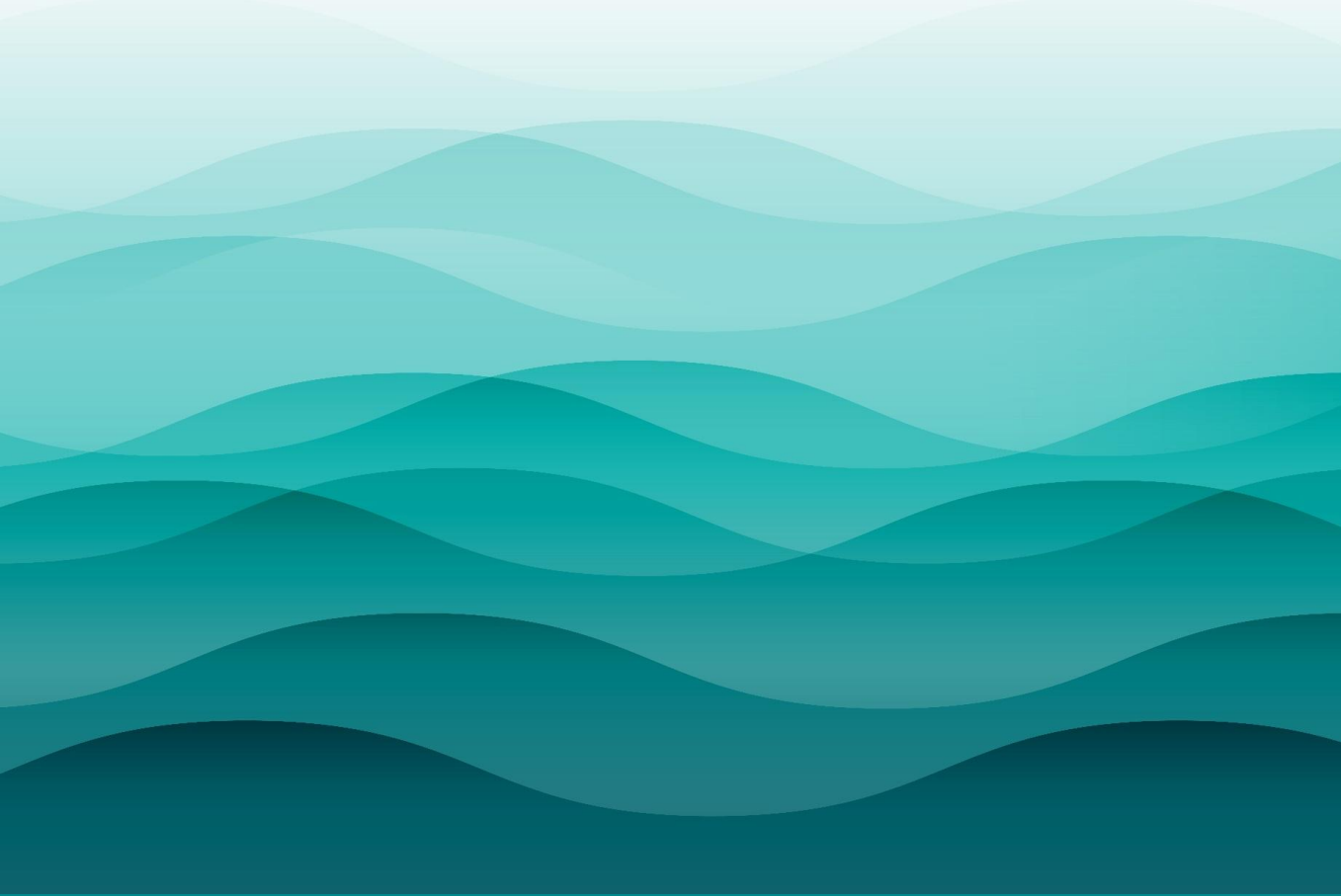




# Recognising Forestry Value

Visualising forestry asset values  
with Natural Capital Dashboards

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Ziggy Gelman

20 October 2025



Recognise. Account. Decide.

# Acknowledgement of country



We acknowledge the Kurna peoples.

We pay respect to Elders past and present and gratefully support their ongoing custodianship of Country.



*Photo: Adelaide parklands  
- James Elsby*

# About us



IDEEA Group are world leaders in natural capital accounting and lead authors of the UN System of Environmental-Economic Accounting (SEEA)



Data4Nature (D4N) is our trusted, cloud-based natural capital accounting platform aligned with the SEEA



The SEEA is the international standard for natural capital accounting. The SEEA INSIDE logo means that the natural capital approach aligns with the SEEA.

# The challenge

- Forestry assets provide valuable ecosystem services and benefits
  - E.g. species habitat, carbon sequestration, recreation, water regulation.
- Many forestry managers and investors lack the tools to effectively measure and communicate these benefits
- Positive impacts of strategic forestry management are being missed



# The solution

- Natural Capital Dashboards advance the alignment of environmental and economic valuation data
- Making nature's value visible and accessible
- Highlight the ecosystem services and benefits forest assets provide and communicate the positive outcomes of strategic forestry
- Enabling forestry managers and investors to make informed decisions and target cost-effective nature-positive outcomes



# Natural Capital Dashboard



## Spatially explicit natural capital data integration with economic and modelled data

- Rich on-the-ground data collected by organisations
- Public natural capital data
- Quantification and valuation data from market values, proxies, factors, value transfers, environmental modelling



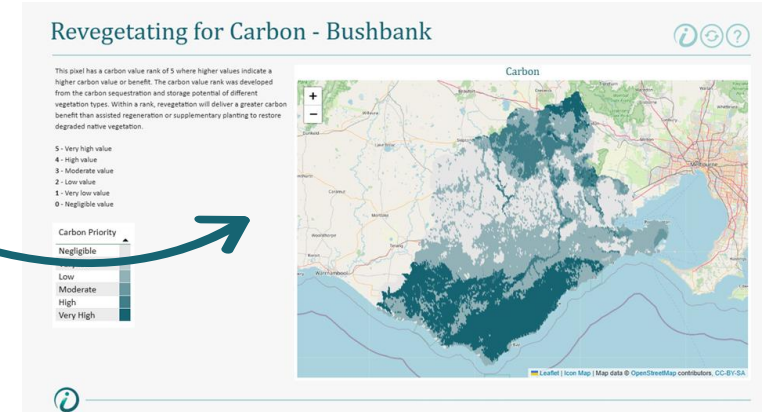
## Visualising benefits and value

- Dynamic maps, charts and scorecards



## Linking ecosystem services and benefits with decision-making

- This isn't just about showing where nature is, but what it's doing and its value

