

**Summary of Bushland Condition Monitoring
Assessments in the WildEyre region of Eyre Peninsula
2012-2013**



Background

The 'WildEyre' region of South Australia extends across approximately 1.2 million hectares of central western Eyre Peninsula. The region includes the coastal townships of Sheringa and Elliston in the south to Streaky Bay in the north and extends inland to the large Wilderness Protection Areas of Hincks and Hambidge Conservation Parks (Figure 1). This ecologically diverse area contains some of the largest, intact and contiguous areas of bushland in the state's agricultural districts, and supports numerous nationally, state and regionally threatened plant and animal species. This mosaic of agricultural land combined with significant areas of native habitat makes it an ideal focus for landscape scale conservation work.

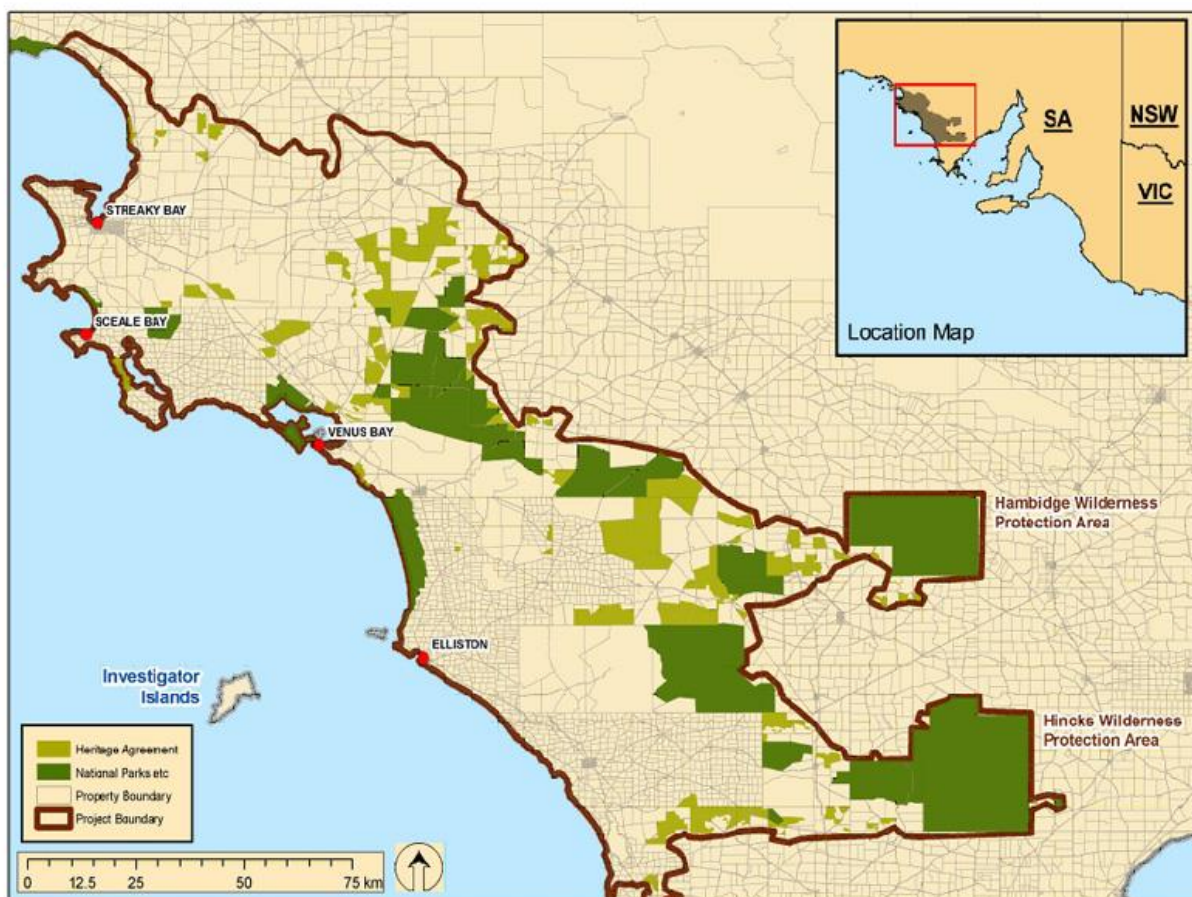


Figure 1. Map of the study area showing the WildEyre boundary (brown line), major towns and conservation areas.

