Indigenous
Country we work on

PF Olsen would like to acknowledge the traditional owners of the to land we manage and the opportunities to learn from their knowledge.

We respect their elders past, present and emerging.

Wiilman(Pingelly)
Warandi (Augusta area)
Bibbulman (Manjimup)
Minang (Albany)

Giraiwurung (Otways)
Buandig (Mt Gambier)
Gunditjmara (Hamilton)

Wiradjuri (Tumut)

Gunai Kurnai (Gipsland)

Woiworung (Ivanhoe)

Tyerrenotepanner, Tommeginee and Pyemmairrener (Tasmania)

PF**OLSEN**

Assessing Vegetation Quality

1. Challenges

2. Our approach

3. Building partnerships

Quenda in Banksia woodland, K. Bain 2024

Assets
We manage for New Forests

The Murray River Forests (MRF) estate in southeastern New South Wales.

Murray River Forests		
	Properties	5
	Plantation	4899 ha
	Indigenous Vegetation	978 ha
	PF Olsen Significance	1172 ha
	Rivers and Streams	294.1 km
	Wetlands	0 ha

The Border Plantations estate is within the Green Triangle region (South Australia and Victoria)

Border Plantations		
	Properties	17
	Plantation	2982 ha
	Indigenous Vegetation	275 ha
	PF Olsen Significance	122 ha
	Rivers and Streams	42 km
	Wetlands	81.5 ha

WESTERN AUSTRALIA

GREEN TRIANGLE

NEW SOUTH WALES

TASMANIA

Forestry Investment Trust (FIT) estate is located within the Green Triangle region (South Australia and Victoria including Gippsland), Tasmania, and Western Australia.

FIT Western Australia		
	Properties	171
	Plantation	39790 ha
	Indigenous Vegetation	12034 ha
	PF Olsen Significance	4267 ha

FIT VIC/SA Green Triangle		
	Properties	265
	Plantation	56748 ha
	Indigenous Vegetation	4037 ha
	PF Olsen Significance	3474 ha

FIT Tasmania		
	Properties	13
	Plantation	1644 ha
	Indigenous Vegetation	289 ha
	PF Olsen Significance	106 ha

	FIT Rivers and Streams	1,647.63 km
	FIT Wetlands	923.66 ha

Large landscapes
Of National Importance

- Widespread clearing

- Low levels of connectivity

- Rich biodiversity

- DCCEEW Priority places
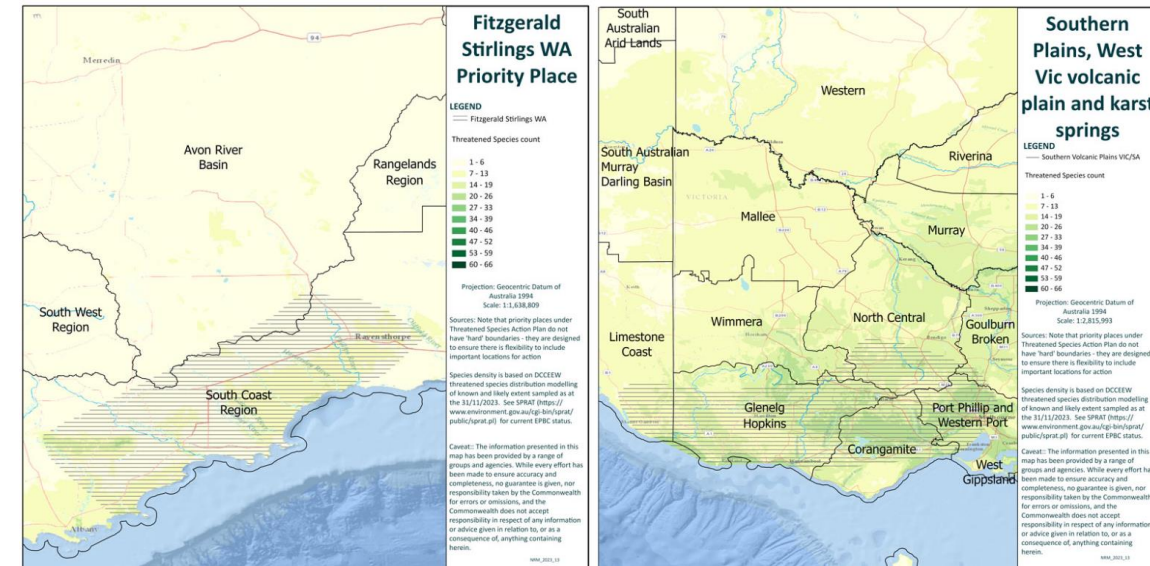
Records of Conservation Priority Species