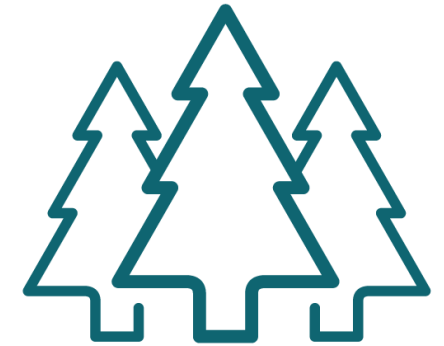


# Case studies using Natural Capital Dashboards



## Water benefits for forestry in Texas, US

An analysis of the natural capital benefits of transitioning from exotic pine to native pine in Neches water basin, Texas, United States



## Riparian carbon values in Victoria

An analysis of the quantity and value of an ecosystem service provided by riparian vegetation in the Corangamite region in Victoria, Australia



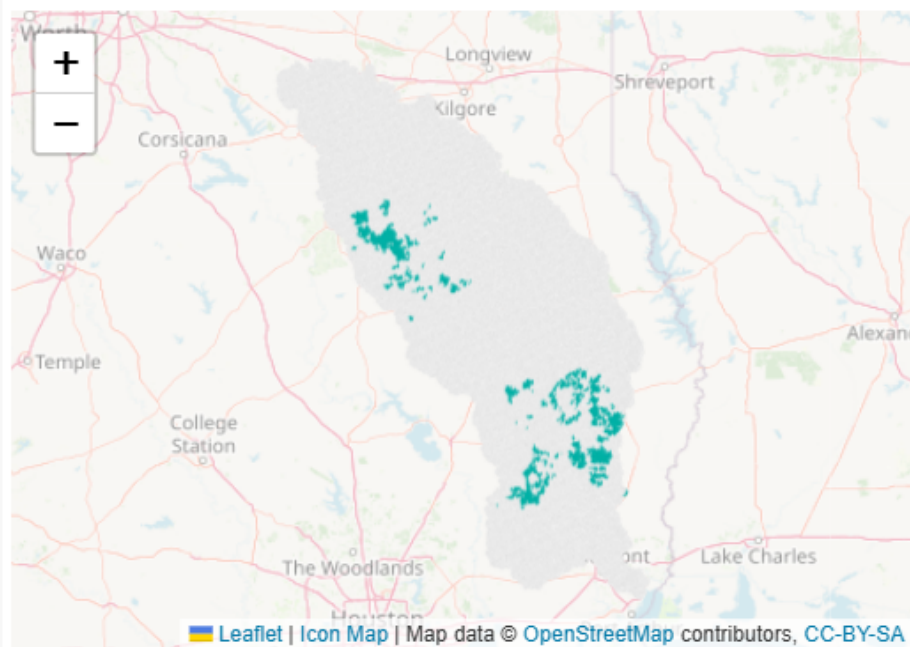
# Timber plantation portfolio



This page shows the portfolio of timber plantations across the Neches water basin in USA, Texas.

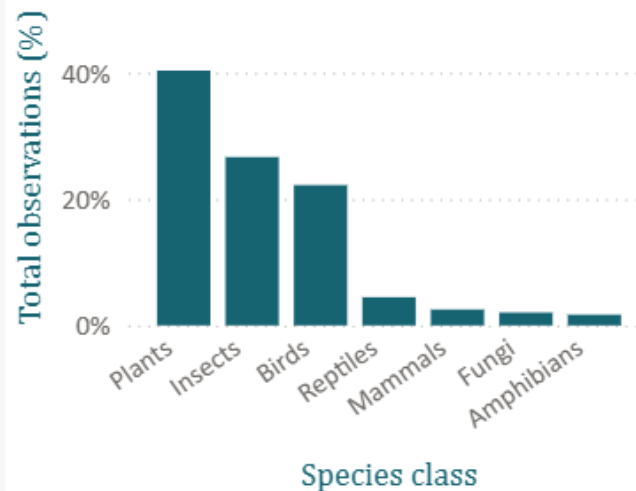
Properties across the portfolio can be prioritised for restoration based on the surrounding basin characteristics, like species observations.

## Plantation areas



| Plantation        | Area (ha)        |
|-------------------|------------------|
| Timber plantation | 141,575          |
| Not plantation    | 2,460,575        |
| <b>Total</b>      | <b>2,602,150</b> |

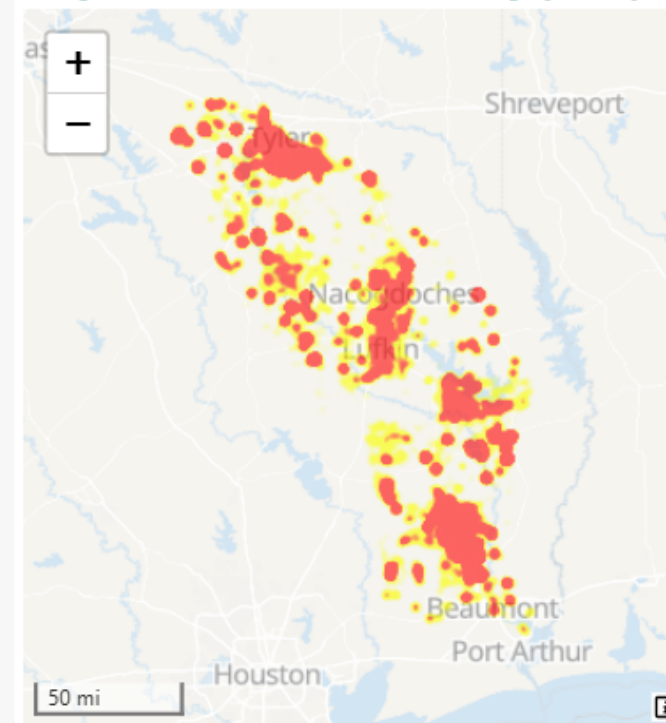
## Species observations (2023)



## Species classifications (2023)

| Species classifications   | Total observations (%) |
|---------------------------|------------------------|
| Critically Imperiled (S1) | 4%                     |
| Imperiled (S2)            | 26%                    |
| Vulnerable (S3)           | 21%                    |
| Secure (S5)               | 49%                    |
| <b>Total</b>              | <b>100%</b>            |

## Species observations heatmap (2023)



## Legend - Species observations heatmap 2023



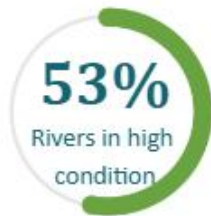
# Neches basin - river health



## Scorecard - Neches basin

Priority properties could also be identified by focusing on the condition of neighbouring rivers. This scorecard highlights which rivers in the Neches water basin are in high or low condition. Low river condition could be improved through improved management of neighbouring timber plantation.

