



Biocultural Diversity

Aboriginal people describe the diversity of native foods that they and their ancestors have utilised over millennia. This article introduces the concept of biocultural diversity and explores the effects that Aboriginal cultural practices have had in shaping the diversity of Tasmanian environments.





CROSS CURRICULUM PRIORITIES

-  Aboriginal and Torres Strait Islander Histories and Cultures
-  Sustainability

CONTENT AREAS

- S** Science
- G** Geography
- H** History
- EB** Economics and Business
- T** Technologies

GENERAL CAPABILITIES

-  Intercultural Understanding
-  Critical and Creative Thinking
-  Ethical Understanding
-  Personal and Social Capability

KEY CONCEPT

Biocultural Diversity describes the system of interrelated and interdependent diversities: biological, cultural, and linguistic. The diversity of life is made up not only of the diversity of plants and animal species, habitats and ecosystems found on the planet, but also of the diversity of human cultures and languages.

Maffi, 2012

SUPPORTING CONCEPTS

- › cultural landscapes
- › Aboriginal land management

GUIDING QUESTION

Can any Tasmanian environment be understood as being 'natural' or have all environments been shaped by cultural activities?

This printed material is **to be used with Foods – a Living Cultures multimedia curriculum resource** that can be found at www.theorb.tas.gov.au

The Living Cultures Foods resource and this supplementary printed material have been designed to foster culturally responsive practice when learning about Tasmanian Aboriginal Histories and Cultures.

Introduction

Tasmania's landscapes have been shaped by the actions of Tasmanian Aboriginal people over millennia. The interconnections between people and landscapes resulted in a diversity of plant and animal life that sustained Tasmanian Aboriginal peoples for countless generations.

Since colonisation many of these environments have again been altered by human interaction resulting in a reduction in the diversity of native food species.

In my lifetime I've seen so much disappear, just not in one big swoop, but little bits being taken away all the time, little bits of land, little bits of natural forest or coastal reserves, little bits being taken away. The more I see being taken away, I notice the less [opportunity] there is access to [native] food. It was disappearing. So I wanted to find

out; one, what is the food, and two, how to actually tell everyone about it. And to wake up the consciousness of what native food is, to wake up the consciousness of what we're actually losing, and to look at the preservation; [the] long term cultural preservation as well as Tasmania and its preservation of native food. Sharon Dennis, 2018

Sharon is expressing her connection to Country and the impacts of changing land-use patterns on the availability of, and access to, a diversity of native foods that she has observed. She is also making the connection between the preservation of culture and native foods.

Biocultural Diversity

Culture, and the environment are interrelated. Since the dawn of human history, everywhere on earth people have interacted closely with the natural environment as the source of all sustenance: the source of air, water, food, medicine, clothing, shelter, and all other material needs, as well as of physical, psychological, and spiritual well-being.

This is how culture, and the environment are interconnected. In each place, the local environment sustains people; in turn, people

sustain the local environment through the traditional knowledge, values, and practices embedded in their cultures.

