AYERS ROCK-MT OLGA NATIONAL PARK
ENVIRONMENTAL STUDY, 1972

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CONTENTS

Acknowledgments ........................................... v
Introduction ................................................. 1
Geology ......................................................... 2
Climate ......................................................... 5
The Land Systems ........................................... 9
Introduction to Land Unit Descriptions ............... 10
Geomorphology and Land Units .......................... 11
Surface Hydrology ......................................... 12
Vegetation .................................................... 13
Soils .......................................................... 15
Fauna .......................................................... 17
Environmental Effects of An Expanded Tourist Industry ... 21
Land Units—Soils, Vegetation and Major Recorded Fauna .. 29
Bibliography .................................................. 40
Appendices .................................................... 42

FIGURES

Ayers Rock—Mt Olga National Park—Location Plan ...... vi
1. Mt Currie Conglomerate .................................. 3
2. View of Ayers Rock from 'The Sediments' ............... 3
3. View of Mt Olga from 'The Sediments' .................. 4
4. Mean Monthly Rainfall and Rain Days ................... 6
5. Mean Monthly Maximum and Minimum Temperatures .... 7
6. Mean Daily Hours of Sunshine ............................ 8
7. Mean Monthly Evaporation ................................ 8
8. Infra-red Photograph—Highlighting Deterioration of Plant Growth Due to Road Construction at Ayers Rock .......... 23
9. Colour Photograph Showing Similar Effects to Photograph 9 at Maggie Springs .................................. 24
10. Close-up of Photograph 9 ................................ 24
11. Land Unit 1a—Surface of Ayers Rock .................... 30
12. Land Unit 1b—Mt Olga Monoliths ........................ 30
13. Land Unit 2—At Northern Edge of Mt Olga Complex .... 31
14. Land Unit 3—At Eastern Edge of Mt Olga ............... 31
15. Land Unit 4a—Mulga Groves ............................ 32
16. Land Unit 4b—Irregularly Dense Mulga ................. 32
17. Land Unit 5a1—Sand Plain Dominated by Triodia pungens 33
18. Land Unit 5a2—Sand Plain Dominated by Triodia basedowii 33
19. Land Unit 5b—Open Mallee Scrub ........................ 34
20. Land Unit 5c1—Low Irregular Dunes .................... 34
21. Land Unit 5d1—Irregular Dunes .......................... 35
22. Land Unit 5f—Parallel Dunes ............................ 35
TABLES

1. Soil Groups 15
2. Number of Animal Species 18
3. Broad Habitat Distributions of Main Groups of Native Animals 19

APPENDICES

Appendix Table
1. List of Plants Collected in The Park 42
2. Groups of Animals Recorded in The Park 46
3. Mammalian Species Recorded in The Park 47
4. Rare and Endangered Mammalian Species 48
5. Probable Number of Extinct Mammalian Species 48
6. Mammalian Species Likely to Be Observed by Visitors 48
7. Birds Recorded from The Park and Adjacent Areas 49
8. Reptiles Recorded from The Park and Adjacent Areas 51
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Ayers Rock-Mt Olga National Park—Location Plan

SCALE OF KILOMETRES

Mt Ebenezer

Curtin Springs

ERLDUNDA

HENBURY

ORANGE CREEK

Alice Springs

Northern Territory

South Australia
AYERS ROCK - MT OLGA NATIONAL PARK ENVIRONMENTAL STUDY

Introduction

The Arid Zone Research Institute, Alice Springs, received a request from the Commonwealth Department of the Interior for an environmental study of the Ayers Rock-Mt Olga National Park. This report was required so that an environmental impact statement could be made in relation to a vastly expanded tourist industry and the installation of adequate facilities to cater for such an industry.

The Ayers Rock-Mt Olga National Park is a national park in the Northern Territory of Australia. As a national park, it is under the care of the Northern Territory Reserves Board and was gazetted as such on 20 February 1958 under the National Parks and Gardens Ordinance.

The Park is approximately 320 km south-west of Alice Springs and is about 450 km by road. It is 126,000 hectares in area and measures 72 km from east to west and 12.8 km from north to south. An Aboriginal reserve borders the western and southern boundaries and unoccupied Crown land borders the northern and eastern boundaries.

The land has been retained as a national park because of the scenic grandeur of the monoliths, Ayers Rock and Mt Olga.
GEOLOGY

The geology of the Ayers Rock area has been mapped on a 1:250,000 geological series map (Sheet SG52-8) by the Bureau of Mineral Resources, Geology and Geophysics, and an explanatory booklet for this sheet has been published (Forman, 1965a). The following notes have been taken from these sources.

The Ayers Rock-Mt Olga National Park lies on the south-western border of the Amadeus Basin, a sedimentary basin which is composed of rock units extending mainly from the Upper Proterozoic to the Upper Palaeozoic Eras. The area surrounding Mt Olga and Ayers Rock is on a syncline with the Cambrian (Mt Currie Conglomerate) overlying the Upper Proterozoic (Winnal and Inindia beds) sedimentary rock formations. Much of the Park is covered by Quaternary sand and alluvium but the rock formations are exposed at Ayers Rock and Mt Olga inside the Park, and at Mt Currie and the ‘Sedimentaries’ over the north and north-west borders of the Park. South of the border of the Amadeus Basin, the rock formations are of Precambrian age, again overlaid by sand and alluvium, but these rock formations are clearly exposed in the Musgrave Ranges.

On the Ayers Rock geological sheet, both Mt Olga and Ayers Rock are classified as surface expressions of the Mt Currie Conglomerate contained in the syncline. Both are continuous with the underlying Cambrian strata and both were probably deposited at the same time (Forman, 1965b). Ayers Rock is composed of an arkose variant of the Mt Currie Conglomerate. The strata are tilted at a 75° dip and strike in an approximate south-east/north-west direction, thereby allowing long parallel, low hills and valleys to form by erosion on the top of Ayers Rock. The red, coarse-grained arkose which is a feldspar-rich sandstone, plunges to a depth of at least 2400 m and possibly 6000 m below the land surface. Below the land surface, it merges with the conglomerate between Ayers Rock and Mt Olga. It is also exposed above the sand and alluvium at a point 4 km south-east of Ayers Rock and briefly at several points closer to the west.

Mt Olga and Mt Currie (to the north-west of Mt Olga) are composed largely of the Mt Currie Conglomerate. This has a totally different appearance to the Ayers Rock arkose. The rock is clearly composed of a sequence of pebble, cobble and boulder conglomerate (1-30 cm diameter) cemented together by fine-grained epidote which also contains a granular matrix of fine angular fragments of stone 0.2-2 mm in size. Each pebble, cobble or boulder is readily separated from the background cement. (See Figure 1.) The hills to the north and north-east of Mt Olga are known as the ‘Sedimentaries’ or ‘Winnal Beds’. These are on the northern extension of the syncline and expose both the Cambrian Mt Currie Conglomerate and the Upper Proterozoic Winnal and Inindia beds. The tilted strata of these hills are recognisable in the low parallel ranges with a south-east/north-west strike on the southern border of these hills (see Figures 2 and 3). There are local outcrops of calcrete particularly on the slopes of Mt Olga and in an area within 1.5 km surrounding Ayers Rock. These are probably caused by secondary deposition. The remainder of the Park is dominated by sand dunes, sand plains and alluvium deposited by waterflows from Ayers Rock, Mt Olga, the ‘Sedimentaries’, Mt Currie and to a lesser extent from the Britten-Jones Creek in the south-east corner. The sands and alluvium are classified as Quaternary structures, and by geological standards are thin coverings of the rocks underneath.
Figure 1: Mt Olga—This photograph illustrates the pebble-to-boulder composition of the Mt Currie Conglomerate at Mt Olga. It contrasts with the more uniform arkose at Ayers Rock. (See Figure 11.)

Figure 2: Ayers Rock—Viewed from the north-west at the south-east perimeter of a range of hills known as the 'Sedimentaries' or 'Winnal Beds'. These hills are the surface expression of the Upper Proterozoic Winnal formation and are the part of the northern limit of the syncline which contains Ayers Rock and Mt Olga.
Figure 3: Mt Olga—Viewed from the north-east, showing also the most southerly range of the 'Sedimentaries'. The latter are over the northern border of the Park.
The climate of the Ayers Rock-Mt Olga National Park falls into the arid classification of Meigs (1953).

Climatic data have been recorded for the Bureau of Meteorology at Ayers Rock only since 1967. Prior to 1957, records were restricted to rainfall and are incomplete. The Park is within the area described by Slatyer (1962) in 'Climate of the Alice Springs Area'. It is on Slatyer's report and the Bureau of Meteorology records since 1967 that this climatic summary is based.

During the winter months, April to October, the weather is characterised by bright clear skies, cool nights and warm days. This mild weather is interrupted every seven to 10 days by the passage of a trough across the area, often resulting in below normal temperatures with frosts for several days and rainfall. On very rare occasions, there is as much as 2 in of rain.

During the summer months, November to March, the weather is characterised by greater cloudiness and higher temperatures. Although many days are cloudless, moist air from the tropics intrudes in low pressure troughs resulting in higher humidity and thunderstorm activity. Thunderstorm rain comprises most of the annual rainfall and accounts for its variability. On rare occasions, cyclones moving into Central Australia from the north result in substantial rainfall in the Park area.

(1) Rainfall
Slatyer (1962) placed Ayers Rock in about a 7 in annual rainfall zone. Old-time residents regard the average for Ayers Rock to be closer to 6 in per annum. Since 1967 the annual average rainfall has been 8 in. Whatever the average, the annual rainfall is extremely variable.

The annual rainfall distribution has a definite peak over the December-February period, a trough in August-September and a minor peak in July. The limited records from Ayers Rock (Figure 4) follow the same trend found by Slatyer (1962) using 90 years of records from Alice Springs. In four years, rain has not fallen on more than six days per month at Ayers Rock.

(2) Temperature
The temperature regime is characterised by marked seasonal and diurnal fluctuations (Figure 5). From November to March, maximum daily temperatures in excess of 38°C occur frequently, though cooler temperatures follow falls of rain or periods of southern cool-air inflow. The marked diurnal fluctuations in temperature have been attributed (Slatyer, 1962) to the extreme radiation conditions in the Centre, with low humidity and little cloudiness to interfere with either incoming or outgoing radiation. Regular frosts occur in June, July and August with air temperatures as low as -4°C being recorded.

(3) Sunshine
Daily hours of sunshine at Ayers Rock vary from 10 hours in summer to 7½ in winter (Figure 6). The low recording for May is a result of the high rainfall incidence in May at Ayers Rock since 1967.

(4) Evaporation
A marked increase in evaporation from winter to summer is evident at Ayers Rock (Figure 6), as are the extremely high values recorded during the summer months. Total evaporation averages 110 in per year.
Figure 4: Mean monthly rainfall and rain days at Ayers Rock.
Figure 5: Mean monthly maximum and minimum temperatures at Ayers Rock.
Figure 6: Mean daily hours of sunshine at Ayers Rock.

Figure 7: Mean monthly evaporation from a standard 3 ft diameter tank evaporimeter at Ayers Rock.
THE LAND SYSTEMS

Perry, Mabbutt, et al. (1962) classified the Alice Springs area into a number of land systems. In that report, the Ayers Rock-Mt Olga area is covered by three land systems. They are:

1. Simpson Land System.
2. Gillen Land System.

(1) Simpson Land System

These are sand plains and sand dune areas. The dunes are classified as parallel, reticulate and irregular according to their topography. Their distribution according to this classification is described later under 'Land Units'.

In terms of areal coverage, the Simpson Land System dominates the Park, covering most areas except the actual monoliths themselves, and the foothills and run-on plains surrounding the monoliths.

(2) Gillen Land System

These are the quartzite and sandstone ridges or ranges and are represented in the Park by Ayers Rock and Mt Olga with its foothills, and just outside the Park by the 'Sedimentaries'.

(3) Kernot Land System

The Kernot land system is only represented in the Mt Currie area near the north-west border of the Park and will not be considered further.
INTRODUCTION TO LAND UNIT DESCRIPTIONS

The 126,000 hectares of the Ayers Rock-Mt Olga National Park have been mapped at land unit level. These land units are similar in concept to the component 'units' of land systems used by Perry et al. (1962). Perry et al. recognised two land systems, viz. the Gillen Land System covering Ayers Rock and the Mt Olga area, and the Simpson Land System for the remaining sand dune and sand plain areas. The land units of this report give a more detailed description of the resources of the National Park.

A land unit can be defined as an area of land which exhibits a uniform photopattern on the aerial photographs. It contains similar soils, vegetation and topographic elements throughout. Minor variation in any of these is allowable as a unit may contain areas of different land units too small to map. The limitations to land use and the land use potential of any land unit are usually but not necessarily similar throughout.

For completion in this report, major recorded fauna have also been included in the land unit descriptions.

The primary breakdown of units has been on gross topographical and geological differences. The secondary breakdown has been based on finer topographical differences with associated soil and vegetation change. The final subdivision is on the basis of dominant vegetation associations and ecological considerations—particularly for the spinifex communities. These communities are sensitive to fire, slope and stability of the soil surface, all important ecological considerations because of the increased use of the Park by man.

The survey work was preceded by an initial stereoscopic interpretation of aerial photographs, and studies of geological and other references. The field work was carried out from four-wheel drive vehicles and involved a detailed examination of 34 sites. At each site the soil was described from an augered profile, vegetation identifications and assessments were made, and topographic notes were taken. A helicopter and light aircraft were used to assist in visiting less accessible areas of the Park and to gain better overall impressions of the landscape.

