-90 outlets on northern side of Hermit Hill.

SURROUNDING ENVIRONMENT:

Hermit Hill proper reaches a height of 121 m. The springs occur at the eastern and northern base of the hills in a broad, saline creekline depression.

DISTURBANCE:

Two springs have bores - Finniss and Humphries bores. Considerable pugging has occurred around these springs. Flow from springs has been reduced considerably by bores. Co75

SPECIAL FEATURES/REMARKS: RMS 82

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)	
				18.5	5,300		0.5	Co75
				19	3,400		0.5	Co75
					2.25ppt			DME (1978)
							0.24	RMS 82 (1981)
							1.28	RMS 82 (1974)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		4	4	Z 84 p84
aquatic vertebrates	X			
vegetation		9	3	Sy84a

* see attached species lists

BIOLOGICAL CHARACTERISTICS

CODE H/HS.....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
AMPHIPODA				
Gammaridae sp.		X		Z 84 p84
ISOPODA				
Phreatomerus latipes		X		p 84 284
GASTROPODA				
Hydrobiidae (3spp:T1,F16,F5)	X	X	X	p 84 284
OSTRACODA				
Nagarawa dirga		X		p 84 284
Aquatic Vertebrates				
Flora				
Fimbristylis dichotoma				
Eriocaulon carsonii	X	X	X	Sy84a
Gahnia trifida	X			
Baumea juncea	X			
Phragmites australis				
Sporobolus virginicus				
Cyperus laevigatus				
Nitraria billardieri				
Spergularia rubra				

Comments:

SPRING GROUP NORTH WEST SPRINGS ..... CODE ..H/NW.....

MAP REFERENCE: SH 53-8 548-338

PASTORAL LEASE:

ACCESS:

References

NM,LPP,RMS, Ca79,Ha82

DESCRIPTION:

RMS map shows about 12 outlets situated in drainage depression

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		0	0	p84
aquatic vertebrates	X			
vegetation		5		RMS 84

* see attached species lists

BIOLOGICAL CHARACTERISTICS

CODE H/NW

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
Aquatic Vertebrates				
Flora				
Vegetation Cyperus gymnocaulos Sporobolus virginicus Phragmites Cyperus laevigatus Atriplex nummularia				
Comments:				

SPRING GROUP OLD FINNISS SPRINGS ..... CODE ....H/OF.....

MAP REFERENCE: SH 53-8 554-335

PASTORAL LEASE:

ACCESS:

As for Hermit Springs

References
NM,LPP,RMS,
Ca79,Ha82

DESCRIPTION:

As for Hermit Springs. RMS map numbers 93 outlets coalescing flows into creekline on eastern side of Hermit Hill.

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

Located near Finniss Ruins.

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (1/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		4	4	Z 84 p84
aquatic vertebrates	X			
vegetation		8	1	RMS83 RMS84

* see attached species lists

BIOLOGICAL CHARACTERISTICS

CODE H/OF .....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
AMPHIPODA				
Gammaridae sp.		X		Z 84 p84
ISOPODA				
Phreatomerus latipes		X		Z84 p84
GASTROPODA				
Hydrobiidae (3sppp:T1,F16,F5)	X	X	X	Z84 p84
OSTRACODA				
Nagarawa dirga		X		Z84 p84
Aquatic Vertebrates				
Flora				
Eriocaulon carsonii	X	X	X	RMS 83
Baumea gincea	X			
Cyperus gymnocaulos				
Sporobolus virginicus				
Phragmites				
Cyperus laevigatus				
Atriplex nummularia				
Potamogeton pectinatus				

Comments:

SPRING GROUP ..... OLD WOMAN SPRINGS ..... CODE ..... H/OW .....

MAP REFERENCE: SH 53-8 554-333

PASTORAL LEASE:

ACCESS:

See Hermit Springs

References
NM, LPP, RMS, Ca79, Ha82

DESCRIPTION:

RMS map numbers 23 outlets in creekline south-east of Hermit Hill

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		4	4	Z 84 p84
aquatic vertebrates	X			
vegetation	X	7		RMS 84

* see attached species lists

BIOLOGICAL CHARACTERISTICS

CODE H/OW .....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
AMPHIPODA				
Gammaridae sp.		X		Z 84 p84
ISOPODA				
Phreatomerus latipes		X		Z 84 p84
GASTROPODA				
Hydrobiidae (3 spp: T1,F16,F4,F5)	X	X	X	Z 84 p84
OSTRACODA				
Nagarawa dirga		X		Z 84 p84
Aquatic Vertebrates				
Flora				
Fimbristylis sieberana				
Gahnia sp.				
Phragmites				
Cyperus laevigatus				
Halosarcia				
Atriplex nummularia				
Frankeria				

Comments:

SPRING GROUP SULPHURIC SPRINGS CODE H/SS

MAP REFERENCE: SH 53-8 549-332

PASTORAL LEASE:

ACCESS:

References

RMS

DESCRIPTION:

RMS records no flow in 1981

RMS 82

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)
					21.94 ppt		

DME (1962)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates		4	4
aquatic vertebrates	X		
vegetation		4	

p 84

RMS 84

* see attached species lists

BIOLOGICAL CHARACTERISTICS

CODE ..H/SS.....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
GASTROPODA				
Hydrobiidae (2 spp:T1 and F16)	X	X	X	p84
ISOPODA				
Phraetomerus latipes		X		
AMPHIPODA				
Gammaridae sp		X		
OSTRACODA				
Nagarawa dirga		X		
Aquatic Vertebrates				
Flora				
Sporobolus virginicus				RMS,84
Phragmites				
Cyperus laevigatus				
Atriplex nummularia				

Comments:

SPRING GROUP VENABLE SPRINGS CODE H/VS

MAP REFERENCE: SH 53-8 544-323

PASTORAL LEASE: Finniss Springs

ACCESS: By track leaving Marree-Oodnadatta road, o.32 km east of Bopeechee Railway Station.
Track in good condition.

References: Co75,NM,LPP,RMS Ca79,Ha82

DESCRIPTION:

Only significant discharge via old corroded bore casing. The water runs into a relatively large shallow pool which discharges into a marshy reed covered area. Two extinct mounds occur nearby. — Co75

SURROUNDING ENVIRONMENT:

Large raised area in stony gibber plain.

DISTURBANCE:

The larger of the extinct mounds has a circular stone enclosure surrounding it and a stone trough nearby. Now silt filled and in disrepair. Vehicle tracks leading to top of mound. — Co75

SPECIAL FEATURES/REMARKS: — DEP78

Shells (only) of 4 spp. hydrobiids. — p 84

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)
				25	5,300		1 0.99

C075 RMS82

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates		2	2
aquatic vertebrates	X		
vegetation		5	0

Z 84 p84

DEP78,RMS,84

* see attached species lists

BIOLOGICAL CHARACTERISTICS

CODE H/VS.....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
ISOPODA Phreatomerus latipes				Z 84
OSTRACODA Nagarawa dirga				Z 84
Aquatic Vertebrates				
Flora				
Cyperus laevigatus Nitraria billardieri Halosarcia 2 Atriplex nummularia Potamogeton pectinatus				DEP 78 RMS 84

Comments:

Hydrobriid shells found: F5, F16, F4, T1

SPRING GROUP WEST FINNISS SPRINGS (or Finniss Swamp) CODE H/WF

MAP REFERENCE: SH 53-8 549-334

PASTORAL LEASE: Finniss Springs

ACCESS:

Cross-Country 1-2 km due north from Marree-Oodnadatta road

References: Co75, NM, LPP, RMS Ca79, Ha82

Co75

DESCRIPTION:

Coalescing minor low seeps or small mounds (seepages) to 20 m diam. Each characterised by rushes. Water somewhat brackish. RMS map shows 30-40 outlets in drainage depression.

Co75 DEP78

SURROUNDING ENVIRONMENT:

Flat oval shaped shallow depression about 400 m x 250 m occupied by numerous seeps and mounds. Surrounded by dunes, carbonate cemented conglomerate and travertinous material.

DISTURBANCE:

Extensive trampling of mounds by stock and severe grazing of Phragmites. Numerous vehicle tracks on claypan surrounding springs.

DEP78

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)	
001				23	5,000		4	Co75
002					5,238	9	4.06	RMS 82 (1981)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		4	4	Z 84 p84
aquatic vertebrates	X			
vegetation		7	2	DEP78, RMS83 RMS84

* see attached species lists

BIOLOGICAL CHARACTERISTICS

CODE ..H/WF.....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
AMPHIPODA				
Gammaridae sp.		X		Z 84 P 84
ISOPODA				
Phreatomerus latipes		X		Z 84 P 84
GASTROPODA				
Hydrobiidae (3spp T1, F1b, F5)	X	X	X	Z 84 P 84
OSTRACODA				
Nagawara dirga		X		Z 84 P 84
Aquatic Vertebrates				
Flora				
Phragmites australis				DEP 78
Ghania trifida				DEP 78
Cyperus laevigatus	X			DEP 78
Eriocaulon carsonii	X	X	X	RMS 83
Fimbristylis sieberana				
Baumea juncea	X			
Cyperus gymnocaulos				
Sparabolus virginicus				

Comments:

Hydrobiid species F4 extinct - shells found only — P 84

SPRING GROUP ..... UNNAMED SPRINGS ..... CODE ..... H/001 .....

MAP REFERENCE: SH 53-8 546-332

PASTORAL LEASE:

ACCESS:

References

NM, Ca79, Ha82

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP ..... UNNAMED SPRINGS ..... CODE ....H/002.....

MAP REFERENCE: SH 53-8 548-332

PASTORAL LEASE:

ACCESS:

References

NM,Ha82

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP ..... UNNAMED SPRINGS ..... CODE ..... H/003 .....