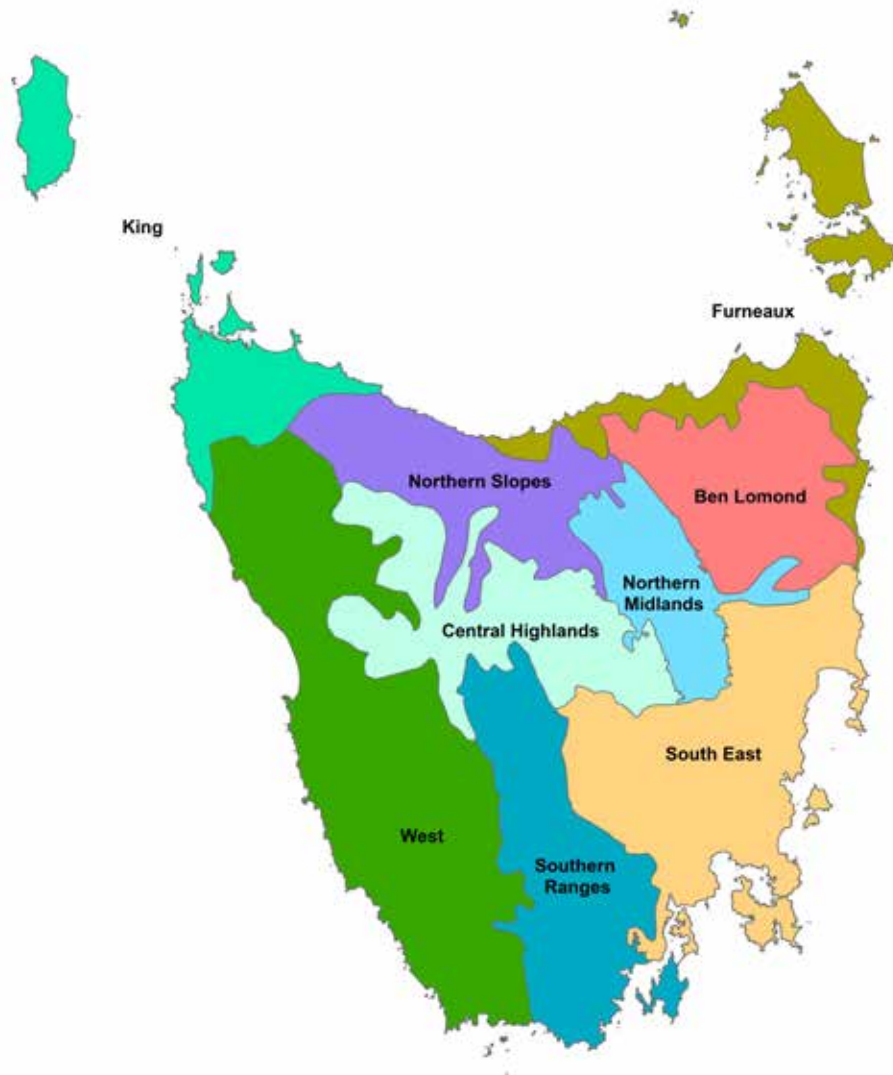
Cultural diversity is the variety of human cultures, that is, the variety of worldviews, lifeways, knowledge and value systems, practices and forms of expression displayed by different human societies.

Maffi, 2012

In what is now Tasmania there were many different nations and tribes living in a diversity of environments. Each of these nations had their own distinct cultural practices resulting in a diversity of cultures on the island.

Below is map of Tasmanian bioregions. Bioregions are regions whose limits are naturally defined by topographic and biological features (such as mountain ranges and ecosystems).

An ecosystem includes all the living things (plants, animals and organisms) in a given area, interacting with each other, and also with their non-living environments (weather, earth, sun, soil, climate, atmosphere).



Bioregions of Tasmania | DPIW, 2018

Bioregions reflect formal recognition of the Indigenous relationship with the environment. Biodiversity conservation and ecologically sustainable land use have been integral to Indigenous culture for millennia.

Intimate relationships exist between Indigenous people, the land and the range of flora and fauna found in their country.

Ceremonial, custodial and management responsibilities for country have been passed on from generation to generation and traditional management practices have been essential for maintaining biodiversity in Australia's bioregions.

Tasmanian Indigenous Land Strategy, 2013

DISCUSSION QUESTIONS

- › Is it accurate to perceive humans and environment as completely separate and distinct?
 - › In what ways can human actions impact on ecosystems?
 - › How might these diverse environments be shaped by and in turn shape human activity (cultural practices)?
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Fire and biocultural diversity

Tasmania's natural environment has a past, a present and a future. We have inherited landscapes, ecosystems and communities that form Tasmania's unique natural heritage that have been shaped by billions of years of geological history, biological evolution and tens of thousands of years of Aboriginal stewardship, and more than two hundred years of settlement by Europeans and other immigrants.

An example of Aboriginal influences on the landscape includes the continual and deliberate use of fire over millennia, which has interacted with soils, climate and topography to influence the extent, boundaries and distribution of vegetation types.

Natural Heritage Strategy, 2013

Along with climate change, burning played a major role in managing and shaping the island's vegetation coverage. The first Tasmanians began burning country as soon as they arrived. A recent study has shown that regular low-intensity burning began at *lungtalanana*/Clark Island, off the current northeast coast, 41,000 years ago. In 1991 a group of researchers found evidence of burning by people at Melaleuca Inlet in the island's far southwest from 38,000 years ago.