IUCN Red list					
NSW	SA	Tas	Vic	WA	Total
	13	8	63	24	108
Environmental Protection and Biodiversity Conservation Act 1999					
NSW	SA	Tas	Vic	WA	Total
4	5	15	44	59	123
State Government priority lists					
NSW	SA	Tas	Vic	WA	Total
20	28	16	128	67	239

Source: Proposed Nature Repair Method - Replanting Native Forest and Woodland Ecosystems
Figure 1 – Eligible Regions

Challenges

PF OLSEN

Portion of "Anatomy of an AI System" by Kate Crawford and Valdan Joler
Photographed at Museum of Modern Art, New York, Feb 2023

Biodiversity
Metrics and measurements

"a single metric is unlikely to be possible or credible. Additionally, biodiversity measurement and valuation vary by business needs and operational scales, requiring different accuracy levels, measurement frequencies, assessment boundaries, and posing challenges in data availability and quality"

UNEP-WCMC, Capitals Coalition, Arcadis, ICF, & Europe, W. (2022).
Recommendations for a standard on corporate biodiversity measurement and valuation, Aligning accounting approaches for nature.
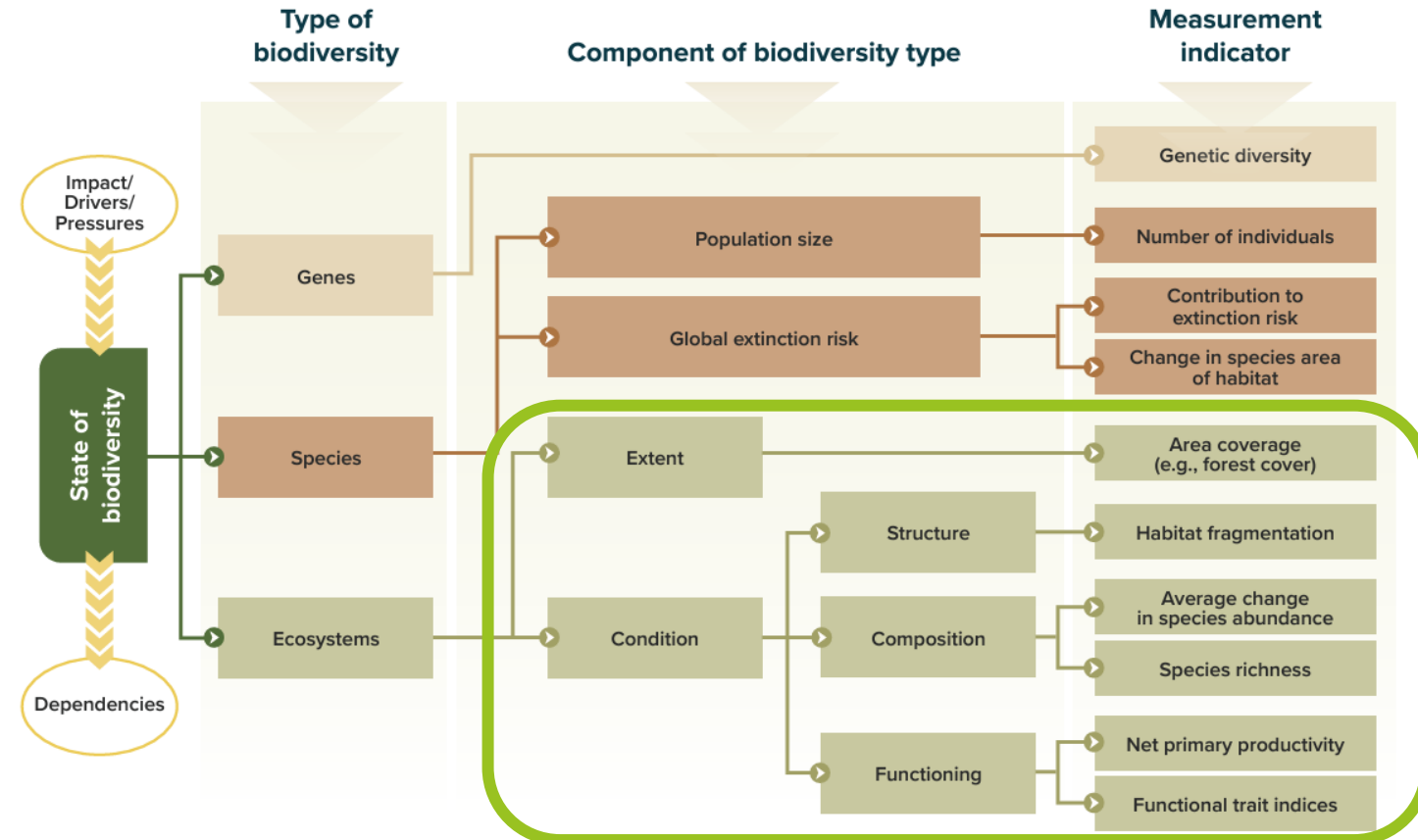
Figure 3. Components of biodiversity and measurement indicators (example)
(Source: UNEP-WCMC et al., 2022)

