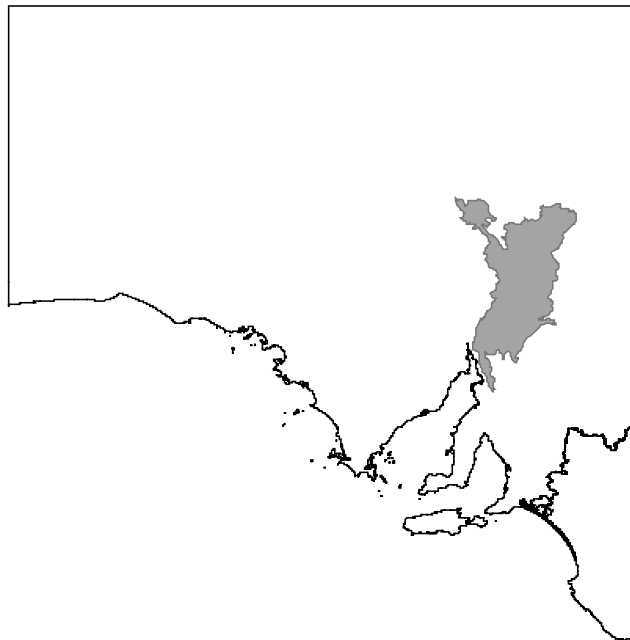


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# A BIOLOGICAL SURVEY OF THE FLINDERS RANGES SOUTH AUSTRALIA

1997-1999

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**R. Brandle**

Biodiversity Survey and Monitoring Program  
National Parks and Wildlife, South Australia  
Department for Environment and Heritage, South Australia

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2001

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# Flinders Ranges Biological Survey

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The views and opinions expressed in this report are those of the authors and do not reflect those of the State Government of South Australia.

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**Cover Photograph: The Elder Range (Photo: PD Canty).**

# PREFACE


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*A Biological Survey of the Flinders Ranges, South Australia* is a further component of the Biological Survey of South Australia.

The program of systematic biological surveys to cover the whole of South Australia arose out of a realisation that a geographic occurrence of effort was needed to increase our knowledge of the remaining vertebrate fauna and the vascular plants of the State and to encourage its conservation.

Over the last fifteen years, there has been a strong commitment to the Biological Survey by Government and an impressive dedication from hundreds of volunteer biologists.

It is anticipated that the Biological Survey will achieve complete statewide coverage by 2015 and will be an achievement for which we can be very proud. Biologists in the future will be able to measure the direction of long-term ecological change, and we will have substantially improved our knowledge of the biodiversity of South Australia and our ability to adequately manage nature conservation into the future.



IAIN EVANS  
**Minister for Environment and Heritage**  
**Minister for Recreation, Sport and Racing**



# ABSTRACT

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The Flinders Ranges are an uplifted area of mostly sedimentary rock covering approximately 37,000 km<sup>2</sup> of South Australia from Crystal Brook in the south to Mount Hopeless in the north, a distance of ~400km. Annual rainfall varies markedly, from 600mm on the mountains of the south to less than 200mm on the plains of the north. The north-south variation is complicated by the influence of the ranges which rise to 1000m at several localities. These factors combined with the complex geology of the region provide the conditions for a high diversity of habitats, plants and animals. For the Biological Survey of the Flinders Ranges, the study area boundaries were defined by Environmental Province 6 (Flinders Ranges) and Environmental Association 3.3.19 (Mt Remarkable) of Environmental Province 3 (Mt Lofty Block), covering a total of 37,090 km<sup>2</sup>.

The Biological Survey of the Flinders Ranges sought to determine the diversity, distribution and extent of biological communities for vegetation and vertebrate fauna in the region. This information enables the investigation of species richness within different habitats, species distributions, species habitat requirements within the ranges and the conservation status of species and communities. The other major objective was to map vegetation communities across the study area, bringing together all of the information and mapping from previous mapping studies.

Methods used involved collecting information on the plants, mammals, birds, reptiles and frogs present at specified sites within the range of different habitats across the study area. Quadrat based vegetation sampling recorded the presence of each species present and estimated broad cover abundances. A range of habitat parameters was also recorded for each vegetation quadrat. Plant identifications were confirmed through the collection of vouchered specimens lodged at the State Herbarium in the Plant Biodiversity Centre. Birds were recorded at each site through observation in the morning and evening. Ground dwelling fauna was recorded through trapping using small metal box (Elliott) traps, possum sized cage traps, pitfall traps and a manual search of the habitat. All fauna identifications, other than birds, were confirmed by the collection of vouchered specimens. These were verified, stored and catalogued by the South Australian Museum. Invertebrates were collected using pit traps and lodged with the South Australian Museum.