MAP REFERENCE: SH 53-8 538-327

PASTORAL LEASE:

ACCESS:

References

NM, Ha82

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

MT HOPELESS SPRING COMPLEX (HO)

SPRING GROUP CATT SPRINGS CODE HO/CS

SLIDE NOS 13, 14, 15

MAP REFERENCE: SH 54-5 239313 (1)

PASTORAL LEASE: Murnpeowie

ACCESS:
As for Public House Springs. Catt Springs is several kilometres to the west of Public House Springs.

References
Co75,NM,LPP,
GNB,Ca79,Ha82

DESCRIPTION:
Single low mound with damp soil but no free water. Considerable green vegetation covering mound. SEA84

SURROUNDING ENVIRONMENT:
Located at the base of a range of hills in a linear depression of drainage line.

DISTURBANCE:
Old trough and pipe into side of Spring. Long since derelict. Mound was once fenced. Old cattle dung abundant but current evidence of use by cattle minimal. SEA84

SPECIAL FEATURES/REMARKS:
Possibly a waning spring or outlet has been pugged out of existence at earlier time and no longer flows.

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)	
001	2	50		-	- 7.28 ppt 1.30 ppt	-	0 1.6	SEA84 (1946)Co75 DME (1948) DME (1948)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		0	0	SEA84
aquatic vertebrates		0	0	SEA84
vegetation		3	0	SEA84

* see attached species lists

BIOLOGICAL CHARACTERISTICS

CODE HO/CS.....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
Aquatic Vertebrates				
Flora				
Enchylaena tomentosa				SEA84
Trianthema triquetra				SEA84
Myoporum acuminatum				SEA84
Comments:				

SPRING GROUP..... PUBLIC HOUSE SPRINGS ..... CODE ...HO/PH.....

SLIDE NOS 57-70

	References
MAP REFERENCE: SH 54-5 241-314 (1,2) and? 239-313 (1,2)	LPP,GNB,SEA84
PASTORAL LEASE: Murnpeowie	
ACCESS: Best approached from the north from the Strzelecki Track. Take the track just to the east of where Petermorra Creek crosses the Strzelecki. Follow the track south until it disappears and then travel cross country, keeping Petermorra Creek on your right until reaching the ranges.	SEA84
DESCRIPTION: 20-30 active mound springs located in Petermorra Creek. Almost all springs have small flows that spread out over the mound to create a thin film of water. The mounds are bound together by dense vegetation. In some cases water erosion of some mounds is evident. In several cases pools have formed at the base of mounds.	SEA84
SURROUNDING ENVIRONMENT: Located at the base of a line of hills which constitute the northern extremity of the Flinders Ranges.	
DISTURBANCE: Springs are in excellent condition. No disturbance is evident.	
SPECIAL FEATURES/REMARKS: Almost all these mound springs host extensive coverings of Eriocaulon carsonii. Public House Springs has been mislocated on most maps. They are actually about 1 km SW of the location indicated.	

PHYSICAL CHARACTERISTICS

spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)	
average	2-3	5-10	50-300	-	-	-	seeps	SEA84
					10.02 ppt	9.5		DME (1978)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		0	0	SEA84
aquatic vertebrates		0	0	SEA84
vegetation		7	2	SEA84

* see attached species lists

BIOLOGICAL CHARACTERISTICS

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
Aquatic Vertebrates				
Flora				
Phragmites laevigatus				SEA84
Eriocaulon carsonii	X	X	X	
Cyperus laevigatus				
Glossostigma sp.	X			
Fimbristylis sieberana	X			
Myoporum aff. *refractum*				
Trianthema triquetra				

Comments:

Eriocaulon carsonii collected by Koch at Public House Springs in 1899 and again by D.E. Symon at Hermit Hill Springs in 1978. In NSW known from one collection from a spring near Louth in 1888.

Glossostigma sp. probably G.sp.A. of W.R. Barker's description of the genus in Jessop ed. (1981); more unlikely to be G. diandrum, which is more widespread and common. Reproductive material needed.

Myoporum aff. *refractum* is an interesting find in creeklines with mound springs because it shows morphological characteristics similar but not identical to type material of *M. refractum* collected in more southern/central locations of the Lake Eyre Basin. Additional records, particular live pieces for propagation, fruiting material and notes of colour of flowers and fruit of living, would be valued by R. Chinnock, State Herbarium, to assist breakup of the *Myoporum* genus complex.

Jessop(ed)1981
Cunningham *et al*, 1981.

W R Barker
State Herbarium
pers. comm..

R Chinnock
State Herbarium
pers. comm.

SPRING GROUP ..... PIGEON SPRINGS ..... CODE .HO/PI.....

MAP REFERENCE: SH 54-6 259-295

PASTORAL LEASE:

ACCESS:

References

NM, LPP, GNB, Ca79

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)
					2.53 ppt		

DME (1948)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP ....PETERMORRA SPRINGS..(or. Chimney Springs) CODE ..HO/PS.....
SLIDES 16-18, 51, 52

MAP REFERENCE: SH 54-6 247-312

PASTORAL LEASE: Murnpeowie

ACCESS:

As for Public House Springs, but head east along Petermorra Creek once the ranges are met.

References: NM, LPP, GNB, Ca79

DESCRIPTION:

Numerous seeps over about 1 km along the base of the ranges in or on the edge of Petermorra Creek. Flow rate is low. Generally a thin film of flowing water covers the slope below the springs. SEA84

SURROUNDING ENVIRONMENT:

Located at the northern extremity of the Flinders Ranges.

DISTURBANCE:

The easternmost spring has a pipe to a rusted out trough. It is badly degraded by pugging. Others are in good condition. SEA84

SPECIAL FEATURES/REMARKS:

Several of these springs host Eriocaulon carsonii. SEA84

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)	
-	-	-	50 (average)	-	-	-	seeps	SEA 84
bore					1.09 ppt	8.3	10.58	DME(1974)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		0	0	Z 84, SEA 84
aquatic vertebrates		0	0	SEA 84
vegetation		4	2	SEA 84

BIOLOGICAL CHARACTERISTICS

CODE HO/PS .....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
None found				Z 84 SEA 84
Aquatic Vertebrates				
Flora				
Cyperus laevigatus				SEA 84
Eriocaulon carsonii	X	X	X	
Fimbristylis sieberana	X			
Trianthema triquetra				
Calocephalus platycephalus				

Comments:

Eriocaulon carsonii collected by Koch at Public House Springs in 1899 and again by D E Symon at Hermit Hill Springs in 1978. In NSW known from one collection from a spring near Louth in 1888.

Jessop (ed) 1981
Cunningham et al, 1981

SPRING GROUP..... REEDY SPRINGS ..... CODE ..... HO/RE .....

SLIDE NOS 7, 8

MAP REFERENCE: SH 54-5 239-313

PASTORAL LEASE: Murnpeowie

ACCESS:
South springs reached cross country by heading north from Strzelecki Track. North Springs approached from Blanchwater by northerly heading track then cross-country over ridge.

References: Co75,NM,LPP, GNB,Co75,Ca79, Ha82

DESCRIPTION:
Reedy Springs north - large area of reeds with many seeps and pools. Perhaps 50-100 seeps occur in the area.
Reedy Springs south - mound in flat terrain around which occurs a deeply incised creek with numerous gullies. Many springs in gullies. — Co75

SURROUNDING ENVIRONMENT:
Mostly gibber, pavement surface of slightly dissected plain - springs in depression with salt halo.

DISTURBANCE:
The water of Reedy Springs north appeared badly polluted. It was almost black and very alkaline. Considerable pugging by cattle was also evident. — SEA84

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)	
001 (north)				15	3,500		14	Co75
002 (south)				18	30,000		1.7	Co75
				16	31,000			Co75
				15	28,000			Co75
				14	14,000			Co75
001 (north)				30	7 ppt	9	2.3	SEA84
					4.32 ppt	7.0		DME (1974)
					2.06 ppt	8.5		DME (1974)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		0		SEA84
aquatic vertebrates		0		SEA84
vegetation		8	0	SEA84

* See attached species lists

CODE HO/RE

BIOLOGICAL CHARACTERISTICS

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
None found.				SEA84
Aquatic Vertebrates				
None found.				SEA84
Flora				
Cyperus gymnocaulos Cyperus laevigatus Schoenoplectus litoralis Trianthema triquetra Scaevola collaris Myoporum acuminatum Senecio cunninghamii Minuria leptophylla Enchylaena tomentosa Acacia salicina Acacia cambagei				SEA84
Comments:				

SPRING GROUP ROCKY SPRINGS CODE HO/RO

SLIDE NO 9

MAP REFERENCE: SH 54-5 233-343

PASTORAL LEASE: Murnpeowie

ACCESS:

As for Reedy Springs.

References

NM, LPP, GNB, Ha82

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

Completely flooded by local drainage at time of inspection.

SEA84

PHYSICAL CHARACTERISTICS

spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP..... TERRAPINNA SPRINGS ..... CODE HO/TS .....

MAP REFERENCE: SH 54-6 259-295

PASTORAL LEASE:

ACCESS:

References

NM, LPP, GNB, Ha82

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates		1	0
vegetation	X		

G 84

* see attached species lists

CODE HO/TS .....

BIOLOGICAL CHARACTERISTICS

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
Aquatic Vertebrates				
Craterocephalus eyresii (Lake Eyre hardyhead)				G 84
Flora				
Comments:				

SPRING GROUP..... TWELVE SPRINGS ..... CODE HO/TW .....

SLIDE NOS 21-24, 46-50

MAP REFERENCE: SH 54-6 259-303

PASTORAL LEASE: Murnpeowie

ACCESS:

Via Moolawatana homestead. Rough track heads west from the homestead to the vicinity of the springs.

References: NM, LPP, GNB, Ca79, Ha82

DESCRIPTION:

Series of low mounds, some extinct, others active. In most cases their wetlands merge together. One dominant spring with a small pool. Vegetation forms a thick mat around each outlet. — Co79

SURROUNDING ENVIRONMENT:

Located between two sand dunes.