Ecosystem
Australian methods

Jurisdiction	EXTENT Stratification Method	CONDITION Quantification Method
New South Wales	Plant Community Types	Biodiversity Assessment Method
Victoria	Ecological Vegetation Classes	Vegetation Quality Assessment (Habitat Hectares)
Queensland	Regional Ecosystems	BioCondition
Tasmania	TasVeg Vegetation Communities	TasVeg Vegetation Condition Assessment
Western Australia	Vegetation Associations	Native Vegetation Condition Assessment for WA
National	National Vegetation Information System (NVIS)	Habitat Condition Assessment System (HCAS)

PF**OLSEN**

What is the value?
What are you measuring?

Vegetation value

Fx (area, importance, condition)

Our approach

PFOLSEN

Vegetation monitoring
Consultancy

PF Olsen's requirements:

- Scientifically defensible

- Nationally applicable

- Capable of detecting meaningful change in vegetation biodiversity quality

- Of sufficient quality to assist with the interpretation of other data (e.g., bird monitoring data)

- Objective

- Repeatable (for accurate change detection)

- Practicable: easily understood, efficient and cost effective

- Informative to drive management decisions

University of Melbourne
Two level approach

Green Triangle estate

Property level assessment (annual-biennial)

Patch-level detailed assessment (1-5 years)

