

**Wadawurrung Ethnobotany as synthesised from the
research of Louis Lane.**

by

Jennifer Dearnaley
MLArch, BBusMktg

Submitted in fulfilment of the requirements for the degree of
Doctor of Philosophy

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Jan, 2019



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Abstract

Wadawurrung ethnobotany investigates how plants were used by the Indigenous People of Wadawurrung Country, which is situated on the western edge of Port Phillip Bay in Australia.

Wadawurrung Country is part of the Eastern Kulin Nation and includes landscapes of significant ecological diversity. The Victorian Volcanic Plains sit within much of Wadawurrung Country and is scientifically classified as a biodiverse hotspot, giving this region heightened ethnobotanical interest. Up until the early 19th century Australian Aboriginals managed their lands applying sophisticated hunting and gathering techniques at the time when very few Indigenous Peoples across the planet were still practicing these traditional ways. Prior to European contact, they lived continuously and undisturbed for thousands of generations enduring climate and geological changes and by being dependant on the environment but without the destructive impacts that post-contact has entailed.

Plants were and are a fundamental part of everyday life to the Wadawurrung People. Given ethnobotany is a key component of any ethnographic study; it provides a valuable opportunity for modern society to learn about the Wadawurrung People and their way of life.

Due to the rapid pace of colonisation and the disruption to traditional lifestyles there is very little documented information about the Wadawurrung People or culture. This knowledge gap is widening as the older generations are passing away without transposing this knowledge into modern society. However, recently the output of 36 years of intensive research by trained archaeologist Louis Lane was discovered. Lane's research investigates Wadawurrung culture, but buried within this research are specific references to plants and their use prior to European contact. Therefore, this thesis seeks to discover the ethnobotanical knowledge that can be identified for Wadawurrung Country from the research of Louis Lane.

Synthesising Lane's work was the primary method to extract the relevant data involving quantitative and comparative analyses having regard to other ethnobotanist including Dr Beth Gott to identify if there were any unique plants or uses found in Lane's data. As a result of the research undertaken throughout this thesis there is now an ethnobotanical foundation for Wadawurrung Country with 230 plant species identified, delivering 872 different uses. Of these uses, 764 (88%) are unique to Lane's data set and 155 (67%) plant species are also unique as compared to that of Gott's.

The outcome of this thesis closes a gap in knowledge as prior to this there was no single publication that addressed the Wadawurrung's comprehensive relationship with plants. The benefits also deliver the conservation of Wadawurrung People's Traditional Ecological Knowledge and provide an insight into their continuing relationship with the environment. This research also strengthens awareness of the Wadawurrung People's culture, lifestyle and their Country that may enable greater understanding and reverence for the first nation of this region.

Acknowledgements

I acknowledge the Traditional Owners of Wadawurrung Country and honour and pay respect to their Elders past, present and future. This document supports the Wadawurrung philosophy of caring for Country and conserving the Traditional Ecological Knowledge of the Traditional Owners.

As this document provides an overview of various plants and their uses mostly prior to colonisation (pre 1835), the grammatical 'past tense' has been selected as the hunting and gathering lifestyle and use of these plants is not common place in modern society. The selection of 'past tense' phraseology is not a reflection of the People, as they are present and living in Wadawurrung Country today.

I am grateful for the support and guidance of my supervisor Professor David S. Jones who recognised my ability to self-manage and empowered me to manage my own project schedule. When the occasion arose, David was on hand to run interference and clear the path for me. Thank you also for applying your eloquent academic prose when editing my work.

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Thank you to Greg Stebbings who had the foresight to recognise the value of Louis Lane's words and record an interview with her in 2002 and subsequently provided me with a copy in 2018. The power of hearing her spoken words after surrounding myself in her written words for so many years enabled the words to leap off the page into my head.

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I am also grateful for the support of John Boetje, the only child of Louis Lane and for the provision of files and images from his mother's computer hard drive. I first spoke to John unwittingly 2 weeks after his mother's passing, at a time when one can be vulnerable with grief. John was always happy to talk and share what

information he could about his mother's life. He has put trust in me to write about a part of his mother's life, and I hope that I have delivered to his satisfaction.

I pay my respects to the late Tandop (Uncle) David Tournier whose passion for preserving and teaching this knowledge to the next generations was his ambition. Uncle David's time was precious and his encouragement invaluable.

Thanks to my beloved family Jamie and Oliver for being on this journey with me. Thanks to my Mum - Thora, and sister – Helen who set the bar high with their work ethic. Thanks to all of my friends and family who have supported and encouraged me on this journey.

Dedications

This thesis is dedicated to the late Louis Lane, for which this knowledge would be lost. This thesis is in honour of Lane who tirelessly and selflessly went in search of the truth.

Supervisors

Primary Supervisor: Prof. David Jones
Foundation Professor - Planning & Landscape Architecture
Programs
School of Architecture & Built Environment
Deakin University - Geelong Waterfront Campus
1 Gheringhap Street, Geelong Vic 3220, Australia
Locked Bag 20001, Geelong Vic 3220, Australia
P 03 5227 8763, F 03 5227 8341, M 0414 668 567
E david.jones@deakin.edu.au

Associate Supervisor: Dr Beau Beza
School of Architecture & Built Environment
Deakin University - Geelong Waterfront Campus
1 Gheringhap Street, Geelong Vic 3220, Australia

Associate Researcher: Gareth Powell
Director - Wadawurrung (Wathaurung Aboriginal
Corporation)
99 Mair Street East, Ballarat VIC 3350, Australia

‘The journey of discovery lies not in seeking new landscapes
but in seeing with new eyes.’

Marcel Proust

1923

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Abbreviations and Glossary

A.A.R.O.	Archaeological and Aboriginal Relics Office
A.C.E.A.S.	The Australia Centre for Ecological Analysis and Synthesis
A.D.P.M.L.	Alfred Deakin Prime Ministerial Library
A.I.A.T.S.I.S.	The Australian Institute of Aboriginal and Torres Strait Islander Studies
C.B.D.	Convention on Biological Diversity
C.E.E.B.	Collections for Ethno and Economic Botany
G.A.S.	Geelong Archaeological Society
G.H.C.	Geelong Heritage Centre
I.B.K.	Indigenous Biocultural Knowledge
I.S.E.	International Society of Ethnobiology
R.A.P.	Registered Aboriginal Parties
R.B.G.	Royal Botanic Gardens
S.E.B.	The Society for Economic Botany
T.E.K.	Traditional Ecological Knowledge
T.I.E.C.	Tropical Indigenous Ethnobotany Centre
T.K.	Traditional Knowledge
U.N.	United Nations
U.N.E.P.	United Nations Environment Programme
U.N.E.S.C.O.	United Nations Educational, Scientific and Cultural Organisation
U.N.U.	United Nations University
V.A.S.	Victoria Archaeology Survey
W.A.C.	Wathaurung Aboriginal Corporation
Baaring	Migration trails
Baier	Corroboree
Binnuk	A rigid basket
Jark or	Hafting mastic
<i>Karrong or</i>	
<i>Leel</i>	
Kanan	Yam stick or digging stick
Koojeroong	Ceremonial club
Korrong	A type of canoe
Language Group	Formerly known as a tribe. A group of Indigenous People united by the language they have in common. Often made up of various clans who were family groups recognised as Traditional Owners of a territory through descent ¹
Leonile	Combat club
Lil:lil	Wooden 'axe'
Living Station	Area where Indigenous People lived – often a village made up of homes of various clan members
Malka or	Broad shield
<i>Mulka</i>	
Maruda	A common possession arena
Tarnuk	A large vat for storing liquids
Timboon	A mussel shell spoon
Wangat	A hearth shovel made of bark
Wanguim or	Boomerang
<i>Wonguim</i>	
Wurra:wurra	A straight missile stick
Wurn	A settlement of homes or shelter-huts
Yudarn	A bark parcel (used in parcel cookery)
tookoo	

1 Chapter 1: Introduction

1.1 Introductory background

Wadawurrung People are a recognised Indigenous Language Group of the Eastern Kulin Nation, whose Country sits on the western edge of Port Phillip Bay in Victoria. Ethnobotany is the study of people and their use of plants. This thesis investigates how plants were used by the Indigenous People of Wadawurrung Country, having regard to their culture, the field of ethnobotany, and appraises and synthesises the unpublished research of a trained archaeologist by the name of Louis Lane who studied the Wadawurrung culture for 36 years.

1.1.1 Introduction to ethnobotany

Plants have been a fundamental part of human existence since the beginning of civilisation. People have used plants as food, medicine and tools in their everyday lives. The earliest records of documented ethnobotany dates back to 4000 B.C. where plants were recorded in use for worship, medicine, food, fuel and agricultural implements as mentioned in ancient Indian literature and in the religious books of the Hindus.

The longest read non-religious book throughout history was called *De Materia Medica*. This text was first published in A.D. 77 by Greek surgeon Pedanius Dioscorides and was still in use in the 19th century. It contains a catalogue of 600 plants and their uses in medicine.

During the 18th and 19th centuries, naturalists, botanists and plant collectors, including Charles Darwin, Joseph Banks and Ferdinand von Mueller, were focussed on finding exotic plants from remote countries, and were particularly interested in those plants that had been used by Indigenous People for their economic botany properties and possible ‘modern day’ agricultural applications.