DISTURBANCE:

The one small pool has had its sides boarded up and was once fenced. The entire spring group was also once fenced. Generally the spring group is in excellent condition. — Co79

SPECIAL FEATURES/REMARKS:

This spring hosts Eriocaulon carsonii.

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)	
001	0.75	10	1,500	26	1 ppt 2.7 ppt	7.8 8.3	0.4	SEA84 DME(1978)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		0	0	Z84, SEA84
aquatic vertebrates		0	0	G 84
vegetation		8	3	SEA84

* see attached species lists

CODE HO/TW .....

BIOLOGICAL CHARACTERISTICS

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
None found.				Z 84 SEA84
Aquatic Vertebrates				
None found.				G 84 SEA84
Flora				
Eriocaulon carsonii	X	X	X	SEA84
Cyperus laevigatus				
Fimbristylis sieberana	X			
Glossostigma sp.	X			
Utricularia violaceae	X		X	
Scirpus litoralis				
Trianthema triquetra				
Myoporum acuminatum				
Eragrostis dielsii				

Comments: Utricularia violaceae R.Br. significant range extension. Only other records in S.A. from southern Mt. Lofty Ranges and S.East. Not recorded for Central Australia in Jessop ed. (1981).
Eriocaulon carsonii collected by Koch at Public House Springs in 1899 and again by D.E. Symon at Hermit Hill Springs in 1978. In N.S.W. known from a spring near Louth in 1888.

Glossostigma sp. probably G.sp.A. of W.R. Barker's description of the genus in Jessop ed. (1981); more unlikely to be G. diandrum, which is more widespread and common. Reproductive material needed.

D. Wibley, State Herb., pers.comm.
Jessop (ed.) 1981.
Cunningham et al, 1981

MARREE SPRING COMPLEX (M)

SPRING GROUP BOORLOO SPRINGS CODE M/BS

MAP REFERENCE: SH 54-5 614/321 (1,2)

PASTORAL LEASE:

ACCESS:

References
LPP, GNB

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)
					7.92		

DME (1961)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP ..FOUR MILE SPRING..... CODE ..M/FM.....

MAP REFERENCE: SH 54-5 631-319

PASTORAL LEASE:

ACCESS:

References: NM,LPP,GNB, Ca79,Ha82

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

Has bore and windmill — Z 84
Defunct, no original spring remains. — P 84

SPECIAL FEATURES/REMARKS:

Old camel depot of Kidman and shearing shed remains. — Do84

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)
					3.43	8.1	

DME (1979)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates		0	0
aquatic vertebrates	X		
vegetation	X		

Z 84

* see attached species lists

SPRING GROUP ..... GOOLONG SPRINGS (OR COOLONG) ..... CODE ....M/GS.....

MAP REFERENCE: SH 545 627-324 (2)

PASTORAL LEASE:

ACCESS:

References

NM,LPP,GNB

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE: Has bore

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)
					1.15 ppt		

DME (1979)
bore

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP ..... HERGOTT SPRINGS ..... CODE ..... M/HS .....

MAP REFERENCE: SH 54-5 619-328

PASTORAL LEASE: Stephen's Pond

References: Co75, NM, LPP, GNB, Ca79, Ha82

ACCESS:

From Marree-Oodnadatta road by northerly trending track starting at western margin of township. — Co75

DESCRIPTION:

No real mound springs visible. It is likely that a bore has been placed in the former spring which is now extinct. — Co75

SURROUNDING ENVIRONMENT:

Low fixed sand dunes.

DISTURBANCE:

Has bore and windmill. Scraped depression forms pool from runoff from bore. — Co75

SPECIAL FEATURES/REMARKS:

Discovered by J.H. Smart in 1859 — H81

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)	
001	-	-		28	3,000 1.71 ppt	8.2	no natural flow	Co75 DME (1979)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		1 (1970) 0 (1980)	1 (1970) 0 (1980)	Z 84
aquatic vertebrates		1	0	G 84
vegetation	X			

* see attached species lists

BIOLOGICAL CHARACTERISTICS

CODE M/HS.....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
ISOPODA Phreatomerus latipes (1970) None found (1981)		X		Z 84
Aquatic Vertebrates				
C. eremius (Desert goby)				G 84
Flora				
Comments: Diprotodon fossil bones found in opening of Hergott Springs in 1862.				DEP78

SPRING GROUP ..... LIGNUM SPRING ..... CODE ..... M/LS .....

MAP REFERENCE: SH 54-5 636-310

PASTORAL LEASE:

ACCESS:

References: NM, LPP, GNB, Ha82

DESCRIPTION:

Spring obliterated by dam. — Z 84

SURROUNDING ENVIRONMENT:

DISTURBANCE:

Has a dam. — Z 84

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates		0	0
aquatic vertebrates	X		
vegetation	X		

Z 84

* see attached species lists

SPRING GROUP MUNDOWDNA SPRINGS CODE M/MS

MAP REFERENCE: SH 54-5 636-315

PASTORAL LEASE: Mundowdna

ACCESS:

About 500 m north-east of Mundowdna homestead.

References: Co75, NM, LPP, GNB, Ca79, Ha82

DESCRIPTION:

Shallow pool (10 m x 8m) — Co75

SURROUNDING ENVIRONMENT:

Flat, fine to medium quartz sand with minor travertine fragments and boulders.

DISTURBANCE:

Has bore and windmill. — Co75

SPECIAL FEATURES/REMARKS:

No evidence of spring environment. — D.84

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)
					2.57 ppt		0.4 (from bore)

Co75

DME (1960)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates		0	0
aquatic vertebrates	X		
vegetation	X		

Z 84

* see attached species lists

SPRING GROUP ONE TREE SPRING CODE M/OT

MAP REFERENCE: SH 54-5 659-328

PASTORAL LEASE:

ACCESS:

References
NM,LPP,LNB, Ha82

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP ...TWO MILE SPRING..... CODE ..M/.TM.....

MAP REFERENCE: SH 54-5 639-317

PASTORAL LEASE: Mundowdna

ACCESS:

By track from Mindowdna Station, approx. 3.5 km. On track to Wirringina Springs.

References
Co75,NM,LPP
GNB,Ha82,Ca79

DESCRIPTION:

Insignificant low mound with grass. Co75

SURROUNDING ENVIRONMENT:

Generally flat with low discontinuous fixed dunes. Minor travertine deposit. Co75

DISTURBANCE:

Windmill pumps water to stock trough. Co75

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)
					2.12 ppt	8.4	

Co75
DME (1948)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates		0	0
aquatic vertebrates	X		
vegetation	X		

Z 84

* see attached species lists

SPRING GROUP WIRRINGINA SPRINGS CODE M/WS

MAP REFERENCE: SH 54-5 650-314

PASTORAL LEASE: Mundowdna

References: Co75,NM,LPP, GNB,Ca79,Ha82

ACCESS:

By track from Mundowdna Station (approx. 15 km). Skirts southern margin of Lake Pinnarie. Track in moderate condition. — Co75

DESCRIPTION:

Two springs, greatly modified by landholder. Uppermost spring about 6 m in diameter. Lower spring about 30 m down slope from top spring. — Co75

SURROUNDING ENVIRONMENT:

Near large dune jutting into Lake Pinnarie.

DISTURBANCE:

Upper spring surrounded by brick wall. Water pumped from spring by windmill to feed stone-walled tank, stock troughs at base of dune. Lower spring surrounded by galvanised iron fence. — Co75

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)
				18	4,800 3.02 ppt	7.9	no natural flow

Co75 DME (1974)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates		0	0
aquatic vertebrates	X		
vegetation	X		

Z84

* see attached species lists

MT MARGARET SPRING COMPLEX (MM)

SPRING GROUP ..... EDITH SPRINGS ..... CODE ...MM/ES.....

	References
MAP REFERENCE: SH 53-3 409-471	Wi79,NM,LPP, GNB,Ca79
PASTORAL LEASE:	
ACCESS: Cross country from Hawker Springs - Milne Bore track. Reasonable travelling.	Wi79
DESCRIPTION: Two springs with small flows.	Wi79
SURROUNDING ENVIRONMENT: Springs occur 100-200 m west of faulted edge of basement (i.e., in basement rocks).	
DISTURBANCE:	
SPECIAL FEATURES/REMARKS: May not be associated with Great Artesian Basin. Ponder notes hydrochemistry of Edith and Tarlton are unusual.	P 84

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (1/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates		1	1
aquatic vertebrates	X		
vegetation	X		

Z 84,P 84

* see attached species lists

BIOLOGICAL CHARACTERISTICS

CODE ..MM./.ES.....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
OSTRACODA Nagarawa dirga		X		Z 84
Aquatic Vertebrates				
Flora				
Comments:				

SPRING GROUP ..... TARLTON SPRINGS ..... CODE ..... MM/TS .....

MAP REFERENCE: SH 53-3 410-464 or 413-463 (1)

PASTORAL LEASE:

ACCESS:

Cross country from track from Hope Creek to George Creek bores

References: Wi79, NM, LPP, GNB, Ca79,

Wi79

DESCRIPTION:

At least seven distinct outlets along fault.

Wi79

SURROUNDING ENVIRONMENT:

As for Edith Springs - on edge of fault.

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

Ponder notes hydrochemistry of Tarlton and Edith Springs is unusual.

P 84

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)	
001				21 21 25 24	3,000 3,500 4,000	7.7	0.01	Wi79
					3.43 ppt			DME (1953)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		1	1	Z 84, P 84
aquatic vertebrates	X			
vegetation	X			

* see attached species lists

BIOLOGICAL CHARACTERISTICS

CODE MM/TS.....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
OSTRACODA Nagarawa dirga		X		Z 84
Aquatic Vertebrates				
Flora				
Comments:				

SPRING GROUP ..... UNNAMED SPRINGS ..... CODE ..... MM/001 .....

