
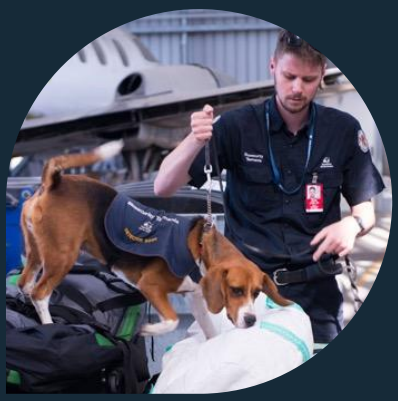


Land with Potential Soil Carbon ACCU Opportunities in Tasmania, Australia

Department of
Natural Resources and Environment Tasmania

Tasmanian Government

Contents

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Summary

This report outlines the outcomes of a high-level spatial analysis of land in Tasmania potentially eligible for Australian Carbon Credit Unit projects, under the 2021 Soil Carbon Method, using available statewide datasets. It includes methodology, datasets, limitations, estimated eligible land areas by region and local government areas, and mapping links. The mapping is based on four main GIS layers: Land Capability, Land Use, TASVEG 5.0, Infrastructure.

Key findings:

Estimated potential eligible and suitable land: 977,879 hectares.

Majority of eligible land is in the NRM North region.

LGAs with highest potential: Northern Midlands, Southern Midlands, Dorset, Circular Head.

Introduction

In response to a request from the Soil Carbon Industry Group[1] (SCIG), a broad-scaled spatial analysis has been undertaken to map land potentially eligible in Tasmania for the Australian Carbon Credit Unit[2] (ACCU), under the Carbon Credits (Carbon Farming Initiative—Estimation of Soil Organic Carbon Sequestration using Measurement and Models) Methodology Determination 2021[3] (the Method). Eligible land is defined under Section 9 of the Method[4].

Suitable datasets from the Department of Natural Resources and Environment Tasmania (NRE Tas) were selected to identify land that meets the following criteria:
(a) Land was used for one or more agricultural purposes, including pasture or cropping, and
(b) The land contains no dwellings or other structures, and
(c) At the end of the baseline period, it is reasonable to expect that implementing eligible management activities, as outlined in relevant land management strategies, will increase soil carbon sequestration, and
(d) The soil on the land can be consistently sampled in accordance with the requirements of this determination.

This high-level assessment focuses on mapping lands meeting criteria (a), (b), and (d). Management activities under criterion (c) would be implemented by farmers, extension advisers, or service providers within the Soil Carbon Industry Group and are beyond the scope of this mapping assessment. To evaluate criterion (d), limiting factors such as surface rock presence, extreme slopes, and very wet areas were considered using land capability data, excluding unsuitable areas accordingly.

[1] https://www.scig.org.au/

[2] https://cer.gov.au/schemes/australian-carbon-credit-unit-scheme

[3] https://cer.gov.au/schemes/australian-carbon-credit-unit-scheme/accu-scheme-methods/estimating-soil-organic-carbon-sequestration-using-measurement-and-models-method

[4] https://www.legislation.gov.au/F2021L01696/latest/text

Method - Spatial Analysis

This broad scale spatial analysis was undertaken by the Natural Assets Spatial Intelligence Section, Environment, Heritage and Land Division of NRE Tas.

Four key GIS layers were used to capture ACCU-eligible and suitable land:

- Tasmanian Land Capability (Field Mapped and Modelled)
- Tasmanian Land Use
- TASVEG 5.0 Vegetation Map
- Infrastructure and Building Structures

The above four spatial layers were chosen to provide consistent statewide coverage that, in combination, would help identify potential ACCU eligible land.

Land Capability

Land Capability in Tasmania is assessed using a seven-class Land Capability Classification System that ranks land from Class 1 (highest versatility) to Class 7 (lowest), focusing on the long-term sustainable use of land for broadacre cropping and grazing on private freehold and leased Crown land. At the regional 1:100 000 scale, NRE Tas has produced both field-mapped (surveyed) and modelled land capability maps: field-mapped areas (e.g. Circular Head, Meander, Tamar and others) are derived from intensive field surveys and are available with detailed reports, while remaining areas are mapped by computer modelling using digital data and rules developed from the field-mapped sheets. Together, these datasets provide a statewide land quality inventory that underpins identification of Prime Agricultural Land, regional and local planning, and catchment-scale decision-making, and can be accessed via NRE Tas's land capability website[5], the index of available maps[6], and the field-mapped maps and reports page[7], as well as via LISTmap[8] for interactive viewing.

