

Australian Wildlife Conservancy

MT GIBSON SANCTUARY

July-Dec 2005

Introduction

Mt Gibson 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 Ereman 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 250-300mm mostly in winter but 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 eighteen declared rare and 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, 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.

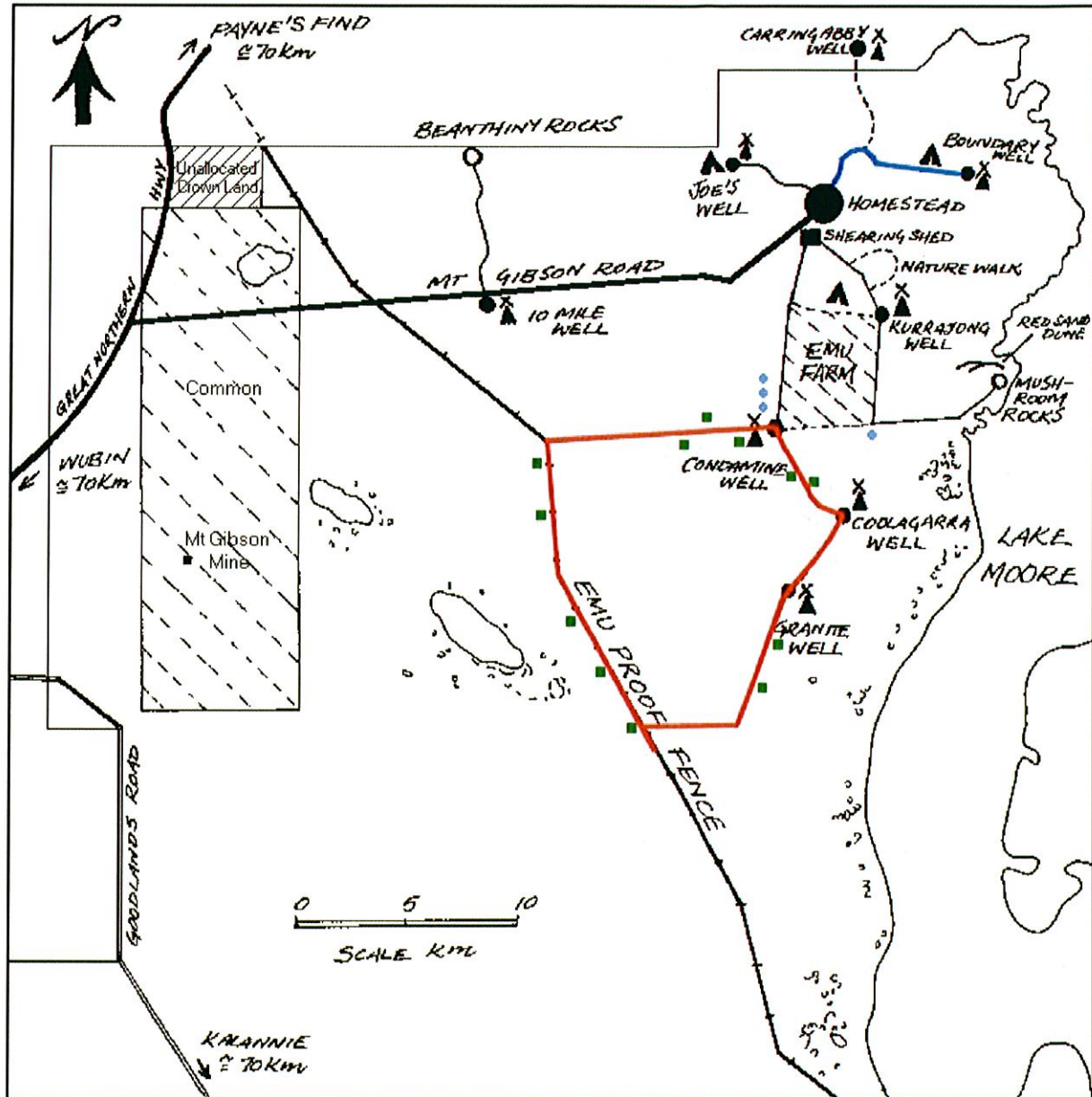
Initial surveys were conducted in 2001 to assess the station's habitats and species diversity. This was followed by feral goat control and removal of stock. Fox baiting commenced in 2004 and in 2006, the Invasive Animal CRC project will commence at Mt Gibson focusing on fox and feral cat control.