Property

Visual assessment of patches

Expert assessment of transects
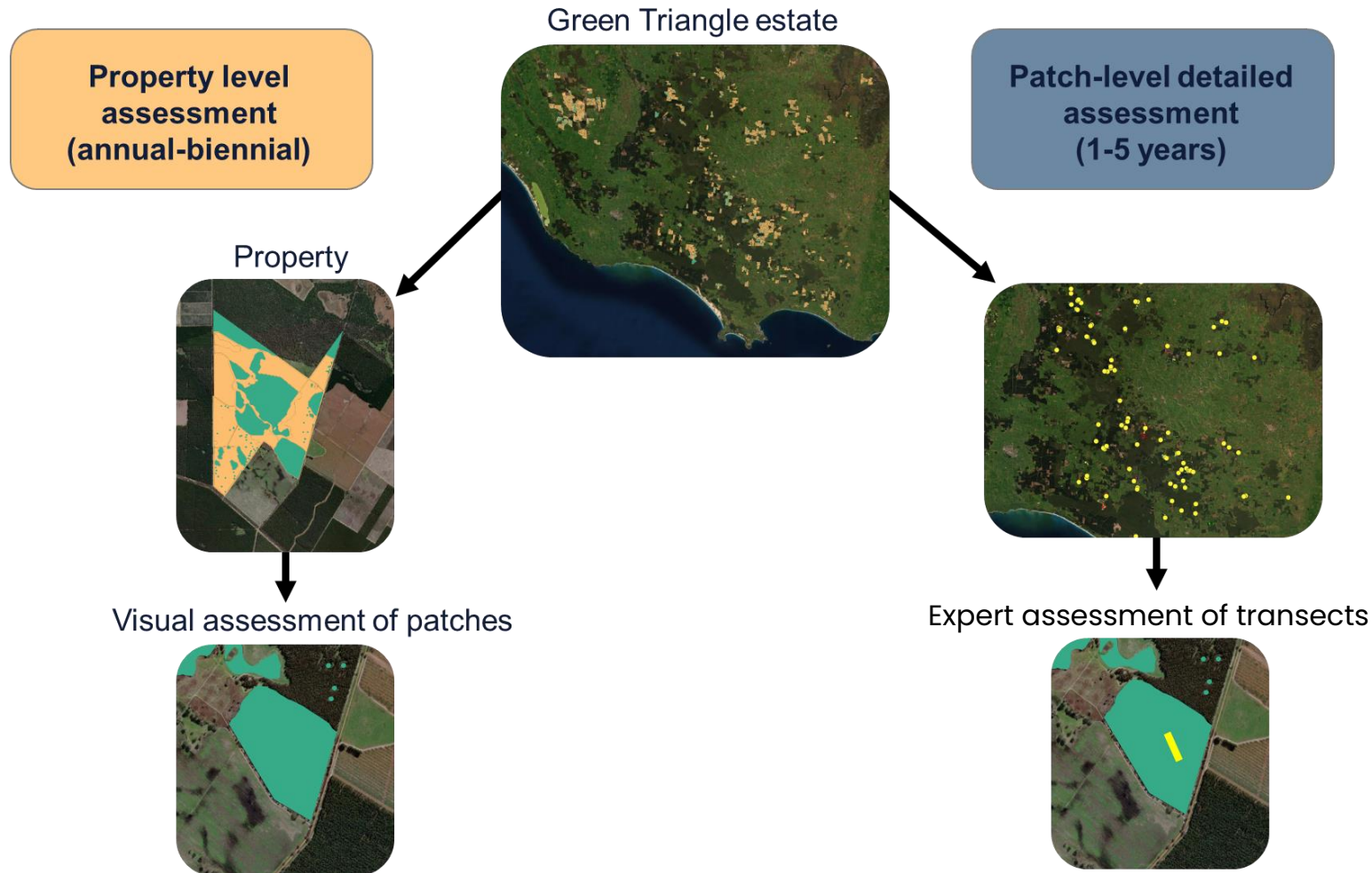
Dr Sarah McColl-Gausden, Assoc Prof Lauren Bennett November 2022

Flare Wildfire Research, School of Ecosystem and Forest Sciences, University of Melbourne

Property level
Objectives

- Confirm extent and classification of Vegetation Community

- Characterise key structural elements

- Capture evidence of broad threats

- Whole-property assessment with visual assessments of each remnant patch

- Prioritise allocation of detailed transect assessments

- Expert assessment initially but subsequent reviews by staff or "citizen scientists"

PFOLSEN
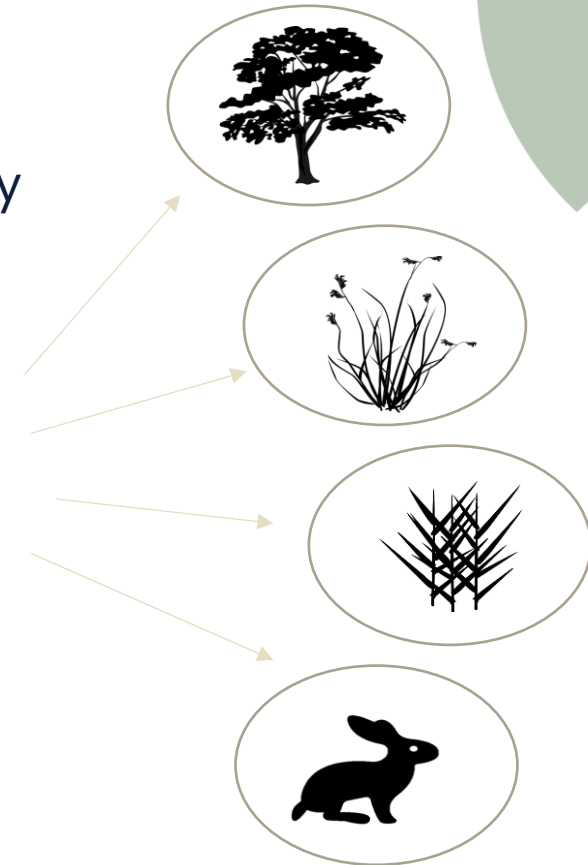
Property level
Assessed attributes

Values

| Native tree health | Native shrub health | Native herbs | Tree regeneration |

Threats

| Herbaceous weeds | Woody weeds | Pest animals | Operational impacts |

Nature Glenelg Trust

PF OLSEN

Property level
Attribute rating

TREE ASSESSMENT DECISION TREE

ARE THERE TREES IN GOOD HEALTH?

