

Biodiversity Mapping in the South West Metropolitan Region

Presented to the WAPC Chair on relevance to
EPBC Act Strategic Assessment of Perth and
Peel Region

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Councils Caring for their Natural Environment



Member Council and Partners in the South West Group Regional Natural Resources Management (NRM) Strategy



Local Biodiversity Program is supported by:



Department of Planning



Department of Parks and Wildlife





Background

- Regional NRM Strategy an initiative of the South West Group – Adopted in August 2013
- Aimed at addressing regional NRM issues and identifying large scale, cross boundary NRM initiatives
- WALGA LBP Team engaged to undertake regional biodiversity mapping and analysis
- South West Group implementing Regional NRM Strategy based on priority projects and initiatives
- Promotes working together, active participation in biodiversity conservation, collaboration, information and resource sharing

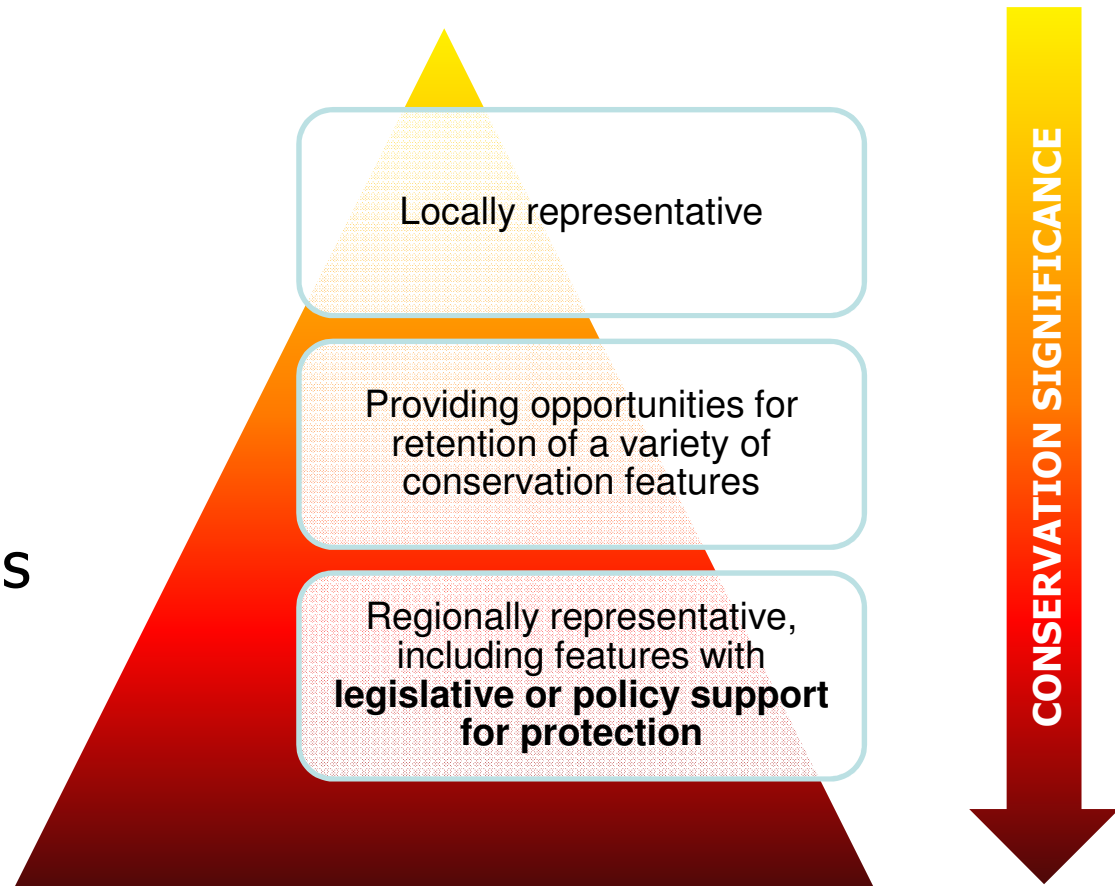
Outline of Presentation

- Methodology for biodiversity mapping
- Identification of areas for priority action
- Identifying local ecological linkages
- Applying a connectivity analysis
- Key findings
 - Vegetation Extent and Current Provisions for Protection
 - Connectivity and Building a Green Network
- Conclusions

Local Natural Area

Level 1 Prioritisation criteria

- Regional retention & protection
- Rarity
- Maintenance of ecological functions
- Local retention



