Annex 2.5.1 Management of at risk biodiversity

Progress towards CAR by M.A. Cowan

1. Setting priorities for reservation

- Description of broad state/territory priorities for reservation:

Western Australia is committed to the establishment of an effective reserve system that has statutory protection and is managed in perpetuity for biodiversity conservation purposes (Department of Environment and Conservation, 2006). To meet these requirements the state continues to work towards the establishment of a comprehensive, adequate and representative reserve system (CAR) within the Interim Biogeographic Regionalisation of Australia (IBRA v6) framework that conforms to both IUCN protected area management categories I-IV (IUCN, 1994) and also meets the requirements set for the National Reserve System (Natural Resource Management Ministerial Council, 2004). The target for reservation is 15% of the total area for each IBRA bioregion in the state.

While it is recognised that there are many other mechanisms of biodiversity protection through land management (Indigenous Protected Area agreements, non government organisation reserves, off reserve conservation etc), and that these have an important role in biodiversity conservation, unless they have the appropriate level of protection and management to meet IUCN I-IV and the State and Commonwealth agreed NRS criteria, then they should be viewed as complementary to a National Reserve System (NRS) and not a replacement for, or contribution towards it.

Progress towards CAR

- Adequacy/assessment of progress towards CAR based on CAPAD updates as already provided by states to DEW:

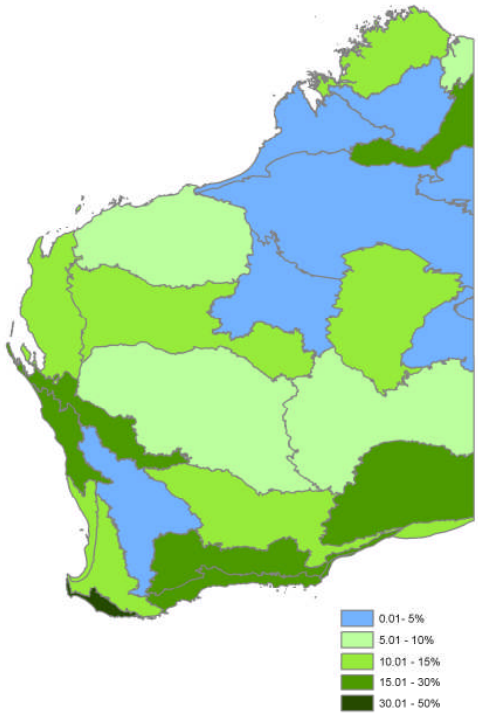
The level of protection for each IBRA region, based on IUCN I-IV categories plus former leasehold areas acquired and managed for conservation, as of the end of 2007, is displayed in Figure 1 and Table 1. Seven of the state's 26 bioregions have a level of protection greater than 15% of their total area, a net increase of one from 2002 (two additional bioregions increased above 15%, while one dropped below 15%, presumably as a consequence of redistribution of the IBRA boundary over this time). The IBRA regions over 15% reserved are primarily in the south western part of the state, although the Nullarbor and Ord Victoria Plain have 16.1% and 16% respectively. The northern and interior areas of the state, along with the Avon Wheatbelt region, have the least level of protection and while this is a significant issue for areas with high levels of land use (pastoralism, agriculture and mining) such as Central Kimberley, Dampierland and Avon Wheatbelt, the immediate threats to biodiversity in other more remote regions are considerably less and therefore the same degree of urgent action may not be required.

Table 1. Total area and percentage area under reservation in 2002 and 2007

IBRA Region Code	Regional Area (ha)	Former Leasehold + IUCN 1 - 4 area reserved in 2002 (ha)	Former Leasehold + IUCN 1 - 4 area reserved in 2007 (ha)	% of region reserved in 2002	% of region reserved in 2007	% change from 2002 - 2007	2002 Biodiversity Audit Reservation Class
AW	9517105	154198	193859	1.6	2.0	0.4	1
CAR	8427563	665586	952676	7.9	11.3	3.4	4
CK	7675587	339882	339917	4.4	4.4	0.0	1
COO	12912208	1286556	1865354	10.0	14.4	4.5	3
CR	4701518	0	0	0.0	0.0	0.0	1
DL	8361737	85980	90929	1.0	1.1	0.1	1
ESP	2917610	823521	823602	28.4	28.2	-0.2	5
GAS	18075253	1566946	1861551	8.7	10.3	1.6	3
GD	15628966	1845745	1845737	11.8	11.8	0.0	4
GS	3140507	477891	563004	15.2	17.9	2.7	4

