

V Discussion

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The Youanmi-Leonora Study Area is situated north of the mulga-eucalypt line as defined by Beard (1980). Consequently, the majority of plant species are those with a broad distribution in the Eremaean Botanical Province. A southwestern influence is evident in some areas of Broad Valley where the overstorey of *Callitris columellaris* sometimes attained a height of 7 metres.

The Youanmi-Leonora Study Area has examples of all 10 Landform Units present in the Eastern Goldfields. The most extensive unit is Broad Valley and is usually dominated by various Mulga (*Acacia aneura*) associations with an ephemeral Asteraceae assemblage after good rains. In areas receiving run-on from heavy rains the Mulga was noteworthy for its height and density and also for the presence of many more shrubby understory species. Spinifex (*Triodia basedowii*) occurred on more sandy soils of Broad Valleys. There are some important outliers of arid Sandplain containing *Eucalyptus gongylocarpa*/*Triodia* woodlands in the Study Area.

Grazing has had a major impact throughout much of the Study Area and has had severe effects on the vegetation (Brockway 1959). In general the lower shrub strata have been reduced or eliminated and soil compaction and rapid run-off are obvious.

The herpetofauna of the Study Area is moderately rich with 3 species of amphibian and 43 species of reptiles. Gecko and skink lizards dominate the herpetofaunal with a total of 24 species. A small area of Sandplain had the richest herpetofaunal assemblage with 17 species. All species were within their previously known range and no undescribed species were collected.

The 78 species of bird recorded is comparable to the number in other Mulga-dominated Study Areas in the Eastern Goldfields. Although the number of non-passerine species was only about half the passerine species, the non-passerines dominated the area numerically. This was in marked contrast to other Study Areas of the Eastern Goldfields. The high number of non-passerine granivores compared to elsewhere in the Eastern Goldfields is supported by the presence of stock drinking troughs and the long-term persistence of seed after heavy rains.

The most notable feature of the mammal fauna was the six species of small dasyurids with four species in the genus *Sminthopsis*. This diversity in one genus was not reflected elsewhere in the Eastern Goldfields. The low abundance of all species of mammals was a consequence of the series of years with below average rainfall prior to and during the study.

The Study Area has no conservation reserves. Most of the area is pastoral lease except for some unreserved Crown Land in the southwest of the Study Area. Although the south west is dominated by a single Landform Unit (Sandplain) a reserve here would include a number of vegetation types. In conjunction with adjacent Landform Units this would provide a conservation reserve of substantial size.

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Appendix I

Description of Vegetation Sites

Listed below are descriptions of vegetation sites including data on geology, land-forms and soils. If the vegetation structure and species composition were highly variable, the vegetation is referred to as a complex and named according to the characteristic bedrock or physical feature, e.g. Granite or Dune Complex. The sites are ordered firstly by landform unit, within each unit from the tallest to the lowest formation. *Indicates introduced species.

Vegetation types are separated by structure and life form into broad classes : low woodlands (<15 m), tall shrublands (>1 m), and low shrublands (<1 m). MUIR = Muir (1977) notation. "Misc" (miscellaneous) plants includes annuals, climbers, ferns, perennial grasses and sedge-like plants. Figures in brackets following plant names are percent canopy cover (CC). Taxa with less than 0.5% CC are indicated by (+). "AVM" and "JD" numbers are A.V. Milewski and J. Dell collecting numbers for voucher specimens deposited at the Western Australian Herbarium. The period since the last fire ("last burnt") was estimated from observations in nearby areas where the year of the last fire was known or inferred.

"Bedrock" refers to major rock type. "Geological surfaces" are those shown on 1 : 250,000 geological maps. "Unit" refers to one of 10 landform units devised by Newbey and Milewski to describe the landscapes of the Eastern Goldfields District.

The cover of rock, stone and pavement was visually estimated. For explanation of litter see Muir (1977).

To sample the soil profile, a hole, 62 mm in diameter, was augered to a depth of 1 m where possible. Soil colour was determined in a dry condition from Munsell (1954). Munsell colour names are used whenever possible. Soil "Group" refers to Newbey & Hnatiuk (1984). Comments on soil profiles more than 1 metre thick are based on observations nearby where similar profiles were exposed, e.g. trenches for mineral exploration.

BREAKAWAY (B)

TALL SHRUBLAND

YL1 *Acacia aneura* Tall Shrubland

LOCATION: 10 km SW of Sandstone along road to Youanmi, in 28°03'S lat., 119°16'E long.

FAUNA SAMPLED: No

DATE: December 1980

VEGETATION

MUIR: Si.SA/Br.SDr.Jr.

Stratum 1: Shrubs 2.5-4 m, CC = 12, clumping slight *Acacia aneura* (10).

Stratum 2: Shrubs 1-2 m, CC = 3, clumping slight ?*Calytrix* sp. (2), *Acacia ramulosa* (1), *Eremophila latrobei* (+), *Grevillea* sp. (+)

Stratum 3: Shrubs 0.5-0.9 m, CC = 2, clumping slight *Eremophila ?leucophylla* (+), *Dodonaea ?microzyga* (+), *Prostanthera ?wilkieana* (+).

Stratum 4: Shrubs 0.2-0.4 m, CC = 2, clumping slight *Solanum lasiophyllum* (+), *Ptilotus drummondii* (+), *Eriachne ?mucronata* (+), *Monachather paradoxa* (+).

Stratum 5: Misc. plants 0.0-0.2 m, CC = 5, clumping moderate *Goodenia ?hispida* (1), *Calocephalus ?multiflorus* (+), *Brunonia australis* (+), *Waitzia acuminata* (+), *Helipterum verecundum* (+), *Podolepis canescens* (+), *Calandrinia lehmannii* (+), *Aristida contorta* (+), *Symphyobasis macroplectra* (+), *Myriocephalus gueriniae* (+), *Haloragis ?trigonocarpa* (+), *Helipterum laeve* (+).

No. of TAXA: 24 + 15 not listed

LAST BURNT: not flammable

LANDFORM

BEDROCK: Metabasalt

ORIGIN: in-situ weathering

PROFILE THICKNESS: 0-10 cm

DRAINAGE: excessive

PROFILE ATTRIBUTE: skeletal, stony

ROCK: ? 1%

PAVEMENT: ? 40% STONE: ?10% SURFACE: flat on top of breakaway

SOIL PROFILE (augered to 10 cm)

A 0-10 cm 5 YR 4/4 reddish brown gravelly Loam.

B Laterite

C Greenstone

COMMENTS

Ephemerals observed when old and dead therefore some species may have been missed.

DRAINAGE LINE (C)

TALL SHRUBLAND

YL2 *Acacia aneura* Tall Shrubland

LOCATION: Davy Bore, 8 km SW of Sandstone on road towards Youanmi, in 28°03'S lat., 119°16'E long.

FAUNA SAMPLED: No

DATE:

VEGETATION

MUIR: Si.Jd.

Stratum 1: Shrubs 4-6 m, CC = 10, clumping slight *Acacia aneura* (10).

Stratum 2: Shrubs 2-3 m, CC = 2, clumping moderate *Acacia tetragonophylla* (1), *Acacia craspedocarpa* (+).

Stratum 3: Shrubs 0.8-1.7 m, CC = 1 clumping moderate *Eremophila latrobei* (+), *Spartothamnella teucriflora* (+), *Rhagodia ?eremaea* (+).

Stratum 4: Shrubs 0.2-0.6 m, cc = 1, clumping slight *Ptilotus obovatus* (+), *Ptilotus exaltatus* (+), *Solanum lasiophyllum* (+), *Convolvulus erubescens* (+).

Stratum 5: Misc. plants 0-0.2 m, CC = 7, clumping slight *Helipterum charsleyae* (5), *Cephalopterum drummondii* (+), *Goodenia* sp. (+), *Lepidium* sp. (+), *Sinapis avensis* (+), *Atriplex ?inflata* (+), *Plantago drummondii* (+), *Angianthus burkittii* (+), *Actinobole uliginosum* (+), *Calandrinia lehmannii* (+), *Stenopetalum* sp. (+), *Helipterum maryonii* (+), *Goodenia ?prostrata* (+), *Eriachne* sp. (+), *Rumex vesicarius* (+).