Level 2 Prioritisation

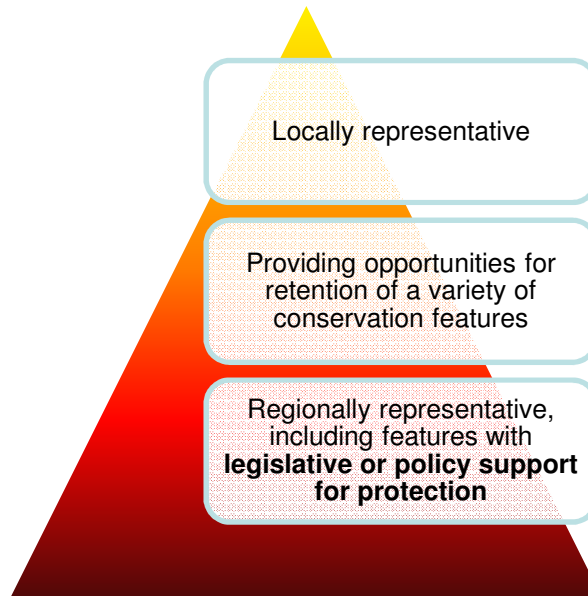
Conservation significance & opportunities for, and constraints to, conservation

Protected

(eg. Bush Forever or DPaW lands, conservation reserves)

With good opportunities for native vegetation retention/protection

(eg. zoned parks & rec., rural landscape protection, state forest etc.)



With varied opportunities for native vegetation retention/protection

(eg. zoned rural smallholdings, special use etc)

With limited opportunities for native vegetation retention/protection

(eg. zoned urban or urban deferred)

Level 3 Prioritisation

Identification of potentially threatened vegetation complexes

Based on hypothetical simplified assumptions:

- Current extent (***2010 data***) of vegetation complexes & their regional distribution
- All vegetation reserved for Parks & Recreation **will be retained**
- Vegetation zoned/reserved Urban, Urban deferred, Industrial, Roads, Railways, City Centre, Ports **will be cleared**
- Various retention scenarios applied to vegetation within zones/reserves Rural, Public Purposes, Special Use (30%, 50% and Bush Forever contribution)
- Consideration of local biodiversity conservation objectives adopted through **Local Biodiversity Strategies**

POTENTIALLY
THREATENED
VEGETATION
COMPLEXES

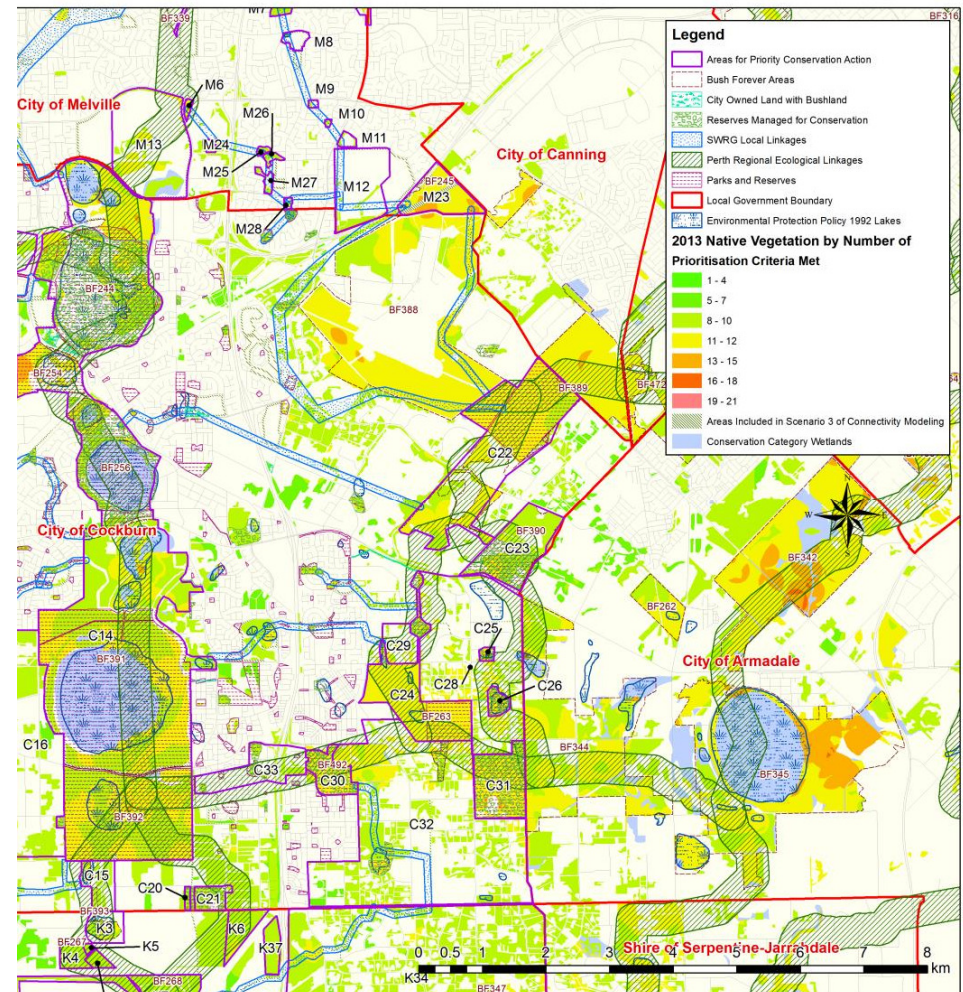
Potentially threatened vegetation complexes

Level of retention of vegetation complexes relative to pre-European extent		
Conservation Priority Category	Current (2010) regional extent within the study area (%)	Assumed (future) retention in the study area (%)
1	> 90	< 10
2	> 90	< 30
3	> 60	< 10
4	> 60	< 30
5		< 10
6		< 30

Areas of Priority Conservation Action (APCAs) for Cross Boundary Initiatives

APCA's identify areas where **cross boundary cooperation** would provide opportunities to work collaboratively, access external funding and prioritise actions at local level that will contribute to biodiversity conservation actions at regional level.