[5] The Land Capability Classification System: https://nre.tas.gov.au/agriculture/land-management-and-soils/land-and-soil-resource-assessment/land-capability/the-land-capability-classification-system

[6] Available Land Capability Maps: https://nre.tas.gov.au/agriculture/land-management-and-soils/land-and-soil-resource-assessment/land-capability/index-map-of-available-land-capability-maps

[7] Field Mapped Land Capability Maps and Reports: https://nre.tas.gov.au/agriculture/land-management-and-soils/land-and-soil-resource-assessment/land-capability/field-mapped-land-capability-maps-and-reports

[8] https://www.thelist.tas.gov.au/app/content/home

Potential ACCU Land Capability Classes

For this analysis, Land Capability Classes 1 to 5 (inclusive) were selected to represent agricultural land that have minimal rock, slope or drainage limitations. Using LISTmap, users can overlay existing land capability mapping to determine the land capability rating. The lower the rating, the more 'capable' that land will be, with fewer limitations. For example, Class 1 to 3 Land is considered Prime Agricultural Land, and will have very few limitations to most agricultural land uses.

- Classes 1 to 3 – Moderate to Intensive Cropping
- Class 4 – Occasional Cropping with Pasture Rotations
- Class 5 – Grazing
- Class 6 – 7 – Rough Grazing and Natural Areas

Tasmanian Land Use

Land use mapping in Tasmania is produced by NRE Tas and the Australian Collaborative Land Use and Management Program[9] (ACLUMP), using the nationally consistent Australian Land Use and Management[10] (ALUM) Classification to map primary, secondary and tertiary land use classes across the state at catchment scale. The current Tasmanian Land Use 2021 dataset shows how land is used for conservation, various types of agriculture (dryland and irrigated), forestry, intensive uses and water, derived through modelling, imagery interpretation and expert input, and is available as view and download services via LISTmap and LIST open data.

Potential ACCU Land Use Classes

For this analysis, the following Land Use Classes were selected to best represent current agriculture production land uses that might be eligible and suitable for ACCUs.

- Class 2 – Production from Relatively Natural Environments
- Class 3 – Production from Dryland Agriculture and Plantations
- Class 4 – Production from Irrigated Agriculture and Plantations

[9] https://www.agriculture.gov.au/abares/aclump/about-aclump

[10] https://www.agriculture.gov.au/abares/aclump/land-use

TASVEG 5.0 – Vegetation Mapping

TASVEG 5 is the latest version of Tasmania's statewide digital vegetation map, produced by NRE Tas, which maps more than 150 native vegetation communities plus additional units for modified and largely unvegetated land at a nominal scale of 1:25,000 across the entire state and Macquarie Island. It provides consistent, photo-interpreted and selectively field-verified mapping of communities such as eucalypt forests, heathlands, wetlands and alpine vegetation. It is used extensively to support biodiversity assessment, land use planning, policy, and vegetation monitoring, with access and documentation provided through the TASVEG information page[11].

Potential ACCU TASVEG Codes

For this assessment, a vegetation code of "FAL" was used to select agricultural land. This excludes substantial tree-covered areas, as well as infrastructure and native vegetation, essentially refining the land capability and land use map layers.

Infrastructure and Building Structures

The LISTmap infrastructure and Building structure mapping was used to identify unsuitable/ ineligible areas. A 10 metre buffer was applied to exclude the immediate areas around buildings, however, other underground infrastructure might be present in some areas.

Combined Potential ACCU Map

The final map was produced by spatially intersecting the four datasets, chosen for the following individual contributions to the potential ACCU eligible land selection.

- *Land Capability* mapping identifies agricultural potential and physical limitations that might impact potential ACCU monitoring, but does not identify current land use or vegetation.
- *Land Use* identifies current agricultural use, but does not identify physical limitations to agriculture. The chosen classes do not differentiate between grazing in natural environments or plantations.

[11] https://nre.tas.gov.au/conservation/development-planning-conservation-assessment/planning-tools/monitoring-and-mapping-tasmanias-vegetation-(tasveg)/tasveg-the-digital-vegetation-map-of-tasmania

- *TASVEG* mapping identifies agricultural land and vegetation communities, and will remove most natural (uncleared areas) and plantations from the analysis.
- *Infrastructure/ Building* mapping excludes existing structures, buffered to 10 meters, from the final map.

