

# Living Landscapes

Ecological connectivity and resilience in the Swan NRM Region



**LIVING**  
LANDSCAPES

# Who is Perth NRM?

An **independent, not-for-profit** organisation that delivers a range of environmental programs

One of **seven regional NRM groups** in WA

Custodian of the **Swan Region Strategy for NRM**

Funded by the Australian Government to deliver the regional stream of the **National Landcare Programme**



# Ecological Resilience



Our goal is for our natural landscapes and native ecosystems to be healthy, sustainable, and valued by the community

Ecological resilience refers to the health and function of ecosystems and is tied with their ability to resist threatening processes.



# Landscape scale conservation

Swan and Canning River Catchments

Jarrah Forest IBRA region

Swan Coastal Plain IBRA region

- Jarrah Forest and Swan Coastal Plain IBRA regions are under a **high level of biodiversity stress** due to clearing, fragmentation, and infestations of Phytophthora dieback and exotic weeds

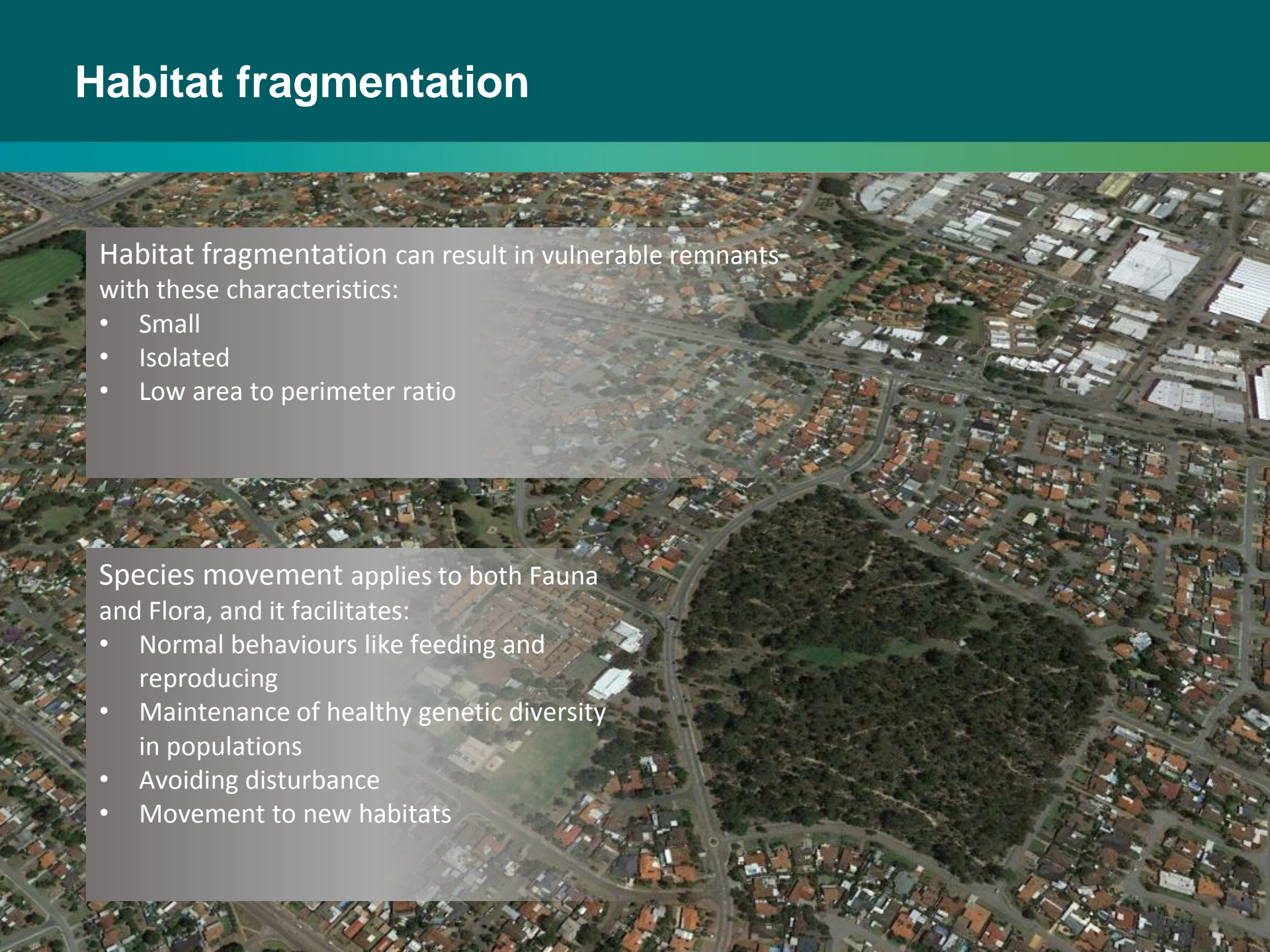
- Only **29% of the original extent of vegetation** on the Swan Coastal Plain portion of the Perth and Peel regions remains, with only a quarter of this occurring within the conservation estate