NB: There are **numerous natural areas** of high conservation value that are **not included** in the APCAs because they can be readily managed locally by the LGA's and community groups without the need for cross boundary cooperation



Regional and Local Ecological Linkages

- **Regional linkages** were mapped in 2006 as part WALGA's Perth Biodiversity Project and form a metro wide network of existing and potential corridors
- **Local ecological linkages** were identified to link regionally significant natural areas not connected through the Regional Ecological Linkages.
- Some local linkages were proposed to link to POS that has no remnant native vegetation, recognising that **POS can support biodiversity conservation** when local species are introduced.

Connectivity Analysis

A connectivity analysis was then applied to three potential scenarios:

Scenario 1: Remnant vegetation and Conservation Category wetlands existing in **2013** - the "**current status**"

Scenario 2: The "*current status*" with **further loss of all unprotected vegetation** modelled as the removal of all remnant vegetation outside Bush Forever areas, DPaW managed lands and LGA conservation reserves based on the full development of local planning scheme zones

Scenario 3: Represented by Scenario 2, with the **addition** of selected POS and other potential 'green spaces' that would require active biodiversity management and resources.

The Connectivity Analysis Measures...

Regional Connectivity: A measure of how a patch of remnant vegetation within a connected network deviates from the “ideal” (circular) shape of a well-connected network.

Connectivity Reach: A measure of the size of the connected network a patch is part of, regardless of the pattern (or shape) of the network.

Fragmentation: A measure for a patch and its immediate surrounds and how this deviates from the “ideal” (circular) shape.

Key Findings - Vegetation Extent and Protection

1. < **30%** (2010 data) of the pre-European vegetation extent **remains**, with the majority in the Cities of Cockburn, Kwinana and Rockingham
2. < **10%** of the pre-European extent is formally **protected for conservation**.
3. There are **ten** vegetation complexes represented in the SWG study area. **Eight out of ten** are listed as potentially **threatened**.
4. The City of Rockingham is one of only two Local Governments in the Perth/Peel where the **Serpentine River** vegetation complex remains
5. The Cities of Kwinana and Rockingham have particular opportunities to protect the **Karrakatta Central and South** vegetation complex

Key Findings - Connectivity & Green Network

1. Many priority conservation areas are isolated. **Further loss** of vegetation will **increase the isolation** of **additional** protected natural areas.
2. **Extending the current network** by restoration and revegetation within regional and local linkages **will maintain or improve current levels of connectivity.**
3. Establishing additional native vegetation within existing POS areas only **will not be sufficient** to maintain or improve connectivity.
4. Establishing a **secure east-west linkage is a high priority.** The best opportunity exists on the **boundary of the Cities of Rockingham and Kwinana** and/or the **boundary of the Cities of Kwinana and Cockburn.**

Key Findings - Connectivity & Green Network

5. Improving protection status and vegetation condition is critical to facilitating fauna movement **in coastal areas**.
6. The long term viability of the relatively well established South-North linkages is **dependent on the ability to protect** vegetation within several currently unprotected areas
7. **Adding new, small areas** of vegetation increases connectivity, however the maintenance of a network of numerous small narrow parcels will be more resource intensive.
8. Connectivity characteristics of native vegetation in the study area will be significantly **worsened with the clearing proposed** within the Latitude 32 Structure Plan area and Jandakot Airport.

Conclusions - Green Network

- The LBP / SWG study has provided extremely valuable, objective data to guide regional and local NRM and biodiversity planning and management decisions.
- Regional scale planning and management is critical for improving biodiversity outcomes.
- Increased cooperation and coordination between LGA's, and between LGA's and State and Federal agencies, is essential for improving regional biodiversity outcomes.
- To maintain or improve the integrity of the green network requires:
 - environmentally sensitive planning decisions and developments
 - increasing the protection status of high conservation value vegetation
 - active maintenance and/or improvement of existing vegetation condition
 - innovative measures to encourage more native vegetation in POS, road and rail reserves, and on private land

Conclusions - SAPP

- The SAPP Team has been provided with the datasets and shape files developed through the Green Network Report.
- Potential to combine the Green Network Report spatial biodiversity conservation mapping with State and Federal species data (Canaby's, DRF, TEC, Conservation Category Wetlands) to build landscape scale response in SAPP.
- South West Group also working with member Councils in the region to identify biodiversity offsets that can be met locally or regionally.
- South West Metropolitan Region is open to trialing pilot projects or ideas and canvassing implementation responses in partnership with State Government.