Australian Wildlife Conservancy

MT GIBSON WILDLIFE SANCTUARY Jan -Nov 2006

Introduction

Mt Gibson Wildlife Sanctuary is located approximately 350 km north-east of Perth in the mid-west of Western Australia, between Wubin and Paynes Find. Covering over 130,500 ha of the Avon Wheatbelt Bioregion, the property is a pastoral lease comprising largely pristine, semi-arid ecosystems just north of the heavily cleared "wheatbelt". Importantly, it lies on a transitional vegetation zone called the 'mulga-eucalypt line' straddling two major bioregions; the arid Eremean botanical province to the north and the mesic south-west botanical province to the south. The sanctuary has a highly variable topography, and when combined with this strategic location, the result is an extremely high diversity of flora and fauna.

Mt Gibson has a semi-arid climate with hot dry summers and mild wet winters. There are 9 - 11 months of dry weather with erratic rainfall averaging 250-300 mm mostly in winter, however cyclonic activity and occasional thundery showers may bring significant summer rainfall. As for most semi-arid areas of Australia, evapotranspiration rates are considerably higher than rainfall and is the single most important factor contributing to water loss in these systems. The yearly average evaporation rate for the Paynes Find region is 2,480 mm.

The topography and underlying geology is complex. The dominant landforms are greenstone ranges in the north-east, and banded ironstone hills to the north-west. Granites and gneisses of the Yilgarn Block underlie much of the property and outcrop as domes or breakaways at a number of localities. The ranges are separated by gently sloping pediments and flood plains upslope from salt lakes and clay pans. Sandplains occur extensively, particularly to the south. Drainage is disorganised and internal, and the extensive salt lake, Lake Moore, bounds Mt Gibson to the east.

The transitional location of Mt Gibson, combined with a highly variable topography, has led to an exceptionally high diversity of flora and fauna. The vegetation communities present on Mt Gibson are representative of the heavily cleared wheatbelt area of Western Australia and include magnificent eucalypt woodlands of Gimlet, Salmon Gum and York Gum. Mt Gibson is therefore an important repository of now rare wheatbelt flora, which is highlighted by the presence of four declared rare and 23 priority flora. All of the thirteen vegetation associations found on Mt Gibson are inadequately represented in current government conservation reserves, and five of these are not represented at all.

Mt Gibson has a long history of pastoralism. Originally an outstation of Ninghan Station, the lease was granted in 1878 to graze sheep. AWC acquired Mt Gibson in 2001, from a partnership that had managed the property for its environmental values leaving much of the habitat in good condition at the time of acquisition.

Initial surveys were conducted in 2001 to assess the station's habitats and species diversity. This was followed by feral goat control and reduction of stock. Fox baiting commenced in 2004 and in 2006, a collaborative AWC, DEC and Invasive Animal CRC project commenced at Mt Gibson focusing on feral cat, fox and wild dog control.

This report prepared for the Department of Environment and Conservation (DEC) covers biological survey activity for 2006 and is an addendum to the Mt Gibson Report December 2005.

Methods

Trapping

As part of the IA CRC project, pit and Elliott trapping was conducted on three occasions during 2006 in April, June and September (Table 1). Four vegetation associations (that could be compared with the IA CRC control site at Karara/Lochada) were selected for the project and three sites of 25 pit and Elliott traps each were installed in February 2006 in each vegetation association. In April, 75 pit and medium Elliott traps were used for three nights at three of the sites and in June and September 300 pit and Elliott traps were used over five nights at all 12 sites.

Table 1: Trapping Effort at Mt Gibson associated with the IA CRC project in 2006.

Trap Type	No traps	No Nights	Total
Sheffield	0	0	0
Pit	75 + 300 + 300	3 + 5 + 5	3225
Elliott	75 + 300 + 300	3 + 5 + 5	3225
Total			**6450**

Opportunistic observations

Other observations of interest are noted by staff during routine sanctuary work. This can include unusual sightings, calls, scats, tracks and breeding events that might not be detected by other monitoring techniques.