The 2732 sites within the study area supported at least 1366 plant species. The vegetation sampling associated with the 279 sites at which vertebrate sampling took place recorded 726 distinct plant taxa and added an extra 69 to the 1297 already in the Biological Survey Database. The species common to the most sites were the Silver Mulla Mulla *Ptilotus obovatus* (34% of sites), Ruby Saltbush *Enchylaena tomentosa* (31% of sites) and Elegant or Prickly Wattle *Acacia victoriae* (27%). Five hundred and thirty-five of the 1361 taxa recorded at sites were considered to be perennial or long lived readily detectable ephemerals. These were selected for floristic analyses. PATN, an exploratory analysis program, was used to clump 3079 sites into 66 groups based on the similarity of their floristic composition. The surveys recorded 221 plant species with some form of conservation rating. Fifteen plant species with restricted distributions were considered to be endemic to the Flinders Ranges and another three had limited populations in adjacent ranges (Northern Lofty and Olary Spur).

The Biological Survey recorded 26 native mammal species including seven previously unknown within the Ranges. Only the Yellow-footed Rock-wallaby *Petrogale xanthopus* has a National and State conservation rating (Vulnerable). Since half of the mammal fauna that was once known for the ranges is now extinct, the surviving species have been assessed at the regional level on the basis of this study and other recent collections. Fifteen species were assigned a regional conservation rating (two as Vulnerable, seven as Rare and six as Uncommon).

One hundred and forty of the 200+ bird species known for the study area were recorded at Biological Survey sites. One species, the Striated Thornbill *Acanthiza lineata*, not previously recorded in the Ranges was found on a ridge near Alligator Gorge in the southern Flinders. Two species with a southern temperate distribution, the White-eared Honeyeater *Lichenostomus leucotis* and Tawny-crowned Honeyeater *Gliciphila melanops*, were found in the northern Ranges on the 900m high Gammon Plateau. Fifteen species have a South Australian conservation rating: 7 are rated as Vulnerable, 4 as Rare and 4 as Uncommon. The only bird endemic to the Flinders and Gawler Ranges, the Short-tailed Grass-wren *Amytornis merrotsyi*, was recorded at several new locations.

Eighty-eight reptile species were known for the region prior to this study (SA Museum specimens). The Biological Survey recorded 74 species at sampling sites. The only species not previously recorded within the region was the Desert Skink *Egernia inornata*. The known distribution of the Velvet Gecko *Odeura marmorata* within the ranges was significantly extended by the survey. Three species have the bulk of their distributions within the study area and five species have South Australian conservation ratings (three are Vulnerable and two are Rare).

Eight species of frogs are known to occur in the Flinders Ranges. Seven of these were captured and one was heard calling. The most common was the endemic Streambank Froglet *Crinia riparia*. The capture of several Brown Toadlets *Pseudophryne bibronii* on the Mawson Plateau in the northern Flinders, substantially extended the known range of this species.



# CONTENTS

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<b>ABSTRACT .....</b>	<b>v</b>
<b>LIST OF FIGURES.....</b>	<b>iv</b>
<b>LIST OF TABLES.....</b>	<b>xiii</b>
<b>APPENDICES.....</b>	<b>xiv</b>
<b>ACKNOWLEDGMENTS.....</b>	<b>xvi</b>
<b>INTRODUCTION .....</b>	<b>1</b>
The Physical Environment.....	1
Climate .....	3
Previous biological Research.....	7
Aquatic habitats .....	15
River Health in the Flinders Ranges based on Aquatic Macro-invertebrates as Biological Indicators.....	16
Flinders Ranges Fishes .....	25
Ecological Recovery in the flinders ranges Based on Integrated Predator and Competitor Control Strategies.....	35
<b>METHODS .....</b>	<b>39</b>
<b>RESULTS.....</b>	<b>45</b>
Vegetation .....	45
<i>Introduction</i> .....	45
<i>Survey Coverage</i> .....	45
<i>Total Species</i> .....	49
<i>Common Species</i> .....	51
<i>Species Richness</i> .....	54
<i>Conservation Significance</i> .....	57
<i>Biogeography</i> .....	62
<i>Species Patterns</i> .....	64
Vegetation Mapping .....	102
<i>Key to the vegetation mapping</i> .....	103
Mammals .....	107
<i>Introduction</i> .....	107
<i>Total mammal fauna</i> .....	108
<i>Common Species</i> .....	109
<i>Biogeography</i> .....	111
<i>Conservation significance</i> .....	111
<i>Species Patterns</i> .....	115
<i>Bats</i> .....	129
<i>Introduced Mammals</i> .....	131
Birds .....	133
<i>Total Bird Fauna</i> .....	134
<i>Common Species</i> .....	135
<i>Species Richness</i> .....	137
<i>Significant Species</i> .....	138
<i>Biogeography</i> .....	143
<i>Bird Species Patterns</i> .....	145
<i>Group Descriptions</i> .....	147