- Swan Coastal Plain IBRA has one of the **highest densities of threatened flora, fauna and ecological communities** of anywhere in Western Australia

Extends 3 nautical miles out to sea  
(includes Rottnest and Garden Islands)



# Habitat fragmentation



Habitat fragmentation can result in vulnerable remnants with these characteristics:

- Small
- Isolated
- Low area to perimeter ratio

Species movement applies to both Fauna and Flora, and it facilitates:

- Normal behaviours like feeding and reproducing
- Maintenance of healthy genetic diversity in populations
- Avoiding disturbance
- Movement to new habitats

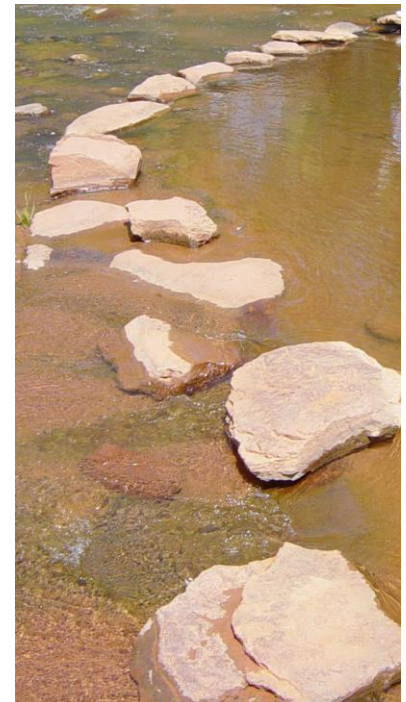
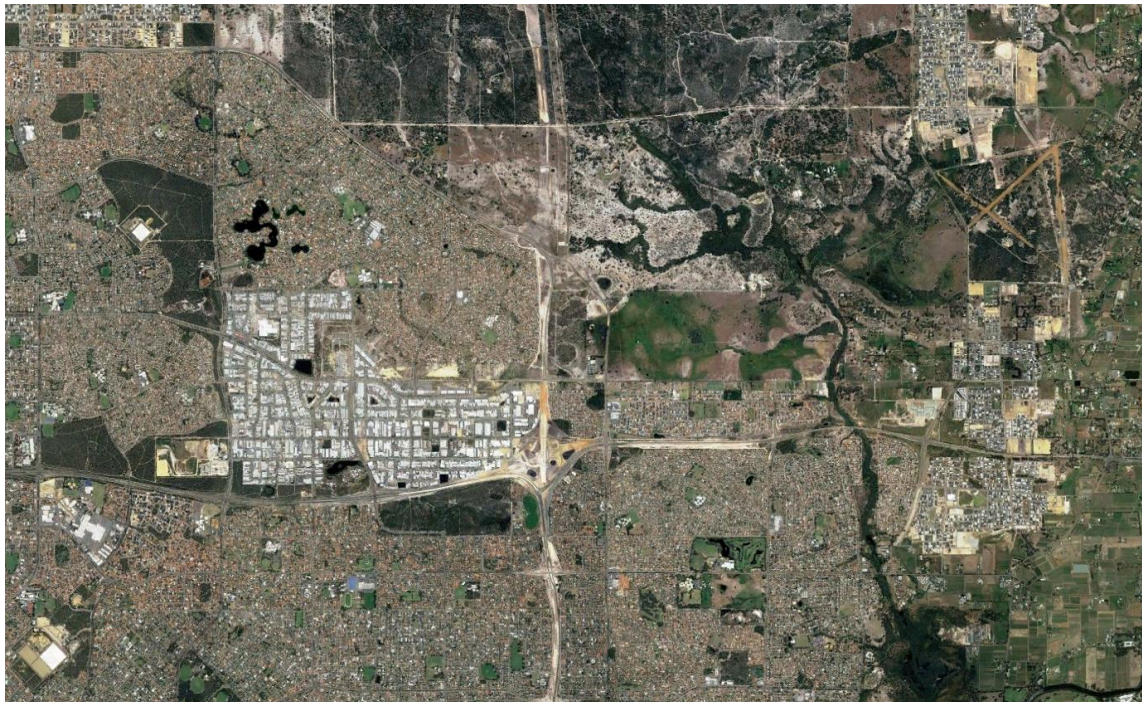


