

13. An investigation of potential landscape links to enhance Malleefowl conservation in northwest Victoria

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Abstract

The northwest Victorian natural landscape is dominated by a series of large national parks and other reserves which provide habitat for Malleefowl. Surrounding these parks and reserves exist small to medium sized outlying remnants of both crown and freehold land that contain suitable Malleefowl habitat. Some of these remnants are known to be populated with isolated Malleefowl and some are monitored for mound activity by the Victorian Malleefowl Recovery Group.

The National Recovery Plan (2007) calls for outlying remnants to be reconnected to core areas via revegetation in order to facilitate the ongoing use by Malleefowl of those remnants. Reconnection is to be preceded by a novel ranking process so that revegetation resources are efficiently targeted. The present study describes a new ranking process and by its use, ranks 38 outlying remnants on size, proximity to core area, existence of surrounding vegetation, degree of disturbance and habitat quality. Produced is a hierarchy of sites proposed for reconnection via revegetation. Outlying remnants that are larger, nearer to core areas, in better condition and with more surrounding vegetation ranked higher than smaller, more distant, poorer and more isolated remnants. The prioritised ranking of small to medium sized remnants across northwest Victoria is considered to be a guiding tool for the future planning of revegetation schemes aimed at enhancing Malleefowl habitat connectivity. The table of 38 ranked sites is considered to fulfil the suggested methodology for Action 5.1 of the National Recovery Plan for Malleefowl in Victoria.

Presentation

In northwest Victoria, we are fortunate that state governments have reserved large tracts of mallee vegetation which are present as large national parks and medium-sized reserves (LCC 1989). These include Murray-Sunset National Park, Hattah-Kulkyne National Park, the Big Desert complex including Wyperfeld National Park, Little Desert National Park and a number of medium sized flora and fauna reserves. These all contain suitable habitat for Malleefowl. Surrounding these parks and reserves are numerous small-sized remnants of both freehold and crown land that exist in an otherwise fragmented landscape dominated by dryland agricultural land use. Some of these smaller remnants contain Malleefowl habitat and indeed some also contain small populations of Malleefowl themselves (Benshemesh, J. pers. comm.). Corridors linking these smaller remnants back to the core areas are largely narrow and heavily disturbed road reserves, or in many instances simply non-existent.

It is desirable that these smaller remnants be considered for re-connection, using vegetation, back to the larger core areas in a way that facilitates Malleefowl movement. The present study is a precursor to any such re-vegetation program for connectivity. In order that future re-vegetation for Malleefowl conservation is targeted to priority areas, it is critical that potential sites be ranked on appropriate criteria.

The present study is supported by the 2007 National Recovery Plan for Malleefowl (Benshemesh 2007). Specific Objective 5 of the Recovery Plan calls on us collectively to “*Reduce isolation of fragmented populations.*” The associated Action 5.1 states “*Develop strategic corridors of native vegetation to connect patches of habitat that are suitable for Malleefowl*” and the Plan suggests achieving this Action through the following methodology: “*Identifying priorities for new links, to be established through planting or natural regeneration.*” It is this latter suggested methodology that the present study specifically addresses.

In the present study, recent orthophotography of the Victorian Mallee and Wimmera Regions was visually analysed revealing 38 small-sized remnants surrounding the core areas mentioned earlier. For the study, land tenure was ignored. These 38 remnants occurred across the central, eastern and southern Mallee Region as well as within the Wimmera Region and served as the focus for the study. Each of these 38 remnants was assessed and scored using a component of the Victorian state government's "Habitat Hectares Scoring Method" (DSE 2004).

The Victorian state government introduced and uses the "Habitat Hectares Scoring Method" for assessing the quantity and quality of remnant vegetation. A part of this method, the Landscape Context Component, was slightly modified and used for the present study. The Landscape Context Component is used to score remnants for 'Patch Size', 'Neighbourhood' and 'Distance to Core Area'. Patch Size is simply the size of the remnant being investigated. Neighbourhood is a measure of the amount of native vegetation surrounding the remnant within given radii. Distance to Core Area is the shortest straight line distance to the nearest core area. For Patch Size, remnants score from 1 to 10 points, with larger remnants scoring higher. Neighbourhood scores are a calculation based on the percentage of remnant vegetation surrounding the patch in question, with increasing vegetation in the neighbourhood scoring higher between 0 and 10 points. Distance to Core Area (with Core Areas being the large and medium sized blocks of public land identified above) scores from 0 to 4, with remnants closer to large vegetation blocks generally scoring higher.

Figure 1 below shows the Patchewollock West State Forest site. The site is relatively large, measuring approximately 4.5km x 3.5km or 1,500 hectares. There is some fragmented vegetation surrounding the site and it is relatively close to the core area of Wyperfeld National Park.