Ethnobotany is an essential component of any ethnographic study and contributes to the pool of scientific evidence that endeavours to answer questions about human species evolutionary past and how the society(ies) we live in, came to be. This reflection may help provide insights into how Indigenous People successfully and continuously occupied the Australian continent for thousands of generations through their adaptation and relationship to the environment applying their own version of land management ‘science’.

Additionally, ethnobotanical research may identify new properties or use of plants compared to those previously recognised, or those currently cultivated, or engaged in use today. This could provide new opportunities or meanings to these indigenous plants to prevent their destruction or loss as a consequence of activities including rapid urbanisation and climate change.

Although the world of ethnobotany is well established internationally, there are only a handful of long standing accomplished academic ethnobotanists in Australia. As an academic discipline, ethnobotany is in its infancy in Australia.

Popular interest in the topic of ethnobotany is cyclical in nature, whilst academic ethnobotany has slowly but progressively evolved due to the pioneering research of several authors, including Clarke and Latz on Central and Northern Australian Indigenous Peoples and their Country's, and Gott upon Victorian Indigenous Peoples and their Country's. These researchers have championed the field of Australian ethnobotany advancing the deep understanding and relationship Australian Indigenous Peoples have with plants and their respective Countries. These authors, and their research, are explored in detail in this thesis following an account of the mainstream drivers.

1.1.2 Introduction to Wadawurrung People and Country

The Wadawurrung People are a recognised Language Group which consisted of some 16 clans (or family groups) that forms part of the Kulin Nation of Aboriginal People.

The Wadawurrung believe that the Dreamtime Deities were responsible for creating and naming all the geographical features of their lands, waters and skies. As such these places are religiously significant to the Wadawurrung People. As a much disciplined society who obeyed the laws set down by the Deities, they would reciprocate praise for them during their ceremonies. They believed that ample praise and abidance to the laws would be rewarded with ample food stuffs and the promise of the continuation of their lifestyle. Wadawurrung People's spiritual connectivity with their lands and waters resulted in comprehensive and intricate understandings of ecological relationships. This enabled them to define laws of conservation ensuring that their natural resources did not become depleted and were able to regenerate after any harvest.

The Wadawurrung People were and are considered by many other Kulin and Mara Nation Peoples as a powerful Language Group occupying a Country with significant ecological diversity and various natural resources prized for trading amongst neighbouring groups and amongst themselves. As such this region is of significant ethnobotanical interest.

However, due to the rapid pace of European colonisation and landscape transformation, little interest was shown in appreciating how plants were used for Aboriginal survival. The data that was recorded of Victorian indigenous plants satisfied an agenda for agriculture and horticulture cultivation and Western economic return.

Therefore little recorded information, specifically relating to Wadawurrung culture, is available in the public domain. Recently however, the output of 36 years of intensive research of trained archaeologist Louis Lane was discovered sitting in the Special Collections fireproof safe of the Alfred Deakin Prime Ministerial Library.

This is a significant finding of Indigenous Knowledge as there is very little information in the published world that addresses the Wadawurrung People and Country and the extensive topics covered by this author.

1.1.3 Introduction to Louis Lane

Lane was born in Geelong in 1919 and went on to qualify as a teacher librarian in 1940, and for the next 30 years worked in several schools in N.S.W. and Victoria. Lane developed exemplary research skills which she carried through into her methodical approach to her archaeological research. These skills gave Lane the ability to effectively access library resources throughout Australia, in a non-digital age.

Lane's hobby as a lapidarian led her to participate in archaeological expeditions around Queensland and N.S.W. during the 1960s. This sparked an interest in Aboriginal culture and archaeology. As a result she commenced her training in archaeology during a residential summer school in 1969 with the University of Sydney where she was trained in the techniques and science of archaeology in the field.

After retiring to her hometown of Geelong in 1970, Lane actively participated in the Geelong Archaeology Society where she was the first European to recognise a significant historic site which is now known as Wurdi Youang stone circle. Lane conducted a two year study of the site and spent years rallying support to have it officially registered as a site of national significance.

During the early 1970s Lane responded to a call from the Victorian Archaeological and Aboriginal Relics Office to be trained as an archaeologist. The Office, re-named as the Victoria Archaeological Survey (V.A.S.) in 1975, had an objective to improve the knowledge of Aboriginal culture by undertaking field surveys across Victoria.

Lane attended the very first V.A.S. summer school, where she gained further experience in the back-breaking work on a controlled 'dig'. She was trained in surveying the countryside and she worked in the laboratory compiling records. Lane completed the full accreditation scheme of the V.A.S. over a period of a few years, at the time when there was no university in Victoria offering courses in archaeology. These education programmes were an important training ground for student archaeologists from all over Australia and they played an important role in the investigation, protection and conservation of Aboriginal sites.

In 1977 Lane was appointed, by the head of the V.A.S., Dr Peter Coutts, as the Aboriginal Relics Inspector for the Parish of Grant (Geelong and District or S.E. Wadawurrung Country), responsible for surveying and recording sites in Geelong and Districts on behalf of the V.A.S. Because of this standing, Lane became the 'go-to' person for information and knowledge regarding Aboriginal culture in this region, and delivered many lectures to various societies, organisations and schools.

Along with discovering the Wurdi Youang stone circle, Lane was the first to recognise, excavate, survey and record: the Kardinia Creek Living Station (now known as Yollinko Park), Jerringot, McLeod's Waterholes in Drysdale, amongst many other sites. Lane also enlisted support from eminent Australian geologist Edmund Gill to record the middens at Point Campbell on Lake Connewarre.

Lane was instrumental in getting Aboriginal sites declared significant, raising funds to have them conserved and restored and classified as parklands, with memorial plaques such as those at the Mount Duneed Aboriginal Land Reserve, McLeods Waterholes and Yollinko Park, amongst others.

In addition to researching and producing 255 files (refer Appendix 10.1), she also compiled an unpublished 500 page 'Dictionary' of 'Aboriginal' terms, amongst other works, with the majority of her work remaining unpublished.

In 2003 Lane suffered a stroke and she relocated to residential care in Queensland to be close to her only child. She passed away in 2015 at the age of 96.

This thesis synthesises the work of Lane and interrogates her extensive unpublished references academically validating the integrity of her research as it specifically pertains to ethnobotany. The ethnobotanical data that is extracted from Lane's files is compared to that of ethnobotanist Dr Beth Gott whose focus was broadly across all Victorian Indigenous communities. The findings from the comparative analysis demonstrate that Wadawurrung Country has many unique species and uses compared to the findings of Gott.

1.2 Research question

Based on the Louis Lane research material the following research question provides the scope for this thesis:

What is the ethnobotanical knowledge that can be identified for Wadawurrung Country from the research of Louis Lane?

1.3 Objectives

The research objective is to identify and synthesise Wadawurrung ethnobotanical knowledge from the research of Louis Lane. This thesis explores how indigenous plants were used by the Wadawurrung People prior to colonisation.

1.4 Purpose and implications of research

The outcome of this thesis closes a gap in knowledge as previously there was no single publication or comprehensive review of data that addresses Wadawurrung relationships with plants. This thesis provides a consolidated reference of the plants and their varied uses as utilised by the Wadawurrung People prior to colonisation, which in part, continue today.

The ethnobotanical knowledge identified as a result of completing this thesis enables the conservation of Wadawurrung People's Traditional Ecological Knowledge (T.E.K.). This knowledge could be further used for future initiatives including the conservation of indigenous vegetation. Additionally, the research offers a deeper insight into the deterioration risks of indigenous vegetation and potential opportunities relating to plant usage thereby enabling further understanding of the importance of indigenous plants to the Wadawurrung. This research creates greater awareness of Wadawurrung People's culture, lifestyle and their domain that may enable greater understanding and reverence for the first nation of this region.

2 Chapter 2: Methodology

2.1 Introduction

This chapter discusses the holistic approach to developing this thesis. Individual chapters such as Chapter 7: Findings, drills down into more specific methodology for the quantitative analysis that was undertaken to interpret, classify and analyse the data.

The objective of this thesis was to identify and appraise the ethnobotanical data within Lane's work that applies to Wadawurrung People and Country. The Research Framework applied involved various methods including the following key activities:

1. Data Collection

Research data from internal and external sources, including published and unpublished data. Gather oral data from sources known to Lane.

2. Review

Review the gathered data to appraise its quantity and scope as well as appropriate digital tools for storing and accessing the data in an ongoing capacity.

3. Summarise

Summarise and categorise the data in a systematic manner, and load the content into the digital tool.

4. Synthesise

Systematically extract all plant species and their uses mentioned within Lane's files and insert into a separate digital tool.

5. Evaluate

Evaluate the plants species and validate whether they grew or grow in Wadawurrung Country. Update nomenclature and remove duplication.

6. Compare

Compare Lane's findings to those of Dr Beth Gott.