# Habitat Stepping Stones



Our region is marked by cleared, mixed use, mixed tenure landscapes which do not suit the creation of typical wildlife corridors

Habitat stepping stones increase mobility of animals – especially pollinators – between habitat ‘cores’



# Other Challenges

- Swan NRM region: 1.4 Million hectares
- 2015 -18 budget: \$240,000 per year
- Target constraints: only national priorities of the Environment Protection and Biodiversity Conservation Act
  - Threatened species
  - Threatened ecological communities
  - Ramsar wetlands
- Delivery constraints: working where there is an active community group present



# Multi Criteria Analysis

Multi-Criteria Analysis Shell  
**MCAS-S** Version 2.0  
For Spatial Decision Support

patial Resilience + Cons Val - Multi-criteria Analysis Shell

Edit Help

er name: spatial resilience + cons

Variables  
Axis: Spatially resilient areasLMC

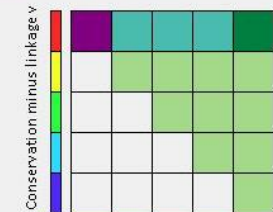
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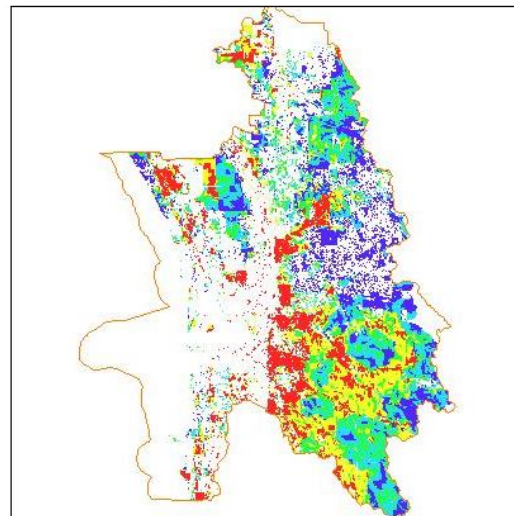
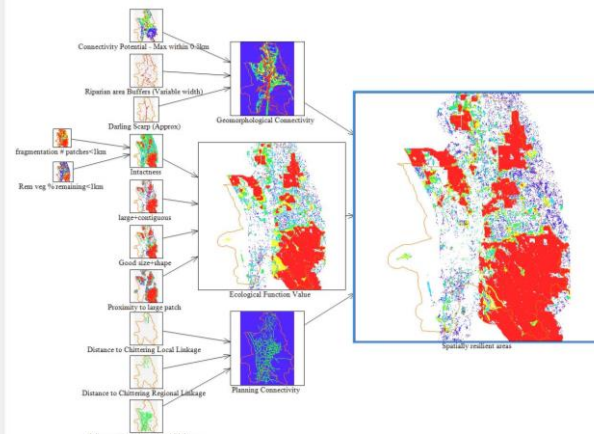
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target3  
class 3  
target 2  
target 1