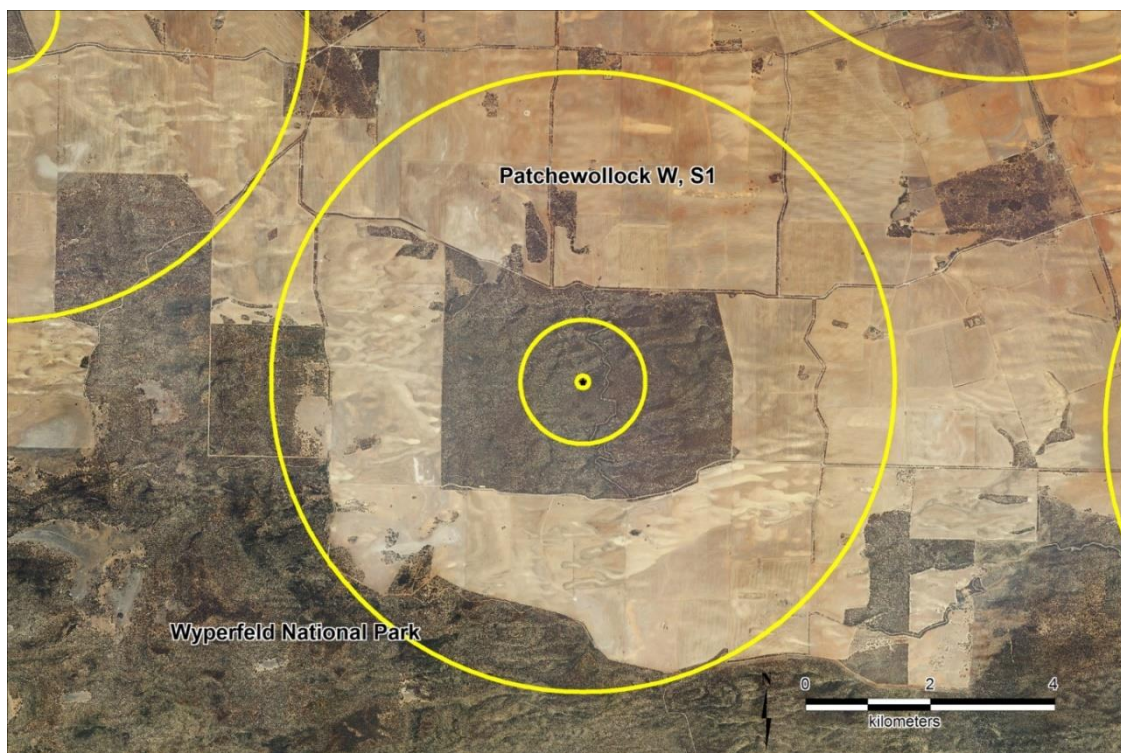


Figure 1. Patchewollock West State Forest site of approximately 1,500 hectares isolated by dryland farmland from Wyperfeld National Park.

The Landscape Context Component also has an embedded assessment of level of disturbance of the remnant, with all fragmented remnants in the study being deemed by the Habitat Hectares Scoring Method to be “disturbed”. Further, each remnant was assessed for its immediate suitability for Malleefowl colonisation. Remnants with an open overstorey or lacking a suitable understorey were scored lower on a scale of 1 to 6. Thus the remnant at each site was scored for 1) its size, 2) the distance to the nearest core area, (being national park or major flora and fauna reserve), 3) the amount of surrounding vegetation, i.e. ‘neighbourhood’, 4) the degree of disturbance, and 5) the immediate habitat suitability for Malleefowl. The ‘scorecard’ for the above site is shown in Table 1 below.

Table 1. ‘Score Card’ for the Patchewollock West State Forest Malleefowl remnant site.

Area 16 Site 28 Patchewollock W, S1				
	Radius	Actual	Score	Maximum score possible
Patch Size		1,543ha	8	10
Distance to Core Area		0.9	4	4
Neighbourhood	0.1km	100%	3	3
	1km	100%	4	4
	5km	40%	1.2	3
Disturbance		Y	-2	0
Habitat suitability		High	6	6
Rounded Total			24	30

The Patchewollock West State Forest Site scores highly for Patch Size and for its short Distance to Core Area. It also scores the maximum for surrounding vegetation at 100m radius and 1km radius and scores moderately for surrounding vegetation at 5km radius. It is deemed “disturbed” and so 2 points are subtracted, but it is very suitable (even holding a small Malleefowl population (Allen *et al.* 2014)) and so scores the maximum 6/6 for Habitat Suitability.

All 38 sites were scored in such a manner, with total scores ranging from a low of 16 to a high of 24 out of a maximum of 30. Thus it was possible to rank all sites into a preliminary list based on these scores.

The top 12 ranked sites were then ground-truthed to verify results obtained from the orthophotography. This step proved to be useful, giving both confidence in the desk-top analysis as well as an opportunity to fine-tune three of the results. In the case of two sites, the Habitat Suitability was down-graded from 6/6 to 5/6 due to the understorey being both sparse and lacking in food plants. In the case of a third site, the vegetation community was deemed to be inappropriate for Malleefowl colonisation and so its Habitat Suitability was down-graded further. Following ground-truthing, a final list of the top nine sites ranked on suitability for connectivity was produced. That list is reproduced in Table 2 overpage.

Table 2. Final list of the highest scoring Malleefowl remnant vegetation sites in northwest Victoria as scored in the Landscape Links Project.

Site number	Site name	Score
7	Cramenton	24
25	Berrook, Homestead	24
26	Berrook, I228	24
28	Patchewollock W, S1	24
11	Bronzewing NW	23
6	Annuello, Corridor S	22
17	Wandown E, Wandown	22
22	Paradise FFR	22
31	Wagon Flat	22

In conclusion, it is believed that the suggested methodology for Action 5.1 of the National Recovery Plan for Malleefowl has been fulfilled in Victoria. Revegetation and covenanting recommendations have been provided in the present study's report (Allen & Sluiter 2014) and, importantly, future on-ground projects may now proceed with some direction.

References

Allen G.G., Benshemesh J. and Stokie P. (2014) Personal Observation. 13th May 2014.

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