MAP REFERENCE: SH 53-3 410-427 (1,2)

PASTORAL LEASE:

ACCESS:

References

NM

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (1/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

NEALES RIVER SPRING COMPLEX (N)

SPRING GROUP ..... BIG PERRY SPRINGS ..... CODE ..... N/BP .....

SLIDE NOS 153 - 157

MAP REFERENCE: SH 53-3 437-486

References: Wi79,NM,LPP, GNB,Ca79,Ha82

PASTORAL LEASE: Peake

ACCESS: Turn off track from Loddon Spring to Fountain Spring on to track to Big Perry Spring. — Wi79

DESCRIPTION:

Three moderately large mounds. Mounds are active and have extensive wetlands associated with them. — Wi79, SEA84

SURROUNDING ENVIRONMENT:

Low lying swampy area with saline flats surrounding spring, then low angle hills of cretaceous shale.

DISTURBANCE:

There was little vegetation lining the long tail of one of the springs, indicating overgrazing and pugging by cattle. Some pugging was evident. Condition, however, was generally quite — SEA 84

SPECIAL FEATURES/REMARKS: good, possibly due to recent recovery.

One spring has a large date palm on the edge of its wetland.

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)	
001 (west)	5-7	25		29	7,500		0.46	Wi79
				28.5	4,700		0.44	
				29	3.2 ppt	7	1	SEA84
002 (south)	3-4	5-8		25	6,400		0.06	Wi79
003 (north)	2-3	40		-	6,000		0.02	Wi79
					1.82-4.60	ppt		DME (1953)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		4	4	Z 84
aquatic vertebrates		1	0	G 84
vegetation		12	0	SEA84

* see attached species lists

BIOLOGICAL CHARACTERISTICS

CODE N/BP.....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
AMPHIPODA		x		Z 84 P 84
Gammaridae sp.		x		Z 84 P 84
ISOPODA				
Phreatomerus latipes	x	x	x	Z 84 P 84
GASTROPODA				
Hydrobiidae (5 species: T3,T2, F2a, F3b, F5)		x		Z 84 P 84
OSTRACODA				
Nagarawa dirga				
Aquatic Vertebrates				
Craterocephalus eyresii (Lake Eyre hardyhead)				G 84
Flora				
Cyperus gymnocaulos Cyperus laevigatus Halosarcia indica ssp. leiostachya Halosarcia halocnemoides Juncus kraussii Phragmites australis Schoeneplectus litoralis Typha domingensis Pheonix dactylifera Nitraria billardieri Sporobolus sp. Trianthema triquetra Diplachne fusca Dactyloctenium radulans				SEA84
Comments: Hydrobiid T3 is a rare species restricted in distribution to this spring, The Fountain and Freeling Springs				P 84

SPRING GROUP BRINKLEY SPRINGS (or Thurra-Thurrina Springs) CODE N/BS

SLIDE NOS 147 - 152

MAP REFERENCE: SH 53-3 432-466

References: Wi79,NM,LPP,GNB Ca79,Ha82

PASTORAL LEASE: Peake

ACCESS:

Cross country a few kilometres south of McLeans Bore. Good access. Wi79

DESCRIPTION:

Three mounds, northerly one extinct. The largest and southernmost mound has three small seeps. The central mound has one seep with the largest flow in the group. Wi79

SURROUNDING ENVIRONMENT:

Low angle gibber flats and alluvial plains over cretaceous shale.

DISTURBANCE:

Each spring is badly pugged and degraded by cattle. Probably the worst seen during the survey. SEA84

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)	
001 (south)	5	100		30	4.53 6	7.4	0.25 1-1.5	DME (1962) SEA84 Wi79
002 (middle)	3	70		28 30	4 8,000 (cond)	7.2	0.25	SEA84 Wi79

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		3	3	Z 84 P 84
aquatic vertebrates		0	0	SEA84
vegetation		7	0	SEA84

* see attached species lists

BIOLOGICAL CHARACTERISTICS CODE .N/BS.....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
ISOPODA		x		Z 84
Phreatomerus latipes				
GASTROPODA		x		P 84 Z 84
Hydrobiidae (3 spp: T2, F3b, F5)	x			
OSTRACODA		x		P 84 Z 84
Nagarawa dirga				
Aquatic Vertebrates				
Flora				
Halosarcia indica ssp. leiostachya				SEA84
Halosarcia halocnemoides				
Cyperus laevigatus				
Nitraria billardieri				
Enchylaena tomentosa				
Frankenia cinerea				
Trianthema triquetra				
Disphania simulans				
Dactyloctenium radulans				

Comments:

Extinct Juncus kraussii only fibre remains

SPRING GROUP FANNY SPRINGS ..... CODE N/FS .....

MAP REFERENCE: SH 53-3 425-488

PASTORAL LEASE: Peake

References: Wi79,NM,GNB, LPP,Ca79,Ha82

ACCESS:

Cross country from Twelve Mile Spring. Good access. — Wi79

DESCRIPTION:

Up to eight springs. Four virtually extinct. Others are small seeps issuing from small grassy mounds. — Wi79

SURROUNDING ENVIRONMENT:

Springs occur north and north-east of large outcrop of Precambrian rock on undulating ground with white salty crust. — Wi79

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)	
001				23	6,500		0.01	Wi79
002				25	6,200		0.008	"
003				25	5,400		0.01	"
?					3.86 ppt			DME (1953)
?					3.10 ppt			"

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	x		
aquatic vertebrates	x		
vegetation	x		

* see attached species lists

SPRING GROUP ..... THE FOUNTAIN SPRING ..... CODE ..... N/FT .....

MAP REFERENCE: SH 53-3 430-485

References: Wi79,NM,GNB,LPP Ca79,Ha82

PASTORAL LEASE: Anna Creek

ACCESS:

Via track from William Creek, Loddon Spring, Outside Spring, Milne Bore. — Wi79

DESCRIPTION:

Mound with shallow central pool (10-15 m. diam.). Pool has a break on the north side from which the main flow issues, forming a long tail. — Wi79,Sy84a

SURROUNDING ENVIRONMENT:

Low angle gibber slopes and gypsite scarps over cretaceous material.

DISTURBANCE:

Main pool may have been infilled by cattle trampling.

SPECIAL FEATURES/REMARKS:

Symon suggests that the mound would not be difficult to fence. — Sy84a

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)	
001				25	6,400 3.67 ppt		1	Wi79 DME (1953)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		4	4	Z 84 P84
aquatic vertebrates		≥1	?	Sy84a
vegetation		6	0	Sy84a

* see attached species lists

BIOLOGICAL CHARACTERISTICS CODE ..N/ET.....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
AMPHIPODA Gammaridae sp.		x		Z 84 P 84
ISOPODA Phreatomerus latipes		x		Z 84 P 84
GASTROPODA Hydrobiidae (5 spp: T3, T2, F2a, F3b, F5)		x		Z 84 P 84
OSTRACODA Nagarawa dirga	x	x	x	Z 84 P 84
Aquatic Vertebrates				
?				Sy84a
Flora				
Phragmites australis Cyperus laevigatus Cyperus gymnocaulos Polypogon monspeliensis Spergularia rubra Nitraria billardieri				Sy84a

Comments:

Hydrobiids T3 and F3b is a rare species of restricted distribution - occurs in Big Perry and Freeling Springs also. P 84

SPRING GROUP ..... HAWKER SPRINGS ..... CODE ..... N/HS .....

SLIDE NOS 184-188

	References
MAP REFERENCE: SH 53-3 419 to 423 - 474 to 478	Wi79,NM,LPP, GNB,Ca79,Ha82
PASTORAL LEASE: Peake	
ACCESS: Via tracks from north via Milne, Levi Bores or south via Davenport Well, Hope creek Bore.	Wi79
DESCRIPTION: Vary from low mounds to flat open ponds with long tails. Interspersed are many extinct mounds. Few mounds rise more than 1-2 m above plain.	Wi79, SEA84
SURROUNDING ENVIRONMENT: Cover a wide area, but occur within a general depression east of Spring Hill and other basement inliers.	Wi79
DISTURBANCE: Condition of the springs appeared to be good.	SEA84
SPECIAL FEATURES/REMARKS: Thought to be similar to Dalhousie Springs but on a much smaller scale. Discovered by J.M. Smart in 1959	H81

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)	
001				34	5.5ppt	7.4	0.1	SEA84
?				25	7,500		0.01	Wi79
?				-	7,500		0 17	"
?				22	7,200		0.03	"
?				25	7,400		0.06	"
?					4.67ppt			DME (1953)
?					3.25ppt			"
					4.32-4.43 ppt	7.2-7.7		DME (1976)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		4	4	Z 84 P 84
aquatic vertebrates		0	0	SEA 84
vegetation		11	0	SEA84

* see attached species lists

BIOLOGICAL CHARACTERISTICS

CODE N/HS.....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
AMPHIPODA		x		Z 84 P 84
Gammaridae				
ISOPODA				
Phreatomerus latipes		x		Z 84 P 84
GASTROPODA				
Hydrobiidae, (4 spp: T2,F2a,F3b,	x	x	x	Z 84 P 84
OSTRACODA F5)		x		
Nagarawa dirga				Z 84 P 84
Aquatic Vertebrates				
Flora				
Cyperus gymnocaulos				SEA84
Cyperus laevigatus				
Halosarcia indica ssp. leiostachya				
Halosarcia halocnemoides				
Potamogeton pectinatus				
Phragmites australis				
Sporobolus sp.				
Juncus krausii				
Nitraria billardieri				
Frankenia cinerea				
Myoporum acuminatum				

Comments:

Wi79 provides history of springs.