The field work was followed in the office by a detailed re-interpretation of the aerial photographs and construction of the maps. The photo-patterns were related to the field data, and the report was prepared.
GEOMORPHOLOGY AND LAND UNITS

The geomorphology of the Alice Springs area has been described by Mabbutt (1962). However, Mabbutt's descriptions are too broad to apply directly to the land units mapped in this study, so the geomorphological notes that follow are based on the land unit classification of Sallaway and Latz described in this report.

The land units in the park are classified into (1) monoliths, (2) foothills, (3) fans and outwash alluvium, (4) plains, and (5) dune fields and sand plains. The first three are in the Gillen Land System while the remaining two are in the Simpson Land System.

(1) Monoliths: These are Ayers Rock and Mt Olga.

Ayers Rock is an inselberg consisting of an outcrop of arkose rising steeply and starkly above the plain in the centre of the Park. It is 8.8 km in circumference, 3.6 km long in its north-west/south-east diameter and 2.4 km wide. At its base there are numerous caves and inlets which, because of water-flows down the fissures are local well-watered areas, with biological, anthropological and visitor interest. On the northern edge of the most easterly point, there is a small subsidiary outcrop, 'the Little Rock'. The round appearance and smooth outline of Ayers Rock are partly caused by spalling due to extremes of temperatures on its relatively homogeneous surface rock. Its height is 348 m above the ground or 867 m above sea level. Its walls on all sides are steep, leading to a relatively flat horizontal top surface which is heavily fissured by the strata. The longest wall, parallel to the fissures, has a north-east aspect. The top surface when viewed from above or on an aerial photograph is approximately kidney-shaped.

Mt Olga is one of a series of dome-shaped mountains (the Olgas), approximately 32 km west of Ayers Rock. There are five or six major domes and about thirty smaller domes, forming a cluster, with the largest to the west. The highest is Mt Olga itself, which is 546 m above the ground or 1072 m above sea level. The circumference of the entire group is about 22.4 km. Like Ayers Rock, each dome has steep walls, and there are narrow valleys between adjacent domes.

(2) Foothills: While Ayers Rock rises steeply from the plain, the actual domes of Mt Olga and its subordinates are surrounded by foothills. To the south and east, these consist essentially of a relatively uniform rise in the level of the land. To the north, several small hills are visible and to the west, the hills are widespread and prominent (see land unit map), quite rough and scarred by erosion.

(3) Fans and Outwash Alluvium: These are the gently sloping hill frontages surrounding Ayers Rock, Mt Olga and the foothills of Mt Olga. The underlying rock, often consisting of calcrete, is frequently exposed by sheet and gully erosion.

(4) Plains: These are the gently sloping plains surrounding (2) and (3), and thereby surrounding the monoliths. They are formed by deposition of alluvium. The growth of mulga (Acacia aneura) depends on run-off from the monoliths.

(5) Dune Fields and Sand Plains: These are the aeolian sand plains and dunes which dominate large areas of central Australia.
SURFACE HYDROLOGY

Surface movement of water is local, to within the Park only. The only stream in the area is the Britten-Jones Creek which flows in a northerly direction from the Musgrave Ranges. Examination on aerial photographs of the shapes of the sand dunes at the eastern end of the Park, suggests that this creek could have flowed through the Park at some time in the past. However, it certainly has had little influence in recent times. Lake Amadeus lies to the north of the Park but no discernible creeks reach the lake from the Park. Surface flows are therefore confined to local flows off sandhills, and flows in small watercourses and sheet flows off the monoliths, foothills and the range of hills known locally as the ‘Sedimentaries’. The growth of mulga (*Acacia aneura*) in arid areas of central Australia reflects the movement of water. In wetter areas, the bloodwood tree (*Eucalyptus terminalis*) is another important indicator. In the Park, mulga grows best in two ecosystems—the swales between the sand dunes, and on the plains surrounding and extending away from Ayers Rock and Mt Olga.

(1) *The Swales:* Local movements of water can be deduced in the dune fields by the growth of mulga in the centres of the swales. This important contribution of water from the sandhills is accepted as a major factor throughout central Australia and occurs by direct run-off and from seepage (J. A. Mabbutt—personal communication). This local effect is accentuated by the presence of less permeable clay-cemented cores beneath many of the older dunes, thereby limiting vertical water movements and allowing lateral seepage.

(2) *Watercourses Off The Monoliths:* The effect of the run-off from Ayers Rock and Mt Olga is demonstrated by the denser mulga stands on the plains surrounding the two monoliths. Further spread is limited by the sand dunes, although there may be a fractionally wider influence in nearby dunes and sand plains indirectly through soil moisture rather than directly through run-off (J. A. Mabbutt—personal communication). The pattern of run-off from both monoliths is therefore ecologically important as they have such an important influence on the vegetation of the surrounding plains.

At Ayers Rock, the walls dip steeply into the surrounding plain without a scree slope. Water flows down the fissure valleys created by the parallel strata, directly into shallow watercourses. Local soil moisture from these watercourses ensures the growth of relatively luxuriant vegetation close to the Rock. The watercourses then fan out further on the plain to produce sheet flows which support the mulga grove and scrub. As the near vertical strata run in a north-west/south-east direction, the maximal flows are in these directions, particularly towards the south-east around Maggie Springs and inlets further east. After their exit from the Rock, the flows do not necessarily spread out in a radial direction. Much of the south-east flow swings around the Rock towards the north. The widest spread of mulga plain around Ayers Rock is on the northern side. In the Mt Olga area, there is an extensive scree slope but better developed creeks take the water over the scree and out to the surrounding plains. These creeks (*e.g.* Bubia Creek) take water for greater distances than at Ayers Rock, partly because of their relatively impermeable, shallow bed rocks (R. French—personal communication). Their widespread effects are most marked to the north and north-east of Mt Olga. A general guide to their directions of flow is given on the land unit map of the Mt Olga area. The greater aerial spread of the mountains around Mt Olga also ensures greater water flows and therefore a greater catchment area.
VEGETATION

(1) **Plant Communities**

The vegetation of the Park can be grouped into three major components:

(a) upland communities on the monoliths and foothills;
(b) communities on areas affected by runoff;
(c) sand plain and dune field communities.

The vegetation is not static. Changes do occur and can be quite extensive in some areas. Vegetation is included in the Land Units section, but a description of the sensitivity of the major communities is as follows:

(a) **Upland Communities**

Vegetation on the summits and steep slopes is mainly sparse and hardy, predominantly spinifex (*Triodia irritans*). The less steep areas support a more productive vegetation and the greatest density of vegetation occurs in run-on areas such as drainage lines. One of these communities, the *Eriachne scleranthoides* complex, is unique to the Mt Olga area.

(b) **Run-off Area Communities**

These are composed mainly of mulga (*Acacia aneura*) (Units 4a and 4b), and grassland (Unit 3), dissected by drainage lines.

The areas containing mulga (Units 4a and 4b) are restricted to the heavier soils and are of two major types. Where there is some slope and somewhat poor penetration of water, the mulga is in contour-aligned groves with mainly bare ground between the groves (Unit 4a). Below the groves and usually abutting the sandy areas, the mulga is more or less randomly spaced and the trees are often of a more rounded, bushy shape (Unit 4b). Both mulga areas are reasonably stable.

On the other hand, the grassland areas (Unit 3) are very unstable. Rabbits have extensive burrows in the calcareous soils and have severely overgrazed these areas. Control must be considered in the future. Roads have affected drainage and resulted in death or reduction of plants on drainage lines or run-on areas (see Figure 8). Sheltered moist areas such as Maggie Springs and Olga Gorge, support a wealth of plant species some of which are rare or unique.

(c) **Sand Plain and Dune Field Communities**

Fire plays an important part in the ecology of the spinifex-dominated communities. The susceptibility to burning and the recovery rate after burning depend on which species of spinifex is dominant.

Hard spinifex (*Triodia basedowii*) is more susceptible to burning as it mostly forms thicker stands and once burnt, recovery rate is slow as plants regenerate only from seed. Soft spinifex (*Triodia pungens*) is more widely spaced (at least in the Park area) and usually can regenerate from burnt rootstocks. The other soft spinifex, feathertop spinifex (*Plectrachne schinzii*) which in the Park area is a minor component of the *Triodia pungens* communities, like *Triodia basedowii*, probably does not regenerate from burnt rootstocks. The net effect is that fire probably favours soft spinifex to the detriment of hard spinifex and feathertop spinifex.

There appears to be little doubt that fires have been a natural part of the ecology of the spinifex sand plains. If an area is not burnt for a considerable length
of time a massive build up of plant biomass develops. Any subsequent wild fire can severely damage the environment due to its great intensity and also increases the chance of covering large areas, possibly even extending into non-fire adapted areas such as the mulga communities.

(2) Inventory of The Flora of The Park

A survey of the Ayers Rock National Park revealed that 300 plant species were present in the area. These have been recorded in the appendices as Appendix Table 1.

(3) Rare Plants

The dominant shrubs and trees of the Park are found elsewhere in the arid central Australian region. A general survey of the larger vegetation units of the area suggests that there are sufficient inaccessible areas for most of these species to maintain their numbers. An important exception is the *Eriachne scleranthoides* community, mentioned above.

In the more mesic smaller habitats such as waterholes and soaks, the following rare species are found.

(a) *Stylidium inaequipetalum*—Maggie Springs;
(b) *Ophioglossum* sp., *Isoetes* sp.—Olga Gorge; Valley of the Winds;
(c) *Triglochin* sp.—Valley of the Winds;
(d) *Parietaria debilis*—Ayers Rock;
(e) mosses, liverworts, sedges and grasses—Ayers Rock and Olgas;
(f) *Ptychosema anomalum*—Ayers Rock.

The above species or groups have both specialised scientific interest and also interest to the amateur naturalist who visits the area. These plants are restricted to the swampy areas at the bases of the ranges and hence grow under conditions of higher water regimes than the surrounding more xeric vegetation.

There are other species which although common to the ranges and hills of central Australia, could become endangered in the Park. Loss of these plants would detract from the natural beauty of both Ayers Rock and the Mt Olga area.

These species include: *Anguillaria dioica*, *Juncus* sp. nov., *Isotoma petraea*, *Callitris columellaris*, *Prostanthera striatiflora*, *Glycine canescens*, *Gossypium sturtianum*, *Rulingia magniflora*.

If logging of the desert oak (*Casuarina decaisneana*) were to continue on any scale, this will also have a destructive effect on the land system and vegetation. These trees, some of which may be over 500 years old, assist in stabilising the dune systems. Felling and logging will remove a distinctly magnificent component of the vegetation of the sand dune and sand plain and so have a serious aesthetic as well as ecological effect on the Park.
SOILS

The soils have been described according to the Great Soil Groups as used by Stace et al. (1968).

Thirty-four sites were examined and the differences between sites were related to the mapped land units. Any variability within units has been shown by descriptive terms.

In Table I a comparison is made between Great Soil Groups and the subgroups of Litchfield (1962) and also the soils of the map units in the Atlas of Australian Soils. (Northcote et al. 1968.)

TABLE I
RELATIONSHIPS BETWEEN GREAT SOIL GROUPS AND DIVISIONS USED IN LITCHFIELD'S (1962) SYSTEM AND IN THE ATLAS OF AUSTRALIAN SOILS

<table>
<thead>
<tr>
<th>Great Soil Group</th>
<th>Litchfield's sub-groups</th>
<th>Atlas of Australian Soils</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithosols</td>
<td>2</td>
<td>BA18 Shallow stony undifferentiated soils</td>
</tr>
<tr>
<td>Siliceous sands</td>
<td>3f</td>
<td>AB60 Red siliceous sands UC1.23</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MY111 Red siliceous sands UC1.23</td>
</tr>
<tr>
<td>Earthy sands</td>
<td>3d</td>
<td>AB60 Red earthy sands UC5.21</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MY111 Red earthy sands UC5.21</td>
</tr>
<tr>
<td></td>
<td>3a</td>
<td>BA26 Shallow stony sands UC1.43</td>
</tr>
<tr>
<td>Calcareous red earths</td>
<td>6c</td>
<td>MY109 Gc on calcretes</td>
</tr>
<tr>
<td>Red earths</td>
<td>4d</td>
<td>AB60 Red earth Gn2.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MY111 Red earth Gn2.12</td>
</tr>
</tbody>
</table>

The main Great Soil Groups present are lithosols, siliceous sands, earthy sands, calcareous red earths and red earths.

The lithosols are essentially shallow stony soils lacking definite horizon development. Siliceous sands also have little profile development but are dominantly sandy, uniform-textured reddish soils. The earthy sands are more coherent sands, reddish, but with sufficient clayey material to allow a mild degree of cohesion within the soil. The calcareous red earths show little differentiation into horizons but are more loamy, and contain finely divided and concretionary carbonates in the lower parts of the profile. Red earths are better developed, more loamy soils with massive but porous profiles and fairly distinct horizons. They are usually gradational-textured, with an increase in clay content down the profile.

The soil groups are closely related to topography and also to the land units. The lithosols are confined to the monoliths and their scree slopes, and rock outcrops. In places there has been an addition of aeolian sand resulting in deeper deposits at the bottom of the scree slopes. At the break of slope below the scree water has been locally active in depositing sands or finer material. This has produced small areas of shallow, gravelly red earths or earthy sands. This action is mostly restricted to the area around the Olgas.
Surrounding both the Olgas and Ayers Rock are exposures of kunkar. These are Quaternary deposits associated with the filling of old salt lakes. They have given rise to areas of calcareous red earths which are often shallow and restricted in extent. Alluvial and aeolian deposits have covered much of the area in the immediate vicinity of the monoliths, and red earths and earthy sands have resulted.