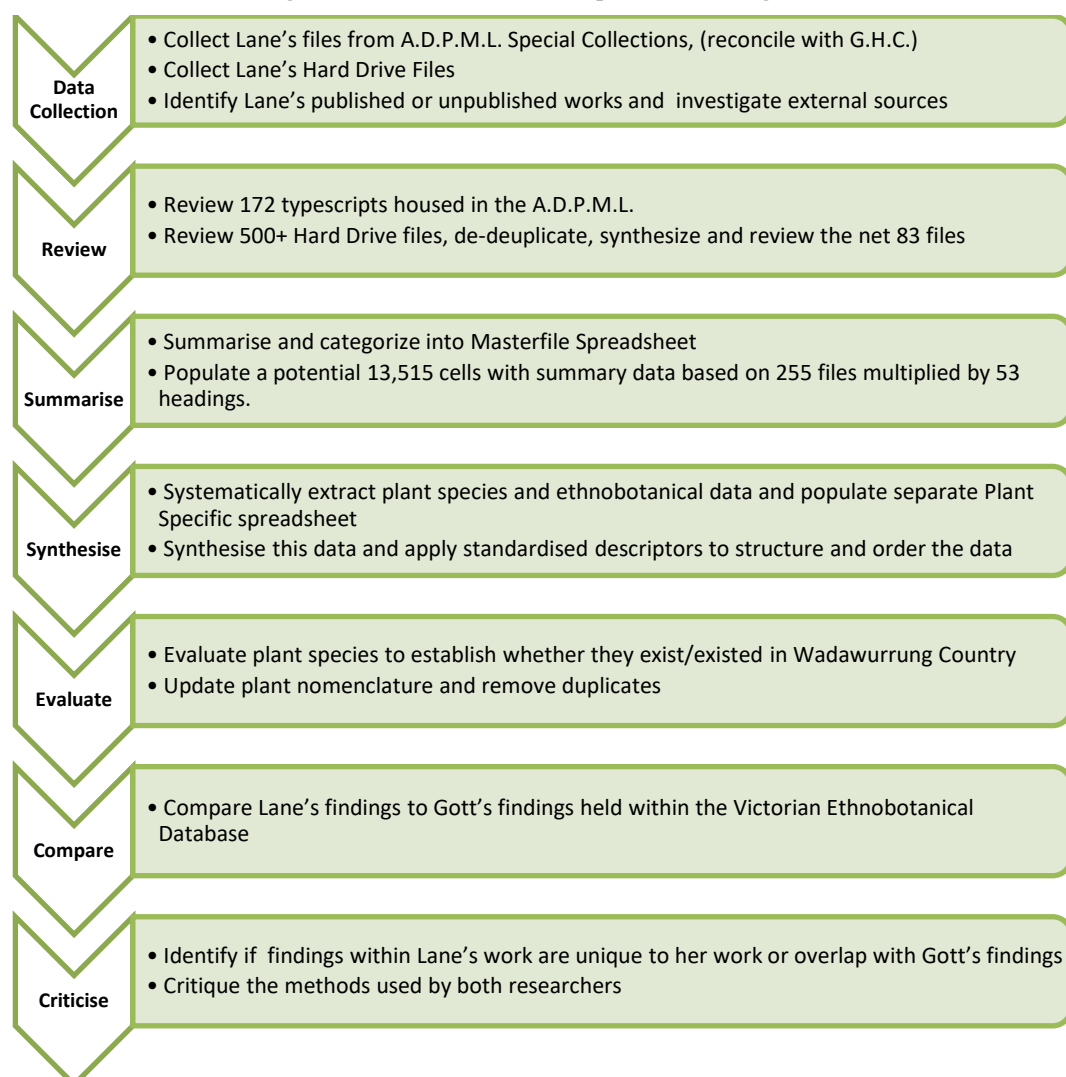
7. Criticise

Identify if the species identified by Lane are unique or overlap with Gott's findings. Critique both researchers' methods.

2.2 Research framework

Figure 2-1 depicts a summary Research Framework process flow diagram that explains the steps taken within the seven key activity areas, with a detailed explanation found in sections 2.2.1 to 2.2.7.

Figure 2-1 Research framework process flow diagram



2.2.1 Data collection method

2.2.1.1 A.D.P.M.L. Special Collections

The author worked with the A.D.P.M.L. Special Collections staff, Kristen Thornton and Maria Shanahan upon completion of a recent digitising project to identify all of Lane's work and gain access to a working copy of each file. The author was aware a second copy of Lane's files was held within the Geelong Heritage Centre (G.H.C.) and a reconciliation was undertaken by the author to ensure the complete set was available. Deakin's set of files contained more files than that of the G.H.C.

2.2.1.2 Lane's hard drive

In early 2016, Lane's son, John Boetje, who is based in Brisbane, Queensland, posted the author a copy of Lane's hard drive on CD containing over 500 files across a directory of many folders. Many files shared the same title (sometimes up to 6 files) but containing a variation in the content. Each file had to be 'compared' in M.S. Word to ensure their uniqueness to prevent any data loss. In some cases Lane had different data in these duplicated titles; therefore a consolidation process was required. Given Lane had last worked on these files in 2002; most of the files were in an outdated version of a word processing application called WordPerfect. These files had to be individually converted to M.S. Word in order to perform the comparison and de-duplication process. Boetje had made a start on this process, but to ensure no valuable data was lost all files underwent this same process. A comparison was also made with the files in the A.D.P.M.L. Special Collections. After synthesising over 500 files and removing exact duplicates and consolidating 'of-like' files, the net result was an additional 83 files.

A visit to the home of Boetje in Brisbane also yielded valuable information on Lane. Boetje supplied 2 suspension files containing Lane's personal details including a birth certificate, marriage and divorce decrees, employment history and references etc. These folders provided vital clues in the missing piece of the jigsaw puzzle such as the certificates for completion of Lane's archaeological training at the V.A.S. Summer Schools.

2.2.1.3 Lane's published and unpublished reports

Lane was heavily involved in the local community not only delivering lectures but publishing in the local journals and newsletters of the Geelong Historical Society (*The Investigator*) (19 files published) and the Geelong Field Naturalists (*Geelong Naturalist*) (10 files published). Lane also contributed reports to the *Records of the Victorian Archaeological Survey* and the Office of Aboriginal Affairs Victoria. The list of Lane's articles can be found in Appendix 10.2.

2.2.1.4 External sources

Data was also supplied from external sources from individuals or organisations, and some who had been involved with Lane on a project or knew her in some capacity. The organisations and individuals who provided information can be seen in Table 2-1.

Table 2-1 Individuals and organisations who provided important details

Trevor Pescott	Former member of Kardinia Pre-History Society and member of the Geelong Field Naturalists.
David Clark	Formerly with Victoria Archaeological Survey (V.A.S.) and Australian Archaeology
Various staff	Geelong Community Nursery
Peter Byrnes	Formerly with Geelong Water Board
Dr Beth Gott	Honorary Research Fellow at the School of Biological Sciences, Monash University
Various staff	Norlane High School Library (now called Northern Bay College)
The Secretary	Geelong Historical Society
Various staff	City of Greater Geelong
Various members	Friends of Geelong Botanic Gardens
Various staff	Geelong Botanic Gardens
Jo Mitchell	Barwon Blogger – Geelong Historian

Mark Trengove	Former Native Plant Nurseryman and plant expert within Wadawurrung territory – Currently Ecological Services consultant
Greg Stebbing	Former Gordon Technical College staff member – provided recording of Lane
Heather Cox	Former Deakin Special Collections librarian

2.2.2 Review

This activity required reviewing the collected data including Lane's 172 typescripts housed in the A.D.P.M.L. Special Collections, 83 files from Lane's hard drive and other documents written by Lane either published or unpublished articles.

After the initial review of Lane's typescripts it became evident that these documents were rich in cultural references which contextualised the use of plants. Although extracting only the plant matter would have been a much simpler and quicker task to complete, the end result would have been a simple list of plants and their uses standing in isolation and out of context to the Wadawurrung People and their Country. The richness of Lane's typescripts provided meaningful insights into Traditional Knowledge and the relationship the Wadawurrung People had with the landscape and how they lived their lives.

It was anticipated that this development would provide a more comprehensive depth to the ethnobotanical findings. Therefore the decision was made at the end of the initial review to capture relevant cultural references alongside the plant matter. This therefore required a mechanism to capture this additional data so that it could be used within this thesis and in the future. In light of the decision to also include this data, a tool was developed by the author to enable the capture this valuable information that could be sorted and filtered and readily accessible.

2.2.3 Summarise

After an additional review of Lane's files and several attempts at summarising Lane's work it was decided that the most effective approach was to categorise every relevant paragraph from each page of her files and transfer it into a spreadsheet under a relevant heading. These key headings had been identified as key themes from the preliminary review of Lane's work and as a result of studying ethnobotanical and ethnographic literature of Australian Aboriginals.

A database was created using a detailed M.S. Excel spreadsheet called 'Masterfile' hosting 53 column headings that contain 40 topics of interest such as 'Vegetation' or 'Seasons/Food Circuit' etc. The benefit of using this tool to house the data is that filters can be applied which enables the instant retrieval of data referenced by Lane in any of the 53 given headings. The benefit of this will enable further engagement in these areas for future research and possible publication.