Methods

Trapping

Data on vertebrates at Mt Gibson has been collected via systematic trapping as part of the trapping program conducted in September 2005. This program incorporates fifty Sheffield traps along a set transect and ten pit sites consisting of four pits, and four medium Elliott traps and two pit sites of six pits and six Elliots. Each site is trapped for three consecutive nights. Map 1 shows the location of transect lines, pit sites & spotlight transect.

Map 1 – Mt Gibson showing location of trap transect, spotlight transect & pit lines.



KEY: Campsite Scenic Rocks Wells
 Spotlight Transect Trapping Transect Pit Lines Malleefowl Grids

Table 1 - Trapping Effort

Trap Type	No of traps	No Nights	Total
Sheffields	50	6	300
Pits	26	6	156
Elliott Traps	26	6	156
Total			612

Spotlighting

A driven spotlight transect has been implemented at Mt Gibson in 2005. This transect is 7km in length, taking approximately one hour to complete, and is conducted for two nights during the two week survey. This transect was set up to standardise spotlight monitoring technique so the data is comparable with other locations including other AWC sanctuaries and CALM reserves. A similar drive transect has also been set up at Faure, Paruna & Karakamia Sanctuaries.

Observations

Other observations of interest are noted by staff during routine sanctuary work. This can include unusual sightings, calls, scats, prints & breeding events that might not be detected by other monitoring techniques. Malleefowl searches looking for mounds have also been conducted during 2005 with assistance from volunteers and the North Central Malleefowl Preservation Group based in Wubin.

Vegetation

Monitoring of vegetation is undertaken by photographic recordings at thirty one established photo points at twelve monthly intervals, set up to monitor effects of grazing and fire. Thirteen of these sites were established by the Department of Agriculture in the 1970s, the remainder set up by staff in 2002 including two exclusion quadrats. These photos are available from sanctuary staff.

Results

Trapping

Table 2 – Summary of Trapping

Species	Number Trapped
<i>Ctenotus mimetes</i>	2
<i>Ctenotus schomburgkii</i>	1
<i>Menetia greyii</i>	1
House Mouse	3
<i>Notomys mitchelli</i>	1
<i>Sminthopsis dolichura</i>	3
<i>Sminthopsis crassicaudata</i>	1
Trapping Effort	612
% trap	1.96%

Sminthopsis crassicaudata, is a new species recorded for Mt Gibson.

Spotlighting

Spotlighting was conducted on two evenings 7/9 & 14/9. A total of nine species were seen as presented in Table 3 below.

Table 3 - Spotlighting results

Species	No seen (over 2 nights)
Red kangaroo	2
Euro	26
Rabbit	10
Spotted Nightjar	1
Tawny Frogmouth	2
Hopping Mouse (Mitchells?)	1
Pied Butcherbird	1

Black-faced Cuckoo-shrike	1
Unknown Bat	1

Observations

Birds

A bird species list and an unpublished report was prepared by John Dell following the initial biological survey in 2001. Additional species have been added to this list by visitors to Mt Gibson including members of Birds Australia and the WA Naturalists Club. In September 2005 extensive bird notes were prepared by John Dell & Simon Cherriman during their visit to the sanctuary. Two additional species the Ground Cuckoo-shrike and Cockatiel were added to the species list taking the total species to 123. Breeding was very evident in many species with displaying, calling, nests and eggs observed on numerous occasions.

Malleefowl

There were twenty one sightings of Malleefowl and their tracks by staff during 2005 mostly along the main entry to Mt Gibson homestead, adjacent to the Emu farm and near Condamine Well (see Map 1). Grid searches reveal sixteen mounds including one that showed signs of recent activity.

Reptiles & Frogs

Opportunistic sightings of reptiles and frogs were made during the biological survey resulting in two new species of reptile *Ctenophorus salinorum* & *Delma butleri* being added to the list. Frogs were evident in moist areas with *Pseudophryne occidentalis* calling and tadpoles of several unidentified species (mostly *Neobatrachus*) found in waterholes.

Vegetation - Wildflowers

There was a spectacular display of ephemeral wildflowers in Spring 2005 which has not been seen for several years. Interestingly, rainfall was average 274mm for 2005 but good falls in May, June and August, resulted in a spectacular display. Previous spectacular displays such as the 1992 (539mm) and 1993 (358mm) years had much higher rainfall.

