

PART VI

CONCLUSIONS

by A. A. BURBIDGE¹ and N. L. MCKENZIE¹

The papers in this Bulletin, when added to the data presented by Burbidge *et al.* (1976), provide a summation of our knowledge of eight existing and proposed nature reserves in the Little Sandy, Gibson and Great Victoria Deserts of Western Australia.

Two areas in the system of desert conservation reserves proposed by the Conservation Through Reserves Committee (1974) still have to be examined in detail—the Rudall River National Park which includes portions of the Great Sandy and Little Sandy Deserts, and the Great Victoria Desert Nature Reserve which includes parts of the Great Victoria Desert and Nullarbor Plain (see Fig. 1 in McKenzie, this publication). Furthermore, as recommended by the Environmental Protection Authority (1975), further investigations need to be made in the Great Sandy Desert from which reserves representing this desert can be delineated. Thus, only in the Gibson Desert have we surveyed all the existing or proposed conservation reserves.

Table 1 lists the plant formations delineated by Beard (1974) in the Gibson Desert. It includes an estimate of their relative extent and the area of each included in the proposed Baker Lake Nature Reserve and the Gibson Desert Nature Reserve. It can be seen that the two areas are quite different although, overall, all the mapped formations except one—*Acacia pachycarpa* shrub steppe—are represented. This formation is developed in the northern Gibson Desert and in the Great Sandy Desert and should be included in reserve proposals for the latter.

When reviewing the adequacy of the reserves with respect to vertebrate animals, we have chosen groups which are reasonably abundant in good seasons, relatively easy to collect, well known taxonomically and rich in species.

Table 2 shows the distribution of small dasyurid marsupials and native rodents in seven of the eight areas so far examined—the Plumridge Lakes Nature Reserve is omitted because Burbidge *et al.* (1976) worked mainly in the Nullarbor Plain plant formations of that reserve. It can be seen that eleven species have been recorded, numbers from individual areas ranging from two to nine. Two species known to be extant in the region have not been collected—*Antechinomys laniger* and *Sminthopsis froggatti*. Available habitat data for desert populations of these species suggest that they have been

overlooked rather than that they are absent from the reserve system; apparently suitable mulga habitat is present.

Table 3 lists the occurrence of two genera of diurnal lizards—*Amphibolurus* (Agamidae) and *Ctenotus* (Scincidae). Distribution data given in Storr (1968) and Pianka (1969) show that only one of the species known from the Great Victoria, Gibson or Little Sandy Deserts has not been recorded from the proposed conservation reserve system, i.e. *Ctenotus ariadnae*.

The above data suggest that the system of conservation reserves proposed by the Conservation Through Reserves Committee (1974) does include habitats for most vertebrate animals. However, it does not provide information on the value of the system in conserving species which have declined in abundance, are cryptic, or occur only in isolated colonies. Thus the conservation status of all species of medium sized mammals, e.g. *Lagorchestes hirsutus*, *Isodon auratus*, *Perameles eremiana*, *Macrotis lagotis* and *Notoryctes typhlops* is uncertain (McKenzie *et al.*, this publication). Burbidge and Fuller (in press) have recently suggested that some of these species are extinct in the Warburton Region but others still remain at low densities. Further work is needed to clarify this situation.

REFERENCES

- Beard, J. S. (1974a). "The vegetation of the Great Sandy Desert area". Part II of Explanatory Notes to Sheet 2 of Vegetation Survey of Western Australia: Great Sandy Desert. (University of W.A. Press, Nedlands).
- Beard, J. S. (1974b). "The vegetation of the Great Victoria Desert area". Explanatory notes to Sheet 3 of Vegetation Survey of Western Australia: Great Victoria Desert. (University of W.A. Press, Nedlands).
- Burbidge, A. A., McKenzie, N. L., Chapman, A. and Lambert, P. (1976). "The Wildlife of some existing and proposed reserves in the Great Victoria and Gibson Deserts, Western Australia. Wildl. Res. Bull. West. Aust. No. 5. (Dept. Fish. Wildl., Perth.)
- Burbidge, A. A. and Fuller, P. J. (in press). "Mammals of the Warburton region, Western Australia". *Rec. West. Aust. Mus.*
- Conservation Through Reserves Committee (1974). "Conservation Reserves in Western Australia". Report to the Environmental Protection Authority. Cyclostyled.
- Environmental Protection Authority (1975). "Conservation Reserves in Western Australia, as recommended by the Environmental Protection Authority". Systems 4, 8, 9, 10, 11, 12. Cyclostyled.
- Pianka, E. R. (1969). "Habitat specificity, speciation and species density in Australian desert lizards. *Ecology* 50, 498–502.
- Storr, G. M. (1968). "The genus *Ctenotus* (Lacertilia, Scincidae) in the Eastern Division of Western Australia". *J. Roy. Soc. West. Aust.* 51, 97–109.

¹ Western Australian Wildlife Research Centre, P.O. Box 51, Wanneroo, W.A. 6065.