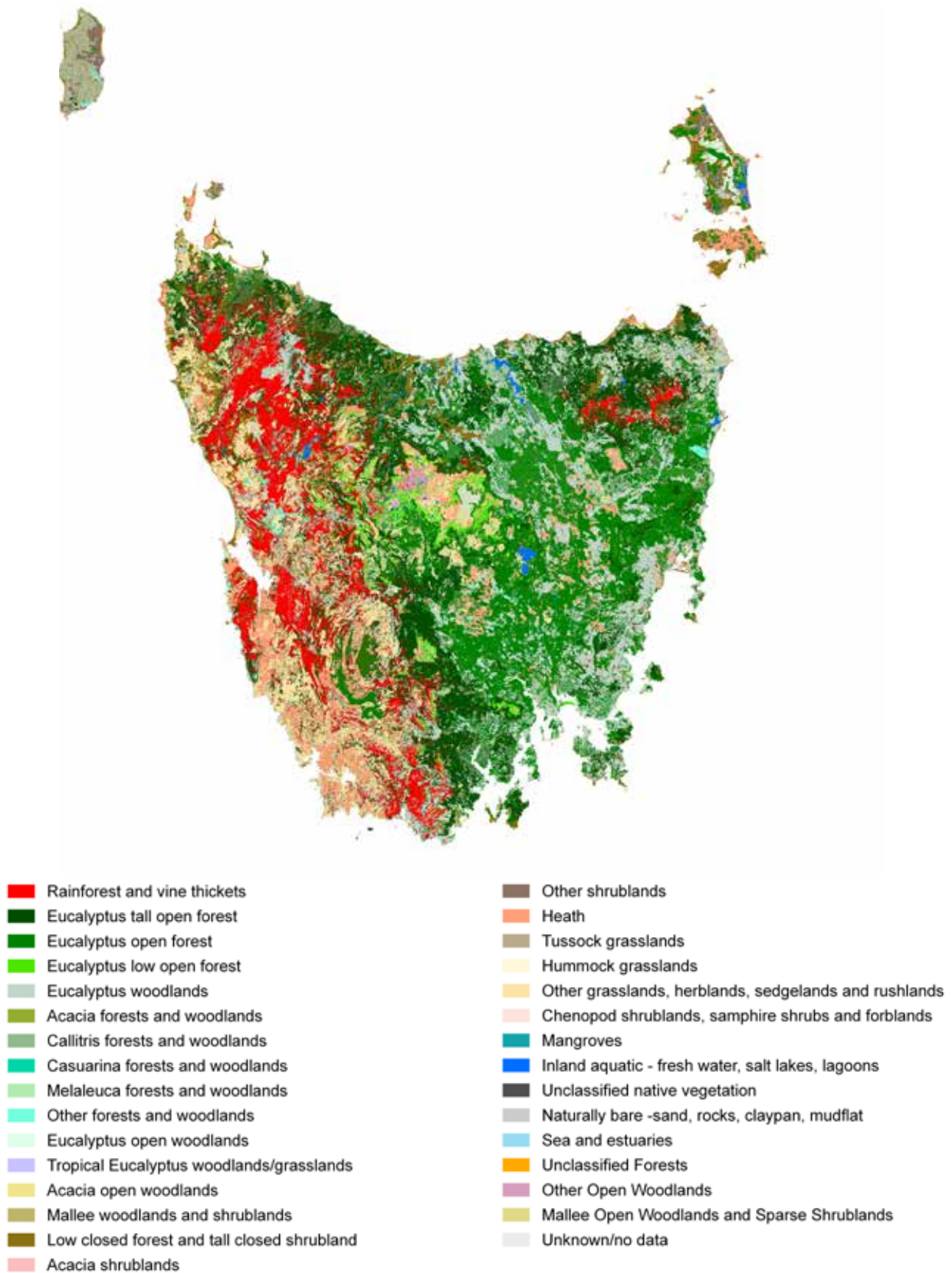
Breen, 2017

The combined effect of variations in climate and soils across the island, and millennia of Aboriginal burning, meant that the island's vegetation cover was very diverse.

Scientists have identified over 500 species that are endemic to Tasmania. Some species were very common, others less common. Across the island there were nine major plant communities consisting of four major forest communities, one diverse grassland community (actually three distinct communities), two moorland communities, a coastal heath community, and a wetlands community.