### Neches basin rivers in high condition (%)

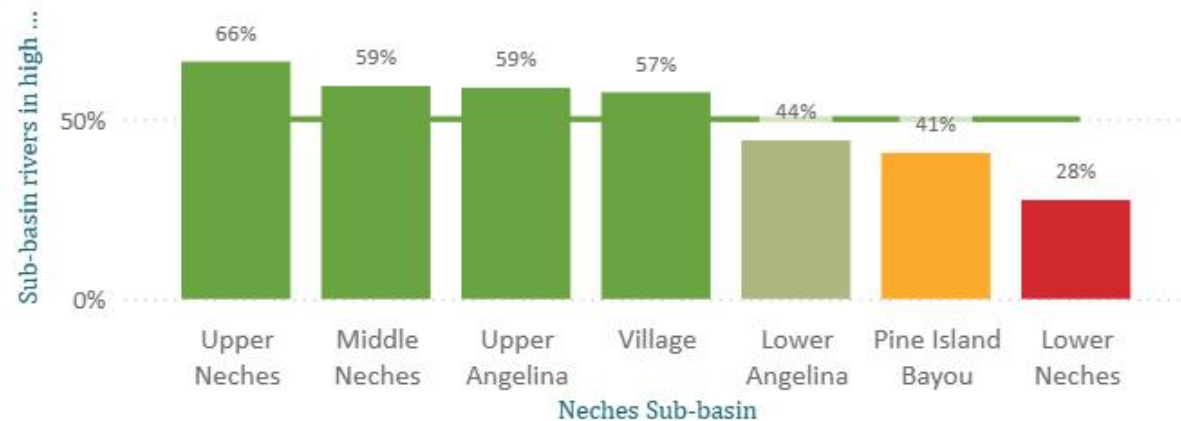


#### Neches basin river condition

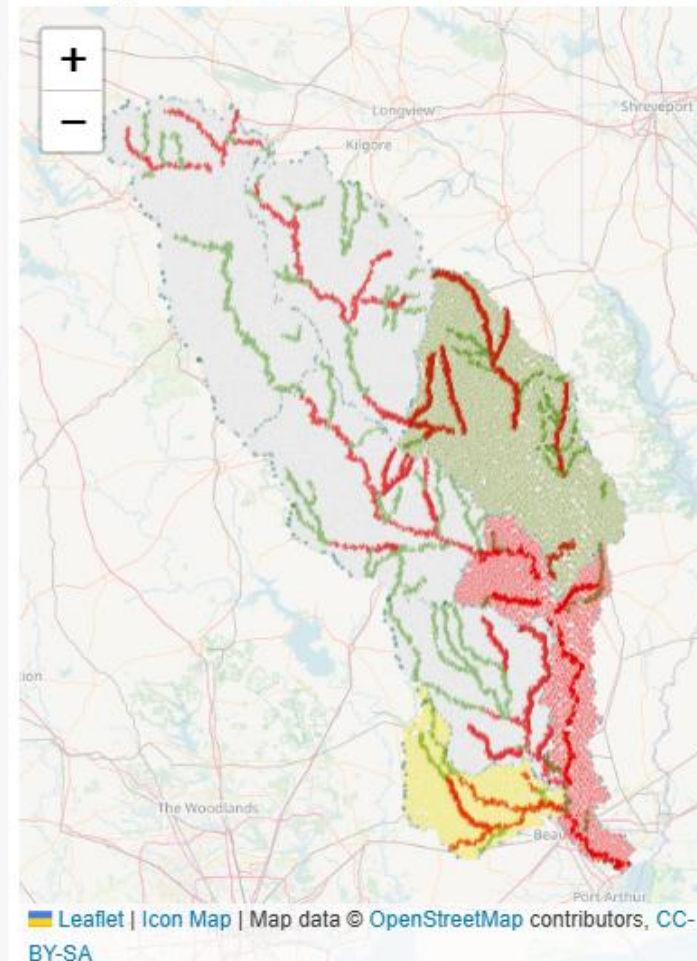
|                | Length of river (km) |
|----------------|----------------------|
| High condition | 3,990,500            |
| Low condition  | 3,703,000            |

## Neches sub-basin river condition

■ Sub-basin rivers in high condition (%) — Target (50%)



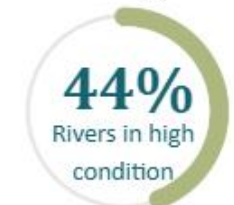
## Target sub-basins for river restoration



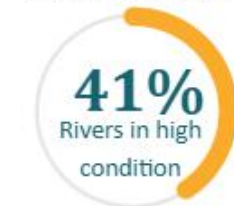
## Target sub-basins for river restoration

