

Mr Hopkins

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I carried out a quick survey of the permanent quadrats and the communities in which they are sited at Dryandra and Reserve 2023 as you recently instructed.

Almost all the ground cover has died away with summer's onset and almost all species have finished flowering. This is why I have not been able to collect and identify the ephemeral and some of the perennial species, although I have taken panoramic photographs of each quadrat from its centre.

JZ Goodsell
29/11/85

Reserve 2023

(2)

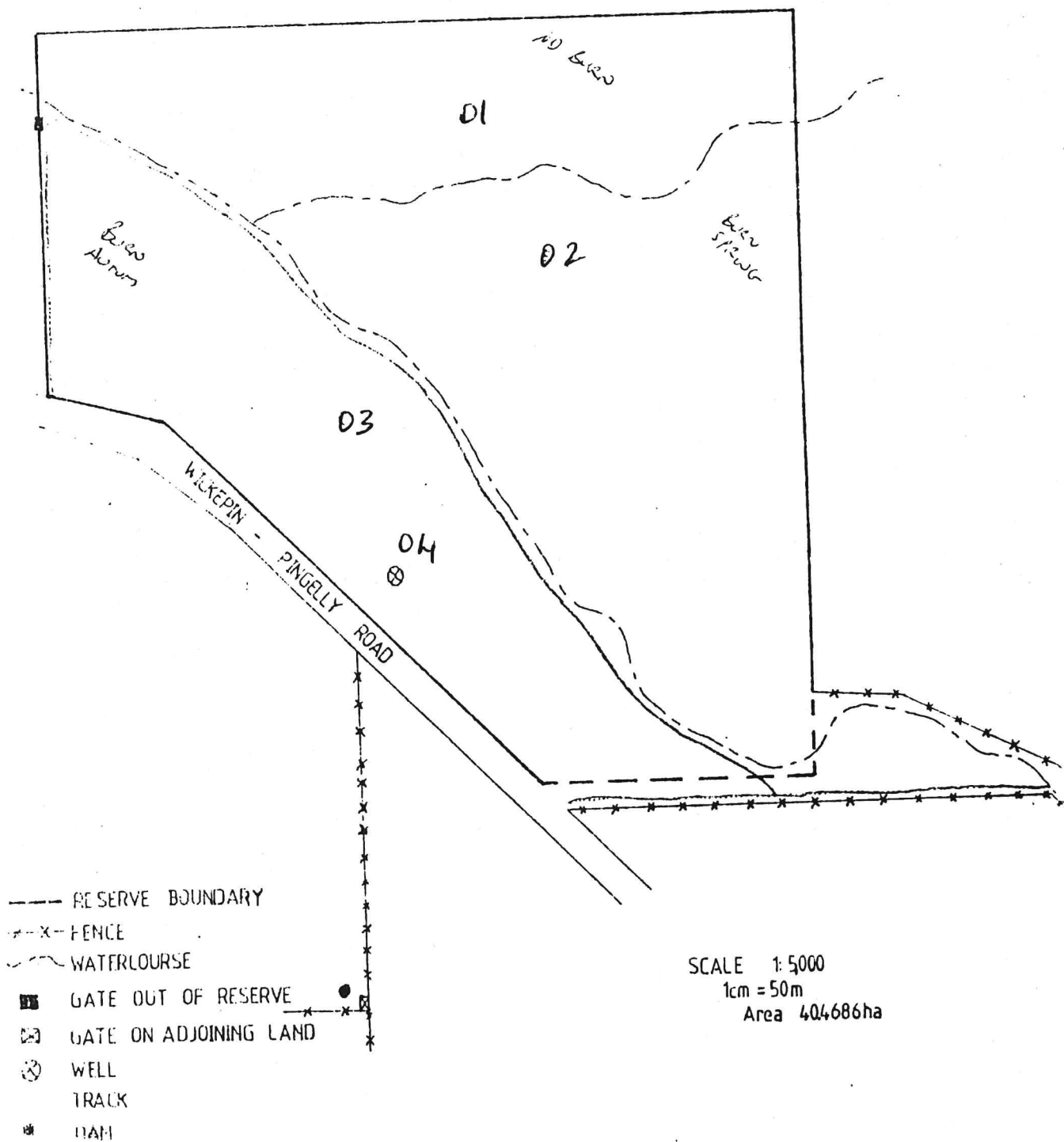
Mockerdungulling (The Ovens) Reserve in Lingelly Shire has been unburned for about 30 years until March 1985 when it was burned on the creek's southern side where two of the four quadrats are sited (See attached map).