No. of TAXA: 25

BEDROCK: Greenstone

ORIGIN: alluvial

ROCK: nil

DRAINAGE: good (run-on zone)

STONE: 0-20%, subrounded fragments
2-5 cm

PAVEMENT: 10-70%, patchy,
fragments 2-20 mm

SURFACE: loose. Surface subjected to periodic washaways.

NOTE: the site forms part of a broad diffuse creekline.

SOIL: 5YR 3/6 dark reddish brown loam.

COMMENTS

Topsoil is slightly gravelly, and furrowed at intervals of 10-20 m by sheet flows of water. Mulga is tree-height but has a shrub form, possibly owing to cutting in the past. Ephemerals dense and tall but mainly on the "ribs" of soil where not washed away (furrows tend to be bare). Composition of ephemerals is distinctive.

DUNEFIELD

LOW WOODLAND

YL3 *Eucalyptus gongylocarpa* Low Woodland

LOCATION: 2.9 km E of Eighteen Mile Bore on Yuinmery Station (28°31'45"S lat., 119°15'30"E long.)

FAUNA SAMPLED: Yes

DATE: September 1986

VEGETATION

MUIR: LAr.Sr.SA/SBr.Hr.

Stratum 1: Trees 8-10 m, CC = 6, *Eucalyptus gongylocarpa* (6).

Stratum 2: Shrubs 4-6 m, CC = 3, *Acacia aneura* (+), *A. tetragonophylla* (+), *A. ligulata* (+), *Pittosporum phylliraeoides* (+), *Santalum acuminatum* (+), *Eucalyptus kingsmillii* (+), *E. oldfieldii* (+), *Grevillea berryana* (+), *Amyema miquelii* (+), parasite on *E. kingsmillii*.

Stratum 3: Shrubs 1-2 m, CC = 5, *Cassia nemophila* (2.5), *Eremophila spectabilis* (+), *E. leucophylla* (+), *E. leucophylla* 'X' (+), *Eremophila* sp. JD150 (+), *Acacia*



Plate 1: Vegetation type YL3. *Eucalyptus gongylocarpa* Low Woodland on Dunefield, 2.9 km E of Eighteen Mile Bore on Yuinmery Station. September 1986.

?coolgardiensis JD158 (+), *Bossiaea leptacantha* (+), *Olearia* sp. JD160 (+), *Santalum acuminatum* (+), *Keraudrenia integrifolia* (+), *Scaevola spinescens* (+), *Thryptomene* sp. (+).

Stratum 4: Hummock grass and mixed shrubs <0.5 m, CC = 10, *Triodia basedowii* (10), *Solanum lasiophyllum* (+), *Maireana pyramidata* (+), *Pimelea* sp. (+), *Dianella revoluta* (+).

Stratum 5: Annuals and mixed shrubs <0.2 m, CC = 1, *Helichrysum davenportii* (+), *Stenopetalum filifolium* (+), *Calandrinia polyandra* (+), *Erodium cygnorum* subsp. *cygnorum* (+), *Aristida contorta* (+), *Waitzia acuminata* (+), *Isoetopsis graminifolia* (+), *Zygophyllum billardierei* (+), *Eragrostis lanipes* (+), *Maireana planifolia* x *villosa* (+), *Brachycome ciliaris* (+), *Calotis hispidula* (+).

No. of TAXA: 35

LAST BURNT: >25 years

MODIFICATION: Moderate grazing

LANDFORM

BEDROCK: Unknown

UNIT: Dunefield

SOIL

GROUP: Deep Sands

MAIN ORIGIN: Aeolian

PROFILE ATTRIBUTE: Siliceous

ROCK: Nil

PAVEMENT: Nil

SOIL PROFILE

A 0-80 cm Loamy sand 5YR 4/6 Yellowish Red

COMMENTS

PROFILE THICKNESS: Unknown, >5 m

REMARKS: In October 1981 the following additional 25 species were recorded by A.V. Milewski *Rhagodia eremaea*, *Scaevola spinescens*, *Scaevola* sp., *Prostanthera* sp., *Duboisia hopwoodii*, *Thryptomene* sp., *Ptilotus obovatus*, *P. polystachyus*, *Pimelea* sp., *Podolepis capillaris*, *Lachnostachys* sp., *Spartothamenella teucriflora*, *Waitzia citrina*, *Calocephalus* sp., *Menkea australis*, *Podotheca gnaphalioides*, *Senecio glossanthus*, *Crassula colorata*, *Podolepis canescens*, *Helipterum maryonii*, *H. manglesii*, *Angianthus strictus*, *Stenopetalum* sp., *Bursaria spinosa*, and *Stipa elegantissima*.

GRANITE EXPOSURES (G)

TALL SHRUBLAND

YL4 *Acacia quadrimarginea* Tall Shrubland

LOCATION: 77 km SW of Sandstone, 2 km WSW of Yuinmery Station Homestead, in 28°34'S lat., 119°00'E long.

FAUNA SAMPLED: No

DATE: December 1980

VEGETATION

MUIR: Sr.SCr.Jc.

Stratum 1: Shrubs 4-5 m, CC = <1, clumping absent *Acacia aneura* (+).

Stratum 2: Shrubs 2-4 m, CC = 6, clumping slight *Acacia quadrimarginea* (5), *Acacia craspedocarpa* (+), *Acacia tetragonophylla* (+), *Acacia ramulosa* (+).

Stratum 3: Shrubs 0.7-1.8 m, CC = <1 clumping slight *Eremophila ?platycalyx* (+), *Exocarpos aphyllus* (+), *Sida ?calyxhymentia* (+).

Stratum 4: Shrubs 0.2-0.6 m, CC = 2, clumping slight *Eremophila ?leucophylla* (1), *Eremophila ?granitica* (+), *Ptilotus obovatus* (+), *Solanum lasiophyllum* (+),

Ptilotus drummondii (+), *Rhagodia ?eremaea* (+), *Stipa ?trichophylla* (+),
Helipterum ?pterochaetum (+).

Stratum 5: Misc. plants 0-0.2 m, CC = 35, clumping moderate *Velleia rosea* (+), *Aristida contorta* (+), *Calandrinia ?eremaea* (+), *Crassula colorata* (+), *Ptilotus gaudichaudii* (+), *Helipterum maryonii* (+), *Actinobole uliginosum* (+), *Stenopetalum ?anfractum* (+), *Chrysocoryne pusilla* (+), *Angianthus strictus* (+), *Helipterum laeve* (+), *Drosera macrantha* (+), *Podolepis ?lessonii* (+), *Helipterum craspedioides* (+), *Lepidium* sp. (+), *Gnephosis ?leptoclada* (+), *Isoetopsis graminifolia* (+), *Goodenia ?havilandii* (+), *Plantago drummondii* (+).

No. of TAXA: (17 + 28) 45

LAST BURNT: probably not flammable

BEDROCK: granite

ORIGIN: *in-situ* weathering

PROFILE THICKNESS: 0-10 cm

DRAINAGE: excessive

PROFILE ATTRIBUTE: skeletal, acid, siliceous

SOIL

ROCK: *ca.* 5%

STONE: *ca.* 20% PAVEMENT: *ca.* 20%

SURFACE: stony with a gentle slope; site occupies crest and slopes of very low outcrop

SOIL PROFILE (augered to 10 cm)

A 0-10 cm 5 YR 3/6 dark reddish brown Loam

B weathered bedrock granite

HILLS (H)

TALL SHRUBLAND

YL5 *Acacia aneura* Tall Shrubland

LOCATION: 2 km WSW of Richard Bore, at 28°29'S lat., 119°16'E long.

FAUNA SAMPLED: No

DATE: December 1980

VEGETATION

MUIR: Sr.SB/Cr.SDr.Ji.

Stratum 1: Shrubs 3-5 m, CC = 3, clumping slight *Acacia aneura* (narrow-phyllode form) (2), *Acacia quadrimarginea* (+).

Stratum 2: Shrubs 1.8-2.5 m, CC = 1, clumping moderate *Acacia tetragonophylla* (+), *Hakea ?leucoptera* (+), *Hakea ?arida* (+), *Acacia ramulosa* (+).

Stratum 3: Shrubs 0.8-1.5 m, CC = 2, clumping moderate *Scaevola spinescens* (1), *Rhagodia ?eremaea* (+), *Sida ?calyxhymenia* (+), *Eremophila latrobei* (+), *Cassia* sp. (+), *Spartothamnella teucriflora* (+), *Enchylaena tomentosa* (+).