Most of the Park is covered by dune fields or sand plains, which are aeolian in origin. Within these areas, water has been largely responsible for movement of the finer soil fractions into lower-lying areas. This movement has produced red earths or earthy sands in the larger swales, while the dune crests, which are often active, are red siliceous sands.
**FAUNA**

(1) **Fauna Before and After Settlement**

Since one of the aims of this report is to assess the effects of an increased tourist population, it is considered necessary to examine the state of the fauna before the advent of the white man and his activities, and to compare this with its status today. Many changes that have occurred can be expected to continue at an accelerated rate.

The precise status of the fauna and the environment in pre-European times in the Ayers Rock-Mt Olga region is not well documented and can only be gauged from the often sketchy journals of European explorers (e.g. Finlayson 1935, 1958; Giles 1875; Stuart 1863). Fuller scientific descriptions are sometimes available, e.g. the Horn expedition to central Australia in 1894 (Spencer, 1896).

The probable number of species existing before settlement of the general area is 37 species of mammals, 110 species of birds and about 60 species of reptiles (see Table 2, column 1). Since settlement, some native mammalian species are probably extinct (Table 2, column 5) and many are rare (Table 2, column 4). There are several reasons which may account for these differences, all of them associated with man and his activities.

The advent of stock and rabbits onto the rangelands offered serious competition for food, both direct and indirect, with native herbivores. Further, grass shelter was removed for some species, for example hare wallabies and the pig-footed bandicoot, which exposed them to increased predation from exotic foxes and cats (Finlayson 1961; Newsome 1971; Newsome and Corbett, in preparation).

In more recent times, the disturbing effects caused by tourist activity and by indiscriminate animal collections in the Park itself, have had deleterious effects on the rarer, more sensitive species, contributing to their loss from the region.

Whatever the reasons, the number of species and the area they inhabit have decreased in recent years, a condition which is true over most of central Australia (Calaby 1963; Ride 1970; Newsome 1971).

(2) **Inventory of Fauna in the Park Today**

(a) **Species Composition**

The number of species actually recorded from the Park itself is indicated by Table 2, column 2, and tabulated in Appendix Tables 3, 7 and 8. However, a more realistic figure is given in column 3, Table 2, since some species listed in column 2 have only been identified from bones, e.g. possum and false vampire bat (see Appendix Table 3).

The number of species in each ‘group’ of animals is shown in Appendix Table 2.

It can be seen from the list of species in the appendices that the region possesses a very impressive and representative array of fauna which is characteristic of central Australia.

(b) **Distribution**

For the purpose of this report, only five broad habitats are considered (see Table 3) and the groups of animals occurring within them are indicated. Fuller details of habitat are described elsewhere in this study.
TABLE 2
NUMBER OF ANIMAL SPECIES

<table>
<thead>
<tr>
<th>Group</th>
<th>Col 1</th>
<th>Col 2</th>
<th>Col 3</th>
<th>Col 4</th>
<th>Col 5</th>
<th>Col 6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Probable number species before settlement in Park and adjacent areas</td>
<td>Total number species recorded from Park</td>
<td>Number species recorded from Park in recent years</td>
<td>Number rare and endangered species</td>
<td>Probable number extinct species</td>
<td>Number different animal types likely to be seen by visitors</td>
</tr>
<tr>
<td>Native mammals</td>
<td>37</td>
<td>21</td>
<td>18</td>
<td>6</td>
<td>13</td>
<td>c.9</td>
</tr>
<tr>
<td>Exotic mammals</td>
<td>0</td>
<td>8</td>
<td>8</td>
<td>—</td>
<td>0</td>
<td>c.6</td>
</tr>
<tr>
<td>Birds</td>
<td>c.110*</td>
<td>79</td>
<td>c.60</td>
<td>?</td>
<td>2</td>
<td>c.40</td>
</tr>
<tr>
<td>Reptiles</td>
<td>?c.60</td>
<td>c.40</td>
<td>c.40</td>
<td>?</td>
<td>?</td>
<td>c.25</td>
</tr>
</tbody>
</table>

* c = approximately

1) **Mammals:** Most mammals are restricted to a particular habitat for sheltering, feeding and breeding purposes, e.g. bats, rock wallaby, euro, red-eared antechinus, although some range over wider habitats in search of food. For example, red kangaroos shelter in heavy mulga stands during the day but feed on more open grassy flats during the night (Newsome 1962, 1965).

Most of the rodents and mice (Notomys, Pseudomys, Antechinomys, Sminthopsis) are evanescent species—sometimes appearing in plague proportions after a run of good seasons and then disappearing in dry years to undetectable numbers in largely unknown refuge areas. When in large numbers, they occur over most habitats.

Dingoes have been sighted in most habitats.

2) **Birds:** As indicated in Appendix Table 2 and Table 3 in the text, most birds are restricted to areas which have some vegetative cover. The notable exceptions are eagles and hawks which occur over all habitats, and emus which cover extensive areas.

The alluvial fans with associated vegetation north and north-east of the Mt Olga complex represent unique areas for certain ground and scrub birds since many similar areas elsewhere in central Australia have been damaged by stock grazing.

Similarly, the mallee associations are comparatively small in size for the area but are important habitats for some species of birds.

3) **Reptiles:** Reptiles occur over the entire range of habitats, but occur in greatest abundance and diversity in the red sand and grassy flat associations and least on stony outcrops and foothill areas. However, these latter areas contain some species, e.g. some goannas, which are restricted to those areas.

4) **Invertebrates:** The distribution of invertebrates has not been recorded. Of interest, is the presence of fairy shrimps and shield shrimps (Triops australis) in ephemeral waterholes.
(c) **Abundance**

From available evidence from the region and elsewhere, many species show little variation in abundance from their relatively low numbers, for example, rock wallaby, grass wren, red-eared antechinus and bower-bird. This is possibly due to their restricted habitats and adaptation to an arid environment.

Many species including those mentioned above, while existing at low numbers for average years can increase to relatively high numbers after a run of flush years, for example ground-frequenting birds and red kangaroos. In some cases, such increases are only apparent increases—for example, localised light rains cause

| TABLE 3 |
|-----------------------------|-----------------|
| BROAD HABITAT DISTRIBUTION OF MAIN GROUPS OF NATIVE ANIMALS |

<table>
<thead>
<tr>
<th>Habitat</th>
<th>Land unit classification (Sallaway and Latz)</th>
<th>Main fauna*†</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Mulga stands, bloodwood swamp, kerosene grass etc adjacent to Ayers Rock; Ayers Rock</td>
<td>1, 2, 3</td>
<td>Rock wallaby, euro, bats, red kangaroo, marsupial mice and rodents, honeyeaters, magpies, parrots, cockatoo, wood-swallows, butcher-bird, owl, frogmouth, bower-bird, babbler, mistletoe bird, pardalote, plover, plus transient species to waterhole at Maggie Springs and the rock hole near the Little Rock</td>
</tr>
<tr>
<td>(2) Alluvial fans with witchetty bush and perennials. Mulga stands. Foothills to Olgas Olgas</td>
<td>1, 2, 3 4a 5d</td>
<td>Echidna, rock wallaby, euro, marsupial mice, rodents, bats, pigeons, dove, parrots, cockatoo, cuckoos, wrens, honeyeaters, magpies, kingfisher, rainbow-bird, quail-thrush, babbler, thornbill, whiteface, chats, robin, whistler, bell-bird, pardalote, mistletoe bird, finch, butcher-bird, owl, frogmouth, bower-bird</td>
</tr>
<tr>
<td>(3) Red sand ridges with desert oaks, sparse mulga stands in 'troughs'</td>
<td>5c 1 5d 1</td>
<td>Red kangaroo, marsupial mice, rodents, martins, crows, swallow, wood-swallows, pigeons, dove, parrots, cockatoo, honeyeaters, magpies, rainbow-bird, kingfisher, mistletoe bird, pardalote, butcher-bird, frogmouth, quail, plover, bustard, song-larks</td>
</tr>
<tr>
<td>(4) Red sand plains with mallee</td>
<td>5b</td>
<td>Red kangaroo, marsupial mice, rodents, pigeons, dove, parrots, cockatoo, cuckoos, wrens, honeyeaters, quail-thrush, babbler, whiteface, chats, robins, pardalote, mistletoe bird, bell-bird, butcher-bird, bower-bird</td>
</tr>
<tr>
<td>(5) Red sand ridges and troughs with spinifex</td>
<td>5e 5f</td>
<td>Marsupial mice, rodents, pigeon, cockatoo, wrens, quail</td>
</tr>
</tbody>
</table>

* All groups of reptiles are represented in all habitats.
† Some species range over many habitats, e.g. dingo, eagle, emu.
local migrations and concentrations of red kangaroos onto a localised food source (Newsome, 1965).

After a run of good seasons, some species (marsupial mice and rodents) form plagues which in turn attract large numbers of predators to the area. Examples of these recorded in other areas include plagues of the plague rat (*Rattus villosissimus*), the letter-winged kite (*Elanus scriptus*) (Hall, 1969) and the owl (*Tyto alba*) (Corbett, unpublished data) on the Barkly Tablelands. Another example closer to the Park, at Erldunda Station, is the increase in exotic foxes and cats after the plagues of native mice, rodents and rabbits in 1968 (Corbett and Newsome, unpublished data).

Some species are annual immigrants, such as robins and the rainbow bird.

In comparison with earlier records and speculations, some species are rare, and in some cases probably in danger of becoming extinct (see Table 2, column 4; Appendix Table 4).

Some species are probably extinct, others are certainly extinct (see Table 2, column 5; Appendix Table 5).

(d) Sensitivity

In general, little is known of the precise biological requirements needed for the survival of most species. However, the list of endangered and extinct fauna indicates that many species are so adjusted to their environment that any slight change in the habitat or disturbing factors to their behaviour, can lead to reproductive failure and increased exposure to predation and hence to their diminution or extinction.

(e) Visitor and Scientific Interest

At first sight, the impressive lists of fauna as indicated in Appendix Tables 3, 7 and 8, suggest that very diverse groups of arid-zone fauna are available for visitors to perceive and enjoy. However, because many animals are either nocturnal, or occur naturally in small numbers in restricted habitats or only occur in observable numbers after a run of good years, column 6 of Table 2 and Appendix Table 6 are more realistic lists of the species likely to be observed by visitors. Even these lists are optimistic. A recent trip was made to the Park by an experienced wildlife ranger to assess easily observable mammalian populations, but in three days only one euro, one dingo and several red kangaroos were observed. At the same time, tracks and faeces indicated that there were possibly 10-20 euros at Ayers Rock and 50-60 at the Mt Olga complex. Native mice (*Antechinus*) and rock wallabies were common amongst the rocks, and possibly 300 red kangaroos were distributed over the Park. The tracks and faeces of the echidna were also observed.

Some species, for example dingoes, red kangaroos, rock wallabies and many birds, can become less shy in a national park.

(f) General Comment

From the foregoing notes, it is obvious that little is known about the life histories of the majority of the Park’s fauna. In many cases, only the presence of animals and their taxonomic status are recorded. In other cases, the only information known is that the animals might exist. A permanent biologist is needed to gather biological information, to apply management techniques, and to assess the effects of proposed changes in tourist developments in the Park (see later).
ENVIRONMENTAL EFFECTS OF AN EXPANDED TOURIST INDUSTRY

This chapter is included to summarise the probable effects of an expanded tourist industry on the Ayers Rock-Mt Olga National Park. It includes the effects of a township in the area.

The section reported here will be divided into the main effects of man in the area. Each effect will be discussed under the general heading of (a) the resources affected and the likely effects on those resources, and (b) suggested methods of minimising damage to those resources.

(1) Construction of Roads

(a) Resources Affected: It is recommended that roads be sited so that they cross well-defined watercourses and not sheet waterways. This is particularly important on the circuit roads surrounding Ayers Rock and Mt Olga.

The reason for siting these waterways over finite watercourses is that the growth of mulga (*Acacia aneura*) and other plants on the plains surrounding the monoliths is dependent on the sheet flows of water which fan out from water courses and creeks running off those monoliths. Interruptions to the flows of water by roads result in improved growth of plants on the monolith side of the roads but severe detriment on the other side. This process is already visible at Ayers Rock and is illustrated by Figure 8, an infra-red photograph of part of the Ayers Rock circuit road. In such a photograph, active plant growth is highlighted by the red appearance of the plants. In Figure 8, there is far greater growth on one side of the road than the other. In other areas, such techniques as infra-red photography are not needed since dead trees particularly bloodwood (*Eucalyptus terminalis*) and poor growth of ground vegetation are seen on one side in contrast to comparative luxuriant growth on the other side of the road. (See Figures 9 and 10).

Another deleterious effect of road-making in the Park is the effect on local erosion if the road is not designed and maintained according to good soil conservation standards. The circuit roads around Ayers Rock and Mt Olga are at greatest risk because they frequently run over land areas classified as Land Unit 3, areas with soil that is inherently unstable. In practice, these areas cannot be avoided as they also contain the finite watercourses.

Dust from the roads in the Park also serves as a hazard to plant growth. In addition to the obvious aesthetic effect, dust inhibits plant growth alongside the roads.