Breen, 2017

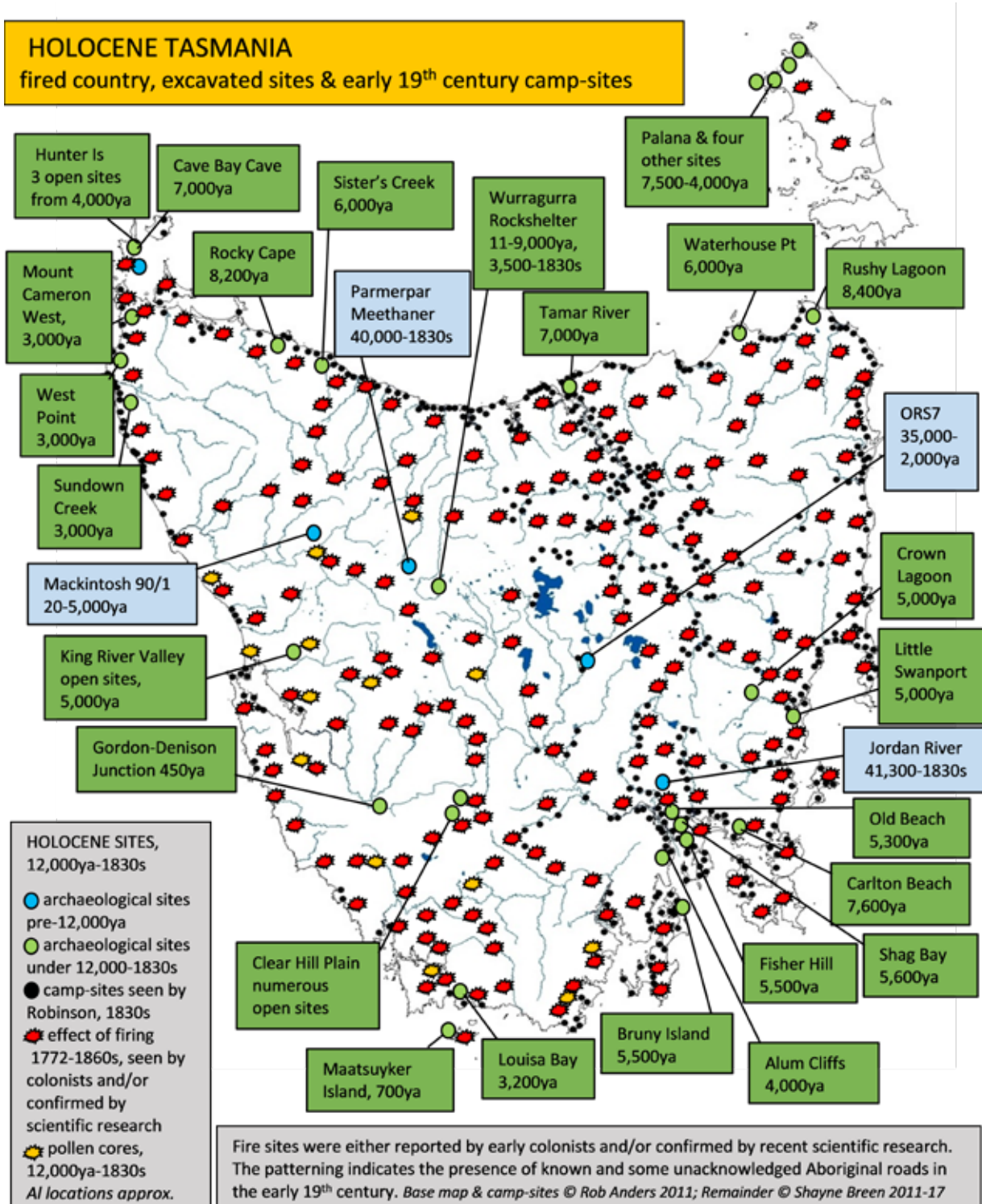
The map below provides information on the major vegetation communities as they existed in 1750.



Major vegetation communities, Tasmania, about 1750. | DPIPWE, 2018

The Historical Evidence

Evidence of Aboriginal burning in the landscape shows that extensive areas have been burnt over thousands of years. The map below evidences the extent of Aboriginal firing of the landscape in the west of Tasmania. The map includes observations made by early colonists as well as the evidence produced by scientific analysis of core samples taken from a number of locations in Western Tasmania.



Holocene Fire and Campsite map | Used with permission: Shayne Breen

Some of the information used in the map above has been drawn from historical records, specifically from observations made in the early 1800s.

These early observers recorded their impressions of the landscape which provides evidence of the effect of these burning regimes on a diversity of environments.

A number of these observations from across what was then Van Dieman's Land appear below.

Sharland, a surveyor in Van Dieman's Land 1823-1839, wrote the following description of what is now known as Loddon Plains in south-western Tasmania.

The whole of this ground had been burnt, apparently immediately before the late snow, and, I conclude, by the natives. The valley had the appearance, at a distance, of undergoing all the various processes of agriculture, — some parts (the most recently burnt) looking like freshly ploughed fields; and again, other parts possessing the most beautiful verdure from the sprouting of the young grass and rushes.