This represents about $\frac{1}{3}$ of the reserve's total area, and scorch height was about 5 metres. An aftermath of the fire is that approximately 30% of this area is now covered by ash piles, each of which is about 2 metres in diameter. All individuals of Wandoo

NATURE RESERVE 1 2023

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FIRE BREAKS ROUGHED 28/8/86.
3 hours, including pushing in of
break along south of creek
carried out by RLB.



R.B. 21-8-86

and Casuarina have been killed, but in each of these ash piles there is seedling regeneration of York Gum, Jam, Casuarina, and nearer the creek Acacia microbotrya. There are about 12 seedlings in each ash pile, and Casuarina seedlings are all located near mature Casuarinas, indicating that they originated from the tree rather than from the ground. It is not obvious that any of the York Gum were killed by the fire, and all are sprouting new leaves from their branches.

There is no seedling regeneration of Wandoo all of which have been killed by the fire, nor is their rootstock regeneration of any species. Outside the ash piles, 100% of the ground is covered mainly by native ephemerals, into which are intrusions of wild oats, but the latter are concentrated around the burn area's margins.

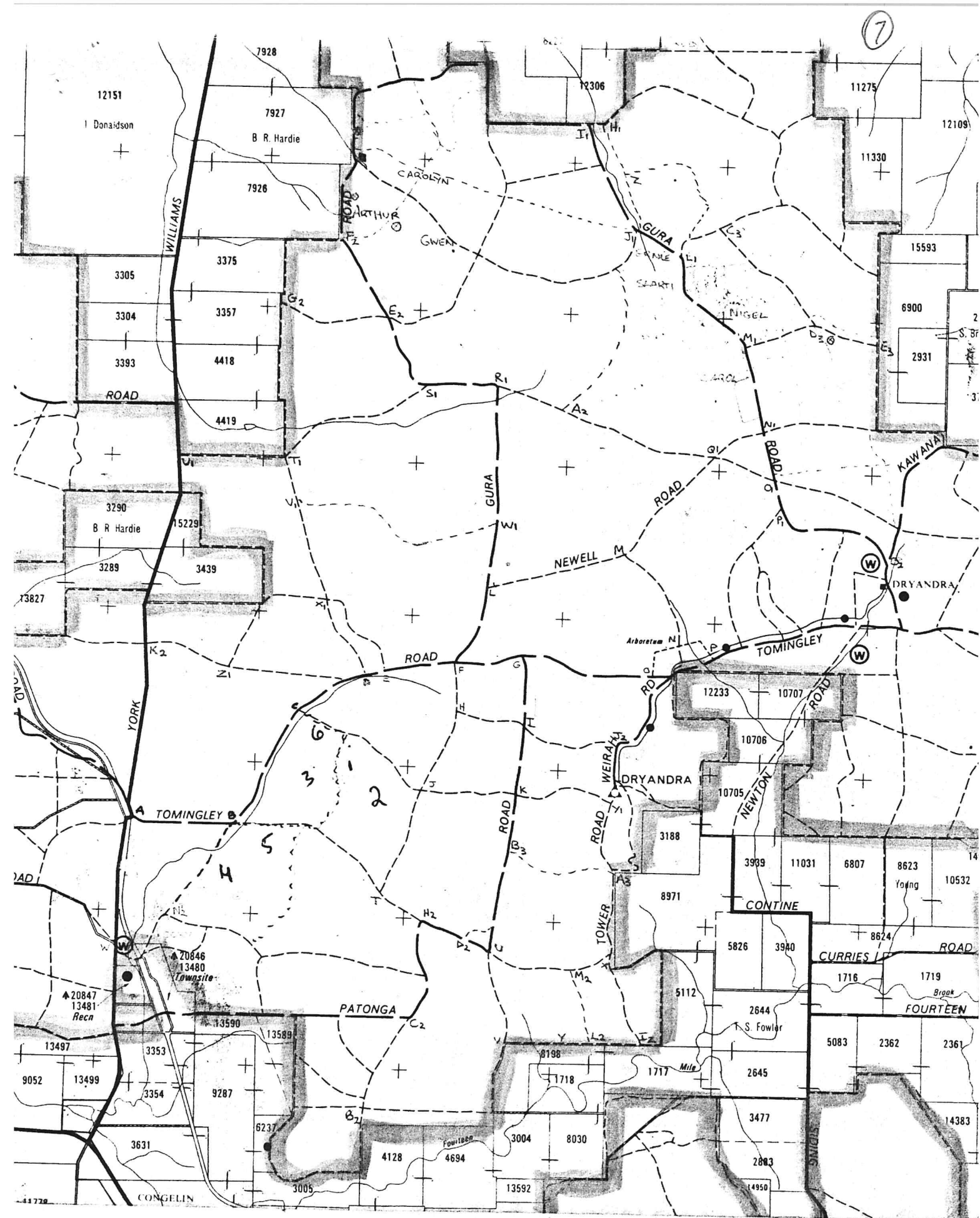
There is no regeneration of perennials outside the ash piles, and there is no intrusion by ephemerals into the ash pile areas.