Stratum 4: Shrubs 0.2-0.6 m, CC = 2, clumping moderate *Podolepis capillaris* (+), *Stipa ?trichophylla* (+), *Ptilotus drummondii* (+), *Frankenia* sp. (+), *Solanum nummularium* (+), *Ptilotus obovatus* (+).

Stratum 5: Misc. plants 0-0.2 m, CC = 20, clumping moderate *Maireana carnos* (1), *Helipterum tenellum* (1), *Gnephosis ?brevifolia* (+), *Calocephalus ?multiflorus* (+), *Helipterum ?venustum* (+), *Crassula colorata* (+), *Velleia rosea* (+), *Chthonocephalus pseudevax* (+), *Chrysocoryne pusilla* (+), *Goodenia ?havilandii* (+), *Angianthus burkittii* (+), *Angianthus strictus* (+), *Calotis hispidula* (+), *Podolepis lessonii* (+), *Calocephalus ?skeatsianus* (+), *Trachymene* sp. (+), *Eragrostis dielsii* (+).

No. of TAXA: (25 + 27) 52?

LAST BURNT: probably not flammable

BEDROCK: granite

ORIGIN: *in-situ* weathering

PROFILE THICKNESS: 0-10 cm

DRAINAGE: excessive

PROFILE ATTRIBUTE: skeletal, acidic, siliceous

SOIL

ROCK: ca. 20%

STONE: ca. 20%

PAVEMENT: ca. 20%

SURFACE: gently sloping site on a relatively flat, smooth area within the Hills land-form

SALT LAKE FEATURES (L)

LOW WOODLAND

YL 6 *Eucalyptus striatocalyx* Open Low Woodland

LOCATION: 2 km SE of New Well on Yuinmery Station 28°33'25"S lat., 119°05'30"E long.

FAUNA SAMPLED: Yes

DATE: September 1986

VEGETATION

MUIR: LAr.SAr.Ji.

Stratum 1: Trees 7-12 m, CC = 7, *Eucalyptus striatocalyx* (5), *Casuarina cristata* (1), *Acacia aneura* (1), *Pittosporum phylliraeoides* (+).

Stratum 2: Shrubs 3-4 m, CC = 0.5, *Acacia victoriae* (+), *Dodonaea viscosa* ssp. *angustissima* (+), *Grevillea sarissa* (+), *Eremophila falcata* (+), *Acacia acuminata* (+), *A. tetragonophylla* (+), *Actinobole uliginosum*.

Stratum 3: Shrubs 1.5-2 m, CC = 3, *Cassia nemophila* (2), *C. artemisioides* (+), *Maireana suaedifolia* (+), *Acacia tetragonophylla* (+), *Eremophila* aff. *glabra* JD07 (+), *Scaevola spinescens* (+), *Maireana* aff. *thesioides* JD23 (+), *Exocarpos aphyllus* (+), *Thysanotus manglesianus* (+).

Stratum 4: Grasses and shrubs <0.5 m, CC = 1, *Triodia basedowii* (+), *Maireana georgei* 'X' (*) (*x*), *Olearia pimeleoides* (+), *Solanum orbiculatum* (+), *Lepidium* sp. JD110B (+), *Maireana pentatropis* (+), *Enchylaena tomentosa* (+).

Stratum 5: Annuals and mixed plants <0.2 m, CC = 10, *Angianthus tomentosus* (1), *Zygophyllum fruticosum* (1), *Helipterum maryonii* (+), **Schismus barbatus* (+), *Aristida contorta* (+), *Calandrinia polyandra* (+), *Solanum lasiophyllum* (+), *Ptilotus exaltatus* (+), **Brassica tournefortii* (+), *Goodenia pinnatifida* (+), *Helichrysum davenportii* (+), *Stenopetalum filifolium* (+), *Monachather paradoxa* (+), *Velleia rosea* (+), *Waitzia acuminata* (+), *Tetragonia cristata* (+), *Calotis multicaulis* (+), *Brachycome ciliocarpa* (+), *Helipterum humboldtianum* (+), *Lepidium oxytricum* (+), *Sclerolaena patentiscuspis* (+), *Maireana pentatropis* (+), *Omphalolappula concava* (+), *Stenopetalum filifolium* (+), *Actinobole uliginosum* (+), *Thysanotus* sp JD125 (+), *Haloragis odontocarpa* (+), *Ptilotus carlsonii* (+).

No. of TAXA: 54

LAST BURNT: probably not flammable

MODIFICATION: Grazing

LANDFORM

BEDROCK: Unknown

GEOLOGICAL SURFACE: Qg

UNIT: Salt Lake Feature

ELEMENT: Peripheral gypsum dune

SOIL

MAIN ORIGIN: Colluvial and alluvial DRAINAGE: Good

PROFILE ATTRIBUTE: Calcareous SURFACE: Crusting

ROCK: Nil STONE: Trace PAVEMENT: Nil

LITTER: Branches, twigs, broad leaves under eucalypt trees, terete leaves under shrubs. Few logs.

SOIL PROFILE

A 0-15 cm Dark brown sandy Loam; 7.5 YR 4/4

B 15-28 cm Brown fine sandy Loam; 7.5 YR 5/4

C >28 cm Calcrete

PROFILE THICKNESS: Probably more than 3 metres.

TALL SHRUBLAND

YL7 *Acacia ramulosa* Tall Shrubland

LOCATION: 1 km NW of New Well on Yuinmery Station in 28°32'35"S lat., 119°05'10"E long.

FAUNA SAMPLED: Yes

DATE: September 1986

VEGETATION

MUIR: Sr.

Stratum 1: Shrubs 5-7 m, CC = 0.3, *Acacia aneura* (0.3), *Amyema fitzgeraldii* (+), parasite on *A. aneura*.

- Stratum 2: Shrubs 2-3 m, CC = 5, *Acacia ramulosa* (4.5), *A. burkittii* (+), *A. tetragonophylla* (+), *Cassia nemophila* (+).
- Stratum 3: Shrubs 0.5-1 m, CC = 1.2, *Maireana pyramidata* (1), *M. suaedifolia* (+), *Acacia aneura* (+), *Sida calyxhymenia* (+).
- Stratum 4: Grasses and shrubs 0.3-0.4 m, CC = <1, *Monachather paradoxa* (+), *Ptilotus obovatus* (+), *Solanum lasiophyllum* (+).
- Stratum 5: Annuals <0.3 m, CC = 1, *Helipterum splendidum* (+), *Brachycome ciliocarpa* (+), *Stenopetalum filifolium* (+), *Calandrinia polyandra* (+), *Helipterum maryonii* (+), *Erodium cygnorum* subsp. *cygnorum* (+), *Velleia rosea* (+), *Aristida contorta* (+), **Schismus barbatus* (+), *Calotis hispidula* (+), *Tetragonia cristata* (+).

No. of TAXA: 24

LAST BURNT: No evidence of burning

MODIFICATION: Heavy grazing

LANDFORM

BEDROCK: Granite

GEOLOGICAL SURFACE: Qc

UNIT: Salt Lake Feature

ELEMENT: Low dune

SOIL

GROUP: Red sands

DRAINAGE: Good

MAIN ORIGIN: Colluvial and *in situ* weathering

SURFACE: Flat, slightly hummocked under shrubs

PROFILE ATTRIBUTE: Sodic & overlying granite

PAVEMENT: Traces

ROCK: Marginal exposures of flat granite

STONE: Traces

LITTER: Terete leaves under larger shrubs, scattered twigs

SOIL PROFILE

A 0-15 cm Yellowish red Sandy Loam, 5YR 4/8

B 15-60 cm Red fine Sandy Loam, 2.5 YR 4/6

COMMENTS: Site represents small arm of bottomland associated with Lake Noondie and is raised sandy bank adjacent to Granite Exposure.

LOW SHRUBLAND

YL8 *Halosarcia* Low Shrubland

LOCATION: On the northern edge of Lake Noondie, 2 km SE of New Well on Yuinmery Station in 28°33'40"S lat., 119°05'25"E long.

FAUNA SAMPLED: Yes

DATE: September 1986

VEGETATION

MUIR: SDc.Jr.

Stratum 1: Shrubs <0.5 m, CC = 35, *Halosarcia* sp. JD81 (35), *Zygophyllum fruticosum* (+), *Lycium australe* (+).