Sharland cited in Gammage, 2008

In 1827, another surveyor, Henry Hellyer, in following an Aboriginal track in the north-west noted:

The [area] has a cultivated and diversified appearance . . . from its having been lately burnt in several extensive tracts, looking fresh and green in those places, and in others so completely covered with fields of blooming heath that it resembled vast fields of clover divided by shrubs.

Hellyer cited in Breen, 2017

Like others at the time, George Augustus Robinson, during his travels for the so-called 'Friendly Mission' 1829-1834, noted the effects of Aboriginal burning practices.

About ten miles west of Mt William in the northeast he:

crossed a large plain with excellent grass, about a thousand acres. The country . . . is very picturesque, grassy plains interspersed with Copse . . . Kangaroo is very plentiful.

Passed over a large tract of ground where the bush had been burnt by the natives. This is a delightful country to walk in.

3 December, 1830

Robinson cited in Gammage, 2011

West of Derby he:

came to a large plain of tolerable good feed; it was of great extent and abounded with kangaroo. I had seen no place like it on this side of the island, and the clumps of trees of various sorts gave it a delightful park-like appearance. I named it kangaroo park. This country had been well burnt off.

23 July, 1831

Robinson cited in Gammage, 2011

Seemingly Robinson knew that Tasmanians shaped the land variously to suit different animals. By the Ringarooma River above Gladstone, he noted:

Our course . . . led through some wooded country, the underwood of which had been burnt off by the natives, and across some extensive heathy plains . . . The country was peculiarly favourable for the boomer and forest kangaroo, consisting of heathy and sword grass plains and open forest . . . (The inland natives have their hunting grounds for the different species of game, i.e. boomer, forester, wallaby, kangaroo, wombat, porcupine & c, the same as the coast natives have for their fish, such as particular rocks for mutton fish, crawfish, oysters, mussels, chitons.

13 August 1831

Robinson cited in Gammage, 2011

In early 1860, A geologist called Charles Gould was conducting a government minerals survey near Lake Ewart to the south-east of Cradle Mountain. This area consists of mountains, valleys, lakes and buttongrass moorelands.

The shore of Lake Ewart has numerous stands of ancient pencil pines. Reeds and grasses at the lake's edge provide food for the flocks of swans and ducks that swim the lake's waters, which meant meat and eggs for local Aborigines.

Gould wrote of the valley:

Kangaroos and wombats abound; and upon this account, as well as in consequence of the shelter afforded by the situation, the Aborigines, when in this portion of the country, probably selected it as a favorable

spot for their encampments, since I found traces in many places of the country having been burnt by them years ago, and in one the remains of a hut...

Breen, 2017

Scientific Evidence

More recently scientists have been researching the effects of this extensive burning regime on Tasmanian vegetation communities such as these buttongrass moorelands.

Buttongrass moorland is low vegetation dominated by sedges (grass-like plants) and heaths and usually growing in poorly drained sites. The most typical species is commonly known as 'buttongrass' (*Gymnoschoenus sphaerocephalus*). Buttongrass is a member of the sedge family – Cyperaceae. Buttongrass moorlands occupy some of the most nutrient poor situations to be found in the world and are one of the most fire-adapted ecosystems to have evolved.

Two easily accessible locations to see buttongrass moorlands are The Lyell Highway where it intersects Cradle Mountain – Lake St Clair National Park and the Strathgordon Road within the Southwest National Park.

Buttongrass moorelands are an important habitat for many species. Hidden within the buttongrass moorlands are countless animals and insects busily finding food and shelter. Bennetts wallabies, wombats, ground parrots, burrowing crayfish, frogs, lizards and grasshoppers are just a few of the creatures that live here.

Parks and Wildlife Service, Tasmania

In 1968, local scientist Bill Jackson pointed out that western Tasmania contained almost a million hectares of buttongrass plains. Jackson proposed that in the absence of regular burning by humans, button-grass plains would survive for at least 250 years, which meant they had not been taken over by forests when Jackson saw them. He argued that had it not been for regular burning, rainforest and rainforest scrub would have dominated the region when the British invaded. The only exceptions would have been areas with highly water-logged soils or others with exposure to extreme weather. That almost a million hectares of button-grass plains were spread through the island's west strongly suggested to Jackson that humans had implemented a regular burning regime across all those thousands of years.

Breen, 2017

In addition, recent fieldwork conducted by Tasmanian Parks and Wildlife researchers, who have been conducting periodic controlled burns of buttongrass plains, suggests that regular burning increases the fertility of buttongrass habitats and maximizes the diversity of flora and fauna, increasing the likelihood that the plains could

be productive habitats for people, at least seasonally. Buttongrass also contains foods other than wallaby and wombat, including frogs, burrowing crayfish, ground parrots, lizards and grasshoppers, and nearby lakes and lagoons were a source of water birds and their eggs.