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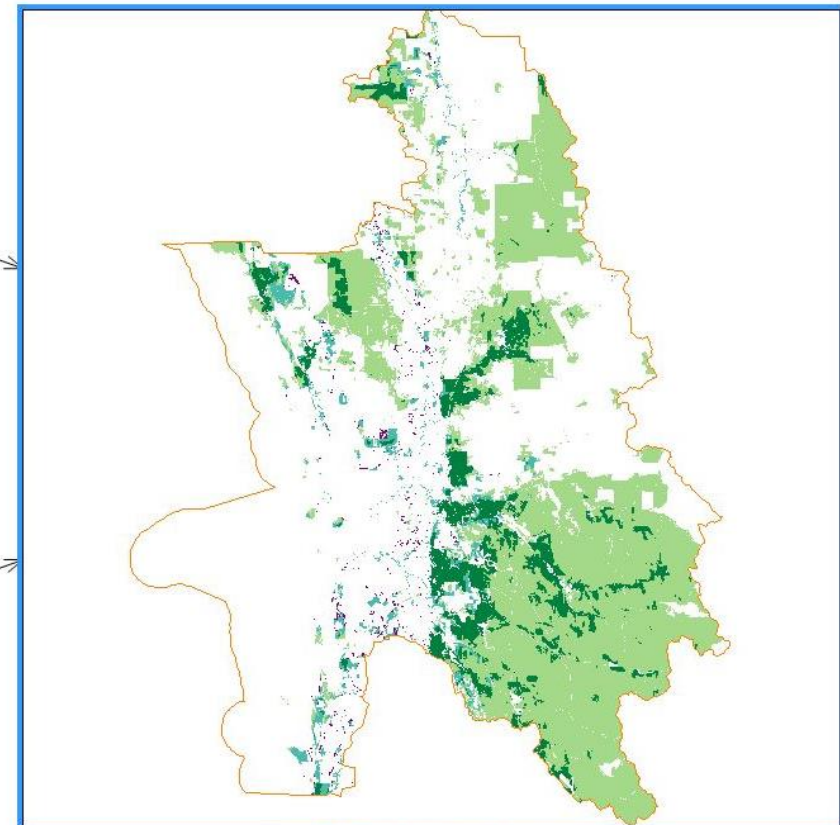
Conservation minus linkage v



Spatially resilient areasLMC



Conservation minus linkage vals



spatial resilience + cons value\_targets



# Criteria

## Target Areas

### Conservation Value

- Rarity
- Naturalness
- Diversity
- Representativeness
- High Conservation Value for People

### Ecological resilience

- Geomorphological Connectivity
- Planning Connectivity
- Spatial Resilience

### Restoration potential

- Proximity to High Conservation Value Areas
- In Landscape Linkages
- Proximity to Protected Vegetation and Habitat Cores
- Buffer for important 'Climate Refuges'
- Close to wetlands and riparian areas to 'restore system function'