Reptiles .....	157
<i>Total Species</i> .....	157
<i>Common Species</i> .....	159
<i>Reptile species richness</i> .....	159
<i>Significant Species</i> .....	160
<i>Biogeography</i> .....	162
<i>Species Patterns</i> .....	164
Frogs .....	181
<i>Introduction</i> .....	181
<i>Results</i> .....	182
<i>Biogeography</i> .....	182
Macro Insect Fauna.....	183
<i>Introduction</i> .....	183
<i>Results</i> .....	183
<b>DISCUSSION .....</b>	<b>185</b>
Conservation Summary.....	185
<i>Species Richness</i> .....	185
<i>Conservation Significance</i> .....	186
<i>Biogeographic Significance</i> .....	188
<i>Threatening Processes</i> .....	188
<i>Adequacy of the Reserve System</i> .....	189
<b>SUMMARY .....</b>	<b>191</b>
Results .....	192
<i>Species Communities</i> .....	193
<i>Species with Conservation Ratings</i> .....	195
<i>Biogeography</i> .....	195
Recommendations.....	196
<b>REFERENCES .....</b>	<b>197</b>



## LIST OF FIGURES

Figure 1. Environmental Associations (Laut <i>et al</i> 1977) overlaying the Study Area.....	2
Figure 2. Average annual rainfall isohyet map superimposed over the Flinders Ranges study area.....	4
Figure 3. Monthly rainfall for Arkaroola weather station in the northern Flinders 1996-99.....	5
Figure 4. Monthly rainfall for Hawker weather station in the central Flinders 1996-99.....	6
Figure 5. Monthly rainfall for Wirrabara weather station in the southern Flinders 1996-99.....	6
Figure 6. Southern Flinders Ranges – the cliffs above Telowie Gorge.....	9
Figure 7. Southern Flinders Ranges – view north from Mount Brown.....	9
Figure 8. Southern Flinders Ranges – The Dutchman’s Stern Conservation Park.....	9
Figure 9. Southern Flinders Ranges – Spinifex <i>Triodia</i> Hummock grassland.....	9
Figure 10. Central Flinders Ranges – Mt Elm in the Yappala Range.....	10
Figure 11. Central Flinders Ranges – Mt Aleck in the Elder Range north of Hawker.....	10
Figure 12. Central Flinders Ranges – Bunyaroo Valley north of Wilpena Pound.....	10
Figure 13. Central Flinders Ranges – Looking south to Wilpena Pound.....	10
Figure 14. Central Flinders Ranges – Looking south to Wilpena Pound.....	11
Figure 15. Central Flinders Ranges – Reepook Hill.....	11
Figure 16. Central Flinders Ranges – Parachilna Gorge to the west of Blinman.....	11
Figure 17. Central Flinders Ranges – Chenopod shrubland on the margin of the ranges east of Blinman.....	11
Figure 18. Central Flinders Ranges – Aerial view of the Bunkers Range east of Blinman.....	12
Figure 19. Northern Flinders Ranges – Patawarta Hill to the north of Blinman.....	12
Figure 20. Northern Flinders Ranges – Looking north to Mt McKinlay through Nantawarrina Gap.....	12
Figure 21. Northern Flinders Ranges – Looking south west to Mt McKinlay from Mt Benbonyathe.....	12
Figure 22. Northern Flinders Ranges – Looking south from Arkaroola Homestead, Arkaroola Sanctuary.....	13
Figure 23. Northern Flinders Ranges – Looking north west to Freeling Heights from above Mount Painter.....	13
Figure 24. Northern Flinders Ranges – Looking south to Freeling Heights.....	13
Figure 25. Northern Flinders Ranges – Mt Shannahan, north of Freeling Heights.....	13