Breen, 2017

DISCUSSION QUESTIONS

- › Based on the evidence do you think that Aboriginal people were responsible for creating the diversity of environments that the colonists found when they arrived?
- › What evidence is there for your opinion?
- › Should humans be considered part of the environment? Why?
- › What are some of the impacts of cultural practices on the environment?

Mapping Changes

So this is what I would describe as a living site. You're surrounded by an abundance of resources. You've got fresh water. You've got kangaroo apple, just right beside us. You've got the blackwood trees, you've got the boobiallas, saltbush, you've got your watercress here. It is an amazing resource of food.

The interesting part is though, is you now have a lot of weeds that are creeping in, you've got your nasturtiums, your ivy, that's strangulating this area, and it will eventually take it over.

Again we've got the Old Bass Highway running along beside us, and a few houses, and we've got a few businesses here as well.

So it's about finding a way to live with that with all the other competing colonial hangovers that we still have, and that concept of dominating an area that we're in. It's about finding a way of living with that as an Aboriginal person in a contemporary context.

Sharon Dennis, 2018

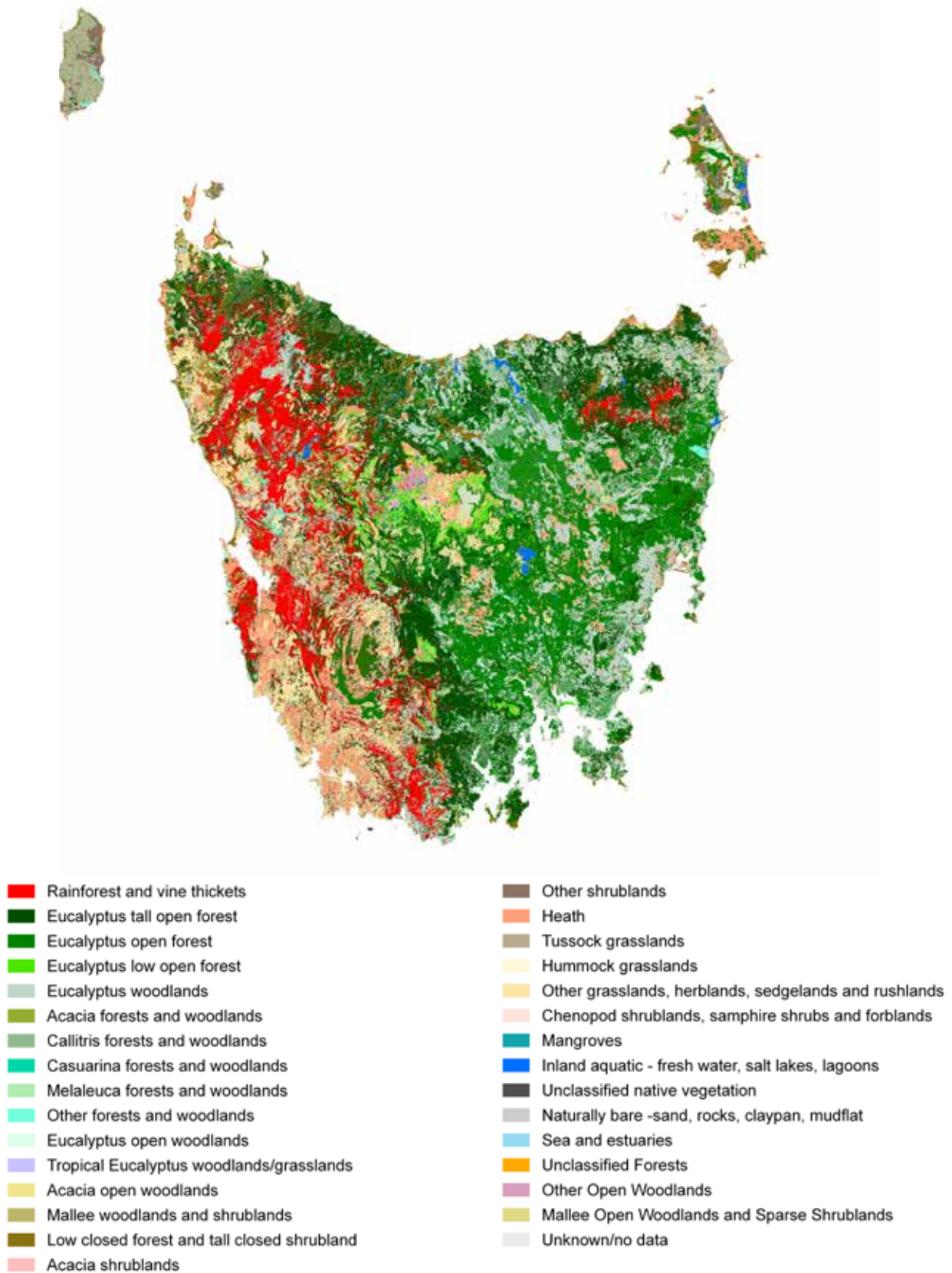
Sharon is talking about a place she is familiar with, she is identifying resources that have probably been available in this place for many, many generations.