GSD	29539544	787424	787424	2.7	2.7	0.0	2
GVD	21794203	1844630	1844630	8.5	8.5	0.0	5
HAM	1043083	113949	113951	10.9	10.9	0.0	4
JF	4509046	540389	620248	12.0	13.8	1.8	2
LSD	11089900	514038	514038	4.6	4.6	0.0	2
MAL	7397572	1323525	1329180	17.9	18.0	0.1	5
MUR	28120558	1510830	2110655	5.4	7.5	2.1	2
NK	8406766	1245282	1244882	15.0	14.8	-0.2	4
NUL	13736042	2210640	2210650	16.1	16.1	0.0	5
OVP	5497882	325331	878594	5.9	16.0	10.1	3
PIL	17821310	1544995	1480818	8.7	8.3	-0.4	3
SWA	1525637	153957	157681	10.3	10.3	0.2	4
TAN	3016138	0	0	0.0	0.0	0.0	1
VB	1891135	111552	111642	6.0	5.9	0.0	4
WAR	844473	374743	388975	44.9	46.1	1.7	5
YAL	5087153	752440	1398299	14.9	27.5	12.7	4

Figure 1. Level of protection of Western Australian IBRA regions



- Representativeness/methodology/units for calculating CAR Representativeness will be calculated from subregional comprehensiveness. Where cross boundary reconciliation of mapping units has not occurred then the progress in each jurisdiction will be reported separately. In these cases the subunit for determination of representativeness may be reduced to the proportion of a subregion in each jurisdiction.

o Prepare a report on the progress towards CAR in IUCN categories by IBRA regions. The analysis will be based on the reservation level of vegetation mapping units or regional ecosystems used in each state/territory independently.

The level of comprehensiveness (proportion of vegetation associations, or ecosystems, with greater than 15% of their pre-European extent reserved) for each bioregion is displayed in Figure 2 and comparative values between 2002 and 2007 in Table 2. Only two regions, Warren and Esperance

Plains, have more than 50% of their ecosystems adequately protected. The remainder of the state remains poorly represented overall with a number of regions where it is either impossible or unlikely that this situation can be rectified. These include the Swan Coastal Plain and Avon Wheatbelt.

Representativeness is assessed through the level of protection of each ecosystem at the subregional scale (Figure 3) and only five of the 54 subregions have greater than 50% of their ecosystems adequately protected. These are again confined to the south west land division with the exception of the Carlisle subregion in the Nullarbor.

Each jurisdiction will provide hectarage of each vegetation type (and percentage of IBRA regions and sub-regions within reserve system by IUCN category- based on vegetation type.) The Audit may analyse these data further based on JANIS criteria.

Table 2.

IBRA Region	% of vegetation associations with more than 15% of pre-European extent reserved in 2002	% of vegetation associations with more than 15% of pre-European extent reserved in 2007
Avon Wheatbelt	8.3	11.5
Carnarvon	15.2	21.0
Central Kimberley	5.1	5.1
Coolgardie	22.6	34.0
Central Ranges	0.0	0.0
Dampierland	2.4	2.4
Esperance Plains	59.7	59.7
Gascoyne	9.2	10.5
Gibson Desert	24.0	24.0
Geraldton Sandplains	41.9	44.2
Great Sandy Desert	5.1	5.1
Great Victoria Desert	17.9	17.9
Hampton	50.0	50.0
Jarrah Forest	40.0	41.1
Little Sandy Desert	13.3	13.3
Mallee	32.7	32.7
Murchison	22.1	29.5
Northern Kimberley	18.8	18.8
Nullarbor	35.5	35.5
Ord Victoria Plain	5.0	12.5
Pilbara	13.6	13.6
Swan Coastal Plain	24.2	24.2
Tanami	0.0	0.0
Victoria Bonaparte	7.9	7.9
Warren	75.5	75.5
Yalgoo	14.3	33.7