Figure 26. Northern Flinders Ranges – Curly mallee <i>Eucalyptus gillii</i> and spinifex <i>Triodia</i> country.....	14
Figure 27. Moro Gorge, one of the more permanent aquatic habitats in the northern Flinders.....	15
Figure 28. An ephemeral waterhole in Hamilton Creek north of Arkaroola.....	15
Figure 29. Localities of aquatic assessment sites.....	19
Figure 30. Artimore Ck looking towards Nildottie Spring.....	20
Figure 31. <i>Anisops</i> sp.....	22
Figure 32. <i>Apsilochorema</i> sp.....	22
Figure 35. The South Australian Flinders Ranges and component meta-drainages, as considered in this work.....	26
Figure 36. Yackie Waterhole prior to extensive goat eradication.....	31
Figure 37. Flinders Ranges Purple-spotted Gudgeon.....	33
Figure 38. Map of Study Area showing the location of sites sampled for vertebrates and their camp labels.....	41
Figure 39. Survey field team processing specimens and catching up with paperwork.....	42
Figure 40. Plot of all vegetation survey sites over the Flinders Ranges study area as defined by the Environmental Association boundaries (grey lines) and the Herbarium Regions (black lines).....	46
Figure 41. Percent frequency of sites sampled in each Landform Pattern type.....	46
Figure 42. Percent frequency of sites sampled in each Landform element type.....	47
Figure 43. Percent frequency of sites sampled in each surface soil texture category.....	47
Figure 44. Silver Wattle <i>Acacia rivalis</i> and White Cypress-pine <i>Callitris glaucophylla</i> below the Elder Range.....	48
Figure 45. Tender Brake <i>Pteris tremula</i> is one of the ferns that inhabits the northern Flinders.....	49
Figure 46. Survey sites: Flinders Ranges, North West Flinders Ranges, Warraweena.....	50
Figure 48. Survey sites: Flinders Ranges Review.....	50
Figure 47. Survey sites: Stony Deserts, North Olary Plains, Northern Spencer Gulf, Mid North and Western Murray Flats, York Peninsula.....	50
Figure 49. Survey sites: Mid North, Gammon Ranges, Lower Flinders Ranges, Burra Hills, Coastal.....	50
Figure 50. Survey sites: Strzelecki, South Olary Plains, Upper Mid North, Mt Brown, Mt Remarkable.....	51
Figure 51. Survey sites: Rail Corridors, Lofty Block Grasslands, Bluetongue, Grassy Woodland.....	51
Figure 52. Rock sida <i>Sida petrophylla</i> in for ground with typically scraggly Elegant Wattle <i>Acacia victoriae</i> .....	52
Figure 53. The Native Soursob <i>Oxalis perennans</i> is small and inconspicuous at many sites when not in flower.....	52
Figure 54. Frequency histogram for plant species richness (categories are clustered in multiples of five).....	53
Figure 55. Average plant species richness of sites on the different landform categories.....	54
Figure 56. Average plant species richness of sites on the different land unit categories.....	54
Figure 57. Average plant species richness of sites on the different surface soil categories.....	54
Figure 58. Average plant species richness of sites with different structural vegetation types.....	55
Figure 59. High altitude ridges such as the low open mallee on the Gammon Plateau were amongst the more species diverse sites.....	55
Figure 60. The endemic Flinders Grey Mallee <i>Eucalyptus flindersii</i> .....	58