YES — Are there >75% of trees in good health?
- YES — Are there dead and declining trees?
  - YES — SCORE: 8
  - NO — SCORE: 10
- NO — Are there >50% of trees in good health?
  - YES — Are there dead AND declining trees?
    - YES — Are both dead AND declining trees <25% each?
      - YES — SCORE: 8
      - NO — Are either dead OR declining trees <25%?
        - YES — SCORE: 6
        - NO — SCORE: 3
    - NO — SCORE: 8
  - NO — Are there >25% of trees in good health?
    - YES — Are there dead AND declining trees?
      - YES — Are either dead OR declining trees >50%?
        - YES — SCORE: 4
        - NO — SCORE: 6
      - NO — SCORE: 6
    - NO — Are either dead OR declining trees >75%?
      - YES — SCORE: 2
      - NO — SCORE: 4

NO — Should there be trees in the area?
- YES — Are there declining AND dead trees?
  - YES — Are there >50% of dead trees?
    - YES — SCORE: 2
    - NO — SCORE: 4
  - NO — Are there only declining trees?
    - YES — SCORE: 2
    - NO — SCORE: 0
- NO — SCORE: NA

NATIVE SHRUB ASSESSMENT DECISION TREE

ARE THERE SHRUBS IN GOOD HEALTH?

YES — Are there >75% of shrubs in good health?
- YES — Are there dead and declining shrubs?
  - YES — SCORE: 8
  - NO — SCORE: 10
- NO — Are there >50% of shrubs in good health?
  - YES — Are there dead AND declining shrubs?
    - YES — Are both dead AND declining shrubs <25% each?
      - YES — SCORE: 8
      - NO — Are either dead OR declining shrubs <25%?
        - YES — SCORE: 6
        - NO — SCORE: 4
    - NO — SCORE: 8
  - NO — Are there >25% of shrubs in good health?
    - YES — Are there dead AND declining shrubs?
      - YES — Are either dead OR declining shrubs >50%?
        - YES — SCORE: 4
        - NO — SCORE: 6
      - NO — SCORE: 6
    - NO — Are either dead OR declining shrubs >75%?
      - YES — SCORE: 2
      - NO — SCORE: 4

NO — Should there be shrubs in the area?
- YES — Are there declining AND dead shrubs?
  - YES — Are there >50% dead shrubs?
    - YES — SCORE: 2
    - NO — SCORE: 4
  - NO — Are there only declining shrubs?
    - YES — SCORE: 2
    - NO — SCORE: 0
- NO — SCORE: NA