(b) Methods of Minimising Damage: Circuit roads should be sited over defined watercourses. Any previous roads no longer in use should be levelled to ensure unimpeded flow.

The circuit roads now in use at Ayers Rock and Mt Olga are in general well sited in so far as waterflows are concerned. What damage has been done, has been caused by previous roads and tracks and by inadequate floodways on the present roads. This is particularly true at Ayers Rock. The Northern Territory Reserves Board is now being advised by the Department of the Northern Territory on ways of improving the floodways on the Ayers Rock circuit road.
Further construction and maintenance should be with the advice of trained soil conservation officers to avoid erosive effects on the unstable soils. Dust can only be avoided by sealing all major roads.

(2) Construction of Paths and Trails

The objects of paths and trails should be to facilitate the movement of visitors and to divert them off ecologically sensitive areas.

(a) Resources Affected: The paths and trails will be sited at points of greatest visitor interest. These areas are also some of those which are most sensitive to destruction and contain the rarest plants. These rare plants, listed in the Vegetation section, are at Maggie Springs (Ayers Rock), Olga Gorge, the Valley of the Winds (Mt Olga) and various other sites on or near the two monoliths. Large numbers of people trampling the area will endanger these plants. Ultimately this will increase soil erosion—directly by trampling and indirectly by reducing plant cover. The effects on fauna are more likely to be indirect by loss of vegetation, since most Park mammals are nocturnal and thereby avoid direct visitor contact.

Incorrectly planned and maintained paths and trails can, like roads, be a threat to the soils and vegetation. They, too, must be planned in relation to the land contours and waterflows. Figures 9 and 10 are photographs, taken vertically, of the Maggie Springs area. The path leading in and the spreader banks have diverted waterflows to one side (right side of Figure 9) to the detriment of the other. Paths and trails, if not constructed carefully, can themselves become direct erosion hazards.

(b) Methods of Minimising Damage: The ecological benefits of paths and trails can be maximised by ensuring that visitors are confined to those paths and trails. Suitable guide posts, warning signs and fences may be needed.

Vehicles should be confined to restricted parking areas at the start of each path and trail. Appropriate steps should be taken to avoid erosion and disturbance to natural waterflows across and around the paths. The paths can be stabilised by gravelling or sealing, ensuring their edges are strengthened, constructing steps and sealing floodways.

(3) Introduction of Feral Animals

This is a process which has already commenced and will continue at a greater rate if there is increased visitor activity. The most serious feral animals are the domestic cat, the fox and the European rabbit. Other animals which are a danger from time to time, are camels, cattle, horses, donkeys and dogs. However, cats and rabbits are the most serious pests now and the most difficult to control.

(a) Resources Affected: Feral cats pose the most serious threat since they are more efficient predators on mice, birds and reptiles than foxes and dingoes (Corbett and Newsome, unpublished data). Cats can become numerous, for example, in 1970. Park rangers killed 180 feral cats over a period of six weeks. The destructive capacity of cats is illustrated by the example of a single well-fed house cat in Alice Springs which was observed to kill approximately 200 birds and a number of reptiles in two years (Corbett, unpublished observation). Clearly in an ecologically sensitive area such as the arid Ayers Rock-Mt Olga National Park, the presence of increased numbers of feral cats who will be seeking food, will have a severely destructive effect on birds, reptiles and small mammals.
Figure 8: Infra-red photograph at site where road development has obstructed water flows at Ayers Rock. Active plant growth is highlighted by the red appearance of the plants.
Figure 9: Maggie Springs area at Ayers Rock. The photograph is taken from above at a height of about 300 m. There is a track leading into the actual springs at the base of the rock face and two contoured spreader banks cross the track. Water flows favouring the right side of the track, are clearly illustrated in this photograph by the density of plant growth.

Figure 10: Maggie Springs area. A close-up of the above photograph.
Rabbits favour the calcerous soils of Land Unit 3. In these fringing areas around both monoliths, huge warrens scar the surface. The land becomes eroded directly from these warrens and indirectly by consumption of the surrounding vegetation by rabbits. These soils are the least stable in the Park. Rabbits also have a direct deleterious effect on native fauna, particularly the rabbit-eared bandicoot, by competing for favoured living areas.

The larger herbivorous species, camels, cattle, horses and donkeys affect the soils directly by trampling, particularly on the sand dunes, and indirectly by eating out what favoured vegetation is available. Dogs and foxes have similar effects to the cat, but to a lesser degree.

(b) Methods of Minimising Damage: All pets and feral animals should be banned from the Park. People in the village will be affected by this recommendation but the example of the Alice Springs cat mentioned above indicates that even pet cats in the village would be a danger. The breeding of pet animals, particularly cats, inevitably leads to animals 'going wild', who are then forced outwards seeking food. Pet animals arriving in visitors’ vehicles should be kept under control and an animal pound at the village could be considered.

Control measures should be instigated against feral animals which exist in the Park. The rabbit is one important and difficult objective. Myxomatosis is not a practical control measure in the area and poisons should be avoided. The control measure preferred is mechanical digging and undermining of rabbit warrens. (Parker et al. in prep.).

(4) Construction of A Village
(a) Resources Affected: Despite whatever care is taken by the village’s permanent and temporary populations, the Park rangers, and the people empowered to plan the new village, there will be damage to all the resources which surround the village. Surrounding areas must therefore be regarded as sacrifice areas.

(b) Methods of Minimising Damage: The site of the village is the crucial factor in minimising the ecological effect of a village and its people. The principles used are to isolate the village from the areas requiring protection and to prefer a site which is not unique, i.e. a readily duplicated environment.

Of the sites discussed at the meeting chaired by Mr G. Godwin (Special Projects Branch, NT Administration) on 14 September 1972, the site 8 to 10 km north-east of Ayers Rock (grid reference 413855) is preferred.

This site is isolated by sand dunes preventing most people from reaching Ayers Rock on foot. Its surrounding area is typical of a wide area in Central Australia. The area has no unique features so that the land used for the village and its surroundings is acceptable as a sacrifice area.

Any site between the two monoliths, Ayers Rock and Mt Olga, should be avoided on aesthetic grounds, and to preserve the wilderness aspect of the Park.

(5) Construction of An Aerodrome
There will be a strong temptation on economic grounds to build an airstrip on an open plain away from the sand dunes.
(a) Resources Affected: The open plains in the Ayers Rock-Mt Olga National Park are the sand plains of Land Units 5a1 and 5a2, and the mulga plains of Land Units 4a and 4b. These plains are mainly on or over the present northern boundary of the Park.
An aerodrome with a main airstrip running north-west/south-east in the northern edge of the Park, will have its main strip running into the mulga plains which fan in a north-east direction out of Mt Olga.

Little is known of the precise nature of the movements of animals in that area and such work to determine those movements would take a number of years to complete. There is, however, evidence that animals move north-east of Mt Olga, around the eastern tip of the 'Sedimentaries' to the mulga plains and the hills further north. A large aerodrome would probably inhibit those movements.

In addition, construction of a main airstrip at the south-eastern end of the 'Sedimentaries' with a north-west/south-east direction will remove much of the mulga plain in that area and could be visible from the top of Ayers Rock.

Further, there is insufficient information about water flows in this area and hence of the disruptive effects on the surrounding mulga plains should an aerodrome be sited there.

(b) Methods of Minimising Damage: The projected site of the aerodrome at the north boundary of the Park should be either moved further north or sited elsewhere.

(6) Human Activities

This is a broad category and will only be discussed under the general heading of methods of minimising damage. The following general plans have been considered—

(a) Limitation of the number of visitors.
(b) Ban on nocturnal visits.
(c) Access to the Park by a single road only.
(d) Restriction of vehicles to roads.
(e) Access by buses only and restriction of visitors to certain areas only.
(f) A ban on the collection of timber (includes firewood).
(g) Creation of animal refuge areas.
(h) Ban on shooting.
(i) Control of fires.
(j) Control of pesticides.

(a) Limitation of The Number of Visitors: In considering these plans, it should be noted that although the total area of the Park is quite large, many of the sensitive areas which are often the most popular visitor areas are quite small, and would be inundated when large numbers of visitors enter the Park. No definite number of visitors has been recommended here. Professor Ovington, of the Australian National University, and his staff, has completed quantitative studies on a number of sensitive sites. He reported that there are definite limits in some areas such as the Ayers Rock climb and the Maggie Springs area.

Previous calculations (in earlier correspondence with the NT Reserves Board) indicated an upper limit of 8100 people in the Park at one time. If a person stays for an average of two days, this would mean a limit of about 4000 new people per day. Once the demand to visit exceeds the capacity of the Park, it may be necessary to insist that people book ahead before entering the Park.

(b) Ban on Nocturnal Visitors: Access to the Park areas should be banned from a time after sunset to a time before sunrise. Camping can have serious deleterious effects because of trampling of ground vegetation, removal of wood and the creation
of car tracks off the roads. Parties at night pose serious risks because of trampling, vandalism, litter dispersal and disturbance to native fauna. A most important reason for the cessation of night activities is that much of the Park's native fauna is nocturnal.

(c) Access to The Park By a Single Road Only: There should be a single access road to the Park from the village and the aerodrome, which will allow adequate monitoring of the movements of people by the rangers. The road would then branch with one section leading to Ayers Rock and the other to the Mt Olga area. The road from the aerodrome should pass to the village first.

(d) Restriction of Vehicles to Roads: This area is so sensitive to disturbance that the tracks of previous vehicles can sometimes be seen for years afterwards. One set of tracks often stimulates other drivers to follow, leading to an unauthorised road with much damage to the soil and vegetation. A most serious modern hazard is that caused by cross-country 'dune buggies' and 'trail motor bikes'. These, if not controlled, will have serious effects on the sandhills and the sand plains.

(e) Access by Buses Only and Restriction of Visitors to Certain Areas Only: As numbers build up, it may be necessary to confine the movements of people in the Park to buses from the village. Visitors could leave their vehicles at the village and take buses from there. To ensure minimal disturbance, there would be a limited number of paths which emanate from parking areas to such sites as Maggie Springs and the Fertility Cave, Climbing Point, Sound Shell Cave, Old Woman's Cave, Olga Gorge and a number of sites on the south range of Mt Olga.

(f) Ban on The Collection of Timber: Timber in this sense refers to dead wood on the ground as well as standing live and dead timber. Removal of timber litter from the ground destroys focal build-ups of soil and moisture, favourable to the growth of ground vegetation. Once this is removed, sheet and gully erosion is accelerated. Timber litter is therefore an important ecological factor in central Australia and its removal and that of standing dead timber should be banned.

(g) Creation of Animal Refuge Areas: Suggested animal refuge areas include the hills to the west of Mt Olga and the mulga plains to the north and north-east of the Mt Olga complex. It is also recommended that the area surrounding the 'Sedimentaries' be included in the Park as this has a comparatively high faunal population. Likewise, the mulga plain between the 'Sedimentaries' and Mt Olga should be included. This is a relatively unharmed habitat for ground and scrub birds, a situation rare in central Australia. The Valley of the Winds at Mt Olga is an important faunal watering site which has suffered considerable damage in recent years. This damage will accelerate with greater numbers of visitors. Many animals would benefit if the Ayers Rock circuit road passed around the Little Rock and the small water spring further to the west. Access by road to the Mt Olga area should be limited to the present southern road to the Olga Gorge and the present northern road as far as the turnoff to the Valley of the Winds. The western road, at present a relatively rough track, and the access road to the Valley of the Winds, should be deleted.

(h) Ban on Shooting: The rangers may need to shoot feral animals and perhaps some native animals such as red kangaroos, during plagues. Otherwise, all shooting should be banned.
(i) *Control of Fires:* Wild fires can lead to complete changes in the compositions of the Park vegetation. They can be extremely serious after a build-up of dry vegetation. Camp fires should be restricted to picnic sites. Controlled burns under the supervision of a botanist-ecologist may be necessary to avoid severe wild fires.

(j) *Pesticides:* Local rises in chlorinated hydrocarbon content of body fat have already been recorded in animals from areas surrounding the towns in the Northern Territory (S. Best, personal communication). This aspect must be considered in an area where there are relatively low numbers of fauna near to high numbers of people and therefore maximal chances of pesticide build-ups.
LAND UNITS—SOILS, VEGETATION AND MAJOR RECORDED FAUNA

Land Unit 1a

CSIRO LAND SYSTEM: Gillen.
GEOLOGY: Arkose of the Cambrian Mt Currie Conglomerate.
TOPOGRAPHY: Isolated monolith (see Figure II).
SOILS: A few areas of soil are found in depressions. They result from mixing of decomposing arkose rock and finer wind blown deposits. These small areas of soil (to 20 square metres) can reach depths of 50 cm, are light sandy loams, of neutral pH and have a veneer of very coarse sand grains.
VEGETATION: Sparse vegetation. Depression areas are dominated by hardy perennial grasses (Cymbopogon sp.) and sedges (Cyperus spp.) with short inconspicuous perennial grasses (Tri­pogon sp.) and other sedges (Fimbristylis spp.) where soils are very shallow. In areas of sheltered soils associated with decomposing rock in crevices, patches of wattle (Acacia sp.), other shrubs (i.e. Dodonaea sp.) and spinifex (Triodia sp.) occur.
EROSION AND STABILITY: Some disturbance to local areas of vegetation by rabbits and humans has occurred. These small communities are susceptible to damage.
FAUNA: Rock wallaby, euro, bats, red-eared antechinus, rabbit, owl.
COMMENT: The vegetation is heavily grazed and is sensitive to vandalism.