This structure provided the opportunity of 13,515 cells to be populated with data based on 255 files multiplied by 53 headings. As each of Lane's individual typescripts do not cover all topics, 3,793 cells were populated with over 250,000 words. As the file is of a significant size, it is too large to provide a legible screen shot within this thesis. However, the 53 headings and explanations of these are seen in Table 2-2 Masterfile - headings and explanations.

Because Lane's typescripts were written over the course of 36 years, her knowledge evolved and although there appears to be some duplication it is prudent to maintain all data in the cells to avoid removing any incremental changes in knowledge. This approach of categorising relevant paragraphs and consolidating them under headings deals with the fact that Lane's papers evolved and introduces new findings from her research that may not be directly related to the typescript title.

The painstaking process of synthesising paragraphs of Lane's work into a spreadsheet took many months, but it is a valuable tool to enable the consolidation and retrieval of like information that enables a more fluid representation of the evidence and/or topics from Lane's writing across any of the given 40 topics.

Table 2-2 Masterfile - headings and explanations

Heading	Explanation
Title	Name of typescript given by Lane
A.D.P.M.L. Digital Title.pdf	Library reference name
Year written	Year the file was written
Dewey	Deakin library classification number
Pages	Number of pages in each typescript
Summary	Summary of key topics covered
Comments	Interesting points Lane makes
Action	Follow up action if required
Level of importance	The quantity of plant specific references within the typescript: 0 =nil, 1-5 = low, 6-10 = medium, 11-20 = high; 20+ very high
References/bibliography	Lane's list of references for each typescript
Animals	Lane's references to animals in each typescript
Vegetation (Flora)	Lane's reference to vegetation or landscape as a whole
General plant use	Lane's reference to plants in general - where a specific species is not nominated
Other resources?	Other natural resources often used in trade or was abundant or an important economic commodity for the Wadawurrung People
Hunting and gathering process	The processes and roles described in foraging and hunting
Food	Lane's references to food types eaten by the Wadawurrung People
Water (bodies)	Lane's references to water bodies in Wadawurrung Country including wells, lakes, rivers, bay or ocean
Dreamtime/myths/legends/stories	Stories that gave the Wadawurrung People guidance and understanding
Philosophy	Approaches to Wadawurrung lifestyle and culture
People	Specific people who Lane references be they Wadawurrung or European
Professions/roles	The roles that individual Wadawurrung People held in the operations of their daily lives
Clans	Wadawurrung clans
Language	Lane's references to Wadawurrung language
Medicine	Lane's references to medicine (although mostly captured on separate plant specific sheet)

Weapons/tools/utensils/ implements	Lane's references to weapons (although mostly captured on separate plant specific sheet)
Conservation law/ sustainability practices	Laws that guided the Wadawurrung People's sustainable practices
Protocols/lore/customs	Wadawurrung protocols
Fire	Lane's references to the Wadawurrung People's use of fire
Trade	Wadawurrung trading practices and items
Corroboree - ceremony	Wadawurrung baier (or byerr) ceremonial approaches
Seasons/food circuit/ movement	Lane's references to the Wadawurrung People's movement on the food circuit or references to seasons
Weather	References to weather
Astronomical	References to astronomical features
Geography	References to geography of Wadawurrung Country and surrounds
Geology / stone (circle)	References to geology of Wadawurrung Country and surrounds
Buckley	References to William Buckley
Eastern Park	References to Eastern Park
Massacre	References to massacre by the Europeans
Images	Any images that were used in the typescripts were noted
Maps	Any maps that were used in the typescripts were noted
Articles	Any articles that were used in the typescripts were noted
Place names	Any places names that were mentioned in the typescripts were noted
Archaeological/important sites	References to archaeological/important sites were noted
Artefacts	References to artefacts collected were noted
Living stations/camping sites/ reserves	References to places where the Wadawurrung lived either permanently or temporary were noted
Organisations	References to any organisations or societies were noted e.g. historical, archaeological etc
Barwon River	References to the Barwon River were noted
Other Regions/Language Groups	References to other Language Groups were noted
Used as lecture notes?	Yes/No whether the typescripts were used as lecture notes and who the audience were and the date of the lecture
Louis Lane biography	Any references to Lane's life were noted
Other e.g. choosing a site, demise or arrival, infanticide	Any other topics of importance such as the criteria when choosing a site for a living station; arrival of the Indigenes to Australia; demise of the Indigenes after colonisation
Published?	Yes/No as to whether the file was published was noted
Future research topic?	If the typescript contained any topics for future research purposes

2.2.4 Synthesise

In parallel with this Masterfile that summarised a large part of Lane's writing on various topics, the plant specific detail was also synthesised into a separate spreadsheet. Where Lane cited a species of plant and its uses this was extracted and incorporated into its own spreadsheet called 'Plant Specific', which has formed the bases of Appendix 10.20.

Lane cited 1,390 plant species and their uses within her 255 typescripts. The raw data that was extracted underwent a data cleansing process – duplicates were removed and the nomenclature for some species required updating; species underwent validation steps which are outlined in detail in Chapter 7: Findings.

The data that was extracted required to be assigned a descriptor based on the evidence supplied by Lane which provided the ability to perform quantitative analysis. The descriptors are a category of either the plant 'part' or its 'use' and was based on Royal Botanic Gardens (R.B.G.) Kew – Economic Botany Data Collection Standard. This was the result of the author's investigations into the search for an international ethnobotany database standard. The author travelled to Madison Wisconsin, U.S.A. in June 2018² to participate in the Joint Conference of the Society of Economic Botany and Society of Ethnobiology with a view to network with fellow ethnobotanists and establish if such a tool exists. After speaking with several conference participants it was established that this international standard did not exist, however there were two potential options available.

The first option was with the Missouri Botanical Gardens Collections for Ethno and Economic Botany (C.E.E.B.); however this tool was a bespoke database that was being developed in-house.³

In contrast the second option was the R.B.G. Kew – Economic Botany Data Collection Standard, which was developed using an 'off the shelf' database tool that had been modified for their needs. The Curator of the R.B.G. Kew Economic Botany Collection, Dr Mark Nesbitt, was kind enough to point the author in the direction of their Standard that details the descriptors that are used. Fortunately, many of these descriptors were similar to the descriptors already applied in the Plant Specific file by the author, but with the addition of a hierarchical structure using levels that provided a sound approach moving forward.

The Joint Conference of the Society of Economic Botany and Society of Ethnobiology was instrumental in confirming the method in structuring Lane's plant specific data. Additionally the conference enabled the author to present progress on this thesis; network with fellow ethnobotanists; understand the structure of the society's remit and their journals and explore the 10th century village of Aztalan - the site of an ancient Mississippian culture.

2.2.5 Evaluate

The plant species were evaluated to establish whether they exist/existed in Wadawurrung Country using various tools which are listed in Chapter 7: Findings.

2.2.6 Compare

The plant findings and their respective uses were compared to the uses by other Aboriginal Language Groups, with a focus on Dr Beth Gott's database of Victorian Aboriginal plant use, to establish similarities or unique differences of plant use. This database was purchased for Deakin University from The Australian Institute of Aboriginal and Torres Strait Islander Studies (A.I.A.T.S.I.S.) which is an independent Australian Government statutory authority.

2.2.7 Criticise

Identify if these plants or their uses are unique to Lane's research – details of the outcome can be found in Chapter 7: Findings.

2.3 Limitations

Lane's methods include interrogating the research and or writings of various historic writers and ethnographers including Smyth, Dawson, Howitt, Bonwick and Beverage to more contemporary 20th century authors such as Tindale, Barwick, Clark, Clarke, Berndt, Brown, Coutts, Massola and Mulvaney. The full list of Lane's 394 written references can be found in Appendix 10.3. As Lane commenced her typescripts in the mid-1960s and wrote her last typescript in 2002, this thesis recognises that anthropological theory may have evolved since these typescripts were created. However it is anticipated that establishing this baseline is a starting point for a spring board for further research.

Similarly, Lane's knowledge evolved over the 36 years of writing her typescripts hence the importance of documenting this evolution per topic so the progression in knowledge is transparent.

Lane's objective was not to write a thesis at the start of her research, so her methods do not follow an academic approach. It is purely the path of an investigator where one insight triggers a response to investigate another area of interest. Some may call this 'unplanned' journey 'ad hoc', but the approach was driven by an interest in particular topics, enquiries from community members, and requests for information or request to deliver lectures.

The tools selected to house the data, such as M.S. Excel has limitations as it is not a word processing tool so functionality that you would find in M.S. Word is not always present. For example there is limited character capacity in each cell, which at times was insufficient for the data extracted from Lane's files. Where data exceeded the available characters it was documented in the adjacent cell with a note to reference the data back to the original cell.

2.4 Deakin University Protocols

2.4.1 Ph.D. Xtra

This candidature commenced 5th January 2016, prior to October 2016 which was the introduction of Deakin University's Ph.D. Xtra track so is therefore exempt.

2.4.2 Ethics approval

This research project has been subject to an approved human ethics application by the Deakin University Human Research Ethics Committee (D.U.H.R.E.C.) dated 14 June 2014 and coded 2014-107: Louis N Lane and ethnobotany of the Wathaurong, with an approved extension of time until 17 June 2019. See documentation in Appendix 10.4.