She describes the changes to this particular ecosystem and provides some information on why these changes have occurred.

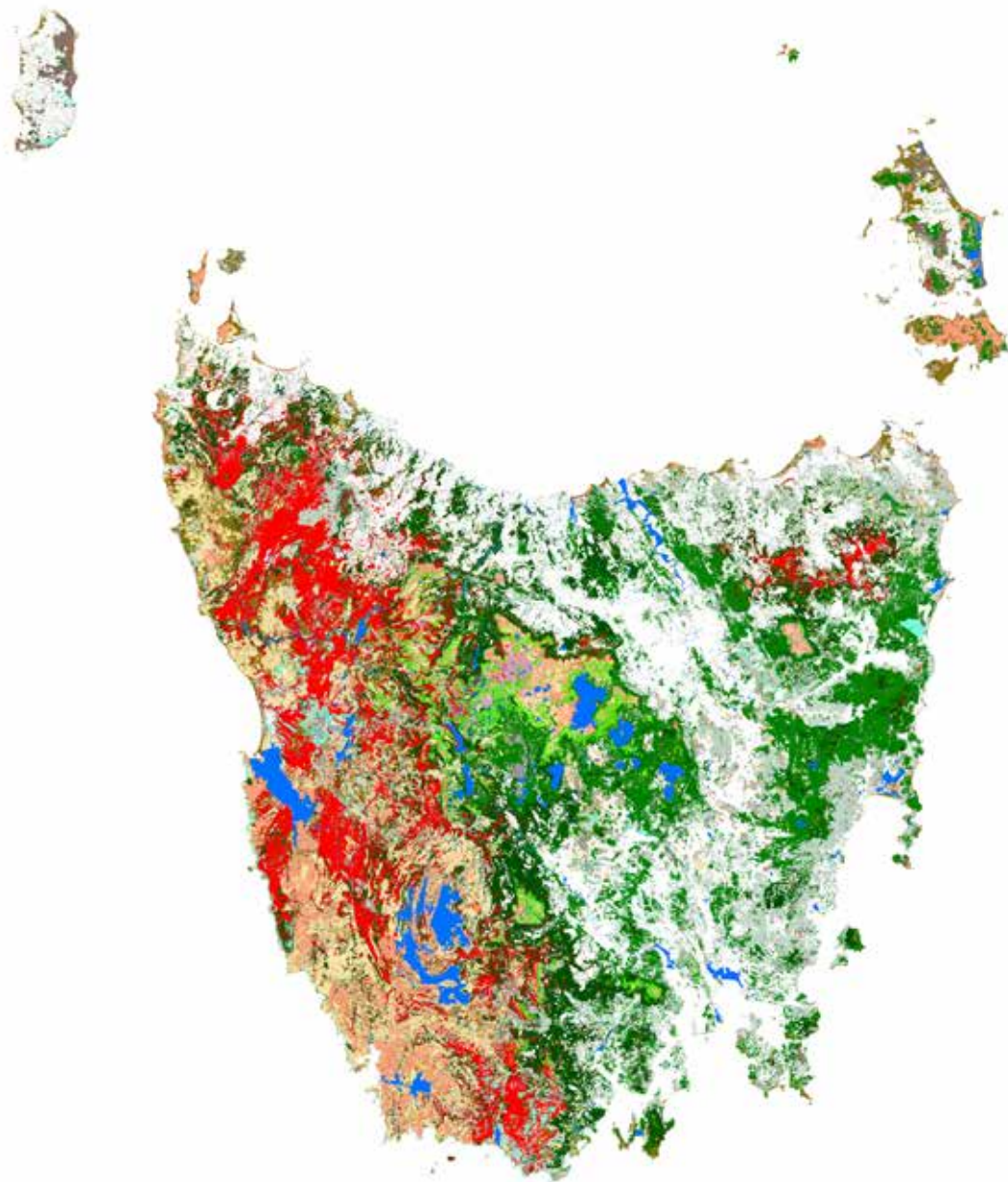
She also discusses the impact that these ecosystem changes have on the descendants of the original inhabitants, the cultural practices in relation to the maintenance of biological diversity, and the current lack of availability of a diversity of native food resources.