The region forms part of the East Meets West Naturelink, one of five strategic landscape-scale conservation corridors in South Australia, and is an important area for a range of rare and endemic native flora and fauna (Brandle 2010). A Conservation Action Planning (CAP) process has been implemented across the region (Berkinshaw and Durant 2012) and has identified a number of priority conservation assets. The following four assets have been selected for a landscape-scale restoration project, funded through the Commonwealth Government's Biodiversity Fund and will form the basis for an investigation of vegetation condition in this report.

- Red Gum Woodland
- Mallee Box and Pine Woodland
- Sheoak grassy woodland
- Coastal dunes and cliffs

The aim of the monitoring is to gain an understanding of the condition of each resource (i.e. resource condition monitoring) and to establish permanent monitoring plots in areas where restoration and conservation works will be undertaken. A monitoring plan has also been written for the project which guides the timing and frequency of monitoring (see Collard 2013).

Methods

Site selection

Baseline Bushland Condition Monitoring (BCM) survey sites (after Milne *et al.* 2008) were selected in remnant vegetation using a random stratified selection process across the four vegetation communities of interest, ensuring a representative sample of the current condition of each community. The random selection tool "Hawth's Tools" in ArcGis 9.3 was used to select mapped vegetation polygons (DEWNR native vegetation layer). Where selected sites were deemed to be inaccessible (i.e. too hard to access by road or uncooperative landholders), new sites were selected or the location of the selected site was moved to a different location within the same vegetation polygon/patch. Restoration sites were selected from the range of available on-ground works sites funded by the current project. BCM survey site locations across the WildEyre region are shown in Figure 2 and spatial coordinates for each site are provided at Appendix 1.

In Spring 2012, ten baseline sites in remnant vegetation were initially selected and assessed in the Red Gum community as part of a different project. Forty-two additional remnant and restoration/revegetation sites were assessed in October 2013 (Table 1) – these matched with bird surveys that were also undertaken in the majority of these sites. All BCM sites surveyed in 2012 and 2013 are shown in Figure 2. Regional NRM staff assisted with contacting landholders and provided advice on how to access the selected sites.

Table 1. Summary of the number and type of baseline remnant, restoration and revegetation sites sampled for BCM in both years across each priority vegetation community.

	Remnant		Restoration		Revegetation	
	2012	2013	2012	2013	2012	2013
Sheoak		8				7
Red Gum	10					2
Mallee Box/ Native Pine		10				
Coastal		11		4		
Total	10	29	4	4	9	9