2.4.3 IP ownership

Upon Lane's passing, her only child and beneficiary Johannes (John) Boetje is now the holder of Lane's copyright. John Boetje has authorised the full use of Lane's work for this Ph.D. Thesis as seen in Appendix 10.5.

2.4.4 Data location and storage

Lane's typescripts found within the A.D.P.M.L. Special Collections were originally in hardcopy format only. A digitising project took place during 2015

which enabled these documents to be converted to digital files providing long term security and protection. Access to these is limited and must be obtained through the A.D.P.M.L. Special Collections office.

The additional files from Lane's Hard Drive sent to the author on CD from Boetje along with two suspension folders collected by the author from Boetje in Brisbane, containing personal documents of Lane will be donated to the A.D.P.M.L. Special Collections office upon acceptance of this thesis.

2.4.5 Research Integrity training

The candidate has passed Deakin University's Research Integrity protocol as of 18 January 2017. The authentication number is 212528115v3. Certificate of Completion of Research Integrity training is attached in Appendix 10.6.

3 Chapter 3: Wadawurrung People and Country

3.1 Background

It is not known exactly how long the Indigenous People lived on the Australian continent prior to European contact. However, what has been established is they have lived continuously and undisturbed ‘for at least 2,700 generations’.⁴ Additionally, up until the early 19th century Aboriginals managed their lands applying sophisticated hunting and gathering techniques and practices. At this time, very few Indigenous Peoples across the planet were still practicing these traditional ways. ‘By A.D. 1,500 only 1% lived in this way, and by 1960 a mere 0.001% did so.’⁵

The ancestors of Australia’s Indigenous Peoples arrived on this continent ‘long before food plants were cultivated and/or food animals were domesticated elsewhere, so they cannot be said to typify either Early Man or other modern Hunter-Gatherers. They must be regarded as having an entirely different and specialized culture of their own.’⁶

This isolation sparked global interest in the culture of the Australian Indigenous People as ‘anthropologists were able to study people living in the Pre-metallic Age at first hand instead of piecing together a story from old stones and old bones and pictures painted on stone walls.’⁷

All ethnographic records about Australia’s Indigenous cultures were written after European contact. The majority were based upon observations of their disrupted lives post-contact and some were written making assumptions of how they lived their lives within a pristine environment prior to contact.

Uniquely, Buckley’s ethno-historic account, whilst living amongst the Wadawurrung for 32 years prior to European settlement, offers a different insight. Documented by Morgan, in 1852, some 17 years after the arrival of Batman in 1835, Buckley’s recollections provide us an opportunity to decipher the language of the Wadawurrung and provide a window into their undisrupted lifestyle. However, Rev. George Langhorne, of the South Yarra Mission Station, also had a unique opportunity to acquire knowledge of the Wadawurrung lifestyle and language from Buckley some 13 years earlier than Morgan.⁸ The latter offers insights that may have been lost by the passage of time when Morgan penned Buckley’s recollections.

Very few historians or anthropologists have dedicated their focus of research to one particular Language Group. Lane spent 36 years studying Indigenous culture, with a primary focus upon the Wadawurrung People. Although her vast research remains mostly unpublished, it provides a valuable opportunity for modern society to learn about the Wadawurrung People and their way of life.

3.2 Origins of Wadawurrung People

There are various theories regarding the journey the Australian Indigenous People underwent to arrive in Australia. Birdsell championed the Trihybrid theory in *Preliminary data on the trihybrid origin of the Australian Aborigines*⁹ which had

foundations in his Ph.D. thesis (1941)¹⁰ that was explored by Tindale and Lane during the mid 20th century. During their research period DNA technology had not been established, which has now revealed that the Australian Indigenous People's ancestry is more complex than once thought. Birdsell's trihybrid theory that was explored by Tindale and Lane is explained below.

Australia's Indigenous People arrived in Australia over 3 successive waves of migration from Asia to 'Terra Australis'. It was believed that prior to their arrival no homo sapiens populated the southern hemisphere, 'except in Africa, which was the cradle of Mankind'.¹¹ Lane paraphrases Tindale who said that 'true wanderings of the Australian indigenes may have been quite free and unimpeded in the late Pleistocene Era, 40,000 years B.P., on their arrival in a virgin country where there were no other human beings with whom to compete'.¹²

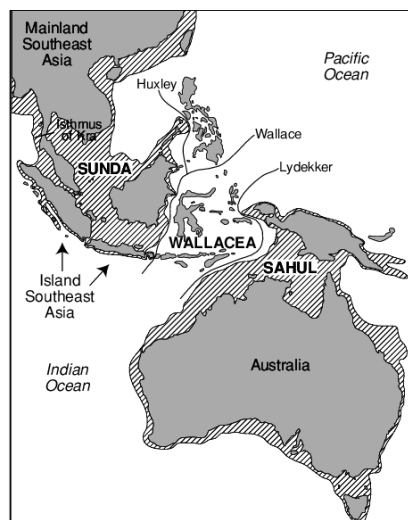
3.2.1 The first wave of migration

The first wave of migration involved the Negrito People from South East Asia who were displaced from their homelands by the Mongoloid People. The Negritos were 'seldom more than five feet [1.5m] in height, with hair growing in tight curls'.¹³ The Mongoloid People, largely Asiatic nomads, followed animal herds from which they obtained their staple food and who possessed more advanced weapons. The invaders were forced to migrate southward by the encroaching ice age, driving the Negritos from their homelands, who retreated and fled south.¹⁴

*During an ice-age, an overburden of frozen water builds up at both poles. The oceans become shallower: more land is exposed. Each island or continent becomes larger and the water between each land-mass becomes narrower.*¹⁵

This ice age phenomenon happened over thousands of years, creating land bridges connecting islands and continents, as seen in Image 3-1, allowing the exploration of lands that have not been exposed to humans before.

Image 3-1 Map of Sunda and Sahul shelves



Source: Harrison¹⁶

This diagram shows the enlarged land connections between Asia (Sunda) and Australia (Sahul) shelves and Wallacea which was brought about during the last Ice Age. About 250 feet [76.2m] of water was removed from the ocean and piled up as ice caps on the colder parts of the continents.¹⁷

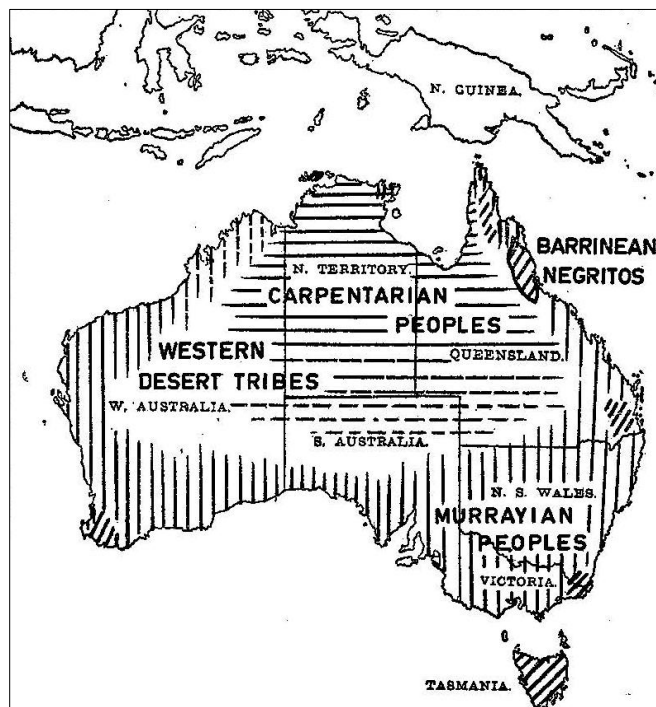
During an interstadial period, when sea-levels were as much as 150m lower than they are today, the first wave of migrants, the Negrito People, crossed Wallace's Line between Borneo and the Celebes Sea islands migrating from Sunda Land to reach the Sahul Shelf. At this time Australia and New Guinea were a single land mass.

*The sea level was lowest about eighteen thousand years ago. The Yarra River flowed across the plains which are now Port Phillip Bay and Bass Strait. Part of the Sahul Shelf joined Tasmania to the Australian mainland. The Tasmanian Negritos, migrating via New Guinea and the East Coast of Australia, reached Tasmania before rising waters separated their home from Victoria.*¹⁸

Over many centuries, the new comers spread down the east coast of Sahul Land as far as the Tasmanian Peninsula. They multiplied and prospered in their new environment.

Many of the Negrito People were displaced by the second wave of migration. However there are several enclaves along the east coast of Australia where the people are identical with the Negritos of Tasmania. It is believed that their relicts include the Barrinean People in Queensland, as seen in Image 3-2, and the Katubanut People in Victoria (the Otway Ranges neighbours of the Wadawurrung - this region is now known as Gadubanud Country). 'There is archaeological evidence that they reached the Tartangan People in South Australia as well as areas in the extreme S.W. corner of Western Australia.'¹⁹

Image 3-2 Map showing the distribution of the various Peoples of Australia



Source: Tindale & Lindsay²⁰

This diagram shows the distribution of the various Peoples of Australia as they were at about the time of first contact with the Western World.