Land Unit 1b

CSIRO LAND SYSTEM: Gillen.
GEOLOGY: Cambrian Mt Currie Conglomerate (see Figure I).
TOPOGRAPHY: Series of associated monoliths. (see Figure 12).
SOILS: As for Unit 1a, but more frequent areas of lithosols associated with colluvial deposits on scree slopes.
VEGETATION: Predominantly spinifex hummock grassland but with three components—
1) Summits and steep slopes: Spinifex (Triodia irritans) predominant. Only when slope angle decreases, do other species appear, e.g. scattered shrubs of Acacia sp., Cassia spp. and Hakea spp.
2) Scree slope with colluvial build-up (possibly associated with fault lines). Thin dense strip of low trees (Eucalyptus and Acacia spp.) and shrubs. Many different species present.
3) Point of junction of scree slope with major rock outcrop: Dense localised areas of endemic perennial grass (Eriachne scleranthoides), with short, inconspicuous perennial grass (Tripogon sp.) and sedge (Fimbristylis sp.) dominating the fringing, very shallow soils.
EROSION AND STABILITY: Generally stable. Scree slopes and areas of colluvial aggradation will slump if human pressure is increased.
FAUNA: Rock wallaby, euro, echidna, marsupial mice, rodents, bats, rabbit, pigeon, parrots, cockatoo, cuckoo, wrens, honeyeaters, magpie, kingfisher, rainbowbird, babbler, thornbill, white-face, chats, robins, whistler, bell-bird, pardalote, mistletoe bird, finch, butcher-bird, owl, frogmouth, bower-bird. Some species range over wide habitats (dingo, fox, cat, eagle, hawks, crows).
COMMENTS: Component 3 of vegetation is unique to the Olgas and access to these areas should be avoided. Walking tracks should avoid these areas.

Land Unit 2

CSIRO LAND SYSTEM: Gillen.
GEOLOGY: Cambrian Mt Currie Conglomerate.
TOPOGRAPHY: Rock outcrops and scree slopes of lower relief than Unit 1b, surrounding Unit 1b, dissected by drainage lines with small rock pools, mainly to the northern edge (see Figure 13).
SOILS: Soils are mainly lithosols where present, but in localised areas of deposition, shallow gravelly red earths or red earthy sands, occur.
VEGETATION: Annual grassland with some low tree and shrub cover. Grasses are predominately mulga grass (Aristida contorta) and oat grass (Eneapogon polyphyllus), with scattered mulga (Acacia aneura) and shrubs (Cassia and Ptilotus spp.). Drainage lines con-
Figure 11: Land Unit 1a. Soil depression on the top of Ayers Rock.

Figure 12: Land Unit 1b. Spinifex (Triodia irritans) on top of one of the monoliths in the Mt Olga area. The helicopter was a valuable aid in this work.
Figure 13: Land Unit 2 showing drainage line on northern slope of the monoliths in the Mt Olga area.

Figure 14: Land Unit 3. Eastern end of monoliths in the Mt Olga area. This area is easily eroded.
Figure 15: Land Unit 4a. Mulga groves following contour lines.

Figure 16: Land Unit 4b. Irregularly spaced dense mulga.
Figure 17: Land Unit 5a1. Sand plain which is between Units 1-4 and the sand dune area.

Figure 18: Land Unit 5a2. Similar to 5a1 but hard spinifex (Triodia basedowii) dominates.
Figure 19: Land Unit 5b. Open mallee scrub.

Figure 20: Land Unit 5c1. This area is similar to 5c2, except that 5c2 is largely in areas dominated by hard spinifex (Triodia basedowii).
Figure 21: Land Unit 5d1. Irregular dunes areas. Area 5d2 is similar except that hard spinifex dominates. Area 5e has reticulate rather than irregular dunes.

Figure 22: Land Unit 5f. Parallel dunes.
tain river red gum (*Eucalyptus camaldulensis*), bloodwoods (*Eucalyptus terminalis*), shrubs and perennial grasses (*Themeda* and *Digitaria* spp.).

**EROSION AND STABILITY:** Basically stable.

**FAUNA:** As for Land Unit 1b.

**COMMENTS:** Rockholes and surrounding vegetation associated with drainage lines are important for wildlife. Access should be restricted.

### Land Unit 3

**CSIRO LAND SYSTEM:** Gillen.

**GEOLOGY:** Quaternary alluvium.

**TOPOGRAPHY:** Sloping hill frontage. Small areas of rock outcrop. Stone or calcrete cover common, particularly on higher slopes (see Figure 14). In Mt Olga area, there are numerous small incised creeks.

**SOILS:** Variable. Areas of shallow calcareous red earths over calcrete are common. The calcrete is often exposed by sheet erosion, showing angular calcrete nodules and some ironstone gravel. In lower outwash fans, medium textured red earths occur, while on peripheral plain areas affected by aeolian sand deposits, red earthy sands are found.

**VEGETATION:** Very complex but basically open grassland with scattered low trees and shrubs. Five major components—

1. **Run-on area at base of Ayers Rock:** Dense to open bloodwood (*Eucalyptus terminalis*) thicket. Understorey vegetation variable, can be very complex.

2. **(a) Ayers Rock drainage lines:** Sparse bloodwoods over dense perennial grass (*Themeda avenacea*).

   **(b) Mt Olga complex drainage lines:** Sparse bloodwoods with mixed shrubs and perennial grasses. Tea-tree (*Melaleuca* sp.) dominant in some areas.

3. **Calcareous interfluve:** Annual grass (*Enneapogon cylindricus*) with very sparse shrub cover (mainly *Acacia victoriae*).

4. **Sandy interfluves:** Scattered bloodwoods and mulga over perennial grass (*Eragrostis eriopoda*).

5. **Short grass areas:** Open annual grassland with scattered mulga or corkwood (*Hakea* sp.) and variable shrub cover (e.g. *Ptilotus* sp.).

**EROSION AND STABILITY:** Area inherently unstable. Erosion has occurred, particu-лярly around Ayers Rock. Interference with components 1 and 2 above will markedly affect vegetation. Due to the absence of Unit 2 around Ayers Rock, this area is particularly prone to interruption of water flow.

**FAUNA:** Similar to Land Unit 1b.

**COMMENTS:** Component 1 above contains rare and unique plant species. Human presence on these areas must be controlled. Damage by rabbits and exotic animals has been significant in calcareous areas.

### Land Unit 4a

**CSIRO LAND SYSTEM:** Simpson.

**GEOLOGY:** Quaternary alluvium.

**TOPOGRAPHY:** Gently sloping plains of less than 2%, fringing unit to Unit 3 (see Figure 15).

**SOILS:** Medium textured red earths, with a sandy loam or loamy sand surface, grading to a sandy light clay or light clay by 110 cm depth. Some areas of uniform red earthy sands. Surface pH may be acid (4.5-5.0), but quickly rises to neutral at depth. A gravelly or stony horizon may occur at depth.

**VEGETATION:** Mulga (*Acacia aneura*) groves. Contour-aligned groves of dense mulga with native fuchsia (*Eremophila* sp.) and woolly butt (*Eragrostis eriopoda*) perennial grass understorey. Intergrove areas sparsely vegetated.

**EROSION AND STABILITY:** Stable in natural state. Roads restricting sheet flow of water will cause death of mulga. Tracks not on contour can initiate soil erosion, due to a water concentration effect. This is particularly likely south of the Mt Olga complex, due to steeper slopes.

**FAUNA:** Echidna, red kangaroo, eumo, mice, rodents, rabbit, pigeons, dove, parrots, cockatoo, euckoos, wrens, honey-eaters, magpies, kingfisher, rainbow-bird, quail-thrust, babbler, thornbill, whiteface, chats, robins, whistler, bellbird, pardalote, mistletoe bird, finch, butcher-bird, owl, frogmouth, wider ranging dingo and eagle.

**COMMENTS:** Mulga areas act as animal refuge areas. At present these areas are used for firewood harvesting and care should be taken to retain the dead timber as a ground cover. Reduction of this ground cover will inhibit regeneration and encourage scalding.
Land Unit 4b

CSIRO LAND SYSTEM: Simpson.

GEOLOGY: Quaternary sand and alluvium.

TOPOGRAPHY: Sand plains fringing Unit 3 and affected by run-off from this unit. Slope slight, water run-on areas (see Figure 16).

SOILS: Red earthy sands, with an acid surface (pH 5.0), rising to neutral pH at depth. Throughout the profile, stone layers could occur. Visible sand grains are very coarse (1-2 mm), cemented weakly by clay or iron oxides.

VEGETATION: Mulga (Acacia aneura) scrub. Dominated by more or less irregularly spaced dense mulga with perennial woolly butt grass (Eragrostis eliptopoda) understorey. Shrub (Eremophila sp.) understorey mostly absent.

EROSION AND STABILITY: Stable area.

COMMENTS: Drought or water flow interruption will cause mulga death on either a large or small scale depending on severity.

Land Unit 5a1

CSIRO LAND SYSTEM: Simpson.

GEOLOGY: Quaternary aeolian sand.

TOPOGRAPHY: Sand plain transitional area from Units 1-4 to dunes areas (see Figure 17). Slopes of up to 1°.

SOILS: Red siliceous sands, some earthy sands, dry loose to soft, slightly acid to neutral pH. Slight increase in clay content with depth, with a high proportion of very coarse (1.5-2.0 mm) sand grains.

VEGETATION: Hummock grassland dominated by soft spinifex (Triodia pungens). Feathertop spinifex (Plectrachne schinzi) on the upper sand-dune fringing area is partially or completely replaced by soft spinifex below. Scattered shrubs (Eremophila and Rulinyia spp.) occur with some perennial grasses (Amphipogon and Eragrostis spp.). Scattered areas of sparse Desert Oak (Casuarina decaisneana).

EROSION AND STABILITY: Stable sand plain. Some drifting sand if bared by fire or drought.

FAUNA: Red kangaroo, marsupial mice, rodents, marsupial mole, camel, martin, crows, swallow, woodswallows, pigeons, dove, parrots, cockatoo, honeyeaters, magpies, rainbowbird, kingfisher, mistle-toe bird, pardalote, butcher-bird, frog-mouth, quail, plover, bustard, song-lark. Wide-ranging species (dingo, etc.).

Land Unit 5a2

CSIRO LAND SYSTEM: Simpson.

GEOLOGY: Quaternary aeolian sand.

TOPOGRAPHY: As for Unit 5a1, but restricted in area to near Mt Olga and 'the Sedimentsaries' (see Figure 18). Sand plains of less slope, and broader than those in Unit 5a1.

SOILS: As for Unit 5a1.

VEGETATION: Hummock grassland dominated by hard spinifex (Triodia base-dowii). Stands of a weak-stemmed shrub (Dicrastylis gilesii) and the occasional desert oak (Casuarina decaisneana) occur.

EROSION AND STABILITY: Stable areas of sand plain, less evidence of drifted sand than in Unit 5a1.

FAUNA: Similar to 5a1.

COMMENTS: More susceptible to fire damage than Unit 5a1, mainly due to dominance of hard spinifex. Usually this spinifex regenerates more slowly after fire than soft spinifex.

Land Unit 5b

CSIRO LAND SYSTEM: Simpson.

GEOLOGY: Quaternary aeolian sand.

TOPOGRAPHY: Undulating terrain with sandy rises (see Figure 19). Open, some irregular low sand-dune areas.

SOILS: Red earthy sands to at least 1 m, then a gradual change to a yellowish red heavy clayey sand to light sandy clay. Sands overlying stone and rock, sometimes calcrete, which is associated with an increase in pH becoming strongly alkaline.

VEGETATION: Open mallee scrub dominated by blue mallee (Eucalyptus gamophylla), but witchetty bush (Acacia kempeana) and broom bush (Templetollia hookeri) also occur. The sparse understorey is mainly soft spinifex (Triodia pungens). The infrequent low dunes are well vegetated with a variety of shrubs (Grevillea, Acacia, Eremophila and Hibiscus spp.).

EROSION AND STABILITY: This unit has areas of drift sand build-up, usually around vegetation, and these mounds are up to 1 m high. The mounds become firm and area appears stable.
FAUNA: Red kangaroo, marsupial mice, rodents, rabbit, pigeons, dove, parrots, cockatoo, cuckoo, wrens, honeyeaters, quail-thrush, babbler, whiteface, chats, robins, pardalote, mistletoe bird, bellbird, butcher-bird, bowershrike.

COMMENTS: Unit markedly affected by fire.

Land Unit 5c1
CSIRO LAND SYSTEM: Simpson.
GEOLOGY: Quaternary aeolian sand.
TOPOGRAPHY: Low open irregular dunes up to 6 m. Dune flanks gently sloping to 10%, and stable. Swales broad, slightly concave to flat.
SOILS: Dune crests of uniform red siliceous sands, grain size even, being 0.5-1.0 mm. Flanks and swales are red earthy sands, with slightly acid surface pH (5.5), rising to neutral with depth (7.0).
VEGETATION: Open woodland, desert oaks (Casuarina decaisneana) with soft spinifex understorey. Three components:
(1) Dune crests: Mainly shrubs (Grevillea stenobotrya with Cassia nemophila and Eremophila goodwinii).
(2) Slopes: Desert oaks with mainly feathertop spinifex (Plectrachne schinzii) understorey, some shrubs (Thryptomene and Grevillea spp.).
(3) Swales: Desert oaks with mainly soft spinifex (Triodia pungens) understorey and sparse mixed shrubs and grasses. In some areas occasional mulga (Acacia aneura), ironwood (Acacia estrophiolata) and mallee (Eucalyptus oxymitra) occurs.