Figure 61. The Curly Mallee <i>Eucalyptus gillii</i> also has a limited occurrence in the Barrier Ranges NSW. ....	58
Figure 62. The endemic Flinders Ranges Oak-bush <i>Allocasuarina muelleriana</i> ssp. <i>alticola</i> .....	58
Figure 63. The endemic and vulnerable Spidery Wattle <i>Acacia araneosa</i> . ....	58
Figure 64. Map of bio-climatic regions (adaptation of Nix 1982, copied from Blakers <i>et al</i> 1984 ).....	61
Figure 65. Floristic groups from PATN - Dendrogram of 69 groups .....	63
Figure 66. The vulnerable Slender Bell-fruit <i>Codonocarpus pyramidalis</i> .....	65
Figure 67. Edeowie Gorge, Wilpena Pound. ....	68
Figure 68. Site NAN00501 Senna shrubland with emergent dead <i>Acacia</i> spp. ....	69
Figure 69. Site NUD00201 Rock Emubush shrubland with emergent Mulga. ....	69
Figure 70. Site WET00401 Rock Sida Low open shrubland with emergent Bullock Bush and Dead Finish. ....	70
Figure 71. Site ERE00401 Black Oak woodland over sparse Brilliant Hopbush. ....	70
Figure 72. Site NUD00101 Curly Mallee over Spinifex.....	71
Figure 73. Site PUT00301 Pearl Bluebush and Silver Mulla Mulla Low shrubland with emergent Acacias and Black Oak. ....	71
Figure 74. Site PUT00402 Rock Emubush over Low Bluebush with emergent Mulga. ....	72
Figure 75. Site PTO11201 Pearl Bluebush and Black Bluebush open shrubland.....	72
Figure 76. Site PAR00101 Elegant Wattle over <i>Aristida</i> grass, Silver Mulla Mulla and Onion Weed. ....	73
Figure 77. Site PAT00402 Nealie over herbs and grasses. ....	73
Figure 78. Site MUD00202 White-cypress Pine woodland. ....	74
Figure 79. Site PMB1993 White Cypress-pine over Silver Wattle <i>Acacia rivalis</i> , Rough Spear-grass and Lemon- scented Grass. ....	74
Figure 80. Site WAR00601 White Cypress-pine over Lemmon-scented Grass.....	75
Figure 81. Site NUD00501 River Red Gum woodland over Inland Paperbark. ....	75
Figure 82. Site PAR00301 River Red Gum woodland over sedges and reeds.....	76
Figure 83. Site YUH00701 Oblique-spined Bindyii with emergent Elegant Wattle.....	76
Figure 84. Site WPN12601 Shrubby Twin-leaf Low open shrubland. ....	77
Figure 85. Site FIT00201 herbland with emergent Elegant Wattle and Dead Finish. Atypical of the group and the only site within the Ranges.....	78
Figure 86. Site DEC00201 Umbrella Bush Tall shrubland.....	78
Figure 87. Site N3/27 Cotton Bush shrubland with emergent Desert Senna.....	79
Figure 88. Site FIT00401 Spiny Saltbush and Black Bluebush shrubland with emergent Elegant Wattle. ....	79
Figure 89. Site FIT00302 Dead Finish Shrubland over Long-spined Bindyi. ....	80
Figure 90. Site PUT00601 Bladder Saltbush and Low Bluebush Low shrubland. ....	80
Figure 91. Site ARO00501 Low Bluebush Low open shrubland.....	81
Figure 92. Site PAS06401 Black Bluebush and Low Bluebush open shrubland. ....	81
Figure 93. Site DEC00301 Black Bluebush and Low Bluebush Very open shrubland.....	82
Figure 94. Site COF00701 Tangled Bindyi and Sea Heath <i>Frankenia serpyllifolia</i> Low open shrubland. ....	82
Figure 95. Site COF00801 Elegant Wattle over Spiny Saltbush and Bladder saltbush. ....	83
Figure 96. Site PTO11301 Black Oak over Pearl Bluebush and Low Bluebush. ....	83
Figure 97. Site PTO17101 Turpentine Bush over Black Bluebush and Wards Weed. ....	84
Figure 98. Site HWK11201 Black Bluebush Low shrubland. ....	84
Figure 99. Site KOO27101 Bladder Saltbush Low shrubland with emergent Black Bluebush. ....	85
Figure 100. Site WIN10301 Introduced herbland with emergent Nitre Bush.....	85
Figure 101. Site WIN01301 Bladder Saltbush and Black Bluebush over Ball Bindyi with emergent Bullock Bush. ....	86
Figure 102. Site YOU00401 Lignum and Swamp Canegrass shrubland. ....	86
Figure 103. Site WIN08101 Nitre Bush shrubland.....	87
Figure 104. Site PAT00501 White Mallee and Beaked Red Mallee. ....	87
Figure 105. Site WIL09601 Black Oak woodland.....	88
Figure 106. Site ARO00201 Beaked Red Mallee. ....	88
Figure 107. Site PTO48201 Yorrell over Bladder Saltbush. ....	89
Figure 108. Site WPN11401 Blackoak woodland over Pimelea Daisy. ....	89
Figure 109. Site DAV02201 Emergent Sugarwood <i>Myoporum platycarpum</i> over Umbrella Bush <i>Acacia ligulata</i> to the east of the ranges. ....	90
Figure 110. Site PTO14201 Orange Sunray <i>Hyalosperma semisterile</i> and Pygmy Daisy <i>Rodanthe pygmaea</i> herbland. ....	90
Figure 111. Site CRT10101 Barley Grass <i>Critesion murinum</i> , Balcarra Spear-grass grassland. ....	91
Figure 112. Site WPN01101 Onion Weed <i>Asphodelus fistulosus</i> , Brome <i>Bromus rubens</i> and Common Wallaby- grass grassland. ....	91
Figure 113. Site WIC01801 Elegant Wattle Tall shrubland over introduced grasses.....	92
Figure 114. Site PTO07101 Elegant Wattle over Onion Weed and Wards Weed.....	92
Figure 115. Site ARO00802 River Red Gum over Inland Paperbark and reeds. ....	93
Figure 116. Site PAR009101 Tangled Bindyii Low shrubland. ....	93
Figure 117. Site PAR03101 Salt Bindyii <i>Sclerolaena ventricosa</i> and Barley Mitchell-grass Low shrub/ grassland.....	94