PF OLSEN

Property level
Management levers
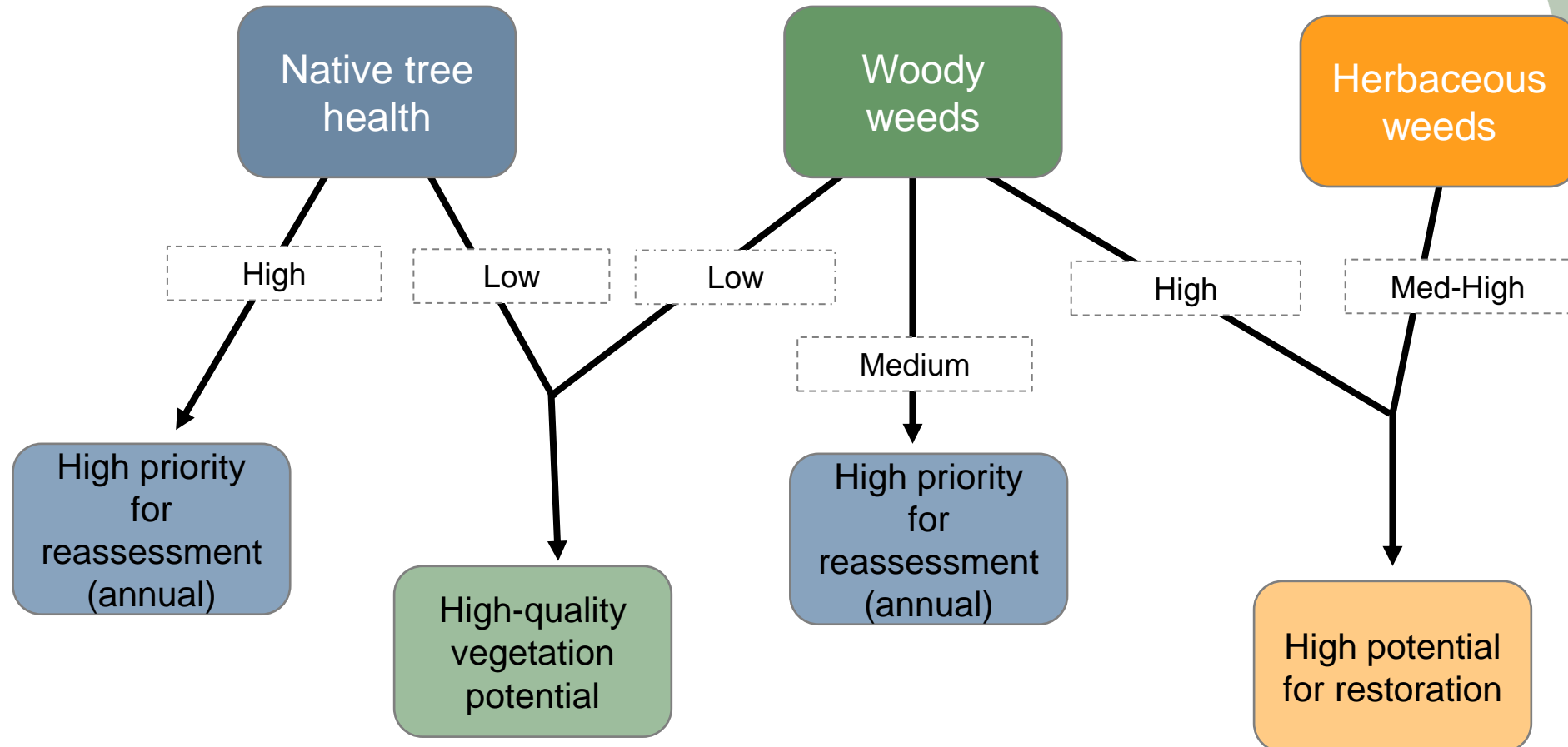
Patch level
Method

- Detailed transects, expert ecologists

- Capture subtle, early warning changes

- Objective, repeated measures

- Yearly to 5-yearly basis (same season)

- 'Baseline' of natural variation

- Quantify standing carbon

- Reference sites ⟷ remote sensing

- Random by bioregions and vegetation types

D. Bennett, 2023

Patch level
Method

How many?

Course woody debris

Composition and structure

TRANSECT ASSESSMENT

Hollows and regeneration

Large tree health

Exotic vs native
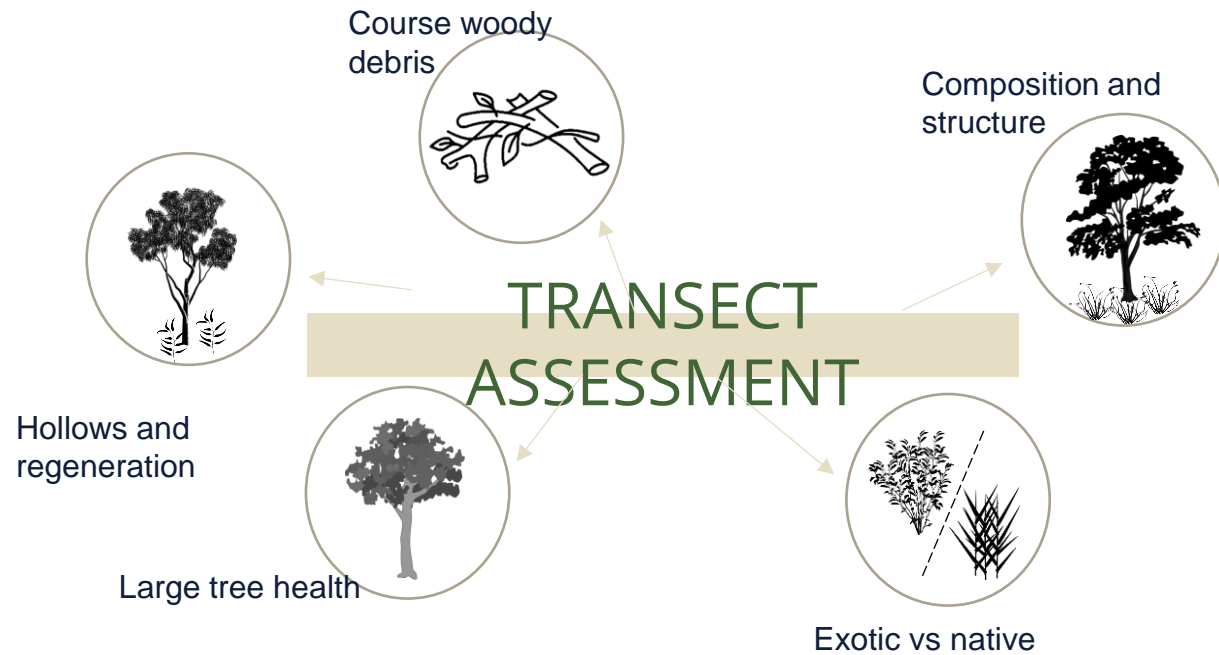
Region	University of Melbourne Stratification	Accounting for Nature Native Vegetation Method No 7
Green Triangle	155	343
Western Australia	88	251