SPRING GROUP LOUDON SPRING (or Curterinna Spring) CODE N/LD

MAP REFERENCE: SH 53-3 443-457

References: Wi79,NM,LPP, GNB,Ca79,Ha82

PASTORAL LEASE: Peake

ACCESS:

On track from William Creek to Umbum. Easy access. — Wi79

DESCRIPTION:

A large, low mound with numerous outlets, all but one of which has recently (50-100 years) dried up. Symon reports that in 1978 they were all dry. — Wi79,Sy84a

SURROUNDING ENVIRONMENT:

Low angle gibber flats and alluvial plain over cretaceous shale. All dry. — Wi79, Do84

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

Extinction of hydrobiids
Discovered by J.M. Smart in 1859 — P 84 (p.28), H 81

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)
001				15	9,000 ? 4.49 ppt		0.1 0.38

Wi79, DME (1953)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates		0	0
aquatic vertebrates	X		
vegetation		3	0

Z 84 P 84

Sy84a

* see attached species lists

BIOLOGICAL CHARACTERISTICS

CODE ..N.?L.D.....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
None found				Z 84 P 84
Aquatic Vertebrates				
Flora				
Enchylaena tomentosa Nitraria billardieri Sclerostegia disarticulata				Sy84a

Comments:

Shells only found of hydrobiids

SPRING GROUP ... LITTLE PERRY SPRINGS ... CODE ... N/LP ...

MAP REFERENCE: SH 53-3 440-494 or 438-490 (1)

PASTORAL LEASE: Peake

ACCESS:

Cross country from the north via Lagoon Hill

References: Wi79,NM,LPP, GNB,Ca79,Ha82

Wi79

DESCRIPTION:

SURROUNDING ENVIRONMENT:

The springs occur at the contact between Cretaceous Bulldog Shales and Precambrian basement. Wi79

DISTURBANCE:

Bore to 90 m at spring - low flow. Wi79

SPECIAL FEATURES/REMARKS:

Some doubt over location. GNB locates spring at 438-490. NM, Ca79, Ha79 locate spring at 440-494. Wi79

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)
					3.36		

DME (1953)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP ..... LEVI SPRINGS ..... CODE ...N/LS.....
SLIDE NOS 179 - 181

MAP REFERENCE: SH 53-3 417-482

References: Wi79, NM, LPP, GNB Ca79, Ha82

PASTORAL LEASE: Peake

ACCESS:

Via track from Milne to Hope Creek bore — Wi79

DESCRIPTION: (from air)

Several springs, one pool surrounded by reeds; mound with reeds — SEA84

SURROUNDING ENVIRONMENT:

As for Spring Hill Spring — Wi79

DISTURBANCE:

Has bore and stockyard — Wi79

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)
					2.63		

DME (1953)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates		1	1
aquatic vertebrates	X		
vegetation	X		

Z 84

* see attached species lists

BIOLOGICAL CHARACTERISTICS

CODE N/LS

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
OSTRACODA Nagarawa dirga		x		Z 84
Aquatic Vertebrates				
Flora				
Comments:				

SPRING GROUP ..... MILNE SPRINGS ..... CODE ....N/MS.....

MAP REFERENCE: SH 53-3 408-496

PASTORAL LEASE: Peake

ACCESS:

As for Milne Bore - on track from Peake Homestead to Hawker Springs. Good road.

References: Wi79,NM,LPP, GNB,Ca79,Ha82

Wi79

DESCRIPTION:

A few small seeps around base of rock outcrop. Only slight flows. Wi79

SURROUNDING ENVIRONMENT:

Large outcrop of basement rock - elongate in north-easterly direction. Wi79

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

Discovered by J.M. Smart in 1859 H 81

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		1	1	Z 84
aquatic vertebrates	x			
vegetation		8	0	Sy84a

* see attached species lists

BIOLOGICAL CHARACTERISTICS

CODE N/MS .....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
OSTRACODA Nagarawa dirga		x		Z 84
Aquatic Vertebrates				
Flora				
Typha sp. Cyperus gymnocaulos Cyperus laevigatus Bolboschoenus caldwellii Polypogon monspeliensis Cotula coronopifolia Spergularia rubra Frankenia sp.				Sy84a
Comments:				

SPRING GROUP ..OUTSIDE.SPRINGS..(also.called.Bulldog Springs) CODE ....N/OS.....

MAP REFERENCE: SH 53-3 422-496

PASTORAL LEASE: Peake

References: Wi79,NM,LPP,GNB Ca79,Ha82

ACCESS:

As for Fountain Spring. — Wi79

DESCRIPTION:

Five springs, over an area of several hectares. Two are extinct, two have reasonable flows and last is a large mound with several seeps. — Wi79, Sy84a

SURROUNDING ENVIRONMENT:

Cluster of springs in a slight depression (as for Fountain Springs).

DISTURBANCE:

None noted by Symon.

SPECIAL FEATURES/REMARKS:

Has some nice Acacia salicina trees at base of one of the mounds. — Sy84a

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)	
001				-	6,100		-	Wi79
002				29	5,100		0.7	"
003				27	5,300		2.9	"
?					2.7ppt			DME (1953)
?					3.2ppt			"
					2.45ppt	7.3	0.01	DME (1974)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		4	4	Z 84 P 84
aquatic vertebrates	X			
vegetation		17	0	Sy84a

* see attached species lists

BIOLOGICAL CHARACTERISTICS

CODE N/OS .....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
AMPHIPODA		x		Z 84
Gammaridae sp.				
ISOPODA				
Phreatomerus latipes		x		P 84 Z 84
GASTROPODA				
Hydrobiidae (4 species: T2, F2a, F3b, F5)	x	x	x	P 84
OSTRACODA				
Nagarawa dirga		x		P 84 Z 84
Aquatic Vertebrates				
Flora				
Typha domingensis				Sy84a
Phragmites australis				
Cyperus gymnocaulos				
Cyperus laevigatus				
Halosarcia indica ssp. leiostachya				
Halosarcia halocnemoides				
Bolboschoenus caldwellii				
Cotula coronopifolia				
Acacia cambagei				
Nitraria billardieri				
Enchylaena tomentosa				
Spergularia rubra				
Frankenia foliosa				
Sporobolus virginicus				
Acacia victoriae				
Cressa cretica				
Acacia salicina				

Comments:

SPRING GROUP .....PRIMROSE SPRING..... CODE N/PS

Slide Nos 158-160

MAP REFERENCE: SH 53-3 441-509

References: Wi79,NM,GNB,LPI Ca79,Ha82

PASTORAL LEASE: Peake

ACCESS:

Left bank of Neales River from Woodduck Bore or north of Outside Springs till due west of Primrose Hill (to track), then cross country to Neales-sandy crossing. May also approach from SE from Flint Mound. — Wi79

DESCRIPTION: Dam on Lake Eyre.

Large sandy mound with one main spring on the north-eastern side and two smaller seeps on the northern side. — Wi79,SEA84

SURROUNDING ENVIRONMENT:

Springs occur at the edge of a breakaway or escarpment.

DISTURBANCE:

Springs in good condition. — SEA84

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)	
001				37	5,500		0.13	Wi79
				30	3ppt	7.2	0.2	SEA84
002				25	5,400		0.01	Wi79
					2.89 ppt			DME (1923)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		0	0	SEA84
aquatic vertebrates		0	0	SEA84
vegetation		8	0	SEA84

* see attached species lists

BIOLOGICAL CHARACTERISTICS

CODE ..N/PS.....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
Aquatic Vertebrates				
Flora				
Cyperus gymnocaulos Halosarcia indica ssp. leiostachya Phragmites australis Typha domingensis Trianthema triquetra Enchylaena tomentosa Nitraria billardieri Acacia stenophylla Eragrostis falcata Acacia salicina Dactyloctenium radulans				SEA84
Comments:				

SPRING GROUP SPRING HILL SPRING ..... CODE N/SS .....

SLIDE NOS 182-183

MAP REFERENCE: SH 53-3 417-477

PASTORAL LEASE: Peake

References: Wi79, NM, GNB, LPP, Ha82

ACCESS:

Via track from Milne, Levi Bore and Spring to Hope Creek Bore. Spring is slightly south of Spring Hill. — Wi79

DESCRIPTION: (from air)

No free water, small circle of reeds surrounded by larger circle of samphire. Older mound nearby. — SEA84

SURROUNDING ENVIRONMENT:

As for Hawker Springs. Located just at the toe of a large Precambrian basement outcrop. — Wi79

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

Numerous cattle tracks.
Extinction of hydrobiids. Shells only of species F5. — P 84

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates		1+	1
aquatic vertebrates	X		
vegetation	X		

Z 84 P 84

* see attached species lists

+ Hydrobiid shells present; F5.

BIOLOGICAL CHARACTERISTICS

CODE N/SS

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
OSTRACODA Nagarawa dirga		x		Z 84
Aquatic Vertebrates				
Flora				
Comments:				

SPRING GROUP TWELVE MILE SPRING CODE N/TS

MAP REFERENCE: SH 53-3 427-490

PASTORAL LEASE: Peake

ACCESS:

As for Fountain Spring. Wi79

References: Wi79,NM,LPP, GNB,Ha82,Ca79

DESCRIPTION:

At least eight small springs forming a complex over several hectares. Symon describes it as a large low mound with numerous seeps with small to large flows. Wi79, Sy84a

SURROUNDING ENVIRONMENT:

DISTURBANCE:

Much of the area has been badly pugged. Springs were once fenced. Sy84a

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)
				21-27.5	5,500 -5900 3.25ppt		1

Wi79
DME (1953)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		4	4	Z 84, P 84
aquatic vertebrates	X			
vegetation		12	0	Sy84a

* see attached species lists

BIOLOGICAL CHARACTERISTICS

CODE N/TS .....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
AMPHIPODA		x		Z 84 P 84
Gammaridae sp.		x		Z 84 P 84
ISOPODA				
Phreatomerus latipes				
GASTROPODA				
Hydrobiidae (4 species: T2,F2a F3b, F5)	x	x	x	Z 84 P 84
OSTRACODA				
Nagarawa dirga		x		Z 84 P 84
Aquatic Vertebrates				
Flora				
Cyperus laevigatus Cyperus gymnocaulos Phragmites australis Halosarcia pergranulata Halosarcia halocnemoides Sporobolus virginicus Samolus repens Cotula coronopifolia Polypogon monspeliensis Juncus kraussii Nitraria billardieri Frankenia sp. Acacia victoriae				Sy84a
Comments:				

SPRING GROUP ..... THE VAUGHAN SPRING ..... CODE .....N/VS.....