Although each of the input layers would be highly correlated, combining all available statewide inputs has refined the final mapping product, selecting current agricultural land with the fewest physical limitations to agricultural land management and ongoing soil monitoring, while excluding areas with existing or recently cleared vegetation, trees, wetlands and structures. Table 1 shows land identified as potentially eligible meeting all the following criteria.

Table 1. ACCU Land Selection Criteria - Tasmania

Spatial Layer	**Criteria**
Land Capability	Class 5 or better (<= 5)
Land Use	Class 2 (Production from Relatively Natural Environments) OR Class 3 (Production from Dryland Agriculture and Plantations) OR Class 4 (Production from Irrigated Agriculture and Plantations)
TASVEG 5.0	Community = 'FAL' (Agricultural Land)
LIST Building and Infrastructure	Exclude Building Area with 10m Buffer

RESULTS

Potential ACCU Eligible Land in Tasmania

*From this analysis, there is an estimated **977,879 ha** of land in Tasmania with potential for inclusion in the ACCU 2021 Soil Carbon method (Figure 1).*

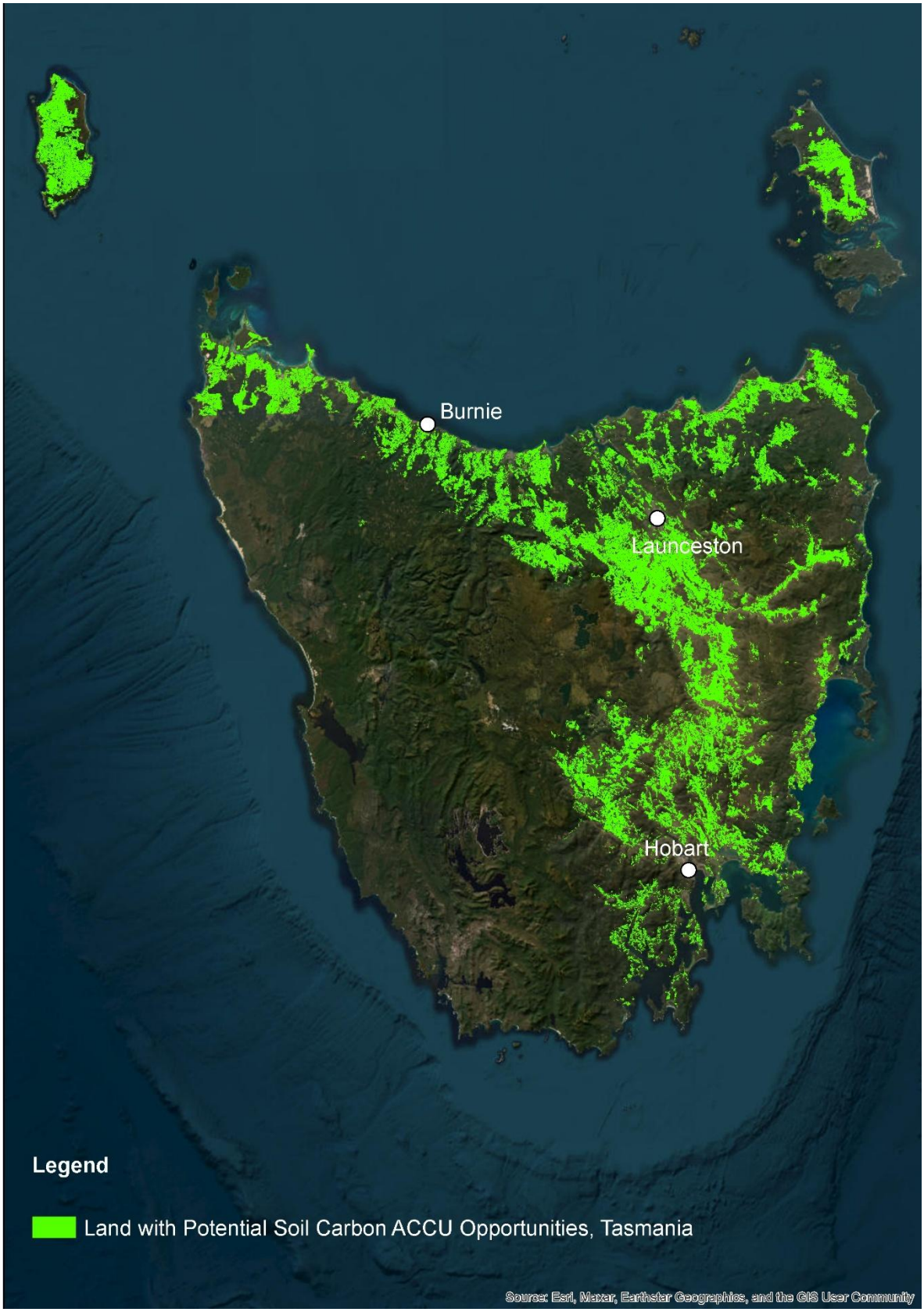

Figure 1. Potential ACCU Areas of Tasmania

The map is available to view or download at

Potential ACCU Eligible Land Tasmania

Potential ACCU Eligible Land in Tasmania by NRM Region

Overlaid with the three Tasmanian NRM Regions, of the 977,879 ha identified, almost half of this area was in NRM North (see Table 2, Figure 2).

Table 2. Potential ACCU Area by NRM Region

NRM Region	Area (ha)	% of Area
North	473,520	48
Cradle Coast	239,910	25
South	264,449	27
Total Area	**977,879**	