Shaded areas on map match dial colors

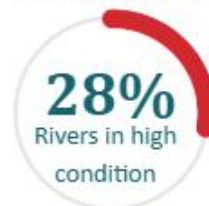
### Lower Angelina



### Pine Island Bayou



### Lower Neches



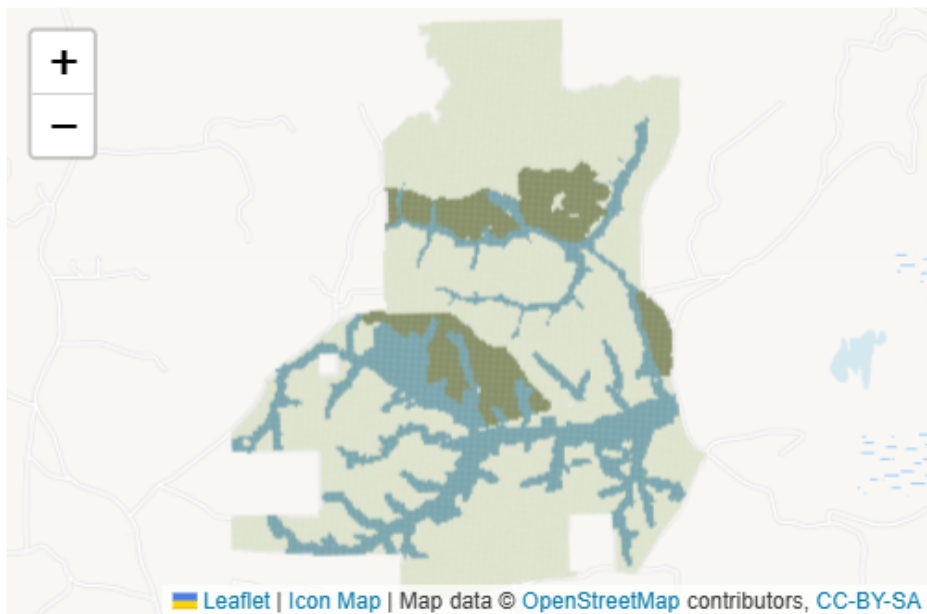
# Neches basin water recharge benefit



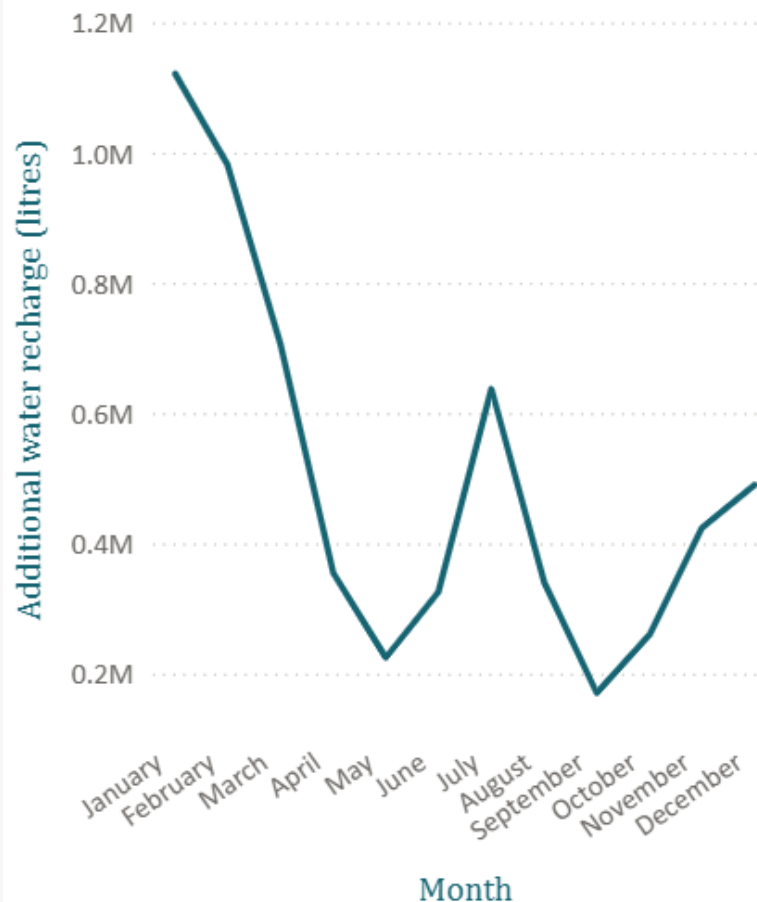
This page shows the plantation areas that will be transitioned to native pine plantations. The native pine species uses significantly less water and has longer harvest cycles. The water recharge benefits this will achieve for Neches basin were modelled and are illustrated below.

| Property areas            | Size of area (ha) |
|---------------------------|-------------------|
| Transition to native pine | 173               |
| Exotic pine plantation    | 1,042             |
| Riparian zone             | 469               |
| <b>Total</b>              | <b>1,685</b>      |