Stratum 2: Annuals <0.1 m, CC = 2, *Gnephosis skirrophora* (+), *Frankenia* sp. JD84 (+), *Zygophyllum glaucum* (+), *Lawrenzia densiflora* (+), *Angianthus tomentosus* (+), *Atriplex holocarpa* (+), **Schismus barbatus* (+), *Zygophyllum fruticosum* (+), *Lepidium rotundum* (+), *Sclerolaena* sp JD91 (+), *Calandrinia eremaea* (+), *Helipterum splendidum* (+).

No. of TAXA: 14

LAST BURNT: Not flammable

MODIFICATION: Grazing

LANDFORM

BEDROCK: Unknown

GEOLOGICAL SURFACE: Qgd

UNIT: Salt Lake System

ELEMENT: Lake Floor

SOIL

GROUP: Saline Soils

DRAINAGE: Poor

MAIN ORIGIN: Alluvial

SURFACE: Crusting

PROFILE ATTRIBUTE: Saline Clay

PAVEMENT: Nil

ROCK: Nil

STONE: Nil

LITTER: Nil

SOIL PROFILE

A 0-10 cm Yellowish red silty clay loam, 5YR 4/8

B 10-40 cm Yellowish red light clay, 5YR 4/8

C >40 cm Pink silty clay, 5YR 8/3 with bands of reddish yellow 7.5 YR 7/6 silty clay

COMMENTS: Surface cracks finely but deeply, the areas between the cracks self-mulching. Surface water pools in slightly lower elevations where surface cracks broadly when dry.

YL9 *Cassia nemophila* Low Shrubland

LOCATION: On the northern edge of Lake Noondie, 2 km SE of New Well on Yuinmery Station in 28°33'40"S lat., 119°05'25"E long.

FAUNA SAMPLED: Yes

DATE: September 1986

VEGETATION

MUIR: SB/SA/Si

Stratum 1: Trees 8-10 m, CC = 1, *Eucalyptus striatocalyx* (1).

Stratum 2: Shrubs 3-4 m, CC = 1, *Acacia victoriae* (+), *A. ? densiflora* JD95(+).

Stratum 3: Shrubs 1-2 m, CC = 20, *Cassia nemophila* (20).

Stratum 4: Annuals <0.2 m, CC = 1, *Ptilotus exaltatus* (+), *Stipa nitida* (+), **Schismus barbatus* (+), *Lepidium rotundum* (+), *Helipterum splendidum* (+), *Zygophyllum fruticulosum* (+), *Z. ovatum* (+), *Stenopetalum anfractum* (+), *Goodenia pinnatifida* (+), *Sclerolaena* sp. JD99 (+), *Maireana trichoptera* (+), *M. pentatropis* (+), *Brachycome ciliocarpa* (+), *Podolepis capillaris* (+), *Gnephosis skirrophora* (+), **Brassica tournefortii*.

No. of TAXA: 20

LAST BURNT: No evidence of burning

MODIFICATION: Grazing

LANDFORM

BEDROCK: Unknown

GEOLOGICAL SURFACE: Qgd

UNIT: Salt Lake System

ELEMENT: Outer slope from lake floor

SOIL

GROUP: Sub-saline soils

DRAINAGE: Good

MAIN ORIGIN: Colluvial and alluvial

SURFACE: Loose

PROFILE ATTRIBUTES: Sub-saline

PAVEMENT: Nil

ROCK: Nil

STONE: Nil

LITTER: a few broad leaves and bark at base of eucalypts and terete leaves under *Cassia*

SOIL PROFILE

A 0-25 cm Reddish yellow loamy sand, 7.5 YR 6/6

B 25-50 cm Reddish yellow light clay, 5 YR 6/6 with light grey flecks and some gravel nodules

C >50 cm Pink silty clay, 5 YR 8/3

CALCAREOUS PLAIN (P)

LOW WOODLAND

YL10 *Casuarina cristata* Low Woodland

LOCATION: Between Shepherds Well and Nine Mile Well on Yuinmery Station, in 28°32'S lat., 119°07'E long.

FAUNA SAMPLED: Yes

DATE: December 1980

VEGETATION

MUIR: LAr.SC/Dr.Ji.

Stratum 1: Trees 6-10 m, CC = 10, clumping slight *Casuarina cristata* (8).

Stratum 2: Shrubs >1.5 m CC = ?, clumping slight *Eremophila* sp. (+), *Acacia tetragonophylla* (+), *Acacia* sp. (+), *Exocarpos aphyllus* (+), *Scaevola spinescens* (+).

Stratum 3: Shrubs 0.2-0.6 m CC = 5, clumping slight *Rhagodia ?drummondii* (+), *Atriplex* sp. (+), *Cassia nemophila* (+), *Stipa ?trichophylla* (1), *Sclerolaena ?diacantha* (+), *Aizoon quadrifidum* (+), *Solanum lasiophyllum* (+), *Ptilotus obovatus* (+), *Solanum nummularium* (+).

Stratum 4: Misc. plants 0-0.2 m, CC = 20, clumping slight *Salsola kali* (5), *Ptilotus exaltatus* (+), *Vittadinia* sp. (+), *Lepidium* sp. (+), *Helipterum ?sterilescens* (+), *Sinapis arvensis* (+), *Agrostis* sp. (+), *Maireana sclerolaenoides* (+), *?Enneapogon caeruleescens* (+), *Gnephosis skirrophora* (+), *Crassula ?colorata* (+), *Gnephosis ?foliata* (+), *Angianthus strictus* (+), *Gnephosis ?brevifolia* (+), *Menkea ?australis* (+).

BEDROCK: Unknown

ORIGIN: Alluvial and colluvial

DRAINAGE: Good

PROFILE THICKNESS: Probably more than 3 m

PROFILE ATTRIBUTE: Calcareous

ROCK: Nil

TALL SHRUBLAND

YL11 *Acacia ramulosa* Tall Shrubland

LOCATION: At New Well on Yuinmery Station, in 28°33'S lat, 119°05'E long.

FAUNA SAMPLED: No

DATE: December 1980

VEGETATION

MUIR: Si.SDr.Ji.

Stratum 1: Shrubs 4-5 m, CC = 2, clumping slight *Acacia aneura* (1), *Melaleuca* sp. (+), *Casuarina cristata* (+), *Santalum acuminatum* (+).

Stratum 2: Shrubs 2-3.5 m, CC = 13, clumping absent *Acacia ramulosa* (6), *Eremophila longifolia* (+), *Acacia tetragonophylla* (+), *Eremophila* sp. (+), *Dodonaea viscosa* subsp. *angustissima* (+).

Stratum 3: Shrubs 0.8-1.7 m, CC < 1, clumping slight *Cassia nemophila* (+), *Rhagodia drummondii* (+), *Grevillea ?sarissa* (+), *Melaleuca uncinata* (+), *Eremophila glabra* (+), *Maireana suaedifolia* (+).

Stratum 4: 0.2-0.6 m, CC = 2, clumping slight *Stipa trichophylla* (1), *Ptilotus obovatus* (+), *Solanum lasiophyllum* (+), *Podolepis capillaris* (+).

Stratum 5: Misc. plants 0-0.2 m, CC = 30, clumping slight *Gnephosis skirrophora* (+), *Athrixia athrixioides* (+), *Calocephalus* sp. (+), *Goodenia* sp. (+), *Cephalopterum ?drummondii* (+), *Zygophyllum* sp. (+), *Actinobole uliginosum* (+), *Crassula ?colorata* (+), *Helipterum maryonii* (+), *Salsola kali* (+), *Ptilotus gaudichaudii* (+), *Lophochloa pumila* (+), *Ptilotus exaltatus* (+), *Gnephosis ?foliata* (+), *Angianthus strictus* (+), *Chthonocephalus pseudevax* (+), *Vittadinia* sp. (+), *Gnephosis ?brevifolia* (+), *Ptilotus ?helipteroides* (+), *Euphorbia drummondii* (+), *Plantago ?drummondii* (+), *Gnephosis ?pygmaea* (+), *Senecio glossanthus* (+).

No. of TAXA: (27 + 42) 69

BEDROCK: Unknown

DRAINAGE: Good

LAST BURNT: Probably not flammable

ORIGIN: Alluvial

PROFILE THICKNESS: probably more than 3 m

PROFILE ATTRIBUTE: Calcareous, shallow soil

ROCK: Nil

STONE: Trace

PAVEMENT: ca. 30%

SOIL PROFILE (augered to 10 cm)

A 0-10 cm

B Calcareous and siliceous undifferentiated rubble.