Figure 118. Site YUH00601 Beaked Red Mallee over Spinifex. ....	94
Figure 119. Site PAR00201 Flinders Ranges Corkwood, Gum-barked Coolabah and Native Pine over Spinifex and Winged Daisy-bush. ....	95
Figure 120. Site MUD00102 Gum-barked Coolabah over Rock Grass-tree and Needle Wattle. ....	95
Figure 121. Site MUD00401 Gum-barked Coolabah over Lobed-leaf Hop-bush. ....	96
Figure 122. Site PAT00201 White Cypress-pine and White Mallee over Spinifex, Stiff Westringia and Crinkled Hop-bush <i>Dodonaea baueri</i> . ....	96
Figure 123. Site CRT11101 White Cypress-pine over Wallowa Pygmy Daisy <i>Rhodanthe pygmaea</i> and grasses. ....	97
Figure 124. Site WPN16101 Mallee Box <i>Eucalyptus porosa</i> and Yorrell over grasses. ....	97
Figure 125. Site LBGPET01 <i>Stipa blackii</i> , <i>Lomandra effusa</i> and <i>Stipa nodosa</i> tussock grassland. ....	98
Figure 126. Site LBGBOO01 Golden Wattle and Sweet Bursaria over Crested Spear-grass and Kangaroo Grass <i>Themeda triandra</i> . ....	98
Figure 127. Site TEL00501 Sugar Gum, Long-leaf Box and Drooping Sheoak over Dog Wattle, Golden Wattle and Cranberry Heath. ....	99
Figure 128. Site TEL00301 <i>Eucalyptus percostata</i> and Drooping Sheoak over spinifex hummock grassland. ....	99
Figure 129. Site MAM00701 River Red Gum over shrubs and sedges. ....	100
Figure 130. Site LBGPIR01 South Australian Blue Gum and Grey Box over grasses. ....	100
Figure 131. Site MEL00601 Perpermint Box over Notable Wattle and <i>Danthonia</i> spp. grasses. ....	101
Figure 132. Site DUT00401 Spinifex hummock grassland with emergent Drooping Sheoak and Rock Grass-tree. ....	101
Figure 133. Extent of vegetation map coverage for the Orroroo 1:250000 Mapsheet. ....	102
Figure 134. Distribution of vertebrate survey sites within latitudes 29° 48' to 31° 18' and longitude 137° 48' to 139° 48' ....	107
Figure 135. Echidna and <i>Triodia</i> in defensive positions. ....	115
Figure 136. Yellow-footed Rock-wallaby. ....	116
Figure 137. Dendrogram relating mammal species presence/absence data. ....	117
Figure 138. Red Kangaroo. ....	119
Figure 139. Fat-tailed Dunnart. ....	120
Figure 140. Bolam's Mouse. ....	121
Figure 141. Common Dunnart. ....	122
Figure 142. Desert Mouse. ....	123
Figure 143. Black Rat. ....	124
Figure 144. Narrow-nosed Planigale. ....	125
Figure 145. Forrest Mouse. ....	126
Figure 146. Stripe-faced Dunnart. ....	127
Figure 147. Map of bat record sites. ....	129
Figure 148. Finlayson's Cave Bat. ....	130
Figure 149. Gould's Wattled Bat. ....	130
Figure 150. Little Forest Bat. ....	130
Figure 151. Donkeys. ....	131
Figure 152. Distribution of bird survey sites within latitudes 29° 48' to 31° 18' and longitude 137° 48' to 139° 48' ....	133
Figure 153. Frequency histogram of bird species per site for 284 sites. ....	137
Figure 154. Bassian Thrush. ....	144
Figure 155. Dendrogram relating bird species presence/absence data. ....	145
Figure 156. Grey-crowned Babbler. ....	145
Figure 157. Yellow-throated Miner. ....	148
Figure 158. Little Woodswallow. ....	151
Figure 159. Brown Treecreeper. ....	156
Figure 160. White-fronted Chat. ....	156
Figure 161. Distribution of vertebrate survey sites within latitudes 29° 48' to 31° 18' and longitude 137° 48' to 139° 48' ....	157
Figure 162. Samphire Slender Bluetongue. ....	144
Figure 163. Frequency histogram of reptile species per site for 232 sites. ....	160
Figure 164. Garden Skink. ....	163
Figure 165. Tessellated Gecko. ....	163
Figure 166. Dendrogram relating reptile species presence/absence data. ....	164
Figure 167. Red-napped Snake. ....	167
Figure 168. Tawny Dragon. ....	169
Figure 169. Eastern Striped Skink. ....	169
Figure 170. Southern Rock Dtella. ....	170
Figure 171. Tree Dtella. ....	172
Figure 172. Common Snake-eye. ....	172
Figure 173. Three-toed Earless. ....	173
Figure 174. Beaked Gecko. ....	174