EROSION AND STABILITY: Relatively stable dune area but crests and flanks may drift slightly after fire. Stability dependent on adequate plant cover.
FAUNA: Red kangaroo, marsupial mice, rodents, rabbit, martins, chats, robins, pardalote, mistletoe bird, bellbird, butcher-bird, bowershrike.
COMMENTS: Felling of desert oaks not recommended due to their slow regeneration, and the protection they afford against wind erosion.

Land Unit 5c2
CSIRO LAND SYSTEM: Simpson.
GEOLOGY: Quaternary aeolian sand.
TOPOGRAPHY: As for Unit 5c1.
SOILS: As for Unit 5c1.
VEGETATION: As for Unit 5c1, but the understorey dominated by hard spinifex (Triodia basedowii); shrub cover is also less.

EROSION AND STABILITY: Stable.
FAUNA: As for 5c1.
COMMENTS: As for 5c1, but more susceptible to fire damage. See comments Unit 5a2.

Land Unit 5d1
CSIRO LAND SYSTEM: Simpson.
GEOLOGY: Quaternary aeolian sands.
TOPOGRAPHY: Irregular dunes up to 13 m high; crests hummocky and usually unstable; flanks vegetated, but slope steeper than Units 5c, up to 25%. Swales often confined by surrounding dune, usually concave, 300 m wide, but up to 1000 m long.
SOILS: Dune crests of uniform red siliceous sands, grain size even, 0.5-1.0 mm. Flanks grade to red earthy sands and increase in texture towards the swales, which are medium textured red earths, with an acid to weakly acid surface pH (4.5 to 6.0) and neutral subsoil (pH 7.0-7.5).
VEGETATION: Hummock grassland with mulga in many of the swales. Three main components:
(1) Dune crest. Shrub dominated (Grevillea stenobotrya with Eremophila spp.) characterised by a distinctive small tree (Gyrostemon ramulosus) and small bloodwood (Eucalyptus sp.) which although infrequent, are prominent. (Also present in Units 5d2 and 5f.)
(2) Slopes. Soft spinifex (Triodia pungens) with various low shrubs including Thryptomene and Hibiscus spp.). Feathertop spinifex (Plectrachne schinzii) occurs on steep slopes.
(3) Swales. Sandy swales with occasional desert oaks (Casuarina decaisneana) over soft spinifex (Triodia pungens). Red earth areas with randomly spaced or grooved mulga with fuchsia bush (Eremophila gilesii) and woolly...
butt grass (*Eragrostis eriopoda*). Rarely with more open spacing and no *Eremophila* sp.

**EROSION AND STABILITY:** Dune stable except for sand drift on crests. Swales are water run-on areas and can fill or gully if disturbed.

**FAUNA:** Similar to 5c1.

**COMMENTS:** Although dunes are stable in their natural state, trampling by humans or vehicle tracks will cause sand drift and a flattening of the crests. Within swales, any concentration of water along vehicle tracks or roads may lead to scouring in cases where the swales have an appreciable slope.

**Land Unit 5d2**

**CSIRO LAND SYSTEM:** Simpson.

**GEOLOGY:** Quaternary aeolian sands.

**TOPOGRAPHY:** As for Unit 5d1, except swales are flatter and tend to be less confined by dunes, forming a swale network.

**SOILS:** As for Unit 5d1, except swales are red earthy sands to light-textured red earths.

**VEGETATION:** As for 5d1, but the understorey dominated by hard spinifex (*Triodia basedowii*). Shrub cover in swales and slopes is less.

**EROSION AND STABILITY:** As for Unit 5d1, except that swales less prone to rilling due to less slope and their sandier texture.

**FAUNA:** Similar to 5c1.

**COMMENTS:** Fire damage to spinifex more lasting than in Unit 5d1. See comments Unit 5a2.

**Land Unit 5e**

**CSIRO LAND SYSTEM:** Simpson.

**GEOLOGY:** Quaternary aeolian sands.

**TOPOGRAPHY:** Reticulate or network dune system; dunes up to 10 m high with stable, hummocky crests. Flanks stable with slopes up to 20%. Swales concave, confined by dunes to give internal drainage system, up to 200 m wide.

**SOILS:** As for Unit 5d1.

**VEGETATION:** Soft spinifex (*Triodia pungens*) under scattered large shrubs. Mulga in most swales. Two main components—

(1) Dune crests and slopes. Characterised by conspicuous shrub (*Acacia* sp.) with other low shrubs (*Grevillea stenobotrya* and *Thrypotomea maisonneuvi* ) and soft spinifex.

(2) Swales. Mostly open mulga with perennial grass understorey (*Eragrostis eriopoda* and *Thyriddolepis* sp.).

**EROSION AND STABILITY:** These dunes are mostly stable, but some damage will occur if they are trampled.

**FAUNA:** Marsupial mice, rodents, camel, pigeons, cockatoo and wrens. Dingo, emu, eagle and hawks have wide-ranging habitats.

**Land Unit 5f**

**CSIRO LAND SYSTEM:** Simpson.

**GEOLOGY:** Quaternary aeolian sands.

**TOPOGRAPHY:** Parallel linear dunes orientated east/west up to 17 m high and 700 m apart, extending for up to 4 km (see Figure 22). Swales slightly concave to flat.

**SOILS:** As for Unit 5d1.

**VEGETATION:** As for Unit 5d1, but Desert Oaks more frequent.

**EROSION AND STABILITY:** As for Unit 5d1. Concentration of run-off in extensive longitudinal swales can cause more severe rilling or gullying problems.

**FAUNA:** Similar to 5e.
BIBLIOGRAPHY

The following references were consulted during the preparation of the report—


NEWSOME, A. E. and CORBETT, L. K. (in press). ‘The Effects of Native, Feral and Domestic Animals on The Productivity of Australian Rangelands’.


### APPENDICES

#### Appendix Table I: Plants Collected in The Ayers Rock-Mt Olga National Park

<table>
<thead>
<tr>
<th>Plant Species</th>
<th>Authorship</th>
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<td>Abutilon leucopetalum</td>
<td>(F. Muell.) F. Muell. ex Benth.</td>
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<td>Acacia aneura</td>
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<td>Acacia aneura var. latifolia</td>
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<td>Amyema hillianum</td>
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<td>Daviesia arthropoda</td>
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Daucus glochidiatus (Labill.) Fisch. Mey.
et Ave-Lav.

Dicrastylis beveridgei F. Muell.
gilesii F. Muell.

Didymothea tepperi F. Muell. ex Walt.

Digitaria brownii (R. & S.) Hughes
coenocila (F. Muell.) Hughes

Dodonaea attenuata A. Cunn.
viscosa Jacq. var. spatulata
(Sm.) Bent.

Doloeis hopwoodii (F. Muell.) F. Muell.

Endymion avenaceus (Lindl.) Hubb.
cyclindricus Burbidge
polyphyllus (Domin)
Burbidge

Eragrostis dielsii Pilger
elongata (Wild.) J. F. Jacq.
eriopoda Benth.
laniflora Benth.
parviflora (R. Br.) Trin.
setifolia Nees
speciosa (R. et S.) Steud.
affin. speciosa

Eremophila christopheri F. Muell.
gibsonii F. Muell.
gilesii F. Muell.
goodwinii F. Muell.
latrobei F. Muell.
longifolia (R. Br.) F. Muell.
sturtii R. Br.
willsi F. Muell.

Eriachne aristidea F. Muell.
helmii (Domin) W. Hartley
mucronata R. Br.
scleranthoides F. Muell.

Erodium cygnorum Nees ssp. cygnorum
Nees ssp. glandulosum
Carolin

Eucalyptus camaldulensis Dehn.
gamophylla F. Muell.
gongylodorna Blakely
intercista R. T. Baker
morrissi R. T. Baker
oxynitra Blakely
sp. nov.
terminalis F. Muell.
trivalvis Blakely

Eulalia fulva (R. Br.) O. Kuntze

Euphorbia australis Boiss.
drummondii Boiss.
eremophila A. Cunn. ex Hook.

Evolvulus alsinoides var. villosicalyx v.
Ooststr.

Exocarpus spartanus R. Br.

Ficus platypoda (Miq.) A. Cunn. ex Miq.
var. minor Benth.

Finbriistylis affin. dichotoma

Gastrolobium grandiflorum F. Muell.

Glycine canescens F. J. Herm.

Gomphrena lanata R. Br.

Goodenia erecta Ewart & Davies
heterochila F. Muell.
mueckeana F. Muell.
vilmoriniae F. Muell.

Grevillea eriostachya Lindl.
juncifolia Hook.
stenobotrya F. Muell.
striata R. Br.

Gossypium sturtianum J. H. Willis

Hakea divaricata L. Johnson
suberea x divaricata
S. Moore

Halgania cyanea Lindl.
glabra Black

Haloragis gossiei F. Muell.
heterophylla Brongn.

Helichrysum ambiguum var. ambiguwm
Turecz.
acipiculatum (Labill.) D. Don
ayersii F. Muell.
bracteatum (Vent.) Andrews
cassinianum Gaud.
ramossisimum Hook.

Heliotropium asperrimum R. Br.
paniculatum R. Br.
tenifolium R. Br.

Helipterum fitzgibbonii F. Muell.
floribundum DC.
pterochaetum (F. Muell.)
Benth.
stipitatum (F. Muell.) F. Muell.
tietkensii F. Muell.

Hibbertia glaberrima F. Muell.

Hibiscus drummondii Turcz.
krichaufianus F. Muell.
microlaenus F. Muell.

Hybanthus enneaspermus (L.) F. Muell.

Hydrocotyle trachycarpa F. Muell.

Indigofera brevidens Benth.
var uncinata
Benth.

colutea (Burm. f.) Merr.

Indigofera leucotricha Fritz.

Isoetes humilior F. Muell. ex A. Br.

Isotoma petraea F. Muell.

Isotheris affin. atropurpurea

Jasminum lineare R. Br.

Juncus sp. nov.
Kennedya prorepens (F. Muell.) F. Muell.
Kochia planifolia F. Muell.
tomentosa F. Muell.

Lepidium muelleri-ferdinandi Thell.

oxycrinum Sprague
rotundum (Desv.) DC.

Lotus cruentus Court

Malvastrum spicatum (L.) A. Gray
Melaleuca glomerata F. Muell.
Melania oblongifolia F. Muell.
Menotritia maderaspatana (L.) Cogn.

Micromyrtus flaviflora (F. Muell.) F. Muell. ex J. M. Black

Minuria leptophylla DC.
Myriocephalus stuartii (F. Muell., et Sond. ex Sond.) Benth.

Newcastlia spodiorthrica F. Muell.

Nicotiana gossei Domin

ingulba J. M. Black
occidentalis Wheeler ssp. obliqua Burbridge

Olearia feressii (F. Muell.) F. Muell. ex Benth.

stuartii (F. Muell.) F. Muell. ex Benth.

Ophioglossum coriaceum A. Cunn.

Pandorea doratoxylon (J. M. Black) J. M. Black

Panicum australiense Domin

decompositum R. Br.
whitei J. M. Black

Paractaenium novae-hollandiae Beauv.

Paraneurachne muelleri (Hack.) S. T. Blake

Parietaria debilis Forst. f.

Paspalidium clementii (Domin) Hubbard

Pterotis rara R. Br.

Petalostrys labiehiodes R. Br. var. casioioides Benth.

Phyllanthus lacunarius F. Muell.

Pimelea trichostachya Lindl.

Pittosporum phylliraeoides DC.

Plagiosetum refractum (F. Muell.) Benth.

Plectrachne schinzii Henr.

Plecanthus intraterraneus S. T. Blake

Pluchea rubelliflora (F. Muell.) Robinson

var. major Benth. ex J. M. Black

Podocoma sp.

Podolepis canescens A. Cunn. ex DC.

Promax umbellata (Sol. ex Gaertn.) Miq.

Portulaca intraterraneus J. M. Black.

Prostanthera striatiflora F. Muell.

Psoralea patens Lindl.

Pterigera cylindracea J. M. Black

Piilotus atriplicifolius (A. Cunn. ex Miq.)

Beni var. atriplicifolius

(A. Cunn. ex Miq.)

Benl var. elderi (Farmer) Benl
decipiens (Benth.) C. A. Gardn.
exaltatus Nees ab Esenb. var.
exaltatus
helipteroideas (F. Muell.) F. Muell.
latifoliis R. Br.
nobilis (Lindl.) F. Muell. var.
nobilis
obovatus (Gaud.) F. Muell.
obovatus (Gaud.) F. Muell. var.
griseus Benl
polystachyus (Gaud.) F. Muell.
polystachyus (Gaud.) F. Muell.
forma rubiflorus (J. M. Black) Benl
schwartzii (F. Muell.) Tate ex Black

Pychosema anomalam F. Muell.

trifoliatum F. Muell.

Rhagodia nutans R. Br.

spinescens R. Br.

Rulingia losophylla F. Muell.
magniflora F. Muell.

Rutidosis helichrysooides DC.

Salsola kali L.

Santalum acuminatum (R. Br.) A. DC.
lanceolatum R. Br.

Sarcostemma austral R. Br.

Scaevola aemula R. Br.

parvifolia F. Muell. ex Benth.