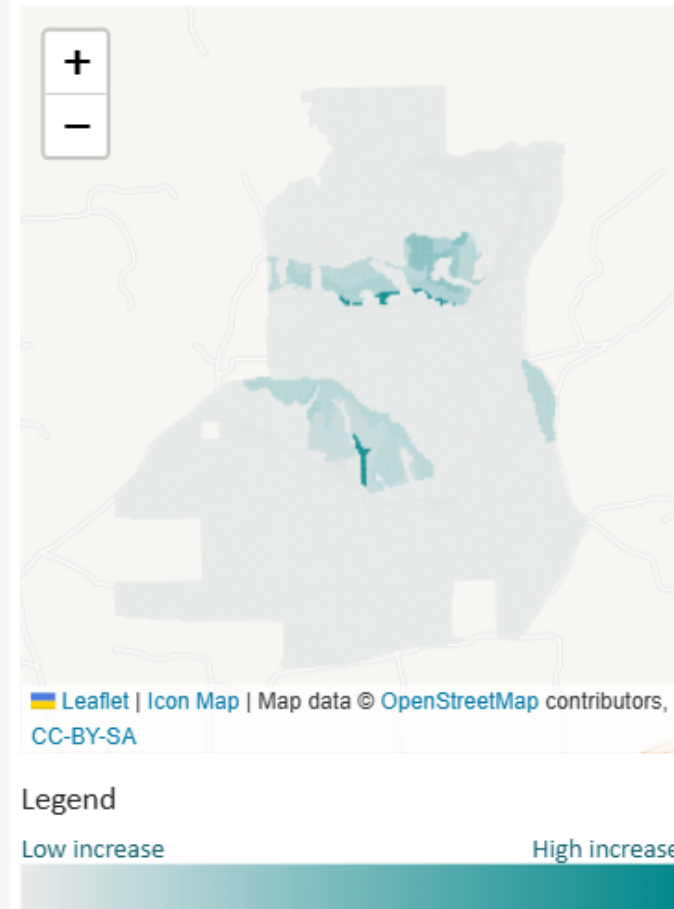
Property areas



Neches basin annual water recharge benefit



Source of water recharge benefit



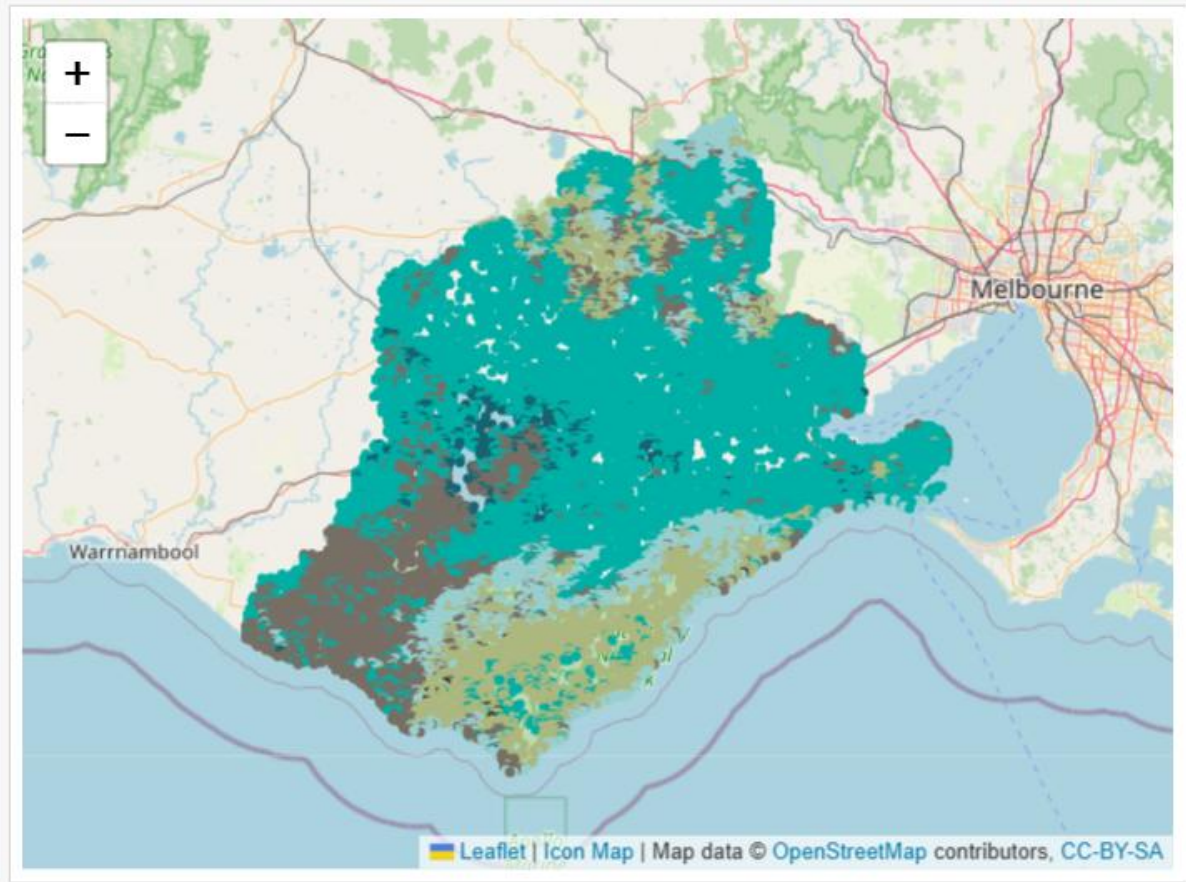
# Native vegetation extent and condition



Native vegetation extent and condition of across Corangamite **catchment** explored in more detail. Click table categories to filter map.

LGA

All



| EVC name                                                  | Sum of Area (ha) |
|-----------------------------------------------------------|------------------|
| Plains Grassland                                          | 277,301.72       |
| Plains Grassy Woodland                                    | 217,915.52       |
| Grassy Woodland                                           | 122,875.44       |
| Lowland Forest                                            | 114,380.12       |
| Herb-rich Foothill Forest                                 | 56,103.24        |
| Wet Forest                                                | 51,233.24        |
| Heathy Dry Forest                                         | 50,598.00        |
| Stony Rises Woodland                                      | 48,788.76        |
| Water body - salt                                         | 43,450.20        |
| Shrubby Foothill Forest                                   | 38,878.44        |
| Shrubby Wet Forest                                        | 38,057.76        |
| Heathy Woodland                                           | 29,069.72        |
| Swamp Scrub                                               | 27,552.48        |
| Grassy Dry Forest                                         | 25,951.96        |
| Damp Heath Scrub                                          | 16,396.84        |
| Floodplain Riparian Woodland                              | 15,308.80        |
| Valley Grassy Forest                                      | 14,292.00        |
| Plains Sedgy Wetland                                      | 11,739.32        |
| Herb-rich Foothill Forest/Shrubby Foothill Forest Complex | 10,296.32        |
| Cool Temperate Rainforest                                 | 10,176.64        |
| Damp Heathland/Damp                                       | 8,181.28         |
| Total                                                     | 1,337,102.20     |

| Conservation Status | Area (ha)    |
|---------------------|--------------|
| Endangered          | 737,658.72   |
| Vulnerable          | 205,526.68   |
| Depleted            | 127,152.52   |
| Rare                | 1,756.56     |
| Least Concern       | 214,089.44   |
| Not Applicable      | 50,918.28    |
| Total               | 1,337,102.20 |

| Condition | Sum of Area (ha) |
|-----------|------------------|
| 0 to 10   | 681,451.08       |
| 10 to 20  | 30,991.48        |
| 20 to 30  | 37,711.52        |
| 30 to 40  | 48,582.76        |
| 40 to 50  | 54,936.52        |
| 50 to 60  | 77,244.48        |
| 60 to 70  | 123,972.04       |
| 70 to 80  | 104,070.00       |
| 80 to 90  | 177,765.20       |
| 90 to 100 | 377.12           |
| Total     | 1,337,102.20     |



# Riparian Vegetation - Carbon



This page introduces the carbon storage services provided by riparian vegetation bordering rivers across Corangamite CMA in physical terms.

Riparian vegetation captures and stores carbon, reducing atmospheric carbon dioxide levels and contributing to global climate regulation.

The data illustrates the total amount of carbon dioxide equivalent (CO<sub>2</sub>e) in riparian vegetation and provides an analysis of river reaches in the region by the level of CO<sub>2</sub>e stored within the bordering riparian vegetation.

| LGA             | Riparian Vegetation (ha) | Carbon Storage Rank by Reach | Total Carbon Storage (t/CO <sub>2</sub> e) |
|-----------------|--------------------------|------------------------------|--------------------------------------------|
| Colac-Otway     | 10,473                   |                              |                                            |
| Corangamite     | 2,716                    | High                         | 15,458,651                                 |
| Golden Plains   | 2,851                    | Moderate                     | 578,188                                    |
| Greater Geelong | 384                      | Low                          | 22,946                                     |
| <b>Total</b>    | <b>23,990</b>            |                              |                                            |

| UNIQUEID   | River               | Reach Length (km) |
|------------|---------------------|-------------------|
| 34_009_000 | NARINGHIL CREEK     | 60,581            |
| 34_004_000 | WOADY YALLOCK RIVER | 55,588            |
| 33_004_000 | BARWON RIVER        | 53,705            |
| 33_010_000 | NATIVE HUT CREEK    | 52,880            |

Carbon - Riparian vegetation



# Riparian Vegetation - Carbon Value



This page analyses the carbon storage services provided by riparian vegetation along rivers across Corangamite CMA in monetary terms.

The carbon stock present in riparian vegetation is converted into a series of uniform annual values to represent the flow of the ecosystem service on an annual basis.