TABLE 1.
GIBSON DESERT PLANT FORMATIONS IN EXISTING AND PROPOSED NATURE RESERVES
From Beard (1974a, 1974b), Burbidge *et al.* (1976), Burbidge and McKenzie (this publication)

Vegetation Type	Beard/Webb Formula	Description	Extent	Area in Reserves (km ²)		
				Baker Lake Area	Gibson Desert Nature Reserve	Total
Low Woodland	a ₁ Li	mulga low woodland	moderate	1 561	....	1 561
Shrubland	a ₁ Li	mulga low woodland between sandhills	moderate	852	....	852
Savannah	a ₁ Si	mulga scrub on stony hills	moderate	....	3 840	3 840
Tree Steppe	e ₁₇ Mi.xGc	Coolabah, mixed grasses and spinifex	moderate	....	740	740
Shrub Steppe	c ₁ Mp.t ₂ Hi	groves of Desert Oak between sandhills	moderate	....	1 260	1 260
	a ₁ Sr.t ₂ Hi	mixed <i>Acacia</i> shrub steppe on sandplain	small	....	230	230
	a ₁ Sr.t ₂ Hi	mixed <i>Acacia</i> shrub steppe on sandplain between sandhills	moderate	1 613	920	2 533
	a ₁ Sr/eSi.t ₂ Hi	mulga and mallee between sandhills	small	1 710	....	1 710
Steppe Parkland	a ₅ Sr.t ₂ Hi	<i>Acacia pachycarpa</i> and spinifex on laterite	moderate	....	....	....
Succulent Steppe	a ₁ Sp.t ₂ Hi	mulga parkland on lateritic plains	large	3 871	11 300	15 171
Salt Lake	xCl	saltbush on samphire	small	....	120	120
			small	148	180	328
Totals				9 755	18 590	28 345

TABLE 2.
RODENT AND SMALL DASYURID SPECIES RECORDED IN EXISTING AND PROPOSED RESERVES
Data from Burbidge *et al.* (1976), McKenzie *et al.* (this publication)

SPECIES	GREAT VICTORIA DESERT			GIBSON DESERT		LITTLE SANDY DESERT	
	QVSNR	NJNR	YLA	BLA	GDNr	CRA	LDA
<i>Dasyercus cristicauda</i>	....	....	....	X	....	....	....
<i>Antechinus macdonnellensis</i>	....	....	....	X	X	....	....
<i>Ningauai ridei</i>	X	X	....	X	X	X	....
<i>Sminthopsis longicaudata</i>	....	....	....	X	....	....	....
<i>Sminthopsis crassicaudata</i>	....	....	....	X	....	....	....
<i>Sminthopsis hirtipes</i>	X	X	....	....	....	....	....
<i>Sminthopsis ooldea</i>	X	X	....	X	....	....	....
<i>Notomys mitchellii</i>	X	....	....	....	....	....	....
<i>Notomys alexis</i>	X	X	X	X	X	X	X
<i>Pseudomys hermannsburgensis</i>	X	X	X	X	X	X	X
<i>Pseudomys desertor</i>	....	....	....	X	....	....	....
Totals	6	5	2	9	4	3	2

Key—QVSNR: Queen Victoria Spring Nature Reserve. NJNR: Neale Junction Nature Reserve. YLA: Yeo Lake Area. BLA: Baker Lake Area. GDNr: Gibson Desert Nature Reserve. CRA: Carnarvon Range Area. LDA: Lake Disappointment Area.

TABLE 3.
 AMPHIBOLURUS AND CTENOTUS SPECIES RECORDED IN EXISTING AND PROPOSED RESERVES
 Data from Storr (1968), Pianka (1969), Burbidge *et al.* (1976) and Smith and Johnstone (this publication)

SPECIES	GREAT VICTORIA DESERT			GIBSON DESERT		LITTLE SANDY DESERT	
	QVSNR*	NJNR	YLA	BLA	GDNR	CRA	LDA
<i>Amphibolurus—</i>							
<i>caudicinctus</i>	....	....	....	....	X	X	X
<i>clayi</i>	X	....	X	....	....	....	....
<i>cristatus</i>	X	....	....	....	....	....	....
<i>fordi</i>	X	X	X	....	....	....	....
<i>inermis</i>	....	....	X	....	....	....	X
<i>isolepis</i>	X	X	X	X	X	X	X
<i>minor</i>	X	X	....	....	....	....	....
<i>reticulatus</i>	....	....	....	X	X	....	X
<i>scutulatus</i>	....	....	X	....	....	....	....
<i>Ctenotus—</i>							
<i>atlas</i>	X	....	....	....	....	....	....
<i>brooksi</i>	X	....	X	....	....	....	....
<i>calurus</i>	X	X	....	....	X	X	....
<i>colletti</i>	....	....	X	....	....	....	....
<i>dux</i>	....	X	X	X	....	X	....
<i>grandis</i>	....	X	X	....	X	X	X
<i>helenae</i>	....	X	X	X	X	....	X
<i>leae</i>	X	X	X	....	....	....	....
<i>leonhardii</i>	....	....	X	X	X	....	X
<i>pantherinus</i>	X	X	X	....	X	X	X
<i>piankai</i>	....	X	X	....	....	....	....
<i>quattuordecimlineatus</i>	X	X	X	....	X	....	....
<i>affin. saxatilis</i>	....	....	....	....	....	X	X
<i>schomburgkii</i>	X	....	X	....	....	....	....
<i>uber</i>	....	....	....	....	....	X	....
Totals	12	11	16	5	9	8	9

* Abbreviations as in Table 2.