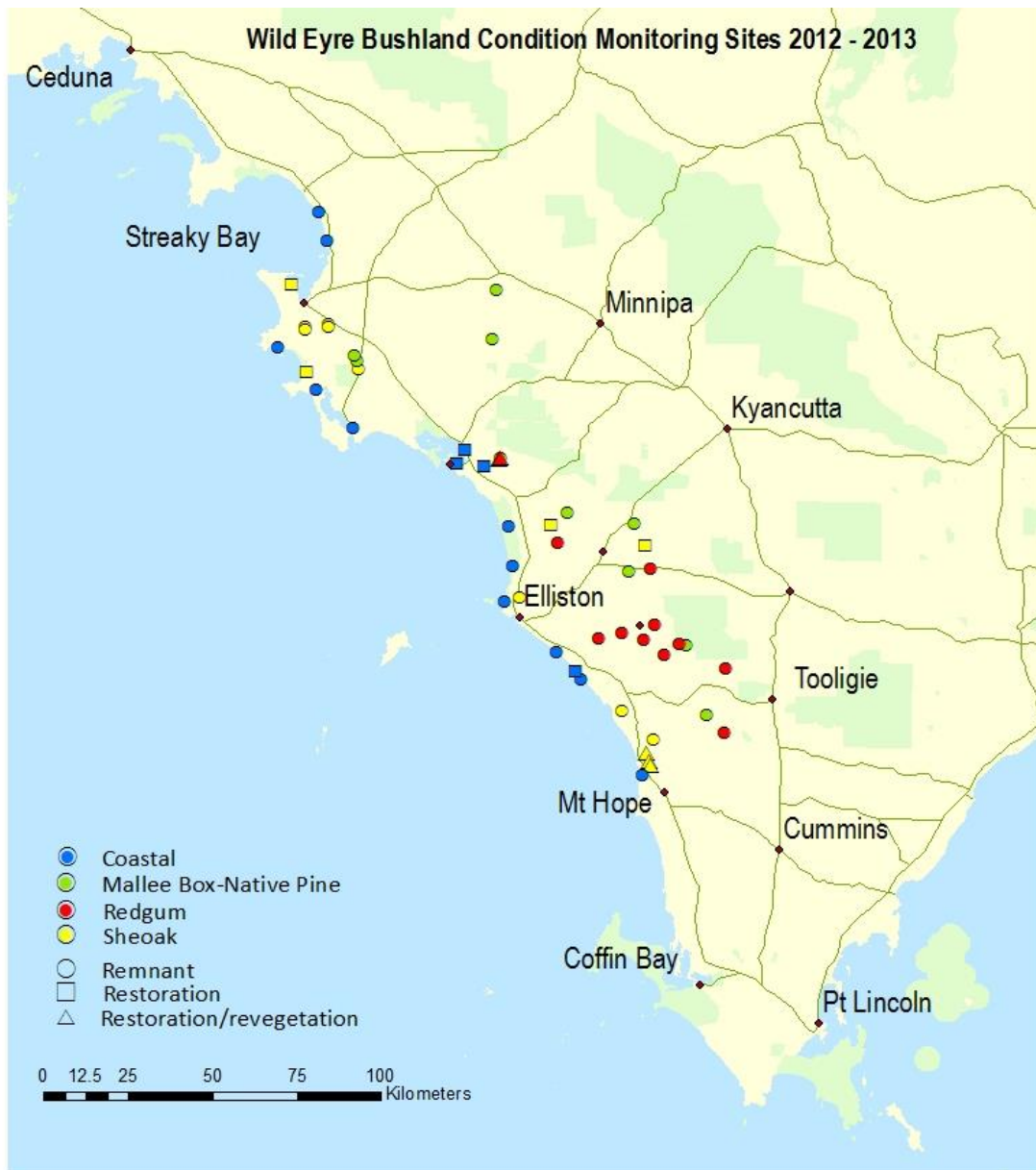


Figure 2. Map showing the WildEyre region in South Australia and the location of selected BCM sites in remnant, restoration and revegetation areas.

Bushland Condition Monitoring

The monitoring sites for this project have been established and assessed using the methods described in the NCCSA Bushland Condition Monitoring Manual for the Eyre Peninsula Region (Milne *et al.* 2008). This manual has been designed specifically to measure the condition of native vegetation communities of this region.

Data is collected on the diversity, structure and habitat values of the vegetation, including the levels of disturbing and degrading processes (weed invasion, grazing pressure, feral animals), and the health and vigour of the major overstorey species. The data collected is converted to scores which are compared against benchmarks derived from the compendium of survey data from the Biological Survey of South Australia (SA DEH 2006).

For an assessment of bushland condition, sites are chosen to be the most representative of the whole bushland patch, and of the type of active management being undertaken. In the method, most measurements are taken within a 30 metre by 30 metre (900 m²) quadrat, although the measurement areas for tree (or shrub) health, tree habitat value, and feral animal abundance extend outside of the quadrat. By convention, quadrats are usually square, oriented NSEW with a permanent stake in the SW corner, but this configuration occasionally needs to be adjusted to suit local circumstances and to allow it to be re-located and re-assessed precisely in the future. A permanent photopoint stake is hammered in 10 m from the corner marker and its bearing is recorded.

The indicators have been formulated so that an increase in the numerical score represents an improvement in vegetation condition. Indicators assessed by the method are listed below and more information is provided by Milne *et al.* (2008).