MAP REFERENCE: SH 53-3 426-493

PASTORAL LEASE: Peake

ACCESS:

As for the Fountain Spring.

References: Wi79,NM,LPP, GNB,Ca79,Ha82

DESCRIPTION:

A single low mound with a good flow. — Sy84a

SURROUNDING ENVIRONMENT:

As for the Fountain Spring. — Wi84

DISTURBANCE:

Very badly pugged, and has heavily grazed vegetation — Sy84a

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)
001				25	5,200 3.06 ppt		0.2

Wi84
DME (1953)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates		3	3
aquatic vertebrates	x		
vegetation		10	0

Z 84 P 84

Sy84a

* see attached species lists

BIOLOGICAL CHARACTERISTICS CODE .N/VS.....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
AMPHIPODA				
Gammaridae sp.		x		Z 84
ISOPODA				
Phreatomerus latipes		x		Z 84
OSTRACODA		x		Z 84
Aquatic Vertebrates				
Flora				
Cyperus laevigatus Halosarcia halocnemoides Halosarcia halocnemoides ssp. longispicata Halosarcia indica ssp. leiostachya Polypogon monspeliensis Bolboschoenus caldwellii Spergularia rubra Enchylaena tomentosa Sclerostegia disarticulata Nitraria billardieri Frankenia pseudo-flabellata Frankenia serpyllifolia				Sy84a

Comments:

No hydrobiids — P 84

SPRING GROUP ....MELON SPRINGS..... CODE ....N/ME.....

MAP REFERENCE: SH 53-3 406-496 (1,2)

PASTORAL LEASE:

ACCESS:

References

GNB

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates		1	1
aquatic vertebrates	x		
vegetation	x		

Z 84 P 84

* see attached species lists

BIOLOGICAL CHARACTERISTICS

N/ME

CODE .....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
OSTRACODA Nagarawa dirga		x		Z 84
Aquatic Vertebrates				
Flora				
Comments: No hydrobiids				P 84

PEAKE CREEK SPRING COMPLEX (P)

SPRING GROUP BALYAWEELBANYA SPRING CODE P/BA

MAP REFERENCE: SH 53-3 362-478 (1,2)

PASTORAL LEASE:

ACCESS:

References

GNB

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	v		
aquatic vertebrates	v		
vegetation	v		

* see attached species lists

CODE .....

BIOLOGICAL CHARACTERISTICS

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
Aquatic Vertebrates				
Chlamydogobius eremius (Desert goby)				G 84
Flora				
Comments:				

SPRING GROUP..... COOTABARCOOLLIA SPRING ..... CODE P/CA .....

Slide Nos. 108-112

MAP REFERENCE: Sa 53-15 374-529 (1,2)

PASTORAL LEASE: Nilpinna

ACCESS:

References: LPP, GNB

DESCRIPTION:

Low mound surrounded by a wooden frame and surrounded by reeds. Water flows into a large man-made dam. SEA84

SURROUNDING ENVIRONMENT:

DISTURBANCE:

Very disturbed with a dam, old trough and pipe (rusted out) and wooden framework surrounding spring. SEA84

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)
001	1	4-6	1,000	32	3	8	2

SEA84

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		0	0	SEA84
aquatic vertebrates		1	1	SEA84
vegetation		12	0	SEA84

* see attached species lists

BIOLOGICAL CHARACTERISTICS

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
Aquatic Vertebrates				
Gambusia affinis (Mosquito fish)	✓			SEA84
Flora				
Cotula coronopifolia Cyperus gymnocaulos Cyperus laevigatus Halosarcia pergranulata Halosarcia indica ssp. leiostachya Bolboschoenus caldwellii Polypogon monspeliensis Typha sp. Ruppia maritima Trianthema triquetra Nitraria billardieri Enchylaena tomentosa Atriplex spongiosa				SEA84
Comments:				

SPRING GROUP .....COORANDATANA SPRING..... CODE .....P/CO.....

MAP REFERENCE: SH 53-3 364-505 (1)

PASTORAL LEASE: Nilpinna

ACCESS:

Cross country - north of track from Old Nilpinna to Mole Hill Ruins.

References
Wi79, LPP, GNB, Ha82

Wi79

DESCRIPTION:

SURROUNDING ENVIRONMENT:

On left bank of Nilpinna Creek - in floodout area underlain by Bulldog shale.

Wi79

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

Williams (1979) states Chugg (1953) gives spring flows

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP CARDAJALBURRANA SPRINGS (also called Mole Hill Springs) CODE P/CS

MAP REFERENCE: SH 53-3 352-5-5

References: Wi79,NM,LPP, GNB,Ca79,Ha82

PASTORAL LEASE: Nilpinna

ACCESS:

As for Willow Springs — Wi79

DESCRIPTION:

Large mound with pool at top surrounded by reeds. Two main outlets (one man-made) and several seeps. — Wi79 SEA 84

SURROUNDING ENVIRONMENT:

Low lying salt flats covered by samphire and overlying Cretaceous shale. — Wi79 SEA 84

DISTURBANCE:

Has pipe driven through side of mound to supply water to rusted-out trough. Numerous cattle tracks radiating to spring. Extensive bore areas adjacent to channel suggest former extensive pugging. — Wi79 SEA 84

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)	
001	30 - 50			25	4,800		1.05	Wi79
pipe					4,500		0.32	
							38	(1914) Wi79
					2.55ppt		1.52	DME (1953)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		0	0	SEA 84
aquatic vertebrates		0	0	G 70
vegetation		12	0	SEA 84

* see attached species lists

BIOLOGICAL CHARACTERISTICS

CODE P/CS.....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
Aquatic Vertebrates				
Flora				
Halosarcia indica ssp. leiostachya Cyperus gymnocaulos Cyperus laevigatus Phragmites australis Chara sp. Typha domingensis Bolboschoenus caldwellii Nitraria billardieri Trianthema triquetra Acacia salicina Frankenia sp. Halosarcia				SEA84
Comments:				

SPRING GROUP...COOTANOORINA SPRINGS (or Willow Springs) CODE ..P/CT.....

SLIDE NOS. 128 - 129

	References
MAP REFERENCE: SH 53-3 349-504 (1)	Wi79,NM,LPP,GNB Wi79,Ha82
PASTORAL LEASE: Nilpinna	
ACCESS:	
From Old Nilpinna, Weedina Waterhole, a track from NE which crosses Nilpinna Creek at its junction with Peake Creek. Spring/bore is just to east of Mole Hill ruins.	Wi79
DESCRIPTION:	
Mound overgrown with reeds and an athol pine. A damp area (20 m. diam.) surrounds the spring (001).	Wi79
SURROUNDING ENVIRONMENT:	
Low lying salt flats covered by samphire and overlying Cretaceous shale.	Wi79
DISTURBANCE:	
Has bore. Numerous cattle tracks from air to CT/002; 001 relatively free.	SEA84
SPECIAL FEATURES/REMARKS:	
Wi79 and Ha82 believe spring is located at "One Tree Bore". However, LPP and GNB believe that the spring of this name is located at 352-504.	

PHYSICAL CHARACTERISTICS

spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)
001				23	5,400		0.01

Wi79

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates		0	0
aquatic vertebrates	✓		
vegetation	✓		

Z 84

* see attached species lists

SPRING GROUP..... EDADURRANA SPRING ..... CODE P/ES

	References
MAP REFERENCE: SH 53-3 360-478 (1) PASTORAL LEASE: Nilpinna	Wi79, NM, LPP, GNB Ca79, Ha82
ACCESS: West of track to Weedina Springs from Warrangarrana Bore and Nilpinna Station.	Wi79
DESCRIPTION:	
SURROUNDING ENVIRONMENT: Same as Weedina Springs.	Wi79
DISTURBANCE:	
SPECIAL FEATURES/REMARKS:	

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates		0	0
aquatic vertebrates	✓		
vegetation	✓		

Z 84

* see attached species lists

SPRING GROUP..... GOORGYANA SPRING ..... CODE ...P/GS.....

MAP REFERENCE: SH 53-3 359-498 (1,2)

PASTORAL LEASE:

ACCESS:

References

LPP, GNB

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	✓		
aquatic vertebrates	✓		
vegetation	✓		

* see attached species lists

SPRING GROUP....KECKWICK SPRING..... CODE ..P/KS.....

MAP REFERENCE: SH 53-3 366-517 (1,2)

PASTORAL LEASE:

ACCESS:

References

LPP, GNB

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	✓		
aquatic vertebrates	✓		
vegetation	✓		

* see attached species lists

SPRING GROUP..... NILPINNA SPRINGS ..... CODE P/NS

SLIDE NOS. 101 - 104

	References
MAP REFERENCE: SH 53-3 367-502	Wi79,NM,GNB, LPP,Ca79,Ha82
PASTORAL LEASE: Nilpinna	
ACCESS:	
Via track from Old Nilpinna Ruins to Mole Hill ruins.	Wi79

DESCRIPTION: SEA84

Three seeps on the side of a gentle slope. One has large pool near the outlet and flowing stream. Whole area is overgrown by tall bamboos and reeds. Wetland is very extensive. Several date palms near ruins.

SURROUNDING ENVIRONMENT:

Low angle gibber flats and rises with sandhills in the near vicinity.

DISTURBANCE: SEA84

None apparent now but doubtless springs were important for stock watering when station was occupied. (?Probably remains of old watering troughs.)

SPECIAL FEATURES/REMARKS:

Ruins of Old Nilpinna Station.