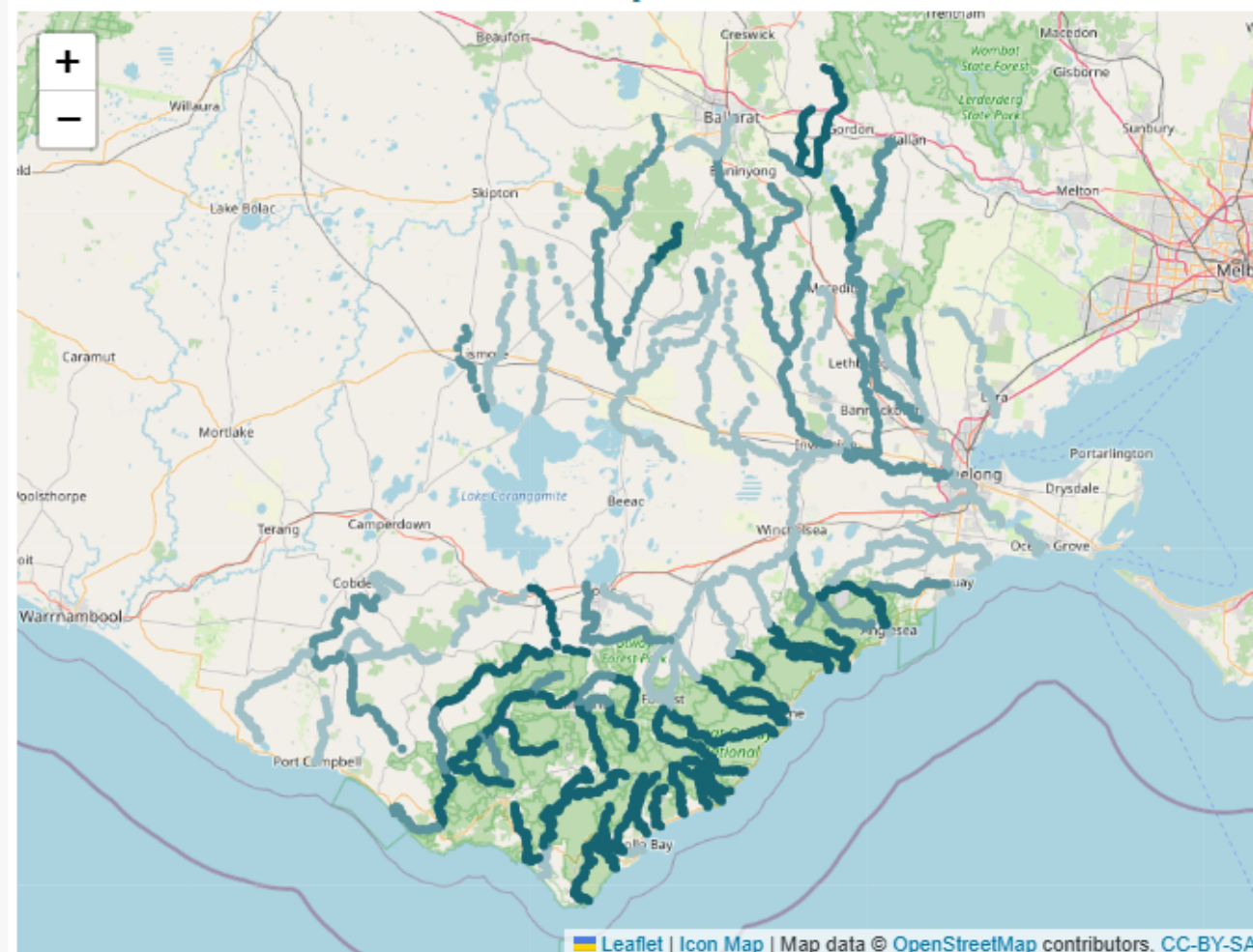
This annual carbon storage flow is valued by pricing each tonne of carbon dioxide equivalent (CO<sub>2</sub>e) using the minimum value suggested by Infrastructure Victoria.

| LGA             | Total Carbon Storage Value |
|-----------------|----------------------------|
| Colac-Otway     | \$1,166,621,421            |
| Corangamite     | \$189,564,279              |
| Golden Plains   | \$38,795,676               |
| Greater Geelong | \$1,031,847                |
| <b>Total</b>    | <b>\$1,975,333,014</b>     |

| Carbon Storage Rank by Reach | Total Carbon Storage Value |
|------------------------------|----------------------------|
| High                         | \$1,901,414,073            |
| Moderate                     | \$71,117,124               |
| Low                          | \$2,822,358                |

| River Reach ID | River      | Reach Length (km) |
|----------------|------------|-------------------|
| 35_027_000     | AIRE RIVER | 824               |
| 35_028_000     | AIRE RIVER | 20,053            |
| 35_056_000     | AIRE RIVER | 21,277            |
| 35_227_000     | AIRE RIVER | 7,941             |

Carbon - Riparian Value



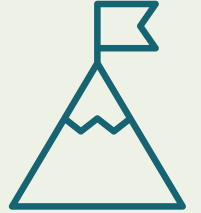
# Decision-making and investment

Making natural capital data accessible, visual and interactive



Mainstreaming nature's benefits directly into everyday decision-making for plantation managers, forestry asset owners and investors.

Outcome-focused investment



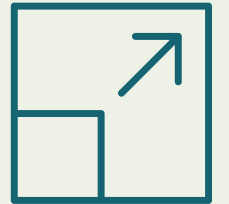
Empowering forestry organisations to demonstrate the benefits of strategic management – justifying funding and potential returns on investment from an ecosystem services perspective

Enhancing the value of forestry management



Showcasing the ecosystem services and benefits provided by natural capital activities and investment through impact storytelling

Scalability



Replicable, customisable to user needs, and can report at any scale – from national portfolios to individual plantations, allowing for tailoring and scaling up value transfer

# Natural Capital Dashboard feedback

## Investigations and Program Development



Natural capital data is quite complex. Having the Natural Capital Dashboard allows us to play with data to **see what we can do in the landscape and point to areas that we want to develop.**