3.2.2 The second wave of migration

When the ice masses extended again, enlarging land-surfaces, the second wave of migrants from S.E. Asia arrived. 'Their nearest living relations today are the white skinned Ainu, who are the aborigines of Japan. These Murrayians are not a truly dark skinned people, but an early form of modern white man; their skin colour is quite pale when not exposed to the sun.'²¹ Tindale believes the second wave of Australian Aborigines were Caucasoids, 'a remote off shoot of early human stock from which our own ancestors came.'²²

The Murrayians followed the same route as their predecessors, down the Malaysian Peninsula into Sunda Land, across Wallace's Line onto Sahul Land, down the east coast, before reaching and populating the great Murray/Darling Basin. They are called the Murrayians as many settled along the Murray River and its tributaries. The Murrayians displaced many of the Negrito communities as the Murrayians were bigger and more powerful. As a result they occupied the southern half of the continent of Australia, as seen in Image 3-2.

3.2.3 The third wave of migration

The third wave of new Australians either made land-fall on Sahul Land in a different location, or came during later glaciations possibly during the Pleistocene Ice-Ages.²³ They were Caucasoids, just as the second wave was, however their surviving relations are 'the Veddass of Ceylon and some of the forest tribes of India, Malaya and Sumatra.'²⁴ They had chocolate brown skin, wavy brown hair and brown eyes. They were like the Murrayians, except for being much taller. 'Their legs are long and thin, making them admirably adapted for walking great distances without tiring'.²⁵ The last wave of People were called the Carpentarian People, they occupied the northern half of the Australian Continent,²⁶ as seen in Image 3-2.

Tindale comments that 'there are marked differences between the northern and southern Aboriginal People, not only in their faces and bodies, but in their cultures as well.'²⁷

However Lane takes a more homogenous position on the similarities of Australian Indigenous People's culture:

*It goes without saying that regional differences are encountered in Aboriginal Culture for each Group had to adapt to their own, special living-conditions. Yet Aboriginal culture is remarkably uniform, throughout. Their modes of behaviour towards one another evolved in an atmosphere of believing themselves to be descended from the Deities: but, at the same time related to all creation, plant and/or animal, within their various habitats.*²⁸

Lane's position maybe influenced by her friend and mentor, Mulvaney, as she paraphrases him saying that, 'considering the aeons of time during which the Aborigines have lived in Terra Australis, it takes but a moment for their culture to sweep across the continent.'²⁹

The Murrayians were the remote ancestors of Victoria's Indigenous Peoples, whose lifestyle and culture may or may not have differed to those of the Carpentarian and the Negrito Peoples because they migrated from different cultures and evolved in disparate ecosystems. A comparison of studies of Lane's conclusions to that of Latz and Wightman, who have observed ancestors of the Carpentarian People, could reveal evidence to support her argument. These variations could also help to explain the trepidation the Wadawurrung People reportedly had with the small neighbouring remnant group of the Barrinean People they called the 'Katubanut' People, meaning the People who spoke the 'King Parrot Language'³⁰ who lived in the Otway Ranges (known as 'the land that held up the sky').

It is difficult to estimate the timing of these migration waves. Clarkson *et al* explains 'the time of arrival of people in Australia is an unresolved question. It is relevant to debates about when modern humans first dispersed out of Africa'.³¹ However radio-carbon dating of artefacts discovered at a recent rock shelter excavation at Madjedbebe in northern Australia has established a new minimum age of occupation in Australia of 65,000 years B.P.

There have been many other artefacts from around Australia that have been radio-carbon dated. However, within Wadawurrung Country, only a handful have been tested including middens at Point Campbell, on the edge of Lake Connewarre, being dated to 5270 years B.P. amongst the earliest. Radio-carbon dating is not the only technique to estimate age. 'Fossil indexes' can also be applied to estimate a period of time based on the style and types of artefacts. This technique was applied to 780 artefacts discovered at the Kardinia Living Station (now known as Yollinko Park) in suburban Geelong, where three middens were analysed by archaeologists and the micro-geometric artefacts established that Indigenous People had camped there for at least 5,000 years.³² It is important to note that these are but a few examples and do not suggest that the Indigenous People were not living in Wadawurrung Country for a longer period of time than these dates suggest.

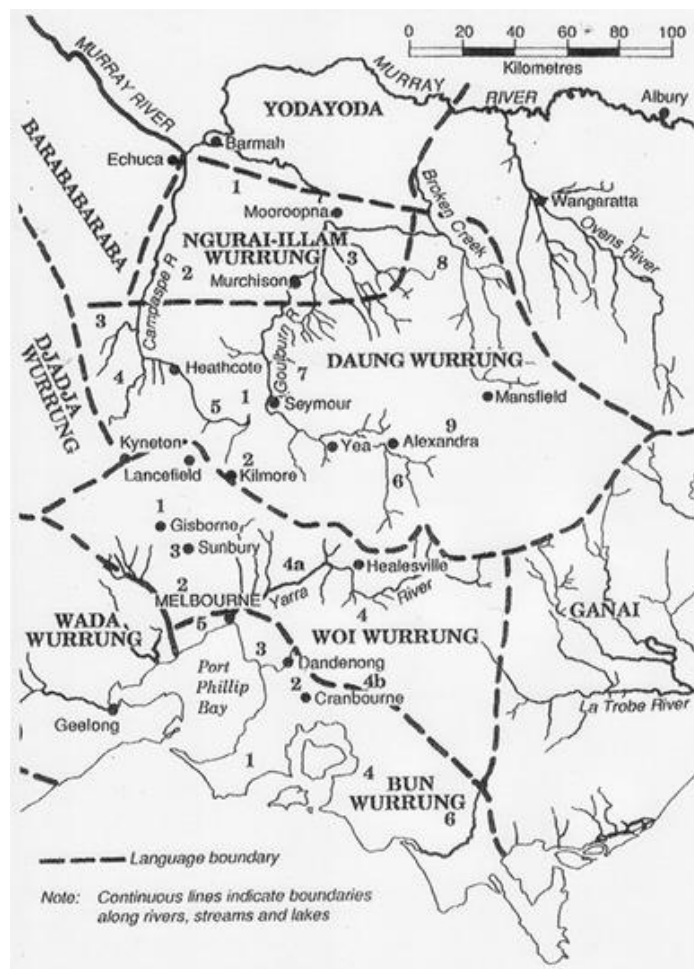
The Wathaurong Aboriginal Co-operative expresses, on the history profile of their website, that the Wadawurrung People have lived within this region for more than 25,000 years.³³

3.3 Eastern Kulin Nation

The Murrayians who settled in what is now known as Victoria were divided up into what anthropologists call Language Groups (formerly known as Tribes) and further subdivided into 'clans', these were essentially family groups. 'According to Tindale, there were 25 Tribes in Victoria. Some of their territories spanned the Murray River. Total population of Indigenes in Victoria was approximately 10,000 People at the time of European contact. However, A. R. Radcliffe-Brown, of Cambridge University, anthropologist, (and later Prof. Social Anthropology at Oxford) visited Australia in the year 1910, he estimated that the Indigenous population of Victoria, just prior to white invasion, may have been as many as 15,000'.³⁴

Many of these Language Groups formed larger socio-political associations such as the Eastern Kulin, as shown in Image 3-3, which comprised various Language Groups including the Woiwurrung (Woi wurrung), Boonwurrung (Bun wurrung), Djadjawurrung (Ngurai-Illam wurrung), Taungurong (Daun wurrung) and the Wadawurrung (Wada wurrung).

Image 3-3 Map of the Eastern Kulin language area



Source: Clark³⁵

3.3.1 Origins of the Kulin name

According to Lane, she uncovered two possible interpretations of the word 'Kulin'. The first was derived from the word 'Kooli' which means 'Man or Men'. The term implied that all other people were savages. 'Those outside the confederacy were considered to be 'wild men'.'³⁶ The second interpretation was 'that 'Kuli' means a crowd of 'People-of-the-Blood'. Kulin is a non-Aboriginal word adopted by the archaeological/anthropological fraternity to specify a federation of tribes whose land-holdings lay in central Victoria.'³⁷

Each Language Group spoke their own distinguishable language although they had many words in common and were mutually understandable. Especially the Woiwurrung and the Boonwurrung languages, that 'according to William Thomas who was an Assistant Protector of the Boonwurrung (1839-1849), who noted a multitude of similarities.'³⁸ The common language spoken amongst the Kulin is sometimes referred to as Kulinic language.

3.3.2 Kulin political organisation and laws

The Kulin association, (commonly spoken of as a confederacy), was sustained through the bestowal of connubial relationships facilitated by the 'dual exogamous patrilineal line of descent'³⁹ in that an individual's moiety (known as bulluc to the Kulin) was inherited from the Father. There were 2 marriage classes in Kulin political organization'.⁴⁰ The symbols of the 2 marriage moieties were 'Bundjil: the wedge-tailed eagle, God of the mountains and the tall forest trees and Waa: the raven (or crow), God of the plains-lands and the grasses. Waa must marry with Bundjil. To mate with one's own 'skin' was to be considered the depth of depravity, according to Aboriginal etiquette and considered a heinous crime. The punishment for infringing this law was death to both parties,'⁴¹ or banishment which was equivalent to death as they would not be accepted amongst other clans. This strictly controlled 'patrilineal moiety system was held in common'⁴² within the Kulin confederacy to prevent the genetic risks associated with inbreeding. This also ensured that no clan became isolated and it created a web of kinship amongst the Kulin association.