Below are two maps showing Tasmania's vegetation communities. The first map depicts the vegetation communities as they would have been in 1750, before colonisation, and the second is a similar map depicting the vegetation communities today.

There are some differences in the data and the way it is represented – such as the colours used. There is one significant change to the categories of vegetation communities over this time.



Major vegetation communities, Tasmania, about 1750. | DPIPWE, 2018



- | | |
|----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| ■ Rainforest and vine thickets | ■ Heath |
| ■ Eucalyptus tall open forest | ■ Tussock grasslands |
| ■ Eucalyptus open forest | ■ Hummock grasslands |
| ■ Eucalyptus low open forest | ■ Other grasslands, herblands, sedgeland and rushlands |
| ■ Eucalyptus woodlands | ■ Chenopod shrublands, samphire shrubs and forblands |
| ■ Acacia forests and woodlands | ■ Mangroves |
| ■ Callitris forests and woodlands | ■ Inland aquatic - fresh water, salt lakes, lagoons |
| ■ Casuarina forests and woodlands | ■ Cleared, non-native vegetation, buildings |
| ■ Melaleuca forests and woodlands | ■ Unclassified native vegetation |
| ■ Other forests and woodlands | ■ Naturally bare -sand, rocks, claypan, mudflat |
| ■ Eucalyptus open woodlands | ■ Sea and estuaries |
| ■ Tropical Eucalyptus woodlands/grasslands | ■ Regrowth, modified native vegetation |
| ■ Acacia open woodlands | ■ Unclassified Forests |
| ■ Mallee woodlands and shrublands | ■ Other Open Woodlands |
| ■ Low closed forest and tall closed shrubland | ■ Mallee Open Woodlands and Sparse Shrublands |
| ■ Acacia shrublands | ■ Unknown/no data |
| ■ Other shrublands | |

Major vegetation communities, Tasmania, 2018 | DPIWPE, 2018

DISCUSSION QUESTIONS

- › What have been some of the most significant changes to the vegetation communities since colonisation?
- › How might post-colonial cultural practices have impacted on vegetation? What are the predominant cultural practices that impact on the Tasmanian environment today?
- › What impacts do these practices have on Tasmania's biodiversity?
- › In what ways are culture and environment interconnected?

www.theorb.tas.gov.au/living-cultures/foods/teacher-drawer

REFERENCES

Breen S (2017 unpublished) The First Tasmanians

Bill Gammage (2008) Plain facts: Tasmania under aboriginal management, *Landscape Research*, 33:2, 241-254, DOI: 10.1080/01426390701767278

Department of Sustainability, Environment, Water, Population and Communities, Australia's bioregions (IBRA), Retrieved from <https://dPIPWE.tas.gov.au/conservation/flora-of-tasmania/tasmanias-wetlands>

DPIPWE (2013) Natural Heritage Strategy for Tasmania (2013 – 2030): Securing our Natural Advantage.

Department of Primary Industries, Parks, Water and Environment. Hobart, Tasmania.

Retrieved from <https://dPIPWE.tas.gov.au/Documents/NaturalHeritageStrategy2013.pdf>

Land Information Systems Tasmania, Vegetation Communities map, Retrieved from

https://maps.thelist.tas.gov.au/listmap/app/list/map?cpoint=147.4,-42.8,1000&srs=EPSG:4283&bmlayer=3&layers=420,959&layout-options=LAYER_LIST_OPEN

Maffi, Luisa (2012). *Biocultural Diversity Conservation*. UK: Earthscan, Retrieved from

http://terralingua.org/wp-content/uploads/2015/07/tk_1_Primer.pdf

Parks and Wildlife Tasmania, Buttongrass Moorland - A unique habitat, Retrieved from

<https://www.parks.tas.gov.au/?base=3224>

Plomley NJB, 2008, *Friendly Mission The Tasmanian Journals and Papers of George Augustus Robinson 1829 - 1834*, Queen Victoria Museum and Art Gallery and Quintus Publishing



State of Tasmania (Department of Education)
Published: October 2018