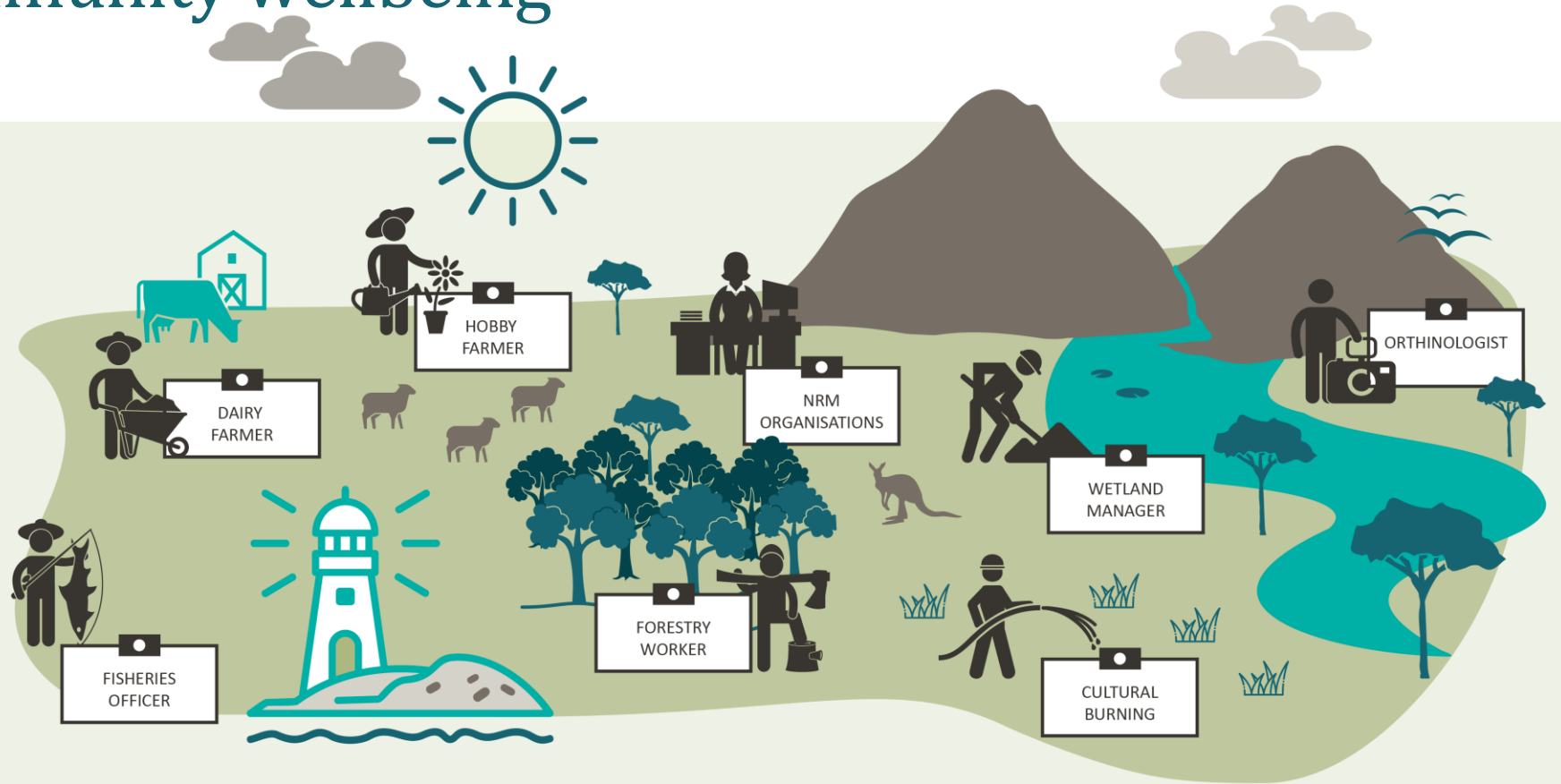
## GIS



The Natural Capital Dashboard has a lot of value for use as an internal resource. We're really happy with the ability to crunch all of our data and put it into an interactive dashboard, as well as easily adding other datasets into the mix. This helps us with **articulating the complexities of natural resource management** in an easily digestible way.

# We are all natural capital managers and stewards of community wellbeing

Everyone working in the landscape has a role to play in producing outcomes for the environment, economy and society



# Natural capital profile – Midway, Victoria

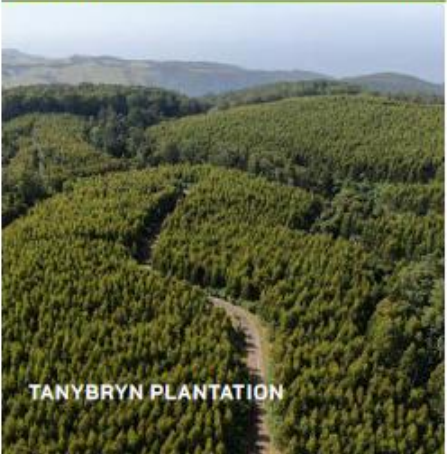


## Growing Midway's Natural Capital Report

An example of sector benchmarking in the Forestry industry



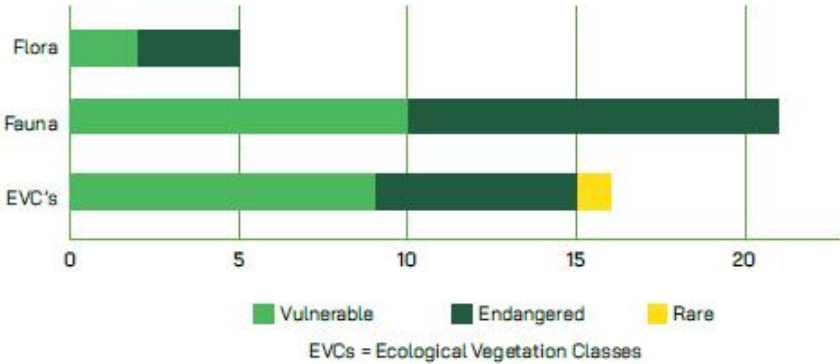
| Carbon<br>(tonne per<br>hectares) | Natural<br>(hectares) | Plantation<br>(hectares) | Total<br>(hectares) |
|-----------------------------------|-----------------------|--------------------------|---------------------|
| 0 to 50                           | 1653                  | 885                      | 2538                |
| 50 to 100                         | 43                    | 838                      | 881                 |
| 100 to 150                        | 775                   | 1725                     | 2500                |
| 150 to 200                        | 218                   | 947                      | 1165                |
| 200 to 250                        | 0                     | 1074                     | 1074                |
| 250 to 300                        | 2102                  | 3091                     | 5193                |
| Grand Total                       | 4791                  | 8560                     | 13351               |



| Soil retention<br>services<br>(tonne per<br>hectares) | Natural<br>(hectares) | Plantation<br>(hectares) | Total<br>(hectares) |
|-------------------------------------------------------|-----------------------|--------------------------|---------------------|
| NA                                                    | 981                   | 3670                     | 4651                |
| 0.00 to 0.50                                          | 3387                  | 4623                     | 8010                |
| 1.00 to 0.50                                          | 254                   | 174                      | 428                 |
| 1.00 to 1.50                                          | 111                   | 70                       | 181                 |
| 1.50 to 2.00                                          | 38                    | 17                       | 55                  |
| 2.00 to 2.50                                          | 14                    | 4                        | 18                  |
| 2.50 to 3.00                                          | 3                     |                          | 3                   |
| 3.00 to 3.50                                          | 2                     | 2                        | 4                   |
| 3.50 to 4.00                                          | 1                     |                          | 1                   |
| Grand Total                                           | 4791                  | 8560                     | 13351               |