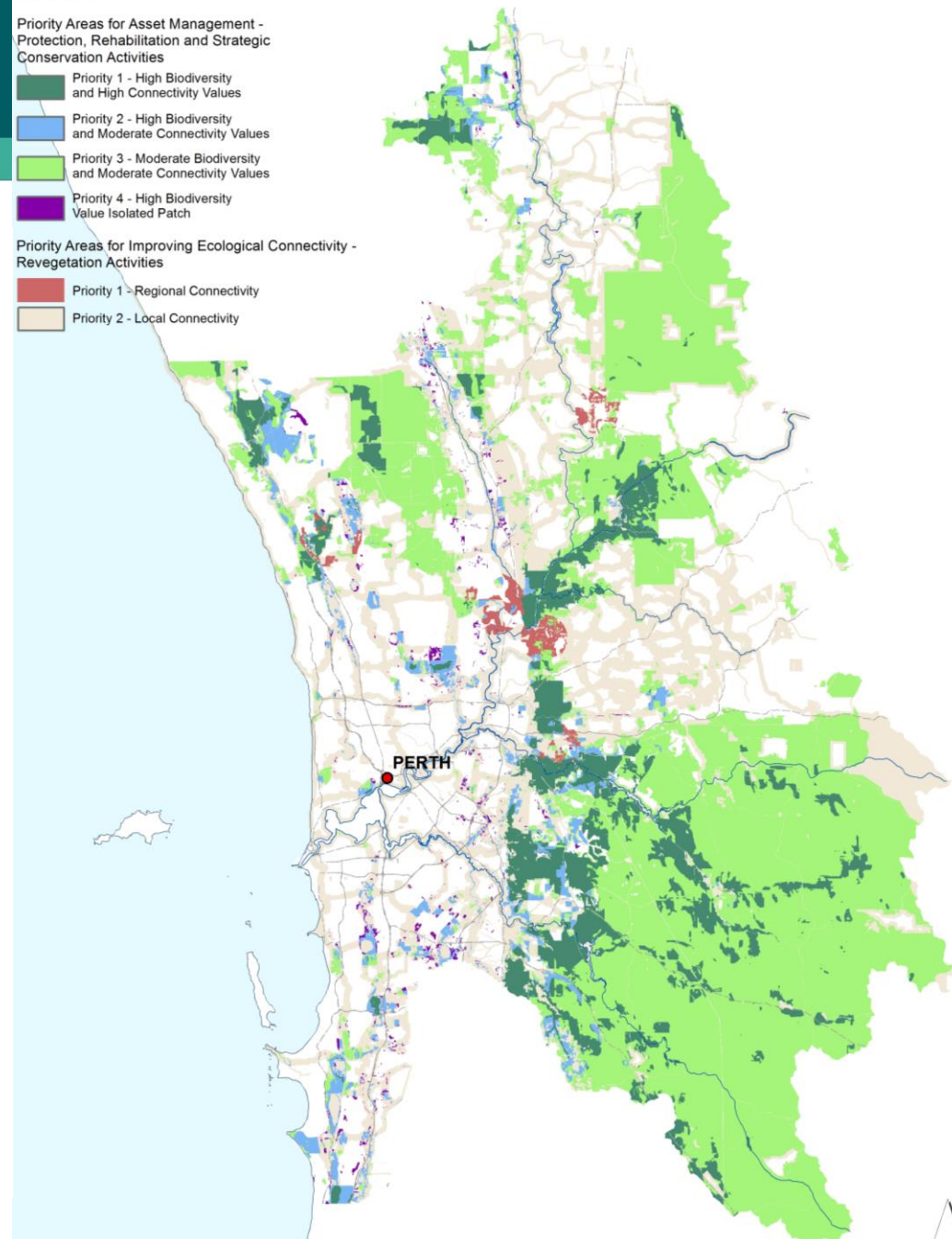
#### LEGEND

Priority Areas for Asset Management - Protection, Rehabilitation and Strategic Conservation Activities

- Priority 1 - High Biodiversity and High Connectivity Values
- Priority 2 - High Biodiversity and Moderate Connectivity Values
- Priority 3 - Moderate Biodiversity and Moderate Connectivity Values
- Priority 4 - High Biodiversity Value Isolated Patch

Priority Areas for Improving Ecological Connectivity - Revegetation Activities

- Priority 1 - Regional Connectivity
- Priority 2 - Local Connectivity



# Priority areas

## For Conservation

- **Priority 1**  
High Biodiversity + High Connectivity Values
- **Priority 2**  
High Biodiversity + Moderate Connectivity Values
- **Priority 3**  
Moderate Biodiversity + Moderate Connectivity Values
- **Priority 4**  
High Biodiversity + Low Connectivity Values