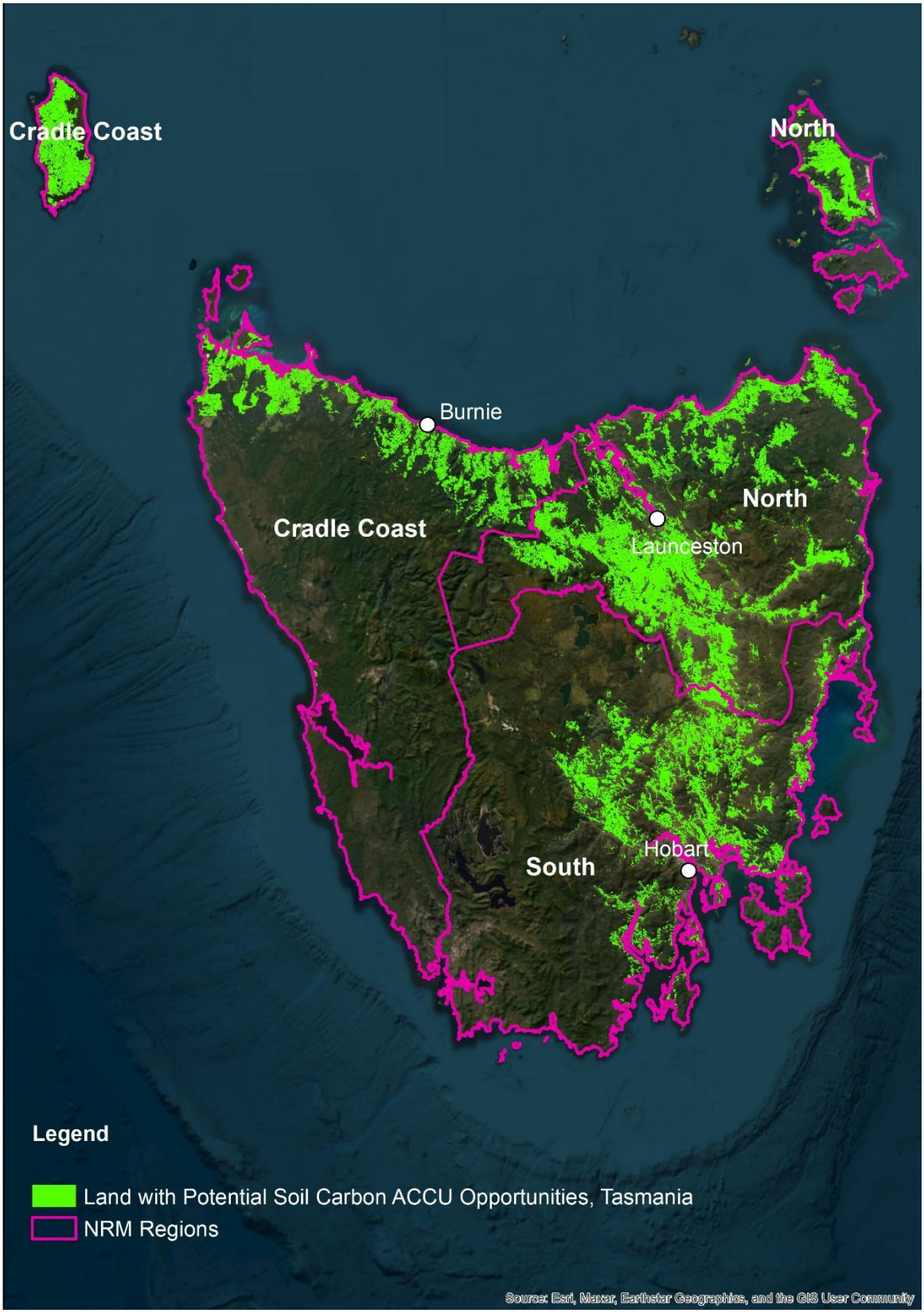

Figure 2. Potential Soil Carbon ACCU Area by NRM Region

Potential ACCU Eligible Land in Tasmania by Local Government Area

Overlaid with the Tasmanian Local Government Areas (LGA), of the 977,879 ha identified, LGAs with the greatest ACCU potential area include the Northern Midlands, Southern Midlands, Dorset and Circular Head (see Table 3, Figure 3).

Table 3. Potential ACCU Area by LGA

LGA	Area (ha)	% of Area
Break O'Day	33,252	3
Brighton	5,469	1
Burnie City	11,464	1
Central Coast	26,530	3
Central Highlands	64,276	7
Circular Head	71,966	7
Clarence City	9,833	1
Derwent Valley	10,947	1
Devonport City	4,366	< 1
Dorset	88,084	9
Flinders	46,291	5
George Town	15,077	2
Glamorgan-Spring Bay	29,461	3
Glenorchy City	520	< 1
Hobart City	4	< 1
Huon Valley	18,877	2
Kentish	18,778	2
King Island	68,161	7
Kingborough	9,357	1
Latrobe	17,655	2
Launceston City	22,918	2
Meander Valley	78,717	8
Northern Midlands	171,459	18
Sorell	18,871	2
Southern Midlands	95,668	10
Tasman	1,303	< 1
Waratah-Wynyard	21,044	2
West Tamar	18,541	2
Total	**977,879**	