### NATIVE SPECIES STATUS



### ENDEMIC SPECIES STATUS

| Endemic species | Scientific name                    | Common name               | IUCN red list status |
|-----------------|------------------------------------|---------------------------|----------------------|
| Flora           | Eucalyptus kitsoniana              | Bog Gum, Gippsland Mallee | Endangered           |
|                 | Eucalyptus strzeleckii             | Strzelecki Gum            | Endangered           |
| Fauna           | Eulamprus tympanum subsp. marnieae | Corangamite Water Skink   | Endangered           |
|                 | Eusthenia nothofagi                | Otway Stonefly            | Vulnerable           |
|                 | Victaphanta compacta               | Otway Black Snail         | Endangered           |

### EVC THREATENED COMMUNITIES

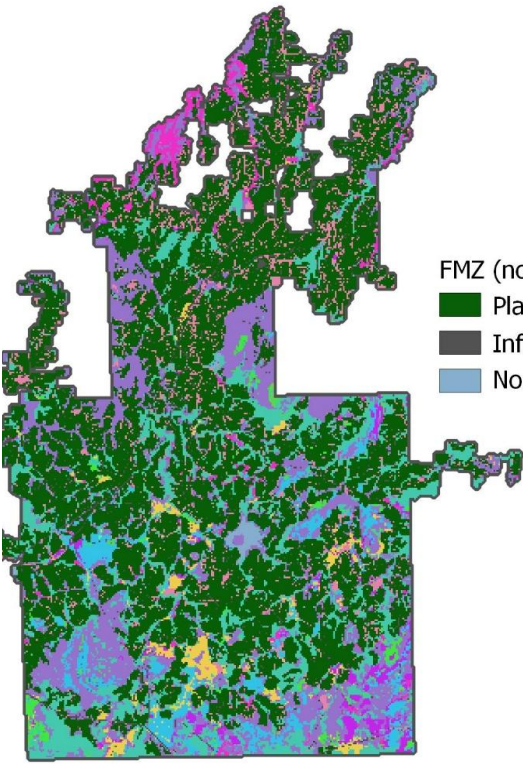
| EVC Threatened Communities                                | EVC Status | EVC area |
|-----------------------------------------------------------|------------|----------|
| Cool Temperate Rainforest                                 | Endangered | 37%      |
| Lowland Forest                                            | Vulnerable | 36%      |
| Herb-rich Foothill Forest                                 | Vulnerable | 12%      |
| Heathy Woodland                                           | Vulnerable | 4%       |
| Wet Sands Thicket                                         | Rare       | 2%       |
| Damp Heath Scrub                                          | Vulnerable | 2%       |
| Riparian Scrub/Swampy Riparian Woodland Complex           | Vulnerable | 2%       |
| Riparian Forest                                           | Vulnerable | 1%       |
| Grassy Woodland                                           | Endangered | 1%       |
| Sedgy Riparian Woodland                                   | Endangered | 1%       |
| Swamp Scrub                                               | Endangered | 1%       |
| Plains Grassy Woodland                                    | Endangered | 1%       |
| Wet Heathland                                             | Endangered | 1%       |
| Damp Sands Herb-rich Woodland                             | Vulnerable | 0.2%     |
| Herb-rich Foothill Forest/Shrubby Foothill Forest Complex | Vulnerable | 0.2%     |
| Sedgy Riparian Woodland                                   | Vulnerable | 0.1%     |



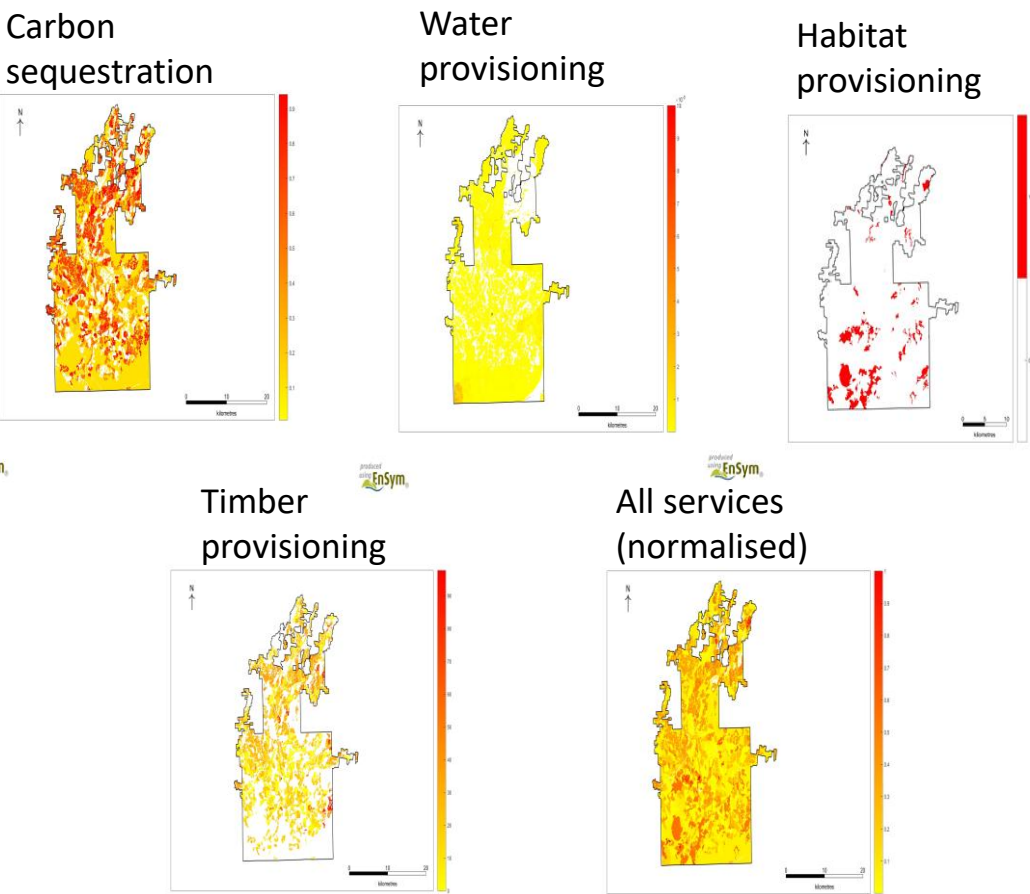
# Spatial distribution of extent and ecosystem services – Forico, Tasmania



- Natural FMZ**
- Agricultural, urban and exotic vegetation
  - Dry eucalypt forest and woodland
  - Highland and treeless vegetation
  - Moorland, sedgeland, rushland and peatland
  - Native grassland
  - Non eucalypt forest and woodland
  - Other natural environments
  - Rainforest and related scrub
  - Saltmarsh and wetland
  - Scrub, heathland and coastal complexes
  - Wet eucalypt forest and woodland
- FMZ (non natural)**
- Plantation
  - Infrastructure
  - Non-forest use



**Forico Surrey Hills Estate**  
0 2.5 5 km



# Thank you

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