## For Restoration

- **Priority 1**  
Regional Connectivity
- **Priority 2**  
Local Connectivity

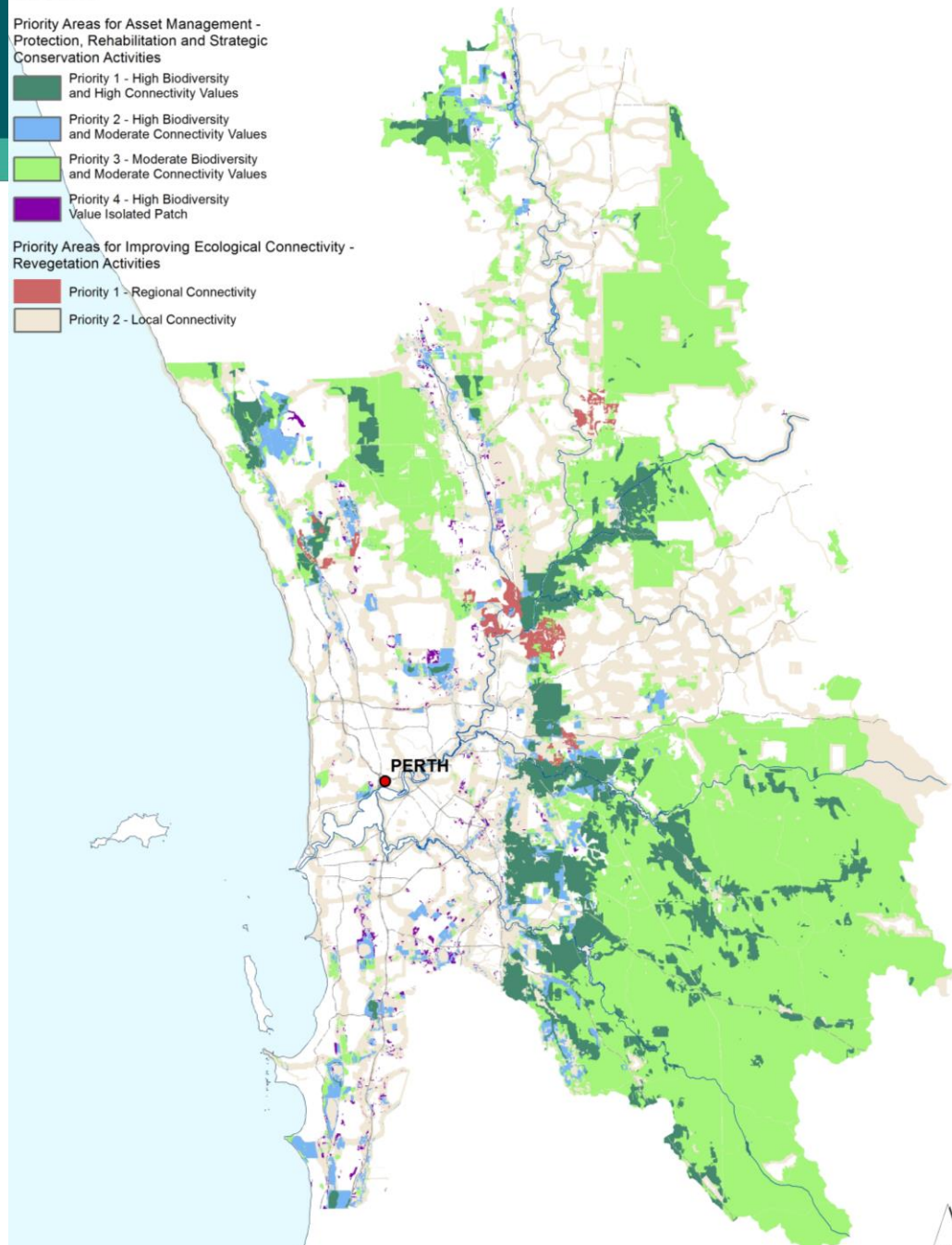
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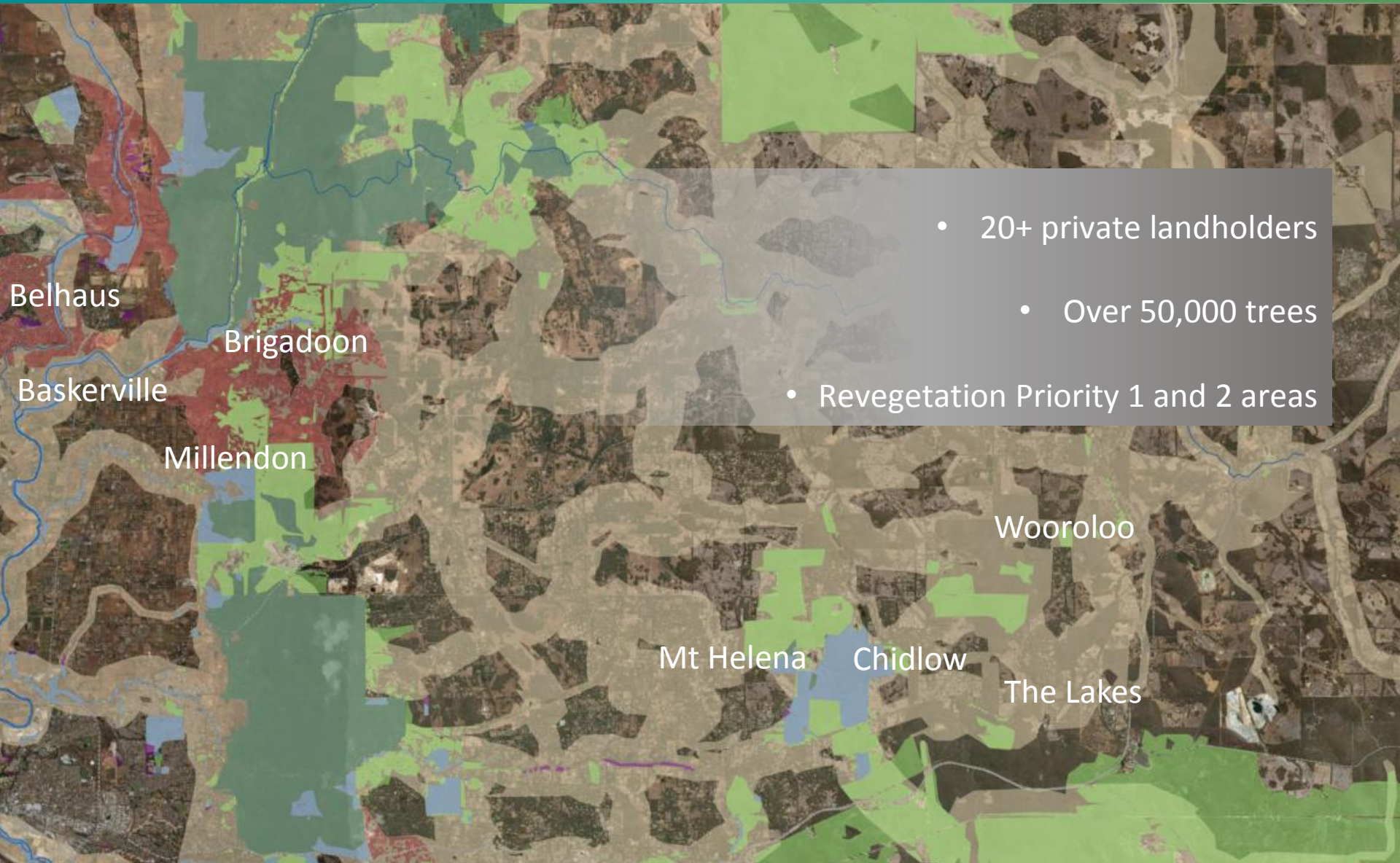