PF**OLSEN**

Building
partnerships

PF OLSEN

Integrated
Framework
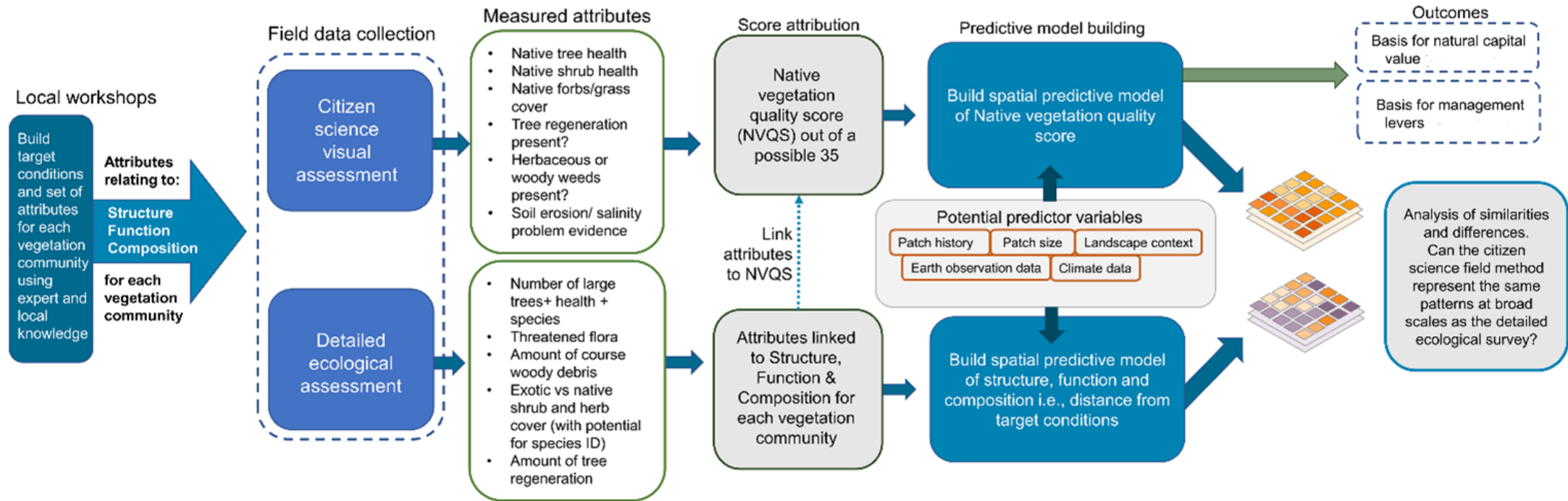
Value
According to whom?

Current state versus 'ideal state'

What is an ideal state?