Dryandra

The general area at Dryandra where 6 quadrats are located was partly burned in March 1985 (see attached map).

Five of the quadrats are in relatively uniform Wandoo communities which are on the slopes below laterite ridges, and on different aspects. The common undershrubs are: Gastrolobium microcarpum, Acacia pulchella, Artrodonia spacioides, Dryandra nivea, and Hibbertia sp.

Quadrats 3 and 6 remain untouched by the burn, and Quadrat 5 was only mildly burned by the fire whose scorch



height was less than 1 metre.

Quadrat 2 is different from the rest. It is on a rocky lateritic ridge, and the dominant species are Powderbark Wandoo and Jarrah. Comprising the understorey are:

Myandora nobilis, Camaxina humilis, Dampiera sp., Perzoonia striata and Acacia celastriifolia. Except for the large trees, all individuals were killed, and most have been totally consumed by what must have been a hot fire being indicated by a scorch height of 7 metres. Understorey species are regenerating by seedling,

except Casuarina femilis
which is regenerating from
root stocks. Powderbark

Wandoo is regenerating as
seedlings among crevices
in the labridic outcrop.

This suggests that other
unprotected seeds were
consumed by the hot fire.

Quadrat 16 has an understory
which is similar to those
of the other four communities,
but Xanthorrhoea preissii is
a conspicuous component of
the understory. ~~and~~
Although the fire (scorch
height 4 metres) has consumed
the remaining members of

The understory, Xanthorrhoea fronds are already forming crowns of about 1 metre in diameter. All the Wandoo have been killed, but are now regenerating at the bases of their trunks.

Regenerating understubs from seedlings are Acacia pulchella, Gastrolobium microcarpum, Psoralea striata, Hibbertia aff., and Gonocarpus cordigera.

Quadrat 1 is on an upper slope just below the rocky lateritic ridge where Quadrat 2 is sited. Scorch height was about 6 metres and almost everything has been killed or consumed by a hot fire which has charred the soil's surface. This is now almost 100% bare with the exception of an odd Kennedia, composite, or grass. The dominant species were Wandoo and Powderbark Wandoo. The ~~the~~ mature trees are regenerating from the bases of their trunks.

Conclusions

Advantage should be taken of the diversities of habitats which have been burned, and the varieties of thermal intensities (indicated by scorch height) to which the vegetation has been sampled.

In some communities there is no regeneration at all of seedlings of species present prior to a burn. This may have been because seeds on the ground were consumed, or because no seeds were available on the trees prior to burning.

It could be that seed status on the tree in Wandoo for example might be a factor in its seedling regeneration following a fire. No Wandoo has regenerated from seedling but Powderbark Wandoo has, as fruits of the latter were found at Quadrat 2 with Powderbark Wandoo seedlings. The implications of this simple observation should be investigated, especially in relation to regeneration of Powderbark Wandoo and Wandoo at Dryandra.

At Reserve 2023, the underground water table depth is known, and its water quality is high (3000 μM TDS). The information was collected from the well. Dynamics of vegetation change and regeneration here could be compared with those of other reserves whose underground water quality is poor.

Survivorship should be investigated of seedlings of Powderbark Wandoo, Wandoo, York Gum, Jam, and some of the pisoners at Dryandra.

A13/12.