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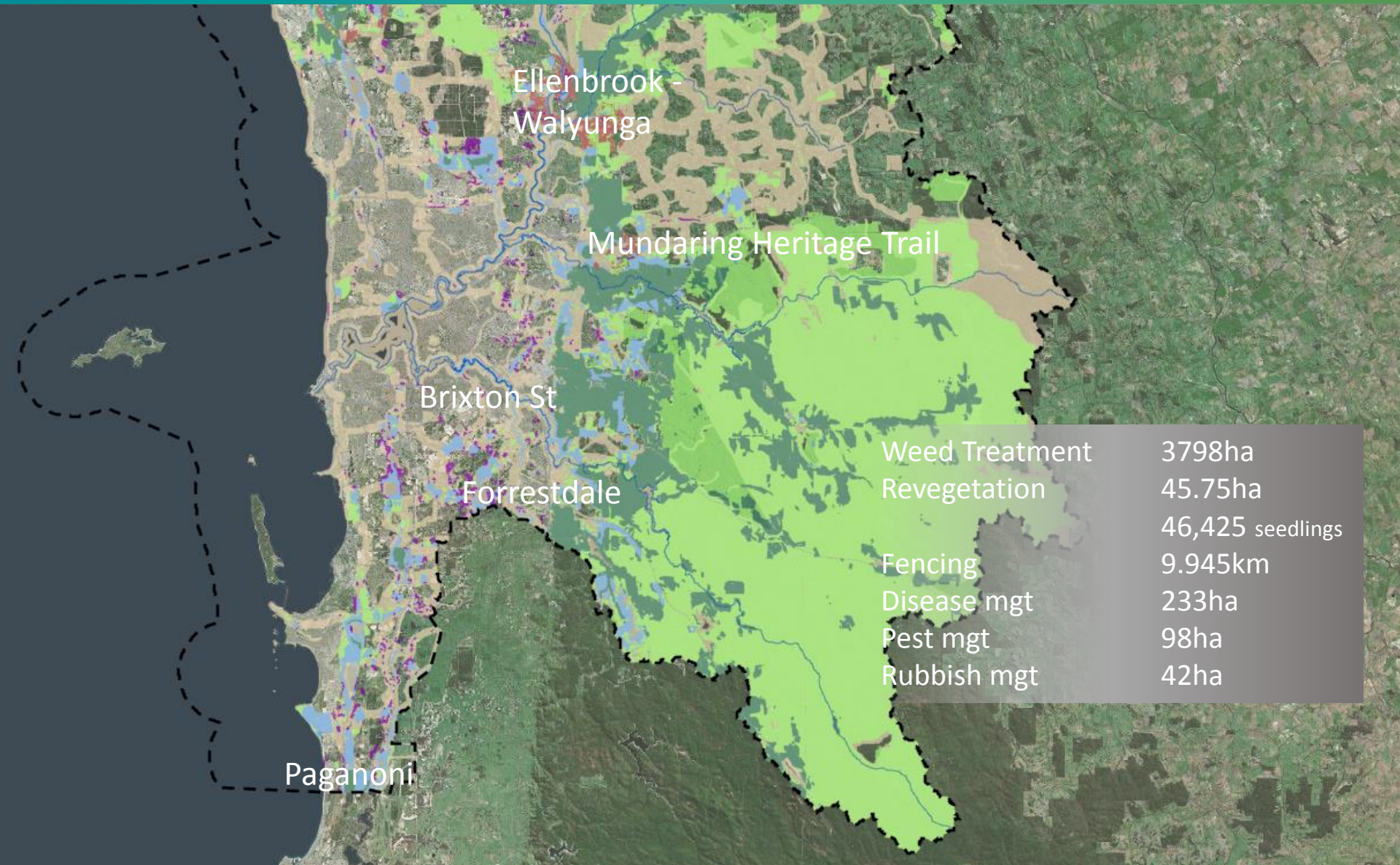
# Twenty Million Trees Project



- 20+ private landholders
- Over 50,000 trees
- Revegetation Priority 1 and 2 areas



# Living Landscapes Program



Weed Treatment	3798ha
Revegetation	45.75ha
	46,425 seedlings
Fencing	9.945km
Disease mgt	233ha
Pest mgt	98ha
Rubbish mgt	42ha





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Creating a sustainable  
environment