PHYSICAL CHARACTERISTICS

spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)	
001			1,500	26.5	2	7.2	?	SEA84
							6.4	(1953) Wi79
					2.03		6.33	DME (1953)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		1	0	SEA84
aquatic vertebrates		3	1	G 84
vegetation		12	0	SEA84

* see attached species lists

BIOLOGICAL CHARACTERISTICS

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
Limnea lessoni (large snail)				SEA84
Aquatic Vertebrates				
Neosilurus sp. (Dalhousie catfish) Craterocephalus eyresii (Lake Eyre hardyhead) Chlamydogobius eremius (Desert goby)	✓	✓	✓	G 84
Flora				
Cotula coronopifolia Cyperus gymnocaulos Cyperus laevigatus Halosarcia halocnemoides Halosarcia indica ssp. leiostachya Phragmites australis Typha sp. * Bamboo *Phoenix daclylifera Sporobolus sp. Nitraria billardieri Enchylaena tomentosa Portulaca intraterranea				SEA84

Comments:

* Exotics.

SPRING GROUP..... OODLOODLANA SPRING ..... CODE P/OD .....

MAP REFERENCE: SH 53-3 378-517 (1,2)

PASTORAL LEASE:

ACCESS:

References

LPP, GNB

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

Ponder reports this spring to be dry.

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	✓		
aquatic vertebrates	✓		
vegetation	✓		

* see attached species lists

SPRING GROUP..... OORTOOKLANA SPRING ..... CODE P/OR

SLIDE NO. 106

	References
MAP REFERENCE: SH 53-3 377-516 (1,2) PASTORAL LEASE: ACCESS:	LPP, GNB

DESCRIPTION: (from air)
Large pool surrounded by reeds. New fence allows cattle access to pool. Spring source (judged by height of reeds) next to windmill and tank. — SEA84

SURROUNDING ENVIRONMENT:

DISTURBANCE:
Cattle tracks and grazing (no reeds) on accessible side of pool. — SEA84

SPECIAL FEATURES/REMARKS:
Windmill and tank may suggest bore into source of spring.

Ponder reports this spring to be dry. — P 84

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	✓		
aquatic vertebrates	✓		
vegetation	✓		

* see attached species lists

SPRING GROUP..... PEAKE CREEK SPRING (includes Allandale Spring) CODE ..... P/PS

SLIDE NO. 107

MAP REFERENCE: SH 53-3 370-524 (1)

PASTORAL LEASE: Allandale

ACCESS:

?

References: Wi79, NM, LPP, GNB, Ha82

DESCRIPTION: (from air)

Mound with reeds on top, no free water visible, no structures or cattle pads evident. — SEA84

SURROUNDING ENVIRONMENT:
On floodplain of Peake Creek. — Wi79

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)
					2.83		1.26

DME (1953)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates		4	4
aquatic vertebrates	X		
vegetation	X		

Z 84

* see attached species lists

BIOLOGICAL CHARACTERISTICS

CODE P/PS .....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
AMPHIPODA Gammaridae sp.		x		Z 84
ISOPODA Phreatomerus latipes		x		
GASTROPODA Hydrobiidae		x		
OSTRACODA Nagarawa dirga		x		
Aquatic Vertebrates				
Flora				
Comments:				

SPRING GROUP..... SALINE SPRING ..... CODE ..P/SS.....

SLIDE NO. 134

MAP REFERENCE: SH 53-3 358-491 (1)

PASTORAL LEASE:

ACCESS:

References

Ha82, NM

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		0	0	Z 84
aquatic vertebrates		3	1	G 84
vegetation	✓			

* see attached species lists

CODE .....

BIOLOGICAL CHARACTERISTICS

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
None found				Z 84
Aquatic Vertebrates				
Craterocephalus eyresii (Lake Eyre hardyhead) Lepiopotherapon unicolor (Spangled perch) Chlamydogobius eremius (Desert goby)	✓			G 84
Flora				
Comments:				

SPRING GROUP ..... SOUTH WELL SPRING ..... CODE ..... P/SW .....

SLIDE NO. 135

MAP REFERENCE: SH 53-3 350-493

PASTORAL LEASE: Nilpinna

ACCESS:

Via track from Weedina Waterhole, or seismic line from Mole Hill Ruins, Willow Springs and Old Nilpinna. — Wi79

References: Wi79,NM,LPP,GNB Ca79,Ha82

DESCRIPTION:

Spring in centre of swamp. Possible source is small mound (30 cm. high). — Wi79

SURROUNDING ENVIRONMENT:

In low level area with sand to east and low angle gibber slope to the west. — Wi79

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)
	0.3			25	5,000 3.13ppt 2.05ppt		0.4

Wi79
DME (1953)
DME (1980)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	X		
aquatic vertebrates	X		
vegetation	X		

* see attached species lists

SPRING GROUP..... TIDNAMURKUNA SPRING ..... CODE ...P/TS.....

MAP REFERENCE: SH 53-3 380-523 (1,2)

PASTORAL LEASE:

ACCESS:

References

LPP, GNB

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates		0	0
aquatic vertebrates	X		
vegetation	X		

P 84

* see attached species lists

SPRING GROUP..... WARRANGARRANA SPRING ..... CODE ..... P/WA .....

SLIDE NOS. 136 - 137

MAP REFERENCE: SH 53-3 363-475

PASTORAL LEASE: Nilpinna

ACCESS:

References: NM, LPP, GNB, Ha82 Ca79

DESCRIPTION:

Large swampy area with no obvious source. Several large shallow pools. Extensive salt deposits nearby. — SEA84

SURROUNDING ENVIRONMENT:

Located between red sand dunes.

DISTURBANCE:

Old stockyards (now broken down). A pipe from a metal tank in the middle of the swamp to a rusted out trough. No sign of disturbance by cattle. — SEA84

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)	
001	-	-	6,000	25	2.6 5.0	7.2 7.3	>1	SEA84 DME (1914)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		0	0	SEA84
aquatic vertebrates		1	0	"
vegetation		3	0	"

* see attached species lists

BIOLOGICAL CHARACTERISTICS

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
Aquatic Vertebrates				
C. eremius (Desert goby)				SEA 84
Flora				
Cyperus laevigatus Potamogeton pectinatus Bolboschoenus caldwellii Frankenia sp.				SEA84
Comments:				

SPRING GROUP..... WEEDINA SPRINGS ..... CODE P/WE

SLIDE NO. 134?

	References
MAP REFERENCE: SH 53-3 361-480 (1) PASTORAL LEASE: Nilpinna ACCESS: On track that continues from Warrangarrana Bore and Spring.	Wi79, LPP, GNB, Ca79, Ha82 Wi79

DESCRIPTION:

Four springs consisting either of small pools or swampy patches. — Wi79

SURROUNDING ENVIRONMENT:

Low lying saline flats surrounded by sand dunes. Underlain by Bulldog Shale and Cadnaowie Sandstone. — Wi79

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)	
001				23	6,300		0.003	Wi79
002				-	8,500		0.003	
003				16	5,300		0.002	
004				21	6,000		0.002	
					3.79ppt			DME (1914)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		1	1	Z 84, P 84
aquatic vertebrates	✓			
vegetation	✓			

* see attached species lists

BIOLOGICAL CHARACTERISTICS

CODE P/WE .....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
OSTRACODA Nagarawa dirga		X		Z 84
Aquatic Vertebrates				
Flora				
Cyperus gymnocaulas Sporobolus virginicus Cyperus laevigatus Nitraria billardiri Halosarcia 1 Halosarcia 2 Atriplex nummularia Frankenia sp. Scirpus maritimus				
Comments: No hydrobiids				P 84

SPRING GROUP..... WINTRO WARDUNA SPRING ..... CODE ..P/WS.....

MAP REFERENCE: SH 53-3 377-523 (1,2)

PASTORAL LEASE:

ACCESS:

References

LPP, GNB

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	✓		
aquatic vertebrates	✓		
vegetation	✓		

* see attached species lists

SPRING GROUP..... UNNAMED SPRING ..... CODE P/001

MAP REFERENCE: SH 53-3 361-522

PASTORAL LEASE:

ACCESS:

References

NM

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	✓		
aquatic vertebrates	✓		
vegetation	✓		

* see attached species lists

SPRING GROUP..... UNNAMED SPRING ..... CODE ..... P/002 .....

MAP REFERENCE: SH 53-3 338-509

PASTORAL LEASE:

ACCESS:

References

NM

DESCRIPTION:

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	✓		
aquatic vertebrates	✓		
vegetation	✓		

* see attached species lists

SPRING GROUP..... UNNAMED ..... CODE P/003.....

	References
MAP REFERENCE: SH 53-3 360-481 PASTORAL LEASE: Nilpinna ACCESS: As for Weedina Springs, then 3 - 3.5 km NW cross country. Reasonable access.	Wi79
DESCRIPTION: A linear seepage about 250 m x 2-3 m. A number of interconnected pools (5-8 m long x 0.5 m deep).	Wi79
SURROUNDING ENVIRONMENT: Low sand spread and dunes with sandstone outcropping in drainage lines.	Wi79
DISTURBANCE:	
SPECIAL FEATURES/REMARKS: May not be artesian spring.	Wi79

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)
				2.3	30,000 28,000 19,000		0.1

Wi79

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	✓		
aquatic vertebrates		3	?
vegetation	✓		

Wi79 (unidentified)

* see attached species lists

STRANGWAYS SPRING COMPLEX (S)

SPRING GROUP ..... TELEGRAPH RESERVE (also called Strangways Springs)

CODE ..... S/TR

MAP REFERENCE: SH 53-8 458-387

PASTORAL LEASE: Anna Creek

ACCESS:

Adjacent to main Oodnadatta-Marree Road

References

Co75,LPP,RMS, Ca79,Ha82,Wi79

Co75,Wi82

DESCRIPTION:

Large group of nearly extinct springs. Many springs are extinct, others are seeps or have small flows. Some small pools are present but no extensive overflow tails are evident.