- Pre 1750
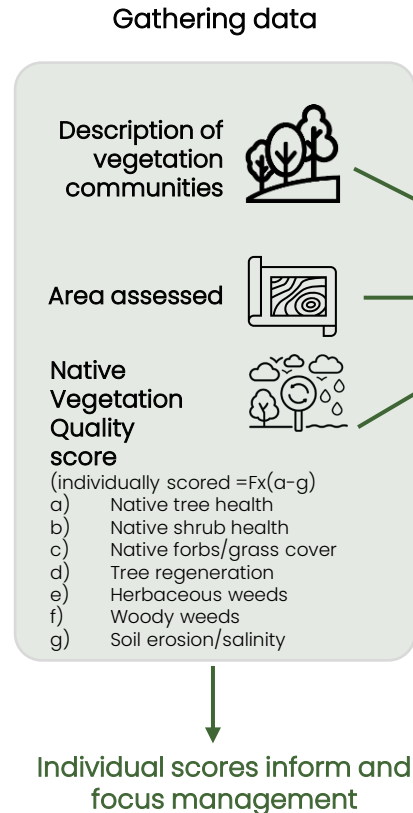- Traditional owners
- Threatened species
- Investors
- Something else?

PF**OLSEN**

Taking to market
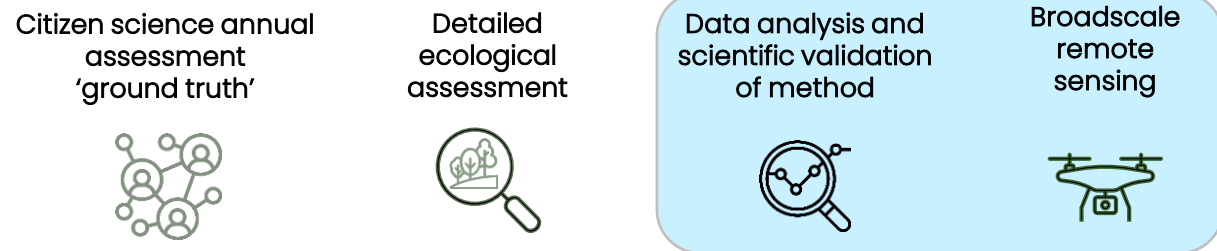# Grant application

Nationally Applicable Vegetation Quality Assessment Method (NAVQAM)

Auditable basis of natural capital value

TRUSTED   CREDIBLE   ROBUST   SCALABLE

Citizen science annual assessment 'ground truth'

Detailed ecological assessment

Data analysis and scientific validation of method

Broadscale remote sensing

THE UNIVERSITY OF MELBOURNE

Nature Glenelg Trust

Glenelg Hopkins CMA

SOUTHCOAST NATURAL RESOURCE MANAGEMENT

Gathering data

Description of vegetation communities

Area assessed

Native Vegetation Quality score
(individually scored =Fx(a-g)
a) Native tree health
b) Native shrub health
c) Native forbs/grass cover
d) Tree regeneration
e) Herbaceous weeds
f) Woody weeds
g) Soil erosion/salinity

	Area	Native Vegetation Quality Score	Total native vegetation score	Attributed Value ($/ha)	Total Natural Capital Deemed Value
Grassy Woodlands	345	0.33	114	$5,000	$569k
Herb-rich Woodlands	6000	0.60	3600	$2,000	$7,200k

Individual scores inform and focus management

Filter data by catchment, LGA, State, Vegetation community, Bioregion

Scores area and quality of vegetation communities

Sets baseline for measuring impact of management

Integrates with adaptive management of plantations, environmental restoration and NRM of conservation reserves

Regional Consultations

Green Triangle - workshop

Glenelg Hopkins CMA

LANDSCAPE SOUTH AUSTRALIA LIMESTONE COAST

Federation University

THE UNIVERSITY OF MELBOURNE

CSIRO

Nature Glenelg Trust

TIMBERLANDS Pacific

SFM environmental solutions

AUSTRALIAN CLIMATE AND BIODIVERSITY FOUNDATION

South coast WA

SOUTHCOAST NATURAL RESOURCE MANAGEMENT Inc.

COMMUNITY NATURAL CAPITAL PROGRAM

A Sustainable and Thriving Future for All

In partnership with:

ARC Training Centre for Healing Country

The Western Australian Biodiversity SCIENCE INSTITUTE

First steps
Adaptive management

- Building a new data framework in uncertain policy environment

- Based on good science and broad consultation

- Can't wait for a perfect solution.

- Learning from our 10 years of Birdlife surveys

Amount remnant vegetation to observe 90% of maximum bird species (E.K. Thompson 2024)	
Bird group	90%
Overall	13
Forest	17
Open country	0
Insectivores	18
Large Hollow nesters	19

For a recorded discussion of these findings

Thank you

David Bennett
p: 0407 512 464
e: david.bennett@pfolsen.com
w: au.pfolsen.com

PF**OLSEN**