These arrangements extended the hunting estate of an individual. Intermarriage between the Language Groups and clans 'conferred rights on affines to hunt and gather in each other's territories'⁴³ and with the laws of reciprocal exchange also claim hunting-rights in his mother's natal place as well as with his father's mother's clan.⁴⁴ This enabled a variation in diet for related clan's folk as well as 'permitting legal communication between Language Groups which encouraged cultural exchange'⁴⁵ and knowledge transfer.

These arrangements also strengthened the association, by promoting amicable relationships between the Language Groups thus reducing conflict. The strategic importance of arranging marriages meant that there were less disputes between clans given that family members such as aunts and cousins were members of other clans, giving rise to greater inter-clan tolerance. These protocols delivered benefits that enriched all communities. However the Kulin People always obeyed the laws that had been defined by their Dreamtime Ancestors (or Creation Being) and in doing so mitigated the wrath of their progenitors.

The Australian Aboriginal People lived faithfully by the cannons of their laws. It has been frequently documented that Aboriginal People are commonly well-disciplined and law-abiding. Each clan was governed by a Chieftain (Ngarwiit) who governed the People in consultation with a council of wise-men and would convene on family business, land tenure matters and reinforce conservation regulations and discuss religious observances.

Daily life was regulated by influential leaders - a council of elderly men (the Gerontocracy), who maintained their authority and status through the complicated social relationships which existed between clans or Language Groups.⁴⁶

Although it is well regarded that the Australian Indigenous People were law abiding, there were always extraneous reasons for intervention or arbitration.

*Relationships between clans would have been dynamic. Friendships change - there would have been conflict, sometimes through the self interest of the Gerontocracy, e.g., ambitions to be attained and/or revenge for good or mythical reasons. Clans and Tribes were subject to demographic fluctuations or political pressures.*⁴⁷

The Gerontocracy governed and reinforced the laws, which were many. Some of the laws that governed their daily actions include the list found in Table 3-1.

Table 3-1 Governing Laws

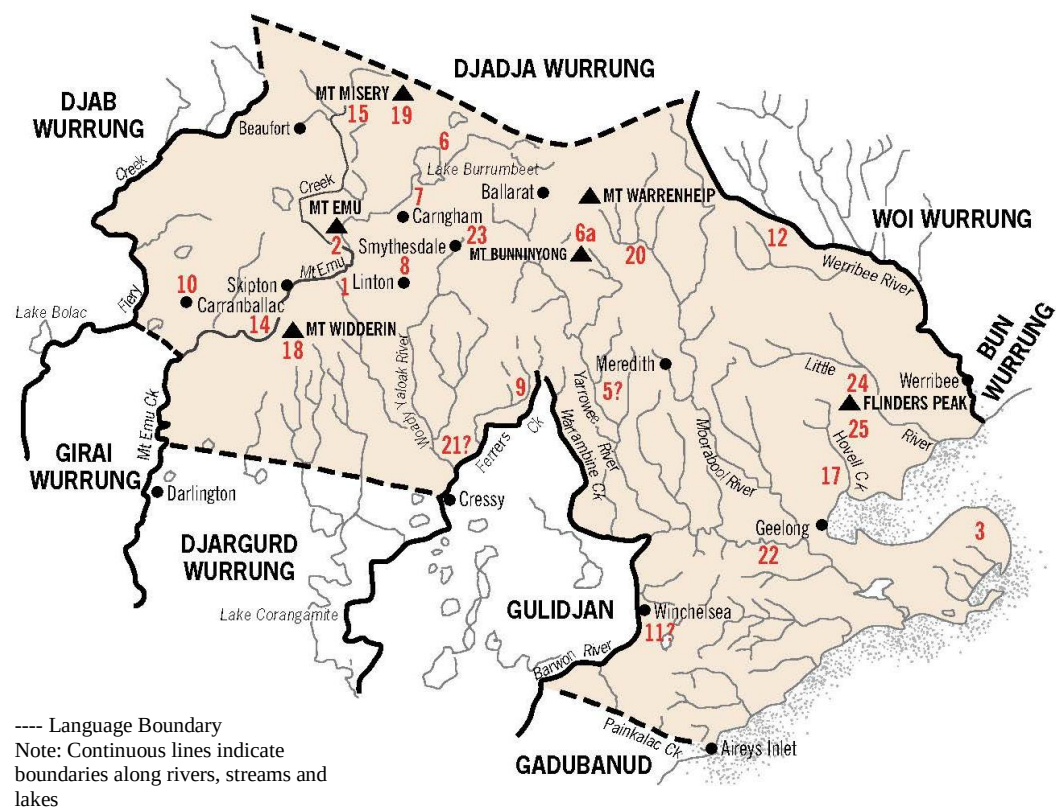
Law of Baierr
Law of Battle
Law of Bride-gifts
Law of Bulluc
Law of Common Wealth and Common Good
Law of Conservation
Law from the Dreaming
Law of Gift-exchange
Law of Maruda
Law of Providing Food (food distribution)
Law of Faith in Re-incarnation
Law of Religious-convocation
Law of the Right to Travel
Law of the Rights of a Widow and her Children
Law of Wedding-gifts

3.4 Wadawurrung Country

3.4.1 Geographical Position

Wadawurrung Country sits on the western shores of Port Phillip Bay and extends inland as far as Beaufort, Cressy and down the coastline as far as Aireys Inlet and across to Queenscliff⁴⁸, as seen in Image 3-4. Variations exist with these traditional boundaries of the Wadawurrung, as documented by Clark (1990), which show the historical boundaries compared to the current day area as governed by the Registered Aboriginal Parties (R.A.P.) - the Wathaurung Aboriginal Corporation's area map (refer Appendix 10.7) which can be found on their official website and the State Government's Department of Premier and Cabinets website. The Office of the Minister for Aboriginal Affairs in Victoria describes these boundaries as community areas in relation to local Aboriginal communities in Victoria in the 1989 No. 420 *Aboriginal and Torres Strait Islander Heritage Protection Regulations* which can be found in Appendix 10.8.

Image 3-4 Wadawurrung Country (in pale red)



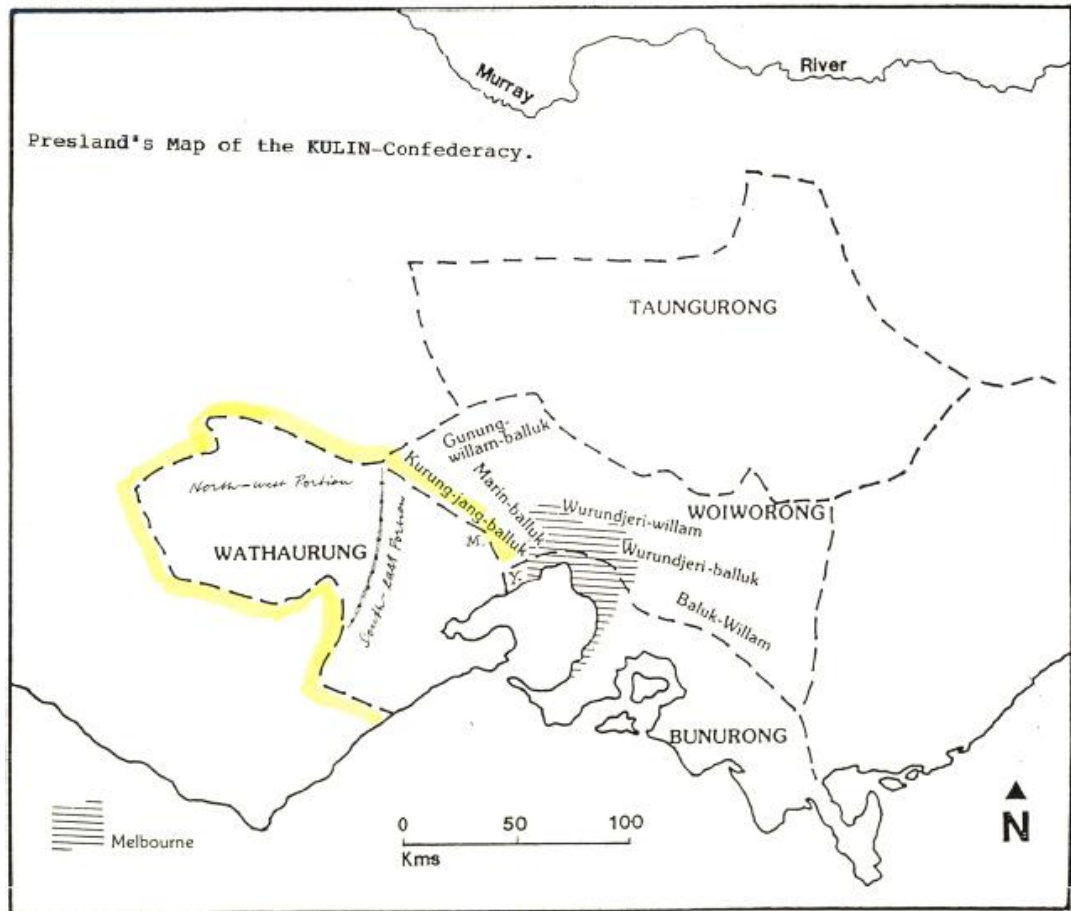
Source: Clark⁴⁹

3.4.2 S.E. Wadawurrung Country

With permission from Gary Presland, Lane adopted his version of the Kulin Nation map that was revised in 1986, as shown in Image 3-5 called 'Tribes and clans of the Melbourne area'. Lane used this map to highlight Wadawurrung Country and demonstrate the division of the north west and south east Wadawurrung Groups which can be found in Lane's handwriting on Image 3-5 within the yellow highlighted area.