Senecio gregorii F. Muell.
laceratus (F. Muell.) Belcher

magnificus F. Muell.

Setaria surgens Stapf.

Sida cryphiopetala F. Muell.
rhombifolia L. var. incana Benth.

rohlanoe Domi

virgata Hook.
virgata Hook. var. phaeotricha (F.
Muell.) Benth.

Sigesbeckia orientalis L.

Solanum centrale J. M. Black

coactiliferum J. M. Black

ellipticum R. Br.

orbiculatum Dun.

petrophilum F. Muell.

quadriloculatum F. Muell.

sturtianum F. Muell.

sp.

Sonchus oleraceus L.

Sparraothamnella teneriflora (F. Muell.)

Moldenke
Sporobolus elongatus R. Br.
Stackhousia megaloptera F. Muell.
Stenopetalum velutinum F. Muell.
Stylium inaequipedalum J. M. Black
Swainsona burkii F. Muell. ex Benth. ssp.
    acuticarinata A. Lee
flavicarinata J. M. Black
microphylla A. Gray

Templetonia egena (F. Muell.) Benth.
Tephrosia sphaerospora F. Muell.
    purpurea (L.) Pers.
Themeda australis (R. Br.) Stapf.
    avenacea (F. Muell.) Durand et Jackson
Thryptome ne maisonenuvii F. Muell.
Trachynam glaucifolia (F. Muell.) Benth.
Tragus australianus S. T. Blake
Thrydolepis mitchelliana (Nees) S. T. Blake
    multiculmis (Pilger) S. T. Blake

Triant hema triquetra Wild. var. clavata
    (J. M. Black) Eichler
Tribulus astrocarpus F. Muell.
    macrocarpus F. Muell. ex Benth.
    terrestris L.
Trichodesma zeylanicum (Burm. f.) R. Br.
Triglochin centrocarpa Hook.
Triodia basedowii Pritz.
    irritans R. Br. var. irritans
pungens R. Br.
    pungens R. Br. var. parvidentata
    Burbidge
Tripogen loliiformis (F. Muell.) Hubbard
Triraphis mollis R. Br.
Velleia glabrata Carolin
Vittadinia sp.
Wahlenbergia communis Carolin
Waitzia acuminata Steetz in Lehm.
Zygophyllum prismatothecum F. Muell.
    sp. aff. tesquorum
### Appendix Table 2: Groups of Animals Recorded from The Ayers Rock-Mt Olga National Park

<table>
<thead>
<tr>
<th>No. species</th>
<th>No. species</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(A) Monotreme Mammals</strong></td>
<td>. . . 1</td>
</tr>
<tr>
<td><strong>(B) Marsupial Mammals</strong></td>
<td>. . . 9</td>
</tr>
<tr>
<td>(i) Kangaroos and wallabies</td>
<td>. . . 3</td>
</tr>
<tr>
<td>(ii) 'Mice'</td>
<td>. . . 5</td>
</tr>
<tr>
<td>(iii) Possum</td>
<td>. . . 1</td>
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<tr>
<td><strong>(C) Native Placental Mammals</strong></td>
<td>. . . 11</td>
</tr>
<tr>
<td>(i) Bats</td>
<td>. . . 8</td>
</tr>
<tr>
<td>(ii) Rodents</td>
<td>. . . 2</td>
</tr>
<tr>
<td>(iii) Carnivores</td>
<td>. . . 1</td>
</tr>
<tr>
<td><strong>(D) Birds</strong></td>
<td>. . . . 70</td>
</tr>
<tr>
<td>(i) Flightless birds</td>
<td>. . . . 1</td>
</tr>
<tr>
<td>(ii) Open sky birds</td>
<td>. . . . 1</td>
</tr>
<tr>
<td>(a) Eagles and hawks</td>
<td>. . . . 11</td>
</tr>
<tr>
<td>(b) Other (martins, crows, swallows)</td>
<td>. . . . 4</td>
</tr>
<tr>
<td>(iii) Scrub and tree birds</td>
<td>. . . . 3</td>
</tr>
<tr>
<td>(a) Pigeons and doves</td>
<td>. . . . 3</td>
</tr>
<tr>
<td>(b) Parrots and cockatoos</td>
<td>. . . . 3</td>
</tr>
<tr>
<td>(c) Cuckoos</td>
<td>. . . . 2</td>
</tr>
<tr>
<td>(d) Wrens</td>
<td>. . . . 3</td>
</tr>
<tr>
<td>(e) Honeyeaters</td>
<td>. . . . 7</td>
</tr>
<tr>
<td>(f) Wood-swallows</td>
<td>. . . . 3</td>
</tr>
<tr>
<td>(g) Magpies</td>
<td>. . . . 2</td>
</tr>
<tr>
<td><strong>(E) Reptiles</strong></td>
<td>. . . . 52</td>
</tr>
<tr>
<td>(i) Lizards</td>
<td>. . . . 10</td>
</tr>
<tr>
<td>(a) Geckoes</td>
<td>. . . . 10</td>
</tr>
<tr>
<td>(b) Skinks</td>
<td>. . . . 15</td>
</tr>
<tr>
<td>(c) Dragons</td>
<td>. . . . 8</td>
</tr>
<tr>
<td>(d) Goannas</td>
<td>. . . . 7</td>
</tr>
<tr>
<td>(ii) Snakes</td>
<td>. . . . 8</td>
</tr>
<tr>
<td>(a) Pythons</td>
<td>. . . . 3</td>
</tr>
<tr>
<td>(b) Elapids (fanged snakes)</td>
<td>. . . . 8</td>
</tr>
<tr>
<td>(iii) Worm snakes</td>
<td>. . . . 1</td>
</tr>
<tr>
<td><strong>(F) Exotic Mammals</strong></td>
<td>. . . . 8</td>
</tr>
<tr>
<td>(i) Carnivorous</td>
<td>. . . . 3</td>
</tr>
<tr>
<td>(ii) Herbivorous</td>
<td>. . . . 4</td>
</tr>
<tr>
<td>(iii) Rodent</td>
<td>. . . . 1</td>
</tr>
</tbody>
</table>
## Appendix Table 3: Mammalian Species Recorded from The Ayers Rock-Mt Olga National Park

### Native Mammals (21 species)
- Echidna
- Red-eared antechinus
- Mulgara
- Fat-tailed sminthopsis
- Large desert sminthopsis
- Marsupial hopping mouse
- Brush-tailed possum
- Black-flanked rock wallaby
- Euro
- Red kangaroo
- Sandy inland mouse
- Northern hopping mouse
- Unpouched free-tailed bat
- Lesser long-eared bat
- Gould’s wattle bat
- Little brown bat
- White-striped mastiff bat
- Western little mastiff bat
- Westralian broad-nosed bat
- False vampire bat
- Dingo

### Exotic Mammals (8 species)
- European rabbit
- European fox
- House mouse
- Feral cat
- Feral dog
- Feral camel
- Semi-feral cow
- Semi-feral horse

### Mammals Recorded in Recent Years (18 species)
- Echidna
- Red-eared antechinus
- Fat-tailed sminthopsis
- Large-desert sminthopsis
- Marsupial hopping mouse
- Black flanked rock wallaby
- Euro
- Red kangaroo
- Sandy inland mouse
- Northern hopping mouse
- Unpouched free-tailed bat
- Lesser long-eared bat
- Gould’s wattle bat
- Little brown bat
- White-striped mastiff bat
- Western little mastiff bat
- Westralian broad-nosed bat
- Dingo
Appendix Table 4: Rare and Endangered Mammalian Species in The Ayers Rock-Mt Olga National Park

<table>
<thead>
<tr>
<th>Species</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mulgara</td>
<td>Dasycercus cristicauda</td>
</tr>
<tr>
<td>Marsupial mole</td>
<td>Notoryctes typhlops</td>
</tr>
<tr>
<td>Striped-faced dunnart</td>
<td>Sminthopsis roggi</td>
</tr>
<tr>
<td>Rabbit-eared bandicoot</td>
<td>Macrotis lagotis</td>
</tr>
<tr>
<td>False vampire bat</td>
<td>Macroderma gigas</td>
</tr>
<tr>
<td>Brown desert mouse</td>
<td>Pseudomys desertor</td>
</tr>
</tbody>
</table>

Appendix Table 5: Probable Number of Extinct Mammalian Species in The Ayers Rock-Mt Olga National Park

<table>
<thead>
<tr>
<th>Species</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brush-tailed marsupial rat</td>
<td>Dasyuroides byrnei</td>
</tr>
<tr>
<td>Hair-footed sminthopsis</td>
<td>Sminthopsis hirtipes</td>
</tr>
<tr>
<td>Short-tailed hopping mouse</td>
<td>Notomys amplus</td>
</tr>
<tr>
<td>Waite's mouse</td>
<td>Pseudomys waitei</td>
</tr>
<tr>
<td>White-tailed sticknest rat</td>
<td>Leporillus apicilis</td>
</tr>
<tr>
<td>Thick-tailed rat</td>
<td>Zyzomys pedunculatus</td>
</tr>
<tr>
<td>Desert bandicoot</td>
<td>Perameles eremiana</td>
</tr>
<tr>
<td>Lesser rabbit-eared bandicoot</td>
<td>Macrois leucura</td>
</tr>
<tr>
<td>Pig-footed bandicoot</td>
<td>Chaeropus ecaudatus</td>
</tr>
<tr>
<td>Hare wallaby</td>
<td>Lagorchestes hirsutus</td>
</tr>
<tr>
<td>Brush-tail possum</td>
<td>Trichosurus vulpecula</td>
</tr>
<tr>
<td>Western native cat</td>
<td>Dasyurinus geoffroii</td>
</tr>
<tr>
<td>Neck-pouched hopping mouse</td>
<td>Notomys cervinii</td>
</tr>
</tbody>
</table>

Appendix Table 6: Mammalian Species Likely to Be Observed by Visitors

<table>
<thead>
<tr>
<th>Species</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fat-tailed mouse</td>
<td>Sminthopsis spp.</td>
</tr>
<tr>
<td>Wallaby</td>
<td>Petrogale lateralis</td>
</tr>
<tr>
<td>Euro</td>
<td>Macropus robustus</td>
</tr>
<tr>
<td>Red kangaroo</td>
<td>Megaleia rufa</td>
</tr>
<tr>
<td>Hopping mouse</td>
<td>Notomys alexis or</td>
</tr>
<tr>
<td></td>
<td>Antechinomys spenceri</td>
</tr>
<tr>
<td>Small mouse</td>
<td>Pseudomys hermannsburgensis</td>
</tr>
<tr>
<td></td>
<td>or Mus musculus</td>
</tr>
<tr>
<td>Large bat</td>
<td>Canis dingo</td>
</tr>
<tr>
<td>Medium-size bat</td>
<td></td>
</tr>
<tr>
<td>Small bat</td>
<td></td>
</tr>
<tr>
<td>Dingo</td>
<td></td>
</tr>
</tbody>
</table>
**Appendix Table 7: Birds Recorded from The Ayers Rock-Mt Olga National Park and Adjacent Areas**