COMMENTS: Surface has slight saucer-shaped depressions with a darker, redder loam or clay loam, different from the gravelly limey "buff" — coloured soil over the main part of the area.

SANDPLAIN (S)

LOW WOODLAND

YL12 *Eucalyptus gongylocarpa* Low Woodland

LOCATION: On Anketell Station, on road towards Mount Magnet (32 km W of Sandstone), in 28°00'S lat., 118°58'E long.

FAUNA SAMPLED: No

DATE: December 1980

VEGETATION

MUIR: LAr.Sr.Hi.

Stratum 1: Trees 6-10 m, CC = 4, clumping slight *Eucalyptus gongylocarpa* (4).

Stratum 2: Shrubs 2-4 m, CC = 2, clumping moderate *Acacia aneura* (+), *Eucalyptus leptopoda* (+), *Acacia ?coolgardiensis* (+), *Acacia ?ligulata* (+), *Grevillea ?juncifolia* (+).

Stratum 3: Shrubs 1-1.8 m, CC = 2, clumping moderate *Eremophila ?exotrachys* (+), *Eremophila* sp. aff. *granitica* (+), *Cassia nemophila* (+), *Eremophila ?leucophylla* (+).

Stratum 4: Hummock grasses and shrubs 0.3-0.7 m, CC = 30, clumping moderate *Triodia basedowii* (20), *Keraudrenia integrifolia* (+), *Ptilotus drummondii* (+).

Stratum 5: Misc. plants 0-0.2 m, CC = <1, clumping moderate *Ptilotus polystachyus* (+), *Brunonia australis* (+), *Waitzia acuminata* (+), *Podolepis canescens* (+).

SOIL PROFILE (augered to 80 cm)

A 0-80 cm 5YR 4/8 yellowish red Sandy Loam or Loamy Sand.



Plate 2: Vegetation type YL13. *Eucalyptus trivalvis*/*Acacia aneura* Low Woodland on Sandplain 0.5 km WSW of Shepherd Well on Yuinmery Station. June 1979.

YL13 *Acacia aneura*/*Eucalyptus trivalvis* Low Woodland

LOCATION: 0.5 km WSW of Shepherd Well on Yuinmery Station in 28°32'00"S lat., 119°05'45"E long.

FAUNA SAMPLED: Yes

DATE: October 1986

VEGETATION

MUIR: LAr.S/SAr.

Stratum 1: Trees 5-10 m, CC = 3, *Acacia aneura* (1.5), *Eucalyptus trivalvis* (1.5), *Amyema fitzgeraldii* (+) parasite on *E. trivalvis* and *A. aneura*.

Stratum 2: Shrubs 1.5-3 m, CC = 2, *Acacia tetragonophylla* (+), *A. ramulosa* (+), *Santalum spicatum* (+), *Pittosporum phyllaeiroides* (+), *Dodonaea viscosa* ssp. *angustissima* (+), *Amyema fitzgeraldii* (+) parasite on *A. tetragonophylla*.

Stratum 3: Shrubs 0.5-1 m, CC = 0.5, *Microcorys* sp. JD05 (+), *Acacia aneura* (+), *Maireana suaedifolia* (+), *Eremophila* aff. *glabra* (+), *Acacia ramulosa* (+)

Cassia nemophila (+), *Rhagodia eremaea* (+), *Eremophila clarkei* (+),
Olearia pimeleoides (+).

Stratum 4: Hummock grass <0.4 m, CC = 30, *Triodia basedowii* (30), *Eremophila* sp.
JD10 (+).

Stratum 5: Annuals <0.2 m, CC = 1, *Calandrinia polyandra* (+), *Helichrysum*
davenportii (+), *Erodium cygnorum* subsp. *cygnorum* (+), *Velleia rosea* (+),
Monachather paradoxa (+), *Brunonia australis* (+), *Goodenia occidentalis*
(+), *Brachycome* sp. JD 31 (+), **Schismus barbatus* (+), *Aristida contorta*
(+), *Podotheca gnaphaloides* (+), *Myriocephalus gueriniae* (+), *Waitzia*
acuminata (+), *Ptilotus polystachyus* (+), *Zygophyllum fruticosum* (+),
Maireana planifolia X *villosa* (+), *Goodenia pinnatifida* (+), *Calotis*
multicaulis (+), *Ptilotus carlsonii* (+), *Tetragonia cristata* (+), *Solanum*
orbiculatum (+), *Helipterum splendidum* (+), *Lepidium oxytrichum* (+),
Nicotiana rosulata ssp. *rosulata* (+), *Sisymbrium erysimoides* (+), *Ptilotus*
exaltatus (+), *Cephalopterum drummondii* (+).

No. of TAXA: 45

LAST BURNT: >25 years

MODIFICATION: Heavy grazing

LANDFORM

BEDROCK: Unknown

GEOLOGICAL SURFACE: Qg

UNIT: Sandplain

ELEMENT: Sheet marginal to playas

SOIL

GROUP: Calcareous earths

DRAINAGE: Good

MAIN ORIGIN: Colluvial

SURFACE: Flat

PROFILE ATTRIBUTE: Siliceous,
nutrient poor

STONE: Nil

ROCK: Nil

PAVEMENT: Nil

LITTER: Sparce clumps under trees

SOIL PROFILE

A 0-20 Yellowish red Loamy Sand 5YR 4/8

B 20-60 Brown sandy clay loam 7.5 YR 5/4 with 5YR 8/2 pinkish white flecks.

TALL SHRUBLAND

YL14 *Grevillea ?juncifolia* Tall Shrubland

LOCATION: 26 km W of Sandstone on road towards Mount Magnet, in 28°01S lat.,
119°02'E long.

FAUNA SAMPLED: No

DATE: December 1980

VEGETATION

MUIR: SiH?

Stratum 1: Trees 6-8 m, CC = <1, clumping slight *Eucalyptus gongylocarpa* (+).

Stratum 2: Shrubs 2.5-3.5 m, CC = 6, clumping slight *Grevillea ?juncifolia* (4), *Leptospermum ?roei* (+), *Eucalyptus oldfieldii* (+), *E. leptopoda* (+), *Acacia ?longispinea* (+).

Stratum 3: Shrubs 1-2 m, CC = ?, clumping slight *Grevillea sp.* (+), *Grevillea sp.* (+), *Eremophila sp.* (+).

Stratum 4: Hummock grass 0.3-0.8 m, CC = ?, clumped *Triodia basedowii* (?), *Amphipogon ?caricinus* (+).

Stratum 5: Misc. plants 0-0.2 m, CC = 1, clumping moderate *Podolepis canescens* (+), *Brunonia australis* (+), *Helipterum stipitatum* (+), *Waitzia acuminata* (+).

LAST BURNT: >25 years

BEDROCK: Granite

ORIGIN: Colluvial

DRAINAGE: excessive

PROFILE THICKNESS: probably more than 3 m

PROFILE ATTRIBUTE: Siliceous and sandy with a lateritic subsoil

SOIL SURFACE

ROCK: Nil

STONE: Nil

PAVEMENT: Nil

SOIL PROFILE

A 5 YR 4/8 yellowish red Sandy Loam or Loamy Sand.

YL 15 *Acacia aneura* Tall Shrubland

LOCATION: 13 km W of Sandstone on road towards Mount Magnet, in 28°00'S lat., 119°08'E long.

FAUNA SAMPLED: No

DATE: December 1980

VEGETATION

MUIR: Si.Hr.Jr.

Stratum 1: Shrubs 4-6 m, CC = 9, clumping absent *Acacia aneura* (8), *Eucalyptus kingsmillii* (+).

Stratum 2: Shrubs 2-3 m, CC = 5, clumping slight *Acacia ?ramulosa* (4).

Stratum 3: Shrubs 0.7-1.6 m, CC <1, clumping moderate *Maireana sp.* (+), *Stipa elegantissima* (+).

Stratum 4: Hummock Grass 0.2-0.6 m, CC = 4, clumping slight *Triodia basedowii* (2), *Eragrostis eriopoda* (+), *Amphipogon ?caricinus* (+), *Monochather paradoxa* (+), *Eriachne helmsii* (+).