- 1: Plant Species Diversity
- 2: Weed Abundance and Threat
- 3a: Structural Diversity A: Ground Cover
- 3b: Structural Diversity B: Native Plant Life Forms
- 4: Recruitment of Native Species
- 5: Native Tree and Shrub Health
- 6: Native Tree Habitat Features
 - Tree Habitat score
 - Tree Hollow score
 - Fallen Logs and Trees score
- 7: Feral Animal Impact
- 8: Total Grazing Pressure
- 9: Faunal Species Diversity
- 10: Bushland Degradation Risk

Progress to date

As of February 25th 2014, 35 of the 52 sites have been entered into the NCSSA BCM database and site reports have been generated for each of these sites (see example report at Appendix 2). The remaining data will be entered and site reports generated during March 2014. These site reports are useful for informing management at each site and can be used to compare future vegetation condition assessments. Site reports for all sites are available on request.

References

Berkinshaw, T.D., Durant, M. (2012). *WildEyre Conservation Action Planning Report February 2012*. Report to the WildEyre Working Group, Greening Australia.

Brandle, R. (2010). *A Biological Survey of the Eyre Peninsula, South Australia*. (Department for Environment and Heritage, South Australia).

Collard, S.J. (2013). *WildEyre Performance Monitoring Plan*. Nature Conservation Society of South Australia Inc, Adelaide.

Milne, T.I., Croft, S.J. and Pedler, J.A. (2008). *Bushland Condition Monitoring Manual Eyre Peninsula Region*. Nature Conservation Society of South Australia, Adelaide.

Appendix 1 – BCM site locations across the WildEyre region.

Sheoak sites	Site type	Zone	Easting	Northing
S1	Remnant	53H	426552	6363710
S2	Remnant	53H	442315	6351139
S3	Remnant	53H	529570	6241612
S4	Remnant	53H	520467	6249961
S5	Remnant	53H	489958	6283376
S10	Remnant	53H	433489	6364541
S11	Remnant	53H	426721	6362974
S12	Remnant	53H	433349	6363799
BN01N	Restoration/revegetation	53H	527535	6237602
BN01C	Restoration/revegetation	53H	528674	6235056
BN01S	Restoration/revegetation	53H	528968	6233637
KM01	Revegetation	53H	426756	6350381
PC03	Revegetation	53H	422446	6376000
DS04	Revegetation	53H	499412	6304777
AWC01	Revegetation	53H	527146	6298797
Mallee Box/Native Pine				
CP1	Remnant	53H	545584	6248885
CP3_New	Remnant	53H	504073	6308598
CP4(2)	Remnant	53H	483002	6374387
CP5	Remnant	53H	484474	6324802
CP6	Remnant	53H	482032	6360083
CP7	Remnant	53H	539451	6269419
CP8	Remnant	53H	524003	6305383
CP9	Remnant	53H	522578	6291099
CP10	Remnant	53H	441945	6353342
CP11	Remnant	53H	441298	6355296
Coastal sites				
C1	Remnant	53H	430553	6397505
C2(2)	Remnant	53H	433053	6389235
C3	Remnant	53H	418323	6357576
C4	Remnant	53H	429679	6344871
C5	Remnant	53H	440636	6333719
C6(2)	Remnant	53H	486627	6304400
C7	Remnant	53H	488030	6292743
C8	Remnant	53H	501090	6267547
C9	Remnant	53H	508114	6259352
C10	Remnant	53H	526582	6230909
CNRP	Remnant	53H	485688	6282373
BT1	Restoration	53H	479735	6322551
BT2	Restoration	53H	471248	6323008
BT3	Restoration	53H	473718	6327115
SA01	Restoration	53H	506689	6261503

Red gum sites

R1	Remnant	53H	513493	6271488
R2(2)	Remnant	53H	501564	6299716
R3	Remnant	53H	528808	6292080
R4	Remnant	53H	530032	6275610
R5	Remnant	53H	520403	6273206
R6	Remnant	53H	532890	6266602
R7	Remnant	53H	537561	6269861
R8	Remnant	53H	526772	6270858
R9	Remnant	53H	551107	6262410
R10	Remnant	53H	550747	6243536
PH01	Restoration/revegetation	53H	483860	6324180
PH02	Restoration/revegetation	53H	484474	6324802

Appendix 2 Example site report from a Red Gum community in the WildEyre region

See attached file: RRG Site Assessment Report