Figure 175. Sandplain Ctenotus .....	175
Figure 176. Central Bearded Dragon. ....	176
Figure 177. Red-barred Dragon. ....	177
Figure 178. Gidgee Skink. ....	178
Figure 179. Pink-blotched.....	179
Figure 180. Localities from which 401 frog specimens have been collected for the South Australian Museum. ....	181
Figure 181. Red Tree-frogs.....	181
Figure 182. Public and private conservation reserves and the environmental association boundaries that define the study area. ....	186
Figure 183. The eastern wall of Wilpena Pound.....	191
Figure 184. View south along the Heysen and ABC Ranges to Wilpena pound). ....	196

## LIST OF TABLES

Table 1. Rainfall records for three weather stations at similar altitudes along the length of the Ranges. ....	3
Table 2. Rainfall data for northern Flinders localities across an elevation gradient. ....	4
Table 3. Annual rainfall (mm) for 1998/99 at three weather stations in the Flinders Ranges. ....	5
Table 4. Location of sites, and aquatic habitats sampled in the Flinders Ranges, SA between 1994 and 1997. ....	18
Table 5. Numbers of freshwater macroinvertebrate genera recorded from the Flinders Ranges. ....	24
Table 6. Surveys contributing to the Biological Survey of the Flinders Ranges. ....	40
Table 7. Trapping effort at each camp group, the number of sites sampled and the sampling date. ....	43
Table 8. Biological Survey efforts within the study area and sites contributing vegetation data for the analysis of Flinders Ranges vegetation. ....	48
Table 9. Division of readily determined plant species/taxa into taxonomic categories. ....	49
Table 10. Flinders Ranges endemic plant species and those with limited distributions elsewhere. ....	56
Table 11. The number of plant species with conservation ratings sampled by survey compared with the Flinders Ranges Herbarium region. ....	57
Table 12. Plant species with an Australian conservation rating. ....	59
Table 13. Floristic groups recorded in the five conservation reserves present in the study area. ....	60
Table 14. Summary of plant species with distributions primarily confined to single bio-climatic region. ....	62
Table 15. Summary of endemic plant species and others with interesting distributional limits. ....	62
Table 16. The percentage of sites within each floristic group occurring in the different habitat parameter groups. ....	66
Table 17. Vertebrate surveys and their contribution of sites within and outside of the study area boundary as depicted in Figure 134. ....	108
Table 18. Percent frequency of the most commonly encountered mammals recorded across the study area. ....	109
Table 19. Percent frequency of the most commonly encountered mammals in the major landform types of the southern Flinders. ....	110
Table 20. Percent frequency of the most commonly encountered mammals in the major landform types of the central Flinders. ....	110
Table 21. Percent frequency of the most commonly encountered mammals in the major landform types of the northern Flinders. ....	110
Table 22. The number of sites in various habitat types occupied by macropods. ....	116
Table 23. Proportion of sites within each small mammal assemblage presented as percentages against habitat variables. ....	118
Table 24. Bat species, the number of captures, and the environments in which they were recorded. ....	129
Table 25. Summary of bird surveys sites within and outside of the study area boundary as depicted in Figure 152. ....	134
Table 26. Summary of residency status for birds known to occur in the study area. ....	134
Table 27. The most frequently recorded bird species from six surveys in the study area. ....	135
Table 28. The percent frequency of survey sites at which bird species were encountered in different landform types in the southern Flinders Ranges. ....	136
Table 29. The percent frequency of survey sites at which bird species were encountered in different landform types in the central Flinders Ranges. ....	136
Table 30. The percent frequency of survey sites at which bird species were encountered in different landform types in the northern Flinders Ranges. ....	136
Table 31. Average number of bird species for sites in the major landform types on a north to south gradient. ....	137
Table 32. Conservation status of significant bird species in the study area. ....	138
Table 33. Flinders Ranges birds with limited bio-climatic distributions in South Australia. ....	144
Table 34. Percent frequency of sites within each bird group presented as percentages against habitat variables. ....	146
Table 35. Vertebrate surveys and the number of sites, reptile species richness, and average reptile species per site, within and surrounding the study area boundary as depicted in Figure 161. ....	158
Table 36. Family summary of Flinders Ranges reptiles. ....	158
Table 37. Frequency and abundance of reptile species encountered at greater than 10% of sites. ....	159
Table 38. Summary of Flinders Ranges reptiles with distributions limited to one of the three bio-climatic zones defined for South Australia. ....	162
Table 39. Summary of reptiles with distributions influenced by the Flinders Ranges. ....	162
Table 40. Percent frequency of sites within each reptile group presented as percentages against latitude. ....	164
Table 41. Percent frequency of sites within each reptile group presented as percentages against habitat variables. ....	165
Table 42. Percent frequency of sites for reptile assemblages in each vegetation mapping group. ....	166
Table 43. Frog species, the number of sites in which they were recorded and the number of animals held in the SA Museum spirit collection. ....	182
Table 44. Summary of significant plant and vertebrate species by Environmental Associations. ....	187
Table 45. Floristic groups with poor representation in existing conservation reserves. ....	189
Table 46. Summary table of the number of species with conservation ratings sampled by: all surveys, the current surveys 98, 111 and 104, and listed for the Flinders Ranges Herbarium region. ....	189