<table>
<thead>
<tr>
<th>Bird</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emu</td>
<td>Dromaius novaehollandiae</td>
</tr>
<tr>
<td>Fork-tailed kite</td>
<td>Milvus migrans</td>
</tr>
<tr>
<td>Black-breasted buzzard</td>
<td>Hamirostra melanosternon</td>
</tr>
<tr>
<td>Whistling eagle</td>
<td>Haliastur sphenurus</td>
</tr>
<tr>
<td>Australian goshawk</td>
<td>Accipiter fasciatus</td>
</tr>
<tr>
<td>Collared sparrowhawk</td>
<td>Accipiter cirrocephalus</td>
</tr>
<tr>
<td>Little eagle</td>
<td>Hieraaetus morphnoides</td>
</tr>
<tr>
<td>Wedge-tailed eagle</td>
<td>Aquila audax</td>
</tr>
<tr>
<td>Spotted harrier</td>
<td>Circus assimilis</td>
</tr>
<tr>
<td>Peregrine falcon</td>
<td>Falco peregrinus</td>
</tr>
<tr>
<td>Little falcon</td>
<td>Falco longipennis</td>
</tr>
<tr>
<td>Nankeen kestrel</td>
<td>Falco cenchroides</td>
</tr>
<tr>
<td>Brown hawk</td>
<td>Falco berigora</td>
</tr>
<tr>
<td>Mallee fowl</td>
<td>Leipoa ocellata</td>
</tr>
<tr>
<td>Little quail</td>
<td>Turnix velox</td>
</tr>
<tr>
<td>Bustard</td>
<td>Ardeotis australis</td>
</tr>
<tr>
<td>Banded plover</td>
<td>Vanellus tricolor</td>
</tr>
<tr>
<td>Australian dotterel</td>
<td>Pelps hypias australis</td>
</tr>
<tr>
<td>Diamond dove</td>
<td>Geopelia cuneata</td>
</tr>
<tr>
<td>Common bronzewing</td>
<td>Phaps chalcoperta</td>
</tr>
<tr>
<td>Crested pigeon</td>
<td>Ocyphaps lophotes</td>
</tr>
<tr>
<td>Major mitchell</td>
<td>Cacatua leadbeateri</td>
</tr>
<tr>
<td>Cockatiel</td>
<td>Lepiophus hollandicus</td>
</tr>
<tr>
<td>Port lincoln parrot</td>
<td>Barnardius zonarius</td>
</tr>
<tr>
<td>Mulga parrot</td>
<td>Psophotus varius</td>
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<tr>
<td>Princess parrot</td>
<td>Polytelis alexandriena</td>
</tr>
<tr>
<td>Bourke parrot</td>
<td>Neophema bourki</td>
</tr>
<tr>
<td>Budgerygah</td>
<td>Melopsittacus undulatus</td>
</tr>
<tr>
<td>Pallid cuckoo</td>
<td>Cuculus pallidus</td>
</tr>
<tr>
<td>Horsfield bronze cuckoo</td>
<td>Chalcites basalis</td>
</tr>
<tr>
<td>Boobook owl</td>
<td>Ninox novaeseelandiae</td>
</tr>
<tr>
<td>Tawny frogmouth</td>
<td>Podargus strigoides</td>
</tr>
<tr>
<td>Owllet-nightjar</td>
<td>Aegotheles cristatus</td>
</tr>
<tr>
<td>Red-backed kingfisher</td>
<td>Halcyon pyrrhopygia</td>
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<tr>
<td>Rainbow bee-eater</td>
<td>Merops ornatus</td>
</tr>
<tr>
<td>Fairy martin</td>
<td>Petrochelidon ariel</td>
</tr>
<tr>
<td>Australian pipit</td>
<td>Anthus novaeseelandiae</td>
</tr>
<tr>
<td>Black-faced cuckoo-shrike</td>
<td>Coracina novaehollandiae</td>
</tr>
<tr>
<td>White-winged triller</td>
<td>Lalage saevii</td>
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<tr>
<td>Chestnut quail-thrush</td>
<td>Cinclosoma castanotum</td>
</tr>
<tr>
<td>Cinnamon quail-thrush</td>
<td>Cinclosoma cinnamomeum</td>
</tr>
<tr>
<td>White-browed babbler</td>
<td>Pomatostomus superciliosus</td>
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<tr>
<td>Turquoise wren</td>
<td>Malurus callinus</td>
</tr>
<tr>
<td>Blue-and-white wren</td>
<td>Malurus leucopterus</td>
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<tr>
<td>Purple-backed wren</td>
<td>Malurus lamberti</td>
</tr>
<tr>
<td>Dusky grass-wren</td>
<td>Amytornis textilis</td>
</tr>
<tr>
<td>Striated grass-wren</td>
<td>Amytornis striatus</td>
</tr>
<tr>
<td>Brown song-lark</td>
<td>Cinclorhamphus cruralis</td>
</tr>
<tr>
<td>Rufous song-lark</td>
<td>Cinclorhamphus mathewsi</td>
</tr>
<tr>
<td>Western warbler</td>
<td>Gerygone fusca</td>
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<tr>
<td>Robust thornbill</td>
<td>Acanthiza robustirostris</td>
</tr>
<tr>
<td>Brown thornbill</td>
<td>Acanthiza pusilla</td>
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<tr>
<td>Chestnut-tailed thornbill</td>
<td>Acanthiza urocygialis</td>
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<tr>
<td>Yellow-tailed thornbill</td>
<td>Acanthiza chrysorrhoa</td>
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<tr>
<td>Weebill</td>
<td>Sminornis brevirostris</td>
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<tr>
<td>Banded whiteface</td>
<td>Aphelocephala nigricepsa</td>
</tr>
<tr>
<td>Common Name</td>
<td>Scientific Name</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>Western whiteface</td>
<td>Aphelocephala leucopsis</td>
</tr>
<tr>
<td>Crimson chat</td>
<td>Epithianura tricolor</td>
</tr>
<tr>
<td>Orange chat</td>
<td>Epithianura aurifrons</td>
</tr>
<tr>
<td>Red-capped robin</td>
<td>Petroica goodenovii</td>
</tr>
<tr>
<td>Hooded robin</td>
<td>Petroica cucullata</td>
</tr>
<tr>
<td>Willie wagtail</td>
<td>Rhipidura leucophrys</td>
</tr>
<tr>
<td>Rufous whistler</td>
<td>Pachycephala rufiventris</td>
</tr>
<tr>
<td>Western strike-thrush</td>
<td>Colluricincla rufiventris</td>
</tr>
<tr>
<td>Crested bell-bird</td>
<td>Oreica putatarlis</td>
</tr>
<tr>
<td>White-browed treecreeper</td>
<td>Climacteris affinis</td>
</tr>
<tr>
<td>Red-tipped pardalote</td>
<td>Pardalotus striaticeps</td>
</tr>
<tr>
<td>Red-browed pardalote</td>
<td>Pardalotus rubricatus</td>
</tr>
<tr>
<td>Mistletoe bird</td>
<td>Dicaeum hirundinaceum</td>
</tr>
<tr>
<td>Black honeyeater</td>
<td>Meliphaga variegatus</td>
</tr>
<tr>
<td>Pied honeyeater</td>
<td>Myzomela nigra</td>
</tr>
<tr>
<td>Grey-headed honeyeater</td>
<td>Meliphaga keartlandi</td>
</tr>
<tr>
<td>Yellow-fronted honeyeater</td>
<td>Meliphaga plumula</td>
</tr>
<tr>
<td>Singing honeyeater</td>
<td>Meliphaga virescens</td>
</tr>
<tr>
<td>Yellow-throated miner</td>
<td>Myzanthra flavigula</td>
</tr>
<tr>
<td>Spiny-cheeked honeyeater</td>
<td>Acanthagenys Rufogularis</td>
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<tr>
<td>Zebra finch</td>
<td>Taeniopygia castanotis</td>
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<tr>
<td>Black-faced wood-swallow</td>
<td>Artamus cinereus</td>
</tr>
<tr>
<td>Masked wood-swallow</td>
<td>Artamus personatus</td>
</tr>
<tr>
<td>Little wood-swallow</td>
<td>Artamus minor</td>
</tr>
<tr>
<td>White-backed magpie</td>
<td>Gymnohina hypoleuca</td>
</tr>
<tr>
<td>Black-backed magpie</td>
<td>Gymnorhina tibicen</td>
</tr>
<tr>
<td>Black-throated butcher-bird</td>
<td>Cracticus nigrogularis</td>
</tr>
<tr>
<td>Crow</td>
<td>Corvus orru</td>
</tr>
<tr>
<td>Little crow</td>
<td>Corvus bennetti</td>
</tr>
<tr>
<td>Barn owl</td>
<td>Tyto alba</td>
</tr>
<tr>
<td>Letter-winged kite</td>
<td>Elanus scriptus</td>
</tr>
<tr>
<td>Black-shouldered kite</td>
<td>Elanus notatus</td>
</tr>
<tr>
<td>White-backed swallow</td>
<td>Cheramoeca leucosterna</td>
</tr>
<tr>
<td>Brown honeyeater</td>
<td>Lichmera indistincta</td>
</tr>
<tr>
<td>Westernbower-bird</td>
<td>Chlamydera guttata</td>
</tr>
<tr>
<td>Galah</td>
<td>Kakatoe roseicapilla</td>
</tr>
<tr>
<td>Scarlet-breasted parrot</td>
<td>Neophema splendida</td>
</tr>
<tr>
<td>Mud-lark</td>
<td>Grallina cyanoleuca</td>
</tr>
<tr>
<td>White-faced heron</td>
<td>Ardea pacifica</td>
</tr>
<tr>
<td>Spotted nightjar</td>
<td>Eurostopodus guttatus</td>
</tr>
<tr>
<td>Black-tailed native hen</td>
<td>Tribonyx ventralis</td>
</tr>
<tr>
<td>Grey teal</td>
<td>Anas gibberfrouns</td>
</tr>
<tr>
<td>Wood duck</td>
<td>Cheronetta jubata</td>
</tr>
<tr>
<td>White-plumed honeyeater</td>
<td>Meliphaga penicillata</td>
</tr>
<tr>
<td>Sacred kingfisher</td>
<td>Halcyon sancta</td>
</tr>
<tr>
<td>Plumed pigeon</td>
<td>Lophophaps pluijera</td>
</tr>
<tr>
<td>Grey butcher-bird</td>
<td>Cracticus torquata</td>
</tr>
<tr>
<td>Grey currawong</td>
<td>Strepera versicolor</td>
</tr>
<tr>
<td>White-necked silt</td>
<td>Himantopus himantopus</td>
</tr>
<tr>
<td>Wood sandpiper</td>
<td>Tringa glareola</td>
</tr>
<tr>
<td>White-fronted honeyeater</td>
<td>Phylidonyris albifrons</td>
</tr>
<tr>
<td>Rufous-crowned emu wren</td>
<td>Striatus ruficeps</td>
</tr>
</tbody>
</table>

* Extinct Birds

- Night parrot
- Mallee fowl

* Recorded only in adjacent areas but expected to occur in suitable habitat in the Park.
Appendix Table 8: Reptiles Recorded from The Ayers Rock-Mt Olga National Park and Adjacent Areas

**Lizards**

**Geckoes**  
Spiny-tailed gecko  
House gecko  
Prickly gecko  
Beaded gecko  
Knob-tailed barking gecko  
Common barking gecko  
Velvet gecko  
Beaked gecko

<table>
<thead>
<tr>
<th>Species</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diplodactylus elderi</td>
<td>Spiny-tailed gecko</td>
</tr>
<tr>
<td>Diplodactylus conspicillatus</td>
<td>House gecko</td>
</tr>
<tr>
<td>Gehya variegata</td>
<td>Prickly gecko</td>
</tr>
<tr>
<td>Gehya punctata</td>
<td>Beaded gecko</td>
</tr>
<tr>
<td>Heteronota binoei</td>
<td>Knob-tailed barking gecko</td>
</tr>
<tr>
<td>Nephurus asper</td>
<td>Common barking gecko</td>
</tr>
<tr>
<td>Nephurus laevis</td>
<td>Velvet gecko</td>
</tr>
<tr>
<td>Oedura marmorata</td>
<td>Beaked gecko</td>
</tr>
</tbody>
</table>

**Legless Lizards**  
Fraser's legless lizard  
Burton's legless lizard  
Scaly-foot

<table>
<thead>
<tr>
<th>Species</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delma fraseri</td>
<td>Fraser's legless lizard</td>
</tr>
<tr>
<td>Lialis burtonis</td>
<td>Burton's legless lizard</td>
</tr>
<tr>
<td>Pygopus baileyi</td>
<td>Scaly-foot</td>
</tr>
</tbody>
</table>

**Skinks**  
A variety of species of the following genera:

Cryptoblepharus  
Morethia  
Ctenotus  
Sphenomorphus  
Ergernia  
Rhodona  
Tiliqua occipitalis multifasciata

**Dragons**  
Bearded dragon  
Desert dragon  
Rock dragon  
Dragon  
Thorny devil  
Blue-lined dragon  
Central water dragon  
Earless sand dragon

<table>
<thead>
<tr>
<th>Species</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amphibolurus barbatus</td>
<td>Bearded dragon</td>
</tr>
<tr>
<td>Amphibolurus inermis</td>
<td>Desert dragon</td>
</tr>
<tr>
<td>Amphibolurus caudicinctus</td>
<td>Rock dragon</td>
</tr>
<tr>
<td>Amphibolurus isolepis</td>
<td>Dragon</td>
</tr>
<tr>
<td>Moloch horridus</td>
<td>Thorny devil</td>
</tr>
<tr>
<td>Diporiphora winnecke</td>
<td>Blue-lined dragon</td>
</tr>
<tr>
<td>Physignathus longirostris</td>
<td>Central water dragon</td>
</tr>
<tr>
<td>Tympanocryptus lineata</td>
<td>Earless sand dragon</td>
</tr>
</tbody>
</table>

**Goannas**  
Freckled goanna  
Gillen's pigmy goanna  
Gould's sand goanna  
Perenty  
Desert pigmy goanna  
Ridge-tailed goanna  
Short-tailed goanna

<table>
<thead>
<tr>
<th>Species</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Varanus tristis</td>
<td>Freckled goanna</td>
</tr>
<tr>
<td>Varanus gilleni</td>
<td>Gillen's pigmy goanna</td>
</tr>
<tr>
<td>Varanus gouldii</td>
<td>Gould's sand goanna</td>
</tr>
<tr>
<td>Varanus giganteus</td>
<td>Perenty</td>
</tr>
<tr>
<td>Varanus eremius</td>
<td>Desert pigmy goanna</td>
</tr>
<tr>
<td>Varanus acanthurus</td>
<td>Ridge-tailed goanna</td>
</tr>
<tr>
<td>Varanus brevicauda</td>
<td>Short-tailed goanna</td>
</tr>
</tbody>
</table>

**Snakes**  
Pythons  
Carpet python  
Children's python  
Woma  
Fanged Snakes (Elapids)  
Desert death adder

<table>
<thead>
<tr>
<th>Species</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morelia spilotes</td>
<td>Pythons</td>
</tr>
<tr>
<td>Lialis childreni</td>
<td>Carpet python</td>
</tr>
<tr>
<td>Aspidites melanocephalus ramsayi</td>
<td>Children's python</td>
</tr>
<tr>
<td>Acanthophis pyrrhus</td>
<td>Woma</td>
</tr>
</tbody>
</table>

51
Bandy bandies
Western brown snake
Collared brown snake
White-lipped whipsnake
Little spotted snake
Black-headed snake
King brown snake

Worm Snakes

Vermicella spp.
Demansia nuchalis
Demansia modesta
Denisonia suta
Denisonia punctata
Denisonia gouldii
Pseudoechis australis
Typhlops spp.