**THE WILDLIFE OF SOME EXISTING AND
PROPOSED NATURE RESERVES IN THE
GIBSON, LITTLE SANDY AND
GREAT VICTORIA DESERTS,
Western Australia**

EDITED BY

N. L. McKenzie

and

A. A. Burbidge

WESTERN AUSTRALIAN WILDLIFE RESEARCH CENTRE

1979

**DEPARTMENT OF FISHERIES AND WILDLIFE
PERTH, WESTERN AUSTRALIA**

Wildl. Res. Bull. West. Aust. 1979, No. 8, 1-36.

CONTENTS

		Page
	ABSTRACT	5
PART I	BACKGROUND N. L. McKenzie	
	Background	5
	References	5
PART II	ENVIRONMENT A. A. Burbidge and N. L. McKenzie	
	Introduction	7
	Carnarvon Range Area	7
	Lake Disappointment Area	8
	Yeo Lake Area	10
	Gibson Desert Nature Reserve	11
	Acknowledgements	13
	References	13
PART III	MAMMALS N. L. McKenzie, W. K. Youngson, A. A. Burbidge, and A. Chapman	
	Introduction	16
	Species List	16
	Discussion	18
	Acknowledgements	20
	References	20
PART IV	BIRDS R. E. Johnstone, C. P. S. de Rebeira and L. A. Smith	
	Introduction	22
	Species List	22
	Discussion	30
	References	30
PART V	AMPHIBIANS AND REPTILES L. A. Smith and R. E. Johnstone	
	Introduction	31
	Species List	31
	Discussion	33
	References	33
PART VI	CONCLUSIONS A. A. Burbidge and N. L. McKenzie	
	Conclusions	34
	References	34

TABLES

PART II	ENVIRONMENT	Page
	1. Rainfall (mm) from three localities relevant to survey areas	13
	2. Carnarvon Range Area, vegetation	14
	3. Lake Disappointment Area, vegetation	14
	4. Yeo Lake Area, vegetation	14
	5. Gibson Desert Nature Reserve, vegetation....	15
PART III	MAMMALS	
	1. Breeding information—rodents and bats	21
	2. Species known from the proposed nature reserves (1975–1976)	21
PART IV	CONCLUSIONS	
	1. Gibson Desert plant formations	35
	2. Dasyurids and rodents in reserves	35
	3. <i>Amphibolurus</i> and <i>Ctenotus</i> species in reserves	36

FIGURES

PART I	BACKGROUND	Page
	1. Existing and proposed nature reserves in Western Australian deserts	6
PART II	ENVIRONMENT	
	1. Tall open-shrublands on top of the Carnarvon Range	7
	2. Gully in the Carnarvon Range	8
	3. Low woodlands of <i>Acacia</i> spp. south of the Carnarvon Range	8
	4. Sandplains with spinifex hummock grassland, Carnarvon Range Area	8
	5. Low open-woodland of mallee on sandplain, Carnarvon Range Area	8
	6. Scree slopes, Durba Hills	9
	7. Valley in the Durba Hills	9
	8. Woodland near Durba Springs	9
	9. Low open-shrublands on sandplains, Lake Disappointment Area	9
	10. Low open-woodlands and low shrublands, Yeo Lake Area	10
	11. Low shrublands of Bluebush and Saltbush, Yeo Lake Area	10
	12. Mulga at Stony Point....	10
	13. Pan and gypsum dune vegetation, Yeo Lake Area	11
	14. Low open-woodland on sandplain between pans of Yeo Lake	11
	15. Low open-woodland on sandplain, Yeo Lake Area	11
	16. Gravelly sandplain at Everard Junction	11
	17. Mulga low open-woodland, Young Range	12
	18. Spinifex open-hummock grassland near Young Range	12
	19. Tall shrubland of <i>Acacia</i> spp., Gibson Desert Nature Reserve	12
	20. Campsite, Gibson Desert Nature Reserve	12
PART III	MAMMALS	
	1. <i>Taphozous flaviventris</i> , Durba Hills	18

COLOUR PLATES—CENTRE PAGE

- | | |
|-----------------------------------|-------------------------------------|
| 1. Carnarvon Range vegetation. | 4. Low open-woodland, Yeo Lake Area |
| 2. Sand dune near Carnarvon Range | 5. Durba Springs |
| 3. Durba Hills | 6. Ride's Ningai |