Figure 2. Progress towards comprehensiveness in Western Australia

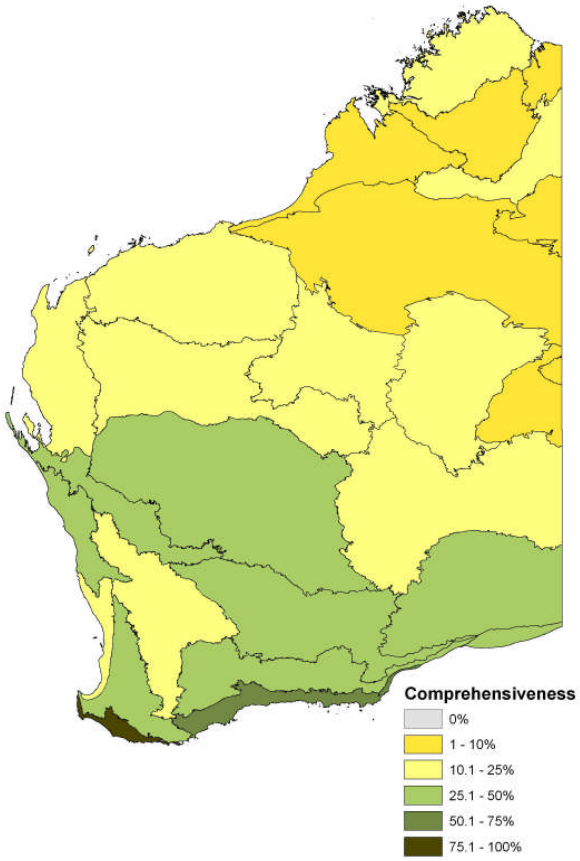
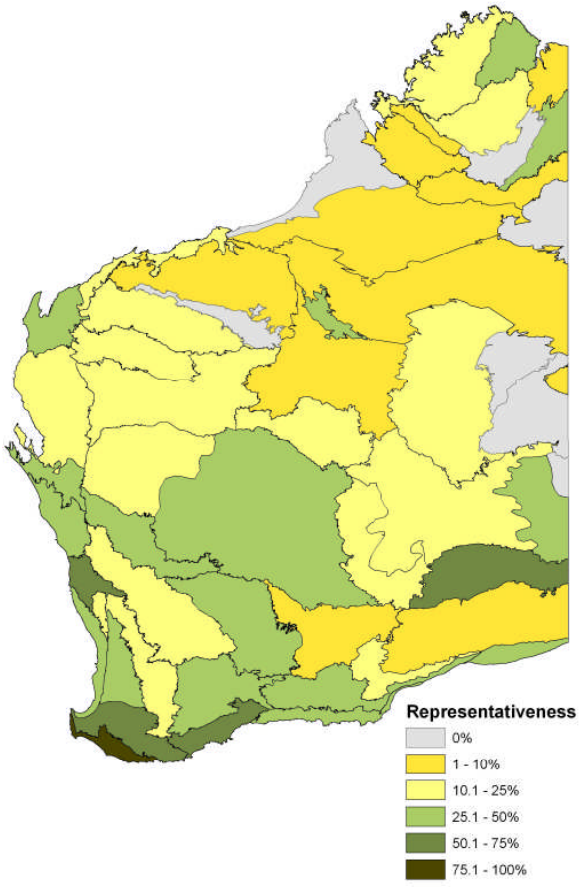


Figure 3. Progress towards representativeness in Western Australia



- Provide a jurisdictional summary of how progress towards CAR is assessed:

  CAR is assessed in WA through the use of digital Pre-European Vegetation mapping at 1:250,000 scale (Hopkins et al 2000). Vegetation associations from this dataset are used as surrogates for native ecosystems and targets of 15% reservation for each are used at the IBRA regional and subregional level to provide comprehensiveness and representativeness assessments respectively. Thus a minimum of 15% of the total area of each bioregion is also required to meet CAR criteria. The assessment of Adequacy for the National Reserve System is a complex issue and still a topic of discussion within the National Reserve System Scientific sub-group and until this is resolved no meaningful quantitative assessment can be made.

  Areas considered to contribute to the CAR reserve system in Western Australia meet IUCN I-IV reserve categories with only one exception and this is for the ex-pastoral lands purchased specifically for biodiversity conservation, and now managed for that purpose, but still awaiting formal inclusion in the reserve system as Conservation Reserve.