## APPENDICES

APPENDIX 1	
Environmental Association descriptions (Laut et al 1977) for the study area.....	201
APPENDIX 2	
Site locations, survey dates, floristic analysis group numbers and physical descriptions. ....	203
APPENDIX 3	
All plant taxa recorded at sites in Family order with updated and grouped names as used throughout this report. ....	243
APPENDIX 4	
All plant taxa by all surveys within the study area.....	266
APPENDIX 5	
Families in decreasing order of number of species. ....	298
APPENDIX 6	
Most commonly encountered plant species, present at >10% of sites. ....	299
APPENDIX 7.	
Plant species with Australian, South Australian or Flinders Ranges Herbarium Regional conservation ratings. ....	300
APPENDIX 8	
Plant taxa with specific bioregional distributions that are influenced by the Flinders Ranges.....	305
APPENDIX 9	
Floristic group species tables and habitat statistics.....	311
APPENDIX 10	
Plant species used for the floristic analyses and their site frequency within each floristic group. ....	367
APPENDIX 11	
Trap effort for vertebrate survey sampling sites. ....	387
APPENDIX 12	
Total mammal species list for the study area. ....	391
APPENDIX 13	
Fossorial small mammal species by sites. ....	393
APPENDIX 14	
Mammal species sites frequency in each vegetation structure category and latitude categories.....	396
APPENDIX 15	
The number of sites at which each mammal species was recorded for each landform category.....	397
APPENDIX 16	
Species occurrence at sites in the various survey efforts. ....	398
APPENDIX 17	
Bird species were recorded within the study area by specimens in the South Australian Museum, at Survey Sites, in the Opportune Database, and for the 'Atlas of Australian Birds' (Blaker <i>et al</i> 1984). ....	399
APPENDIX 18	
Order, Family and the number of species recorded within each Sub-family within the Study Area and within the four databases searched. ....	405
APPENDIX 19	
Bird species site frequency within the study area for each survey and latitude region. ....	407

APPENDIX 20	
Bird species site frequency for each landform pattern category surveyed.....	410
APPENDIX 21	
Bird species site frequency for structural vegetation categories.....	413
APPENDIX 22	
Bird species site frequency for vegetation mapping groups.....	416
APPENDIX 23	
Bird PATN group site frequency within the Floristic groups from PATN.....	420
APPENDIX 24	
Bird species site frequencies for the bird assemblage groups defined using PATN analysis program.....	423
APPENDIX 25	
Species list for all reptile species known to occur in the study area.....	425
APPENDIX 26	
The biogeographic distributions of reptile species in South Australia known to occur in the study area.....	429
APPENDIX 27	
Sites frequencies for reptile species in each assemblages determined using PATN.....	431
APPENDIX 28	
Sites frequencies for reptile species in each vegetation structural groups.....	433
APPENDIX 29	
Sites frequencies for reptile species in each land unit category.....	435
APPENDIX 30	
Reptile species site frequency by vegetation mapping groups.....	437
APPENDIX 31	
Fishes of the upper Broughton River (Hutt and Rocky Rivers inclusive).....	439
APPENDIX 32	
Selected invertebrate species sorted by Order and Family and the frequency at which they were recorded within each Latitude Zone.....	440
APPENDIX 33	
Selected invertebrate species sorted by Order and Family and the frequency at which they were recorded within each Landform pattern at sites.....	443
APPENDIX 34	
Selected invertebrate species sorted by Order and Family and the frequency at which they were recorded within each Land unit category.....	446
APPENDIX 35	
Selected invertebrate species sorted by Order and Family and the frequency at which they were recorded within each surface soil category.....	450
APPENDIX 36	
Selected invertebrate species sorted by Order and Family and the frequency at which they were recorded within each structural vegetation categories.....	453

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**A River Red Gum *Eucalyptus camaldulensis* in Flinders Ranges National Park (Photo: Hafiz Stewart).**