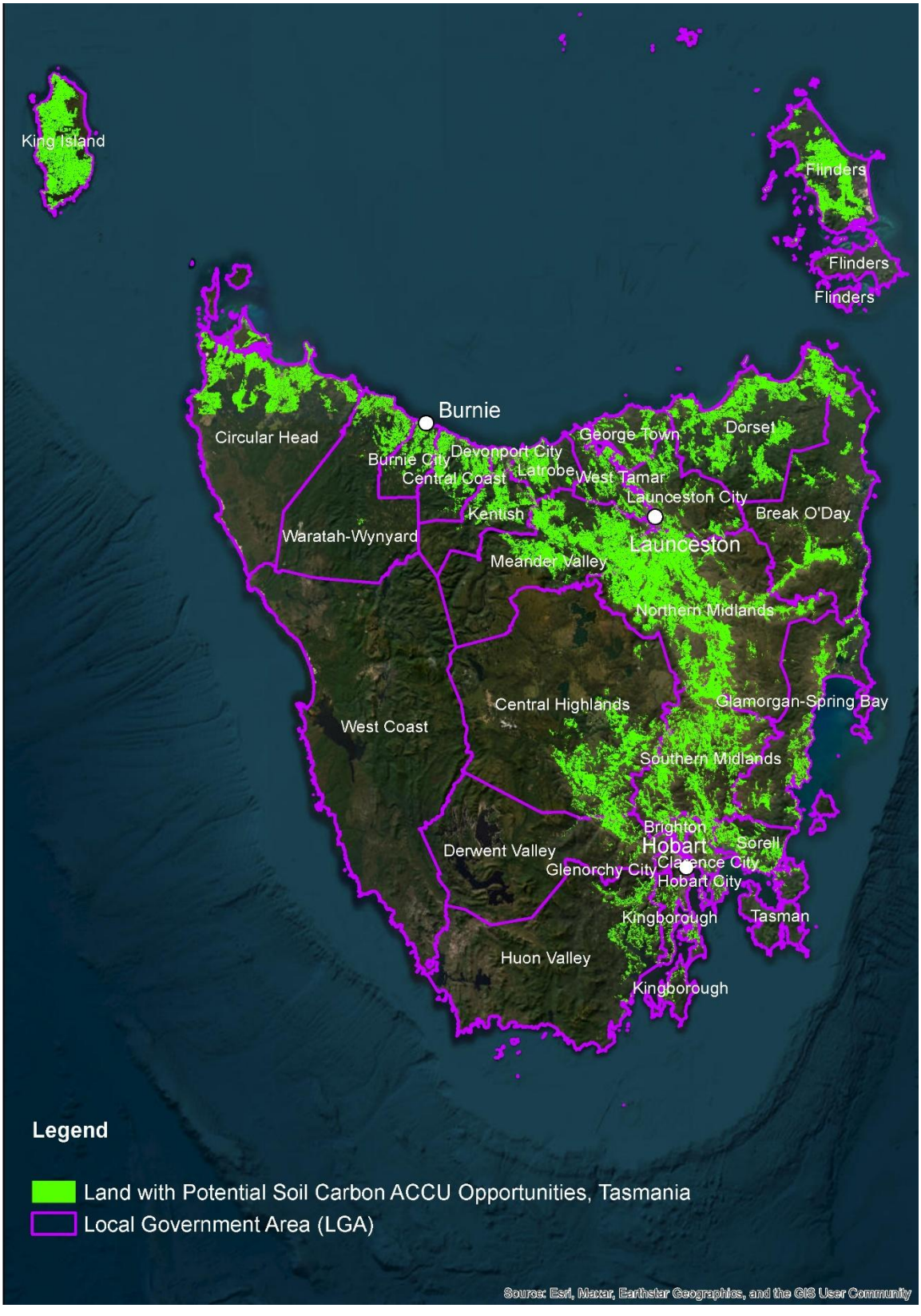

Figure 3. Potential Soil Carbon ACCU Area by LGA

Mapping Limitations and Disclaimer

The estimated area would likely be lower with site-specific assessment at the farm or paddock-scale. Additionally, mapped areas in some regions might not necessarily be conducive to significant soil carbon gains due to inherent soil attributes and climate characteristics.

The Tasmanian land capability, land use, TASVEG, and infrastructure mapping provided by NRE Tas, available via LISTmap, and used in the generation of the Potential ACCU map are a combination of regional, modelled and interpreted datasets intended for strategic planning, assessment and general information, not as a substitute for detailed, site-specific investigation or professional advice.

The mapped classes and boundaries are derived from air photo and satellite interpretation, modelling and selected fieldwork at mapped scales (for example 1:100 000 for land capability and 1:25 000 for TASVEG), so local conditions may differ, small features may not be shown, and the datasets do not incorporate all factors relevant to land use decisions such as economics, water access, infrastructure, tenure, biodiversity values or statutory planning controls.

Users must exercise their own skill and judgement, undertake appropriate on-ground assessment, and seek expert advice before making decisions based on these maps, and the final ACCU-eligible land map. The Tasmanian Government and data providers accept no liability for any loss, damage or costs resulting from reliance on these datasets, the derived ACCU map or their display in LISTmap.

Ineligible ACCU land that includes drained wetlands, recently cleared areas or soil organic carbon values > 10% were not (and could not) be adequately identified using current and consistent statewide Tasmanian datasets.