Stratum 5: Misc. plants 0-0.2 m, CC = 8, clumping strong *Waitzia acuminata* (2), *Podolepis canescens* (+), *Myriocephalus gueriniae* (+), *Ptilotus polystachyus*

(+), *Brunonia australis* (+), *Helichrysum davenportii* (+), *Goodenia ?peacockiana* (+), *Erodium ?cygnorum* (+), *Velleia ?hispidia* (+), *Goodenia ?occidentalis* (+), *Stenopetalum ?anfractum* (+), *Helipterum verecundum* (+), *Calandrinia lehmannii* (+).

No. of TAXA: (17 + 16) 33

LAST BURNT: >20 years

BEDROCK: Granite

ORIGIN: Colluvial

DRAINAGE: Good

PROFILE THICKNESS: probably more than 3 m

PROFILE ATTRIBUTE: Siliceous, nutrient-poor

ROCK: Nil

STONE: Nil

PAVEMENT: 2% (0-20%, patchy), fragments 2-20 mm

SOIL PROFILE (augered to 80 cm)

A 0-80 cm 2.5YR 3/4 dark reddish brown slightly gravelly Sandy Loam.

B unknown but probably siliceous hardpan at 90 cm.

UNDULATING PLAIN (UN)

LOW WOODLAND

YL16 *Acacia aneura* Low Woodland

LOCATION: Near Bullock Bore, 30 km SW of Sandstone on road towards Youanmi on Atley Station, in 28°11'S lat., 119°06'E long.

FAUNA SAMPLED: No

DATE: December 1980

VEGETATION

MUIR: LBr.SCr.Jc

Stratum 1: Trees 3.5-5 m, CC = 5, clumping moderate *Acacia aneura* (broad and needle-phyllode form) (4).

Stratum 2: Shrubs 1.8-3 m, CC = 1, clumping moderate *Acacia sp.* (1), *Acacia tetragonophylla* (+), *Eremophila oppositifolia* (+), *Exocarpos aphyllus* (+), *Eremophila oldfieldii* subsp. *angustifolia* (+).

Stratum 3: Shrubs 0.8-1.5 m, CC = 2, clumping slight *Sida ?calyxhymenia* (+), *Scaevola spinescens* (+), *Rhagodia drummondii* (+), *Maireana pyramidata* (+), *Cassia phyllodinea* (+), *Enchylaena tomentosa* (+), *Spartothamnella teucriflora* (+).

Stratum 4: Shrubs 0.2-0.5 m, CC = 2, clumping slight *Ptilotus obovatus* (+), *Solanum lasiophyllum* (+), *Maireana ?triptera* (+), *Stipa ?trichophylla* (+), *Maireana ?glomerifolia* (+).

Stratum 5: Misc. plants 0-0.2 m, CC = ?, clumping moderate *Helipterum tenellum* (5), *Gnephosis ?brevifolia* (2), *Cephalipterum drummondii* (+), *Angianthus*

strictus (+), *Calotis multicaulis* (+), *Calandrinia lehmannii* (+), *Crassula ?colorata* (+), *Goodenia ?mimuloides* (+), *Calotis hispidula* (+), *Helipterum laeve* (+), *Plantago drummondii* (+).

BEDROCK: Unknown

ORIGIN: Colluvial

DRAINAGE: Good

PROFILE ATTRIBUTE: Sodic

ROCK: Nil STONE: ?5%

PAVEMENT: Trace

SOIL PROFILE (augered to 10 cm)

A 0-10 cm 2.5YR 4/4 Sandy Loam, some fragments of stone.

B >10 cm very compact subsoil, effectively forming a hardpan.

COMMENTS: Possibly slightly calcareous in subsoil. Cover of ephemerals incomplete, and ephemerals low, owing to xeric nature of site. Annual grass fairly common.

TALL SHRUBLAND

YL17 *Acacia aneura* Tall Shrubland

LOCATION: 4 km W of Sandstone on road towards Mount Magnet, in 28°00'S lat., 119°15'E long.

FAUNA SAMPLED: No

DATE: December 1980

VEGETATION

MUIR: Si.SDr.Ji.

Stratum 1: Shrubs 3-4 m, CC = 10, clumping slight *Acacia aneura* (9), *Eucalyptus* sp. (+), *Acacia burkittii* (+), *Acacia ramulosa* (+), *Santalum spicatum* (+), *Acacia tetragonophylla* (+), *Eremophila longifolia* (+), *Acacia craspedocarpa* (+), *Exocarpos aphyllus* (+), *Leichardtia australis* (+).

Stratum 2: Shrubs 0.8-1.7 m, CC = ?, clumping slight *Spartothamnella teucriflora* (+), *Eremophila ?clarkei* (+), *Eremophila leucophylla* (+), *Eremophila latrobei* (+), *Cassia ?nemophila* (+), *Stipa elegantissima* (+), *Maireana pyramidata* (+), *Enchylaena tomentosa* (+).

Stratum 3: Shrubs 0.2-0.6 m, CC = 3, clumping slight *Ptilotus obovatus* (2), *Solanum lasiophyllum* (+), *Sclerolaena ?diacantha* (+), *Sclerolaena ?divaricata* (+), *Atriplex ?semilunaris* (+).

Stratum 4: Misc. plants 0-0.2 m, CC = 20, clumping moderate *Cephalopterum drummondii* (5), *Stenopetalum ?anfractum* (2), *Helipterum ?charsleyae* (2), *Gnephosis ?leptoclada* (+), *Maireana carnosae* (+), *Ptilotus gaudichaudii* (+), *Calocephalus skeatsianus* (+), *Crassula ?colorata* (+), *Ptilotus exaltatus* (+), *Plantago drummondii* (+), *Helipterum maryonii* (+), **Rumex vesicarius* (+), *Erodium ?cygnorum* (+), *Podolepis ?lessonii* (+).

ROCK: Trace

STONE: ?10%

PAVEMENT: ?40%

SOIL PROFILE (augered to 80 cm)

A 0-20 cm 2.5YR 3/4 dark reddish brown gravelly Loam.

B 20-80 cm Firm clayey gravelly subsoil, probably of lateritic origin.

COMMENT: Old stumps indicate cutting of mulga in the past; mulga is probably lower now than in original condition. Cover of ephemerals incomplete because of poor soil moisture relations.

YL18 *Acacia aneura* Tall Shrubland

LOCATION: At Nunngarra, 14 km SW of Sandstone on road towards Youanmi, in 28°06'S lat., 119°13'E long.

FAUNA SAMPLED: No

DATE: December 1980

VEGETATION

MUIR: Sr.SDr.Jc

Stratum 1: Shrubs 3-5 m, CC = 6, clumping absent *Acacia aneura* (5); other sp.

Stratum 2: Shrubs 1.8-2.5 m, CC <1, clumping slight *Acacia ramulosa* (+), *Grevillea* (+), 2 other spp.

Stratum 3: Shrubs 0.8-1.5 m, CC = <1, clumping moderate *Rhagodia ?eremaea* (+), *Spartothamnella teucriflora* (+), *Maireana ?suaedifolia* (+); 2 other spp.

Stratum 4: Shrubs 0.2-0.6 m, CC = 2, clumping slight *Ptilotus drummondii* (+), *Eragrostis eriopoda* (+), *Solanum lasiophyllum* (+), *ericoid* sp. indet. (+), *Dianella revoluta* (+), *Monocather paradoxa* (+), 3 other spp.

Stratum 5: Misc. plants 0-0.2 m, CC = 40, clumping moderate *Calocephalus ?multiflorus* (4), *Goodenia* sp. (1), *Helipterum ?craspedioides* (1), *Podolepis canescens* (+), *Erodium ?cygnorum* (+), *Stenopetalum ?anfractum* (+), *Calocephalus skeatsianus* (+), *Waitzia acuminata* (+), *Helipterum verecundum* (+), *Podolepis ?kendallii* (+), *Calandrinia lehmannii* (+); 15 other spp.

No. of TAXA: ca. 45

LAST BURNT: Probably not flammable

BEDROCK: Greenstone

ORIGIN: in-situ weathering

DRAINAGE: Good

PROFILE THICKNESS: more than 70 cm

PROFILE ATTRIBUTE: Gravelly, siliceous

ROCK: Nil

STONE: 5% (0-10%, patchy) subangular quartz fragments 6-8 cm.