Vegetation

Monitoring of vegetation is undertaken by photographic recordings at 31 established photo points at 12-monthly intervals, set up to monitor effects of grazing and fire recovery. Thirteen of these sites were established by the Department of Agriculture in the 1970s, the remainder were set up by AWC in 2002, including two exclusion quadrats. These photos are available from AWC. A field herbarium has been established. In addition, vegetation quadrats for each vegetation association used in the IA CRC project were set up by members of the WA Naturalists' Club in April 2006, led by volunteer DEC botanists Daphne Edinger, Vanessa Clarke and Penny Hussey.

Results & Discussion

Trapping

Table 2: Summary of trapping results at Mt Gibson in 2006

Species	No. trapped
Cryptoblepharus plagiocephalus	1
Ctenophorus cristatus	1
Ctenophorus reticulatus	3
Ctenophorus scutulatus	21
Ctenophorus sp.	1
Ctenotus mimetes	59
Ctenotus pantherinus	1
Ctenotus schomburgkii	26
Diplodactylus granariensis	1
Diplodactylus intermedius	2
Diplodactylus maini	1
Diplodactylus pulcher	4
Heteronotia binoei	1
Lerista muelleri	1
Lialis burtonis	1

Menetia greyii	1
Mus musculus	59
Neobatrachus kunapalari	8
Neobatrachus pelabatoides	1
Neobatrachus wilsmorei	1
*Nephrurus vertebralis**	1
Notomys mitchelli	63
Pogona minor	7
Pseudomys hermannsburgensis	46
Pseudophryne occidentalis	1
Sminthopsis crassicaudata	13
Sminthopsis dolichura	85
Sminthopsis gilberti	1
Sminthopsis sp.	1
Strophurus assimilus	1
Suta fasciata	1
Varanus caudilineatus	8
Varanus gouldii	1
Total animals	**423**
Trap nights	**6450**
% Trap success	**6.55%**

Due to the commencement of the IA CRC project, intensive trapping was conducted at Mt Gibson resulting in the capture of 423 individuals of 34 different species, a significant increase in both the number of species and number of individuals from the previous year. The trap rate increased from 1.96% in 2005 to 6.55% in 2006. This increase is likely to be due to trapping in the warmer September weather when reptiles are active and may be in part the result of fox and cat baiting efforts in 2006 as part of the IA CRC project. **Nephrurus vertebralis* is a new species for Mt Gibson.

Opportunistic observations

Birds

Bird observations were noted by AWC staff, IA CRC project members and visitors during the year. Six additional species were added to the species list in 2006 including the Black-breasted Buzzard, Yellow-billed Spoonbill, Cockatiel, Scarlet-chested Parrot, Hooded Robin, Masked Woodswallow, and Ground Cuckoo-shrike, taking the total species to 128. Also of interest were a number of sightings of Major Mitchell Cockatoo, seen on numerous occasions at Mt Gibson, particularly around the homestead water trough.

Malleefowl

There were 22 Malleefowl sightings and fresh tracks noted during 2006, including a young bird and an active mound. The records were spread out over much of the property including along the main entry to Mt Gibson homestead, along the Emu Fence, near the northern boundary, adjacent to the Emu farm and near Condamine Well. An active mound near one of the pit trap sites was also discovered.

Reptiles and amphibians

Opportunistic sightings of reptiles and frogs were made during the biological survey resulting in three new species of reptile. *Cyclodomorphus branchialis* (listed as vulnerable) and *Egernia*

depressa were found by Graham Armstrong during the WA Naturalists' Club visit in April and the Knob-tailed Gecko *Nephrurus vertebralis* was trapped during September.

Frogs were evident in moist areas especially after the cyclonic rains in April with *Pseudophryne occidentalis* calling and tadpoles of several unidentified species (mostly *Neobatrachus*) found in waterholes. John Dell (DEC) obtained some adult specimens of *N. kunapalari* in April during the WA Naturalists' Club trip, comfirming the presence of this species.

Vegetation

Daphne Edinger and her team of volunteers collected and identified many new species of plants during their visit in April, despite very little being in flower. Daphne also identified a large number of specimens previously collected. The WA Herbarium have been of great assistance with providing a species list of previously collected material from Mt Gibson Wildlife Sanctuary. The total species list is now over 460 plants; a substantial increase of over 150 new species. Mt Gibson Wildlife Sanctuary now has a total of four declared rare and 23 priority flora species that have been recorded on the property.