ACCU potential areas estimated on both King Island and Flinders Island are likely to be less than depicted; for these areas, analyses were based on TASVEG and Land Use only, as Land Capability Mapping was incomplete and unavailable at a comparable scale to that for mainland Tasmania.

During mapping for project registration landowners confirm in detail the eligible land and the land to be included in Carbon Estimation Areas (CEAs).

Conclusion

The broad scale spatial analysis undertaken demonstrates considerable agricultural area with ACCU revenue potential[12] (Farquhar et al 2026) in priority regions of Tasmania. Mapping ACCU-eligible land demonstrates the value for Tasmania's agricultural and environmental sectors, enabling targeted outreach to high-potential local government areas like Northern Midlands (171,459 ha) and Dorset (88,084 ha), where nearly half the total area lies in the NRM North region. It supports strategic planning by highlighting opportunities for soil carbon sequestration through eligible management practices, aligning with national carbon farming incentives while protecting Prime Agricultural Land from unsuitable conversions. By leveraging accessible tools like LISTmap, the process provides data-driven decision-support for farmers, advisors, and policymakers, facilitating grant applications, extension services, and scalable replication in other states using equivalent datasets, ultimately accelerating Tasmania's contributions to Australia's emissions reduction goals.

[12] Farquhar, D., et al., 2026. 'Soil Carbon Projects: A Pathway to Sustainability, a Step Change in Global Agricultural Productivity and Meaningful Climate Action'. Exchanges: The Interdisciplinary Research Journal, 13(1), 93–110. Available at: https://doi.org/10.31273/eirj.v13i1.1764

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