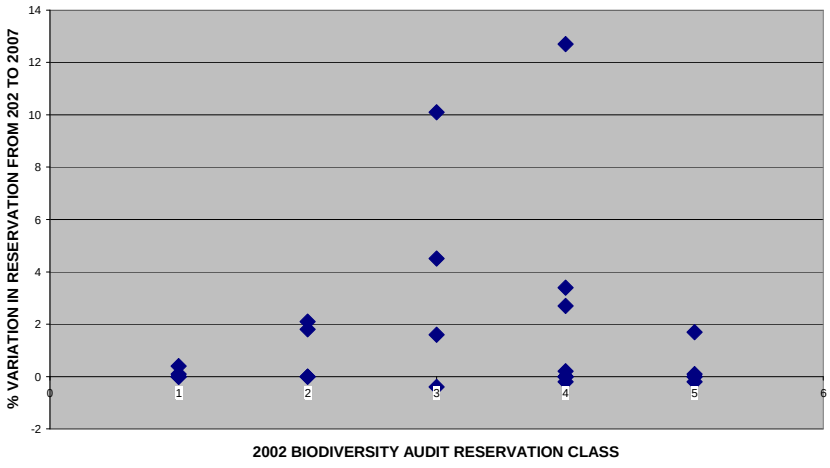
3. Assessment of reservations since 2002

- Are new reserves since 2002 within the priority subregions identified in 2002?

  Table 1 shows where change in reserve area has occurred over the 2002-2007 biodiversity audit period, and Figure 4 shows the spread of percentage change against 2002 Biodiversity Audit Reservation Class, with most change being in the middle priority reservation classes. These changes are most pronounced in the Yalgoo, Ord Victoria Plain, Coolgardie, Carnarvon, Geraldton Sandplains, Murchison, Jarrah Forest, Warren and Gascoyne Bioregions. While these changes have not occurred across all the priority regions from the 2002 audit process, they do represent regions where opportunities to procure conservation estate in the near future will be limited due to either competing land use and or loss of pre European vegetation associations. A number of the bioregions identified as high priority in the 2002 biodiversity audit (reservation class 1) already fall into this category with availability of land suitable for conservation purposes rare.

  There has been considerable progress in improving comprehensiveness (Table 2) for a number of Regions in the 2002-2007 period. Most notably for the Avon Wheatbelt, Carnarvon, Coolgardie, Murchsion and Ord Victoria Plain regions. Of these the Avon Wheatbelt and Murchison regions were identified as high priority areas in the 2002 Biodiversity Audit process.

Figure 4. Percentage change in reserved area against the 2002 reservation class



- Do state and territory reservation priorities reflect the priorities indicated in 2002?

  Reservation priorities have frequently been directed towards bioregions with the greatest levels of change from historic and current land use practices and these were not always identified as areas of highest priority in the 2002 biodiversity audit (refer to Figure 4). Reservation is also dependent on the availability of land, which is limited in some high priority regions.

4. Ways forward

- Forward programs towards CAR objectives:

  Western Australia is committed to the development of a CAR system as outlined in the "A 100-year Biodiversity Conservation Strategy for Western Australia: Blueprint to the Bicentenary in 2029" (Department of Environment and Conservation, 2006) and future priorities will continue to work towards this objective. To meet this though, issues related to land availability, Native Title and access to lands for exploration and mining will need to be worked through.

- Information needs/gaps (for further discussion at the next workshop):

  Resolution in defining adequacy as a quantifiable entity is essential if we are ever to achieve CAR. The effects that climate change may have on the comprehensiveness, representativeness and adequacy of the NRS needs to be addressed and incorporated in future planning, as does connectivity.

5. References

Department of Environment and Conservation (2006). Draft – A 100-year Biodiversity Conservation Strategy for Western Australia: Blueprint to the Bicentenary in 2029, Government of Western Australia.

Hopkins, A.J.M., Beeston, G.R. and Harvey, J.M. (2000). A database on the vegetation of Western Australia. Stage 1. Department of Agriculture, Western Australia Unpublished**.**

IUCN (1994). Guidelines for Protected area Management Categories. Commission on National Parks and Protected Areas with the assistance of the World Conservation Monitoring Centre. IUCN, Gland, Switzerland.

Natural Resource Management Ministerial Council (2004). Directions for the National Reserve System- A Partnership Approach, Australian Government, Department of Environment and Heritage, Canberra, ACT.