PAVEMENT: 40% (20-90%, patchy) irregular fragments 2-20 mm, with a coating of desert varnish.

SURFACE: Weakly friable by hand

NOTE: Bedrock relatively siliceous for a greestone (soil reaction trend probably neutral to slightly acidic) possibly owing to previous lateritization.

SOIL PROFILE (augered to 70 cm)

A 0-70 cm 2.5YR 3/4 dark reddish brown gravelly Clay Loam.

B probably laterite derived from greenstone.

COMMENTS: Ephemerals are stunted and thinned in the open spaces by rapid drying out of the soil, so cover of ephemerals incomplete though locally dense.

BROAD VALLEY (V)

LOW WOODLAND

YL19 *Acacia aneura* Low Woodland

LOCATION: 37 km SW of Sandstone on road towards Youanmi and 3 km E of Atley Station Homestead in 28°14'S lat., 119°05'E long.

FAUNA SAMPLED: No

DATE: December 1980

VEGETATION

MUIR: LBr.S/SA/Br.SDr.Jc

Stratum 1: Trees 3.5-5 m, CC = 7, clumping absent *Acacia aneura* (6).

Stratum 2: Shrubs 1.5-2.5 m, CC = 2, clumping slight *Acacia tetragonophylla* (+), *Eremophila ?platycalyx* (+), *Acacia craspedocarpa* (+).

Stratum 3: Shrubs 0.6-1.2 m, CC = 2, clumping moderate *Spartothamnella teucriflora* (+), *Rhagodia ?eremaea* (+).

Stratum 4: Shrubs 0.2-0.5 m, CC = 2, clumping moderate *Ptilotus obovatus* (+), *Dianella revoluta* (+).

Stratum 5: Misc. plants 0-0.2 m, CC = 40, clumping moderate *Helipterum charsleyae* (1), *Helipterum maryonii* (+), *Helipterum roseum* (+), *Cephalipterum drummondii* (+), *Gnephosis ?foliata* (+), *Podolepis ?kendallii* (+), *Ptilotus gaudichaudii* (+), *Calandrinia lehmannii* (+), *Helipterum ?propinquum* (+), *Calocephalus ?skeatsianus* (+), *Crassula ?colorata* (+), *Goodenia ?mimuloides* (+), *Maireana carnosa* (+), *Calotis hispidula* (+), *Erodium ?cygnorum* (+).

No. of TAXA: (13 + 33) 46

LAST BURNT: >20 years

BEDROCK: Unknown

ORIGIN: Alluvial

PROFILE THICKNESS: Probably 2 m

DRAINAGE: Good

PROFILE ATTRIBUTE: Clay-rich

ROCK: Nil

STONE: Nil

PAVEMENT: 4%, patchy, fragments 2-20 mm

SURFACE: Cracking slightly

SOIL PROFILE (augered to 80 cm)
A 2.5YR 3/4 dark reddish brown Clay Loam.

YL20 *Acacia aneura* Low Woodland

LOCATION: 43 km SW of Sandstone on road towards Youanmi in 28°16'S lat.,
119°05'E long.

FAUNA SAMPLED: No

DATE: December 1980

VEGETATION

MUIR: LBr.SAr.SDr.Jc

Stratum 1: Trees 4-6 m, CC = 10, clumping absent *Acacia aneura* (8), *Amyema maidenii* (+).

Stratum 2: Shrubs 1.8-2.5 m, CC = 4, clumping slight *Acacia ramulosa* (2), *Acacia tetragonophylla* (+), *Hakea arida* (+), *Leichardtia australis* (+).

Stratum 3: Shrubs m, CC = , clumping moderate *Rhagodia eremaea* (+), *Eremophila ?leucophylla* (+), *Spartothamnella teucriflora* (+), *Eremophila ?clarkei* (+), *Dodonaea ?rigida* (+).

Stratum 4: Shrubs 0.2-0.5 m, CC = clumping slight *Ptilotus obovatus* (2), *Ptilotus exaltatus* (+), *Podolepis capillaris* (+), *Solanum nummularium* (+), *Sclerolaena* sp. (+), *Atriplex ?semilunaris* (+).

Stratum 5: Misc. plants 0-0.2 m, CC = 60, clumping moderate *Gnephosis ?eriocephala* (3), *Helipterum roseum* (1), *Helipterum maryonii* (1), *Calotis ?hispidula* (+), *Maireana carnosa* (+), *Angianthus strictus* (+), *Chrysocoryne pusilla* (+), *Gnephosis ?foliata* (+), *Podolepis canescens* (+), *Cephalipterum drummondii* (+), *Ptilotus gaudichaudii* (+), *Isoetopsis graminifolia* (+), *Goodenia* sp. (+), *Erodium ?cygnorum* (+), *Calandrinia lehmannii* (+), *Crassula ?colorata* (+), *Helipterum tenellum* (+), *Brunonia australis* (+), *Angianthus burkittii* (+), *Helichrysum cassinianum* (+), *Waitzia acuminata* (+).

BEDROCK: Granite

ORIGIN: Colluvial with some

PROFILE THICKNESS: probably more alluvial influence
than 2 m

ROCK: Nil

PAVEMENT: Nil

SOIL

A 2.5YR 3/4 dark reddish brown Loam.

NOTE: The soil has the appearance of a normal mulga soil, albeit a bottomland one.

COMMENTS: The topsoil is a "hardsetting sandy loam"; the soil is set hard in-situ in the dry season but when artificially moistened tends to make a loose, sandy bolus in the palm.

YL21 *Acacia aneura* Low Woodland

LOCATION: 4 km NNE of Paddy Well on road between Sandstone and Youanmi, in 28°28'S lat., 119°03'E long.

FAUNA SAMPLED: No

DATE: December 1980

VEGETATION

MUIR: LAr.Si.SA/ Bi.SDr.Ji.

Stratum 1: Trees 4.5-6 m, CC = 10, clumping absent *Acacia aneura* (8), *Amyema maidenii* (+).

Stratum 2: Shrubs 1.6-3 m, clumping slight *Acacia tetragonophylla* (+), *Acacia ramulosa* (+), *Grevillea* sp. (+).

Stratum 3: Shrubs 0.8-1.5 m, CC = 15, clumping slight *Eremophila leucophylla* (8), *Eremophila clarkei* (4), *Cassia nemophila* (+), *Olearia propinqua* (+), *Cassia phyllodinea* (+), *Maireana* sp. (+).

Stratum 4: Shrubs 0.2-0.6 m, CC = 2, clumping slight *Eragrostis eriopoda* (+), *Ptilotus obovatus* (+), *Solanum lasiophyllum* (+), *Monochather paradoxa* (+), *Solanum nummularium* (+), *Sclerolaena* sp. (+).

Stratum 5: Misc. plants 0-0.2 m, CC = 25, clumping moderate *Podolepis canescens* (1), *Stenopetalum ?anfractum* (+), *Ptilotus ?macrocephalus* (+), *Velleia rosea* (+), *Erodium ?cygnorum* (+), *Calocephalus skeatsianus* (+), *Helipterum ?craspedioides* (+), *Ptilotus gaudichaudii* (+), *Calocephalus ?knappii* (+), *Menkea ?australis* (+), *Chthnocephalus pseudevax* (+), *Plantago drummondii* (+), *Helipterum maryonii* (+), *Calotis hispidula* (+), *Brunonia australis* (+), *Actinobole uliginosum* (+), *Lobelia ?gibbosus* (+), *Waitzia acuminata* (+).

BEDROCK: Granite

ORIGIN: aeolian

DRAINAGE: Good

PROFILE THICKNESS: Probably more than 3 m

PROFILE ATTRIBUTE: Moderate nutrient status despite lack of lime

ROCK: Nil

STONE: Nil

PAVEMENT: Nil

SURFACE: Weakly crusting

SOIL PROFILE (augered to 80 cm)

A 2.5YR 3/6 dark red Sandy Loam

COMMENTS: Trees of *Acacia aneura* are noticeably spindly. Soil easily friable despite having a crust. Site occupies top of slightly raised bank.

YL22 *Acacia aneura* Low Woodland

LOCATION: 1 km SW Lime Kiln Well on Yuinmery Station in 28°32'15"S lat., 119°05'30"E long.



Plate 3: Vegetation type YL22. *Acacia aneura* Low Woodland on Broad Valley, 1 km SW of Lime Kiln Well on Yuinmery Station. June 1979.