Co75,Wi79, Sy84a

SURROUNDING ENVIRONMENT:

Springs in slight depression surrounded by sand on its north, west and east and by undulating gibber overlying Bulldog Shale on its south side.

DISTURBANCE:

One pool has remains of old stockyard around rim.

Wi79

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)	
?					6.5ppt	7.5	0.07	DME (1977)
?					7.5ppt	7.4	0.03	
001				27	7,800	8.1	1	Co75
002				-	12,5000		0.07	Wi79
003				-	15,500		0.03	Wi79

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		4	4	Mi84 P84
aquatic vertebrates		1	0	G84
vegetation		14	1	Sy84a

* see attached species lists

BIOLOGICAL CHARACTERISTICS

CODE S/TR .....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
OSTRACODA Nagarawa dirga		x		Mi84, De79 Z 84
ISOPODA Phreatomerus latipes		x		Z 84, Mi84
GASTROPODA Hydrobiidae (3 sp.: T1, F2a, F5)		x		P 84
AMPHIPODA Gammaridae sp.		x		Z 84
Aquatic Vertebrates				
Craterocephalus eyresii (Lake Eyre hardyhead)				G 84
Flora				
Phragmites australis Sporobolus virginicus Gahnia trifida Samolus repens Halosarcia indica ssp. leiostachya Halosarcia pergranulata Halosarcia halocnemoides Schoenoplectus litoralis Juncus krausii Cyperus laevigatus Atriplex nummulari Spergularia rubra Enchylaena tomentosa Frankenia foliosa Sclerostegia disarticulata Zygophyllum sp. Maireana sp. Eragrostis sp. Acacia ligulata Aizoon sp.	x			Sy84a DEP78

Comments:

MT TOONDINA SPRING COMPLEX (T)

SPRING GROUP..... TOONDINA SPRINGS ..... CODE ....T/TS.....

	References
MAP REFERENCE: SG 53-15 330-534 PASTORAL LEASE: Allandale	Wi79,NM,LPP,GNB Ca79,Ha82
ACCESS: Main track to Mt. Toondina from Oodnadatta-Marree road south of Algebuckina. Access is difficult.	Wi79
DESCRIPTION: A single small seep on the edge of a very large, low mound. Discharge is negligible.	SEA84
SURROUNDING ENVIRONMENT: Mt. Toondina is a piecement structure with Algebuckina Sandstone and Cadnaowie Formation sediments lapping into Permian Mt. Toondina Beds.	Wi79
DISTURBANCE:	
SPECIAL FEATURES/REMARKS:	

PHYSICAL CHARACTERISTICS

spring code	mound height (m)	mound width (m)	wetland area (m^2)	water temp (°C)	salinity (ppt/cond)	pH	flow (l/sec)	
001		21		22	18	7.2	<0.01	SEA84

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		0		Z 84,SEA84
aquatic vertebrates		1		G 84
vegetation		5	0	SEA84

* see attached species lists

BIOLOGICAL CHARACTERISTICS

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
None found.				Z 84 SEA 84
Aquatic Vertebrates				
Chlamydogobius eremius (Desert goby)				G 84
Flora				
Halosarcia indica ssp. leiostachya Halosarcia sp. Typha sp. Frankenia cinerea Babbagia sp. Acacia salicina Acacia victoriae Atriplex sp.				SEA84
Comments:				

WANGIANA SPRING COMPLEX (W)

SPRING GROUP DAVENPORT SPRINGS CODE W/DS

MAP REFERENCE: SH 53-3 568-325

PASTORAL LEASE: Finniss Springs

ACCESS:
By track leaving Marree-Oodnadatta road on bend immediately after crossing railway line on entering Alberrie Creek from the east.

References
Co75,NM,LPP, RMS,Ca79,Ha82

DESCRIPTION:
Numerous seeps in bed of Davenport Creek. Several low mounds with reeds and fish. DEP78, Co75

SURROUNDING ENVIRONMENT:
In low lying creek channels (3-10 m below surrounding countryside). Spring area is 200-300 m long with dominantly rock pavement.

DISTURBANCE:
Springs are heavily trampled by cattle.
Old stone well and bore pipe at one outlet with small seep from side and pool bulldozed below. DEP78

SPECIAL FEATURES/REMARKS:

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)	
001				19.5	5,600		1	Co75
002				21	5,800		0.5	"
					2.75ppt			DME (1978)
					4.29ppt	9.1	4.99	DME (1974)
							0.58	RMS 82

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		4	4	Z 84
aquatic vertebrates		1	0	G 84
vegetation		1	0	DEP78

* see attached species lists

BIOLOGICAL CHARACTERISTICS

CODE W/DS .....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
AMPHIPODA				Z 84 P 84
Gammaridae sp.		x		
ISOPODA				
Phreatomerus latipes		x		Z 84 P 84
GASTROPODA				
Hydrobiidae* (3 species: T1, Fla, F4)	x	x		Z 84 P 84
OSTRACODA				
Nagarawa dirga		x		Z 84 P 84
Aquatic Vertebrates				
Chlamydogobius eremius (Desert goby)				G 84
Flora				
Cyperus laevigatus Sporobolus virginicus Halosarcia 2 Frankenia sp				DEP78

Comments:

* Hydrobiid subspecies Fla is found only in this spring and Welcome Spring.

SPRING GROUP .....THEEPA SPRINGS..... CODE .....W/TS.....

MAP REFERENCE: SH 53-8 560-326

PASTORAL LEASE:

ACCESS:

References
NM, LPP, RMS, Ca79
Ha82

DESCRIPTION:
No flow in 1981

RMS82

SURROUNDING ENVIRONMENT:

DISTURBANCE:

SPECIAL FEATURES/REMARKS:
Called Theepa by RMS, otherwise unnamed.

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates	x		
aquatic vertebrates	x		
vegetation	x		

* see attached species lists

SPRING GROUP ...WANGIANNA SPRINGS..... CODE .....W/WA.....

MAP REFERENCE: SH 53-8 581-323

PASTORAL LEASE: Callana

ACCESS:

By track leaving Marree-Oodnadatta road 0.8 km west of cattle grid out of Rennyberry Creek. Marked by Commonwealth Railways market post 465. — Co75

References: Co75,NM,LPP, RMS,Ca79,Ha82

DESCRIPTION:

Springs are extensively modified (see below). — Co75

No flows from spring in 1981 - ascribed to presence of adjacent bore — RMS 82

SURROUNDING ENVIRONMENT:

DISTURBANCE:

Has wood-lined well with galvanised iron fence surrounding well. Windmill pumps water to stone tank and trough. There is an excavation containing putrid water (near the stone tank). — Co75

SPECIAL FEATURES/REMARKS:

Water appears stagnant — Z 84

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)
				14.5	11,000 8.50 ppt		0 (natural) 98.6 (Windmill)

Co75

DME (1978)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*
aquatic invertebrates		0	0
aquatic vertebrates	x		
vegetation		5	

Z 84

RMS 84

* see attached species lists

BIOLOGICAL CHARACTERISTICS

CODE W/WA

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
Aquatic Vertebrates				
Flora				
Vegetation Halosarcia 1 Halosarcia 2 Atriplex nummularia				
Comments:				

SPRING GROUP ..... WELCOME SPRINGS ..... CODE ..... W/WS .....

MAP REFERENCE: SH 53-8 594-324

PASTORAL LEASE: Callana

References: Co75,NM,LPP,RMS Ca79,Ha82

ACCESS:
By track leaving Marree-Oodnadatta road at approximate co-ords 589327, immediately prior to crossing Kenneberry Creek. Reasonable access. — Co75

DESCRIPTION:
Main outlet is a continuously bubbling spring within a stone-walled structure. Nearby is a reedy mound with small seeps. 50-100 m away there are two large mounds (2 m x 50 m and 0.5 m x 50 m) with numerous radial springs with reeds and casuarinas. — Co75

SURROUNDING ENVIRONMENT:
Springs in flat-bottomed valley 250 m wide, 5 - 10 m deep (bed of Kenneberry Creek).

DISTURBANCE:
One spring is surrounded by a square stone-walled structure (not fenced, has pool and soak). Another has a pipe running to a trough. — Co75

SPECIAL FEATURES/REMARKS:
Trough full of grey-brown crustacea (1-2 m) and brown segmented worms. — Co75
Two main springs are fenced. — DEP78

PHYSICAL CHARACTERISTICS

Spring code	mound height(m)	mound width(m)	wetland area(m^2)	water temp(°C)	salinity (ppt/cond)	pH	flow (l/sec)	
							1.5	RMS 82
001	-	-		24.5	3,500	8.1	1	Co75
002	3-4	70-80		23	6,500	7.7	0.25	"
003	1	20-40		22	6,500	8.3	0.5	"
					3.35ppt			DME (1978)
					4.50ppt		0.25	DME (1974)
					5.00ppt		0.50	DME (1974)
					2.28ppt			DME (1974)

BIOLOGICAL CHARACTERISTICS

	no information	number of sp./sp. groups*	number of rare or unusual sp./sp. groups*	
aquatic invertebrates		4	4	Z 84
aquatic vertebrates	X			
vegetation		1	0	DEP78

* see attached species lists

BIOLOGICAL CHARACTERISTICS

CODE W/WS.....

Aquatic Invertebrates	rare amongst springs	endemic to springs	generally rare	references
AMPHIPODA		x		Z 84
Gammaridae sp.				
ISOPODA				
Phreatomerus latipes		x		
GASTROPODA				
Hydrobiidae* (3 species: F1a, F4, F5)	x	x	x	
OSTRACODA				
Nagarawa dirga		x		
Aquatic Vertebrates				
Flora				
Cyperus laevigatus				DEP78

Comments:

* One of these hydrobiids, subspecies F1a, is found only in this spring and Davenport Spring. P 84