FAUNA SAMPLED: Yes

DATE: September 1986

VEGETATION

MUIR: LAr.S/SAr.

Stratum 1: Trees 5-7 m, CC = 8, *Acacia aneura* (8), *Pittosporum phylliraeoides* (+), *Amyema fitzgeraldii* (+) parasite on *A. aneura*.

Stratum 2: Shrubs 1-3 m, CC = 4, *Acacia ramulosa* (3), *Cassia nemophila* (+), *Acacia aneura* (+), *A. tetragonophylla* (+), *Santalum spicatum* (+), *Grevillea sarissa* (+), *Grevillea* sp. JD50 (+), *Maireana suaedifolia* (+), *Acacia* sp. (+).

Stratum 3: Annuals and mixed plants <0.4 m, CC = 1, *Helipterum splendidum* (+), *Ptilotus carlsonii* (+), *Podolepis canescens* (+), *Stenopetalum filifolium* (+), *Helipterum maryonii* (+), *Goodenia pinnatifida* (+), *Helichrysum davenportii* (+), *Erodium cygnorum* subsp. *cygnorum* (+), *Velleia rosea* (+), *Aristida contorta* (+), *Ptilotus polystachyus* (+), *Brachycome ciliocarpa* (+), *Senecio gregorii* (+), *Eriochiton sclerolaenoides* (+), *Helipterum charsleyae* (+), *Cephalopterum drummondii* (+), *Monachather paradoxa* (+), *Calotis hispidula* (+), *Triodia basedowii* (+), *Isoetopsis graminifolia* (+), *Waitzia*

citrina (+), *Zygophyllum iodocarpum* (+), *Podotrochea gnaphalioides* (+),
**Schismus barbatus* (+), *Stipa nitida* (+), *Menkea villosula* (+),
Chrysocoryne pusilla (+), *Maireana carnososa* (+), *Solanum lasiophyllum* (+).

No. of TAXA: 40

LAST BURNT: No evidence of burning

MODIFICATION: Heavy grazing

LANDFORM

BEDROCK: Unknown

GEOLOGICAL SURFACE: Qg

UNIT: Broad Valley

ELEMENT: Sheet marginal to playas

SOIL

GROUP: calcareous earth

DRAINAGE: Good

MAIN ORIGIN: Colluvial

SURFACE: Flat

PROFILE ATTRIBUTE: Siliceous

PAVEMENT: Nil

ROCK: Nil

STONE: Nil

LITTER: Terete leaves under trees and shrubs

SOIL PROFILE

A 0->60 cm Grades from yellowish red loamy sand, 5YR 4/8, at 15 cm depth to red clayey sand, 2.5YR 4/6 at 60 cm.

COMMENTS: Possibly calcrete valley fill; surface sandier in places and firmer in others.

TALL SHRUBLAND

YL23 *Acacia aneura* Tall Shrubland

LOCATION: 2 km W of Eighteen Mile Bore on Yuinmery Station in 28°31'55"S lat., 119°01'35"E long.

FAUNA SAMPLED: Yes

DATE: October 1986

VEGETATION

MUIR: Sr.SCr.Ji.

Stratum 1: Shrubs 5-7 m, CC = 6, *Acacia aneura* (6), *Eucalyptus striaticalyx* (+), *Grevillea berryana* (+), *Amyema fitzgeraldii* (+), parasite on *A. aneura*, *A. gibberulum* var. *gibberulum* (+), parasite on *G. berryana*.

Stratum 2: Shrubs 1.5-3 m, CC = 30, *Acacia ramulosa* (25), *A. craspedocarpa* (3), *A. aneura* (+), *A. tetragonophylla* (+), *Hakea preissii* (+).

Stratum 3: Shrubs 0.5-1 m, CC = 7, *Eremophila* aff. *clarkei* JD132 (3), *E. clarkei* (2), *E. leucophylla* (+), *E. foliosissima* (+), *Eriostemon brucei* var. *brevifolius* (+), *Maireana suaedifolia* (+), *Spartothamnella teucriflora* (+), *Acacia aneura* (+), *Rhagodia* sp. JD138 (+).

Stratum 4: Annuals and mixed plants <0.2 m, CC = 15, *Erodium cygnorum* subsp. *cygnorum* (5), *Helipterum maryonii* (1), *Velleia rosea* (+), *Waitzia acuminata* (+), *Helipterum splendidum* (+), *Myriocephalus gueriniae* (+),

Schoenia cassiniana (+), *Brachycome iberidifolia* (+), *Gilruthia osbornei* (+),
Helichrysum davenportii (+), *Lepidium oxytrichum* (+), *Paspalidium*
?gracile JD147 (+), *Monachather paradoxa* (+).

No. of TAXA: 30

LAST BURNT: >25 years

MODIFICATION: Grazing

LANDFORM

BEDROCK: Unknown

GEOLOGICAL SURFACE: Qz

UNIT: Broad Valley

ELEMENT: Alluvial sheet

SOIL

GROUP: Red brown silt sheet

DRAINAGE: Moderate

MAIN ORIGIN: Alluvial and colluvial

SURFACE: Flat, slight crusting

PROFILE ATTRIBUTE: Unknown

STONE: Nil

ROCK: Nil

PAVEMENT: Nil

LITTER: Terete leaves under trees and shrubs, a few logs

SOIL PROFILE

A1 0-25 cm 5YR 4/8 yellowish red Clayey Sand

A2 25-60 cm 5YR 4/6 yellowish red Fine Sandy Loam

Appendix II

Bird Breeding Data

Bird breeding information in Youanmi-Leonora Study Area during fauna and vegetation surveys.

Cacatua roseicapilla (Galah)

- four nests with young being fed in *Eucalyptus gongylocarpa* in YL3 on 2.10.81
- ten active nests in *E. striatocalyx* in YL6 on 18.9.86; one nest examined had 4 eggs

Platycercus varius (Mulga Parrot)

- young being fed in nest in *E. gongylocarpa* in YL3 on 2.10.81; male was also feeding female

Accipiter cirrocephalus (Collared Sparrowhawk)

- female sitting on nest 13 m up *E. camaldulensis* at Depot Spring on 8.10.81; male was nearby

Podargus strigoides (Tawny Frogmouth)

- adult incubating 2 eggs 4 m up *Acacia aneura* near Yuinmery airstrip on 16.9.86

Petroica goodenovii (Red-capped Robin)

- adult feeding 2 dependent young on Yuinmery Station on 3.10.81
- pair feeding 1 dependent young on Yuinmery Station on 6.10.81
- male feeding 1 dependent young on Yuinmery Station on 7.10.81

Rhipidura leucophrys (Willie Wagtail)

- pair building nest 2 m up *E. gongylocarpa* in YL3 on 18.9.86

Acanthiza uropygialis (Chestnut-rumped Thornbill)

- pair feeding young in nest in hollow *A. aneura* in YL22 on 1.10.81

Aphelocephala leucopsis (Southern Whiteface)

- adults feeding dependent young in *A. aneura* shrubland on Yuinmery Station on 5.10.81

Pomatostomus superciliosus (White-browed Babbler)

- nest with 2 recently hatched chicks and 1 egg 4.5 m up *Grevillea berryana* in YL23 on 18.9.86

Manorina flavigula (Yellow-throated Miner)

- adult feeding young in nest 6 m up *Eucalyptus* sp. on 25.3.79
- 3 small young in nest 4.5 m up *E. striatocalyx* in YL6 on 5.10.81
- adults feeding young in nest 9 m up *Casuarina cristata* in YL10 on 5.10.81
- adult incubating 4 eggs in *Amyema fitzgeraldii* on *Acacia aneura* in YL13 on 14.9.86
- adult incubating nest in *A. fitzgeraldii* on *A. aneura* in YL13 on 15.9.86
- nest 4 eggs in *A. fitzgeraldii* on *A. aneura* in YL22 on 18.9.86

Cracticus tibicen (Australian Magpie)

— adults feeding young in nest 8 m up *E. striatocalyx* in YL6 on 17.9.86

Cracticus nigrogularis (Pied Butcherbird)

— adult feeding 1 large young in nest, another fledgling nearby at Depot Spring on 8.10.81

Corvus bennetti (Little Crow)

— adults feeding young in nest in *E. gongylocarpa* in YL3 on 2.10.81