Image 3-5 Presland's map of the Kulin Confederacy

Tribes and clans of the Melbourne area



Source: Lane⁵⁰

Lane's adaption of Presland's map of the Kulin Confederacy, originally prepared by Gary Presland of the Victoria Archaeological Survey for the Historic Places Branch. Revised 1986

There are two 'schools' of thought regarding the Wadawurrung Language Group. One being that the two regions were one consolidated Language Group made up of 15 clans (Barwick) or 26 clans (Clark 1990 – refer Appendix 10.9) or 16 clans (Lane), and the other 'school' being that the N.W. and S.E. Wadawurrung were two separate Language Groups. Lane subscribed to the latter 'school' believing that there were 8 clans in each area, although she never publically advocated or debated this theory, which she had identified from her research. However it did concentrate her focus on the S.E. region, but this may also be due to the fact that S.E. region was more familiar to her. There were a number of reasons that additionally informed Lane's understanding that there were two separate Language Groups, including:

1. Cary's *Vocabularies of the Geelong and Colac Tribes* by Francis Tuckfield of Buntingdale (1898) detected a 'significant difference between the vocabulary of the northern and southern clans'.⁵¹ Lane studied these variations and noted them as such within her lexicon of Aboriginal language.
2. The vegetation and landscape of each area was significantly different, with the S.E. clans benefiting from coastal and bay frontage – their flora supplies

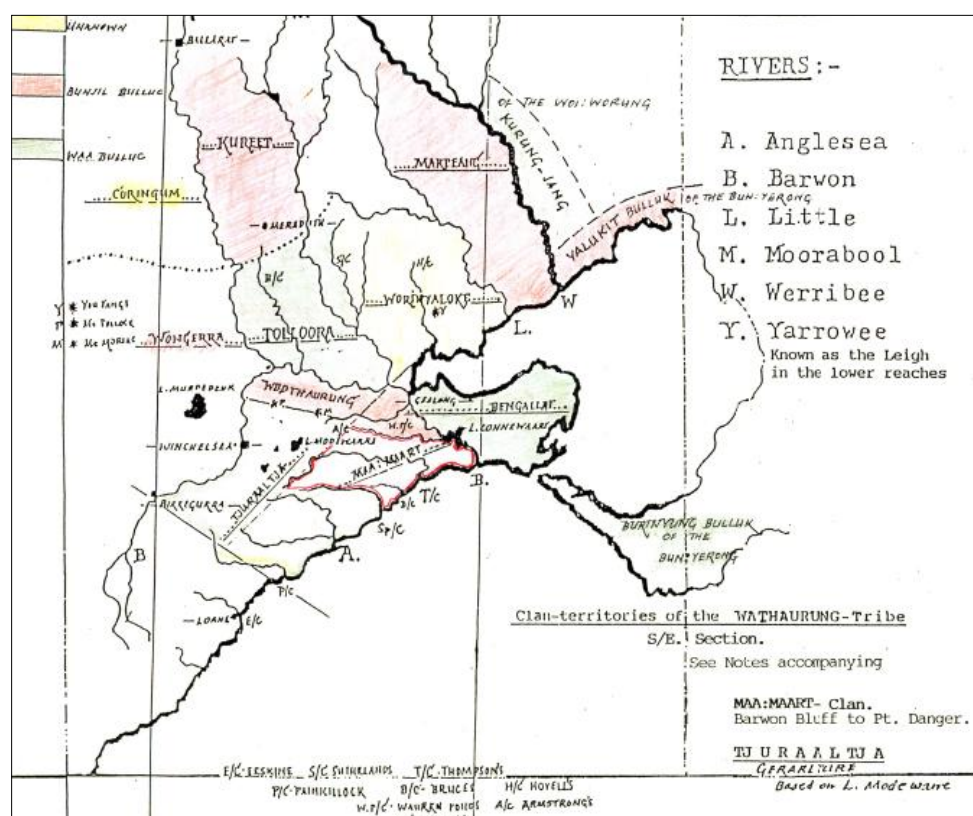
for food, medicine and all their daily needs would have been substantially different, therefore their itinerations and harvest celebrations would have varied along with the content of their Traditional Knowledge and the conveyance of their oral traditions.

3. Tindale's extensive study of tribal boundaries throughout Australia led him to consider the average population of a Language Group was 500.⁵² Any larger than that and the group was not easily sustainable. Although Tindale did not attempt to show clan lands, Barwick's in depth study of the central clans of Victoria provided a description of each clan's Country. Barwick and Tindale referred to the commonly accepted average population of a clan which ranged from 35-50 people.⁵³ It was considered that 35 members of a clan could function at optimal efficiency; however this number was sometimes augmented by visitors through marriage rights. Based on the number of clans identified by Clark who proposed there were 26 clans in the Wadawurrung Language Group (Clark 1990), this would equate to a population of 910-1,300 members. 'This total lies too far outside Tindale's average to seem valid',⁵⁴ and would have been difficult to support, especially at a time of baierr. Lane assessed Clark's clan list and she believes that 2 if not 3 of the clans listed are the same or could be combined such as the Worinyaloke balug – west side of Little River (number 24) and Yaawang (number 25) – You Yang Hills. Additionally 3 clans were of an 'unknown' location.

Lane spent considerable effort reconciling the Tindale (1974), Barwick (1984) and Clark (1990) maps. She studied the contours and soil maps of the area and her intimate familiarity of the region and accumulated knowledge acquired from intensive study of ethnographic literature of over 30 years enabled her to understand the nature of clan borders. Lane recognised that Barwick's research had not considered Batman's surveyor, Wedge, and his identification of the Tjuraaltja (Gerarlture) clan based at Lake Modewarre. Nor had Barwick considered the Todd's registration of individuals from Monmart clan in 1835, whom had rescued Buckley and absorbed him into their clan for 32 years. The Monmart clan had been identified by Clark (1990) however he was unable to find their location. Lane was able to resolve the location of the Monmart clan as seen in Image 3-6.

The clans in the Greater Geelong region had been referred to by the early colonists as the 'Barrabool Tribe', which Lane comments coincides with the S.E. portion of Wadawurrung Country.⁵⁵ Foster Fyans' 1837 census revealed a population of 297 Aboriginal individuals living in the region, with the balance of the Wadawurrung People being counted in Ballarat. This approach became the method for subsequent censuses, where there were 2 population counts of Indigenous People – one in the Geelong District and the other in the Ballarat District. The legacy of this may also add to the theory of the division between N.W. and S.E. Wadawurrung Language Groups.

Image 3-6 Map of S.E. Wadawurrung clans



Source: Lane⁵⁶

3.4.3 Geographical Scope

As such, Lane's research remained focussed on the region that was familiar to her and that she had explored extensively as a child with her family in the early 20th century. Additionally Lane was appointed Aboriginal Relics Inspector for the Parish of Grant (Geelong and District) which reinforces this S.E. Wadawurrung focus.

Therefore the scope of this thesis is based on Lane's geographic scope which is the S.E. Wadawurrung Country made of 8 clans identified below in Table 3-2.

Table 3-2 The eight clans of the S.E. Wadawurrung Language Group

Bengalat or Bengali
Kureet or Kirritburiit
Marpiang
Monmart or Maamaart
Tolloora
Tjuraaltja or Gerarlture
Worinyalok
Wudthaurung

These 8 clans are explained in further detail in Table 3-3, listing their respective moieties, Country borders, uplands and lakeside/seaside property, baierr locations and the natural resources that were available to them in their Country.

3.4.4 The eight clans of the S.E. Wadawurrung Language Group

Table 3-3 Detailed overview of the eight clans

Clan Name	Bengalat or Bengali	Kureet or Kirritburiit	Marpiang	Monmart or Maamaart	Tolloora	Tjuraaltja	Worinyalok	Wudtauring
Moiety	Waa: the Raven	Bundjil: the Eagle hawk	Bundjil: the Eagle hawk	Bundjil: the Eagle hawk	Waa: the Raven	Waa: the Raven	Not known, according to Barwick. As they were surrounded by Bundjil moieties, it is logical to suspect they were of the Waa moiety.	Bundjil: the Eagle hawk
Estate border	They occupied most of Bellarine Peninsula east of the left bank of the Barwon River and Lake Connewarre and the Barwon Estuary plus the deep gully in the Moolap sunk land which indicated the ancient course of the Barwon, where it debouched into Corio Bay	Between the Yarrowee/Leigh and the Moorabool Rivers, these streams forming the western and eastern borders of their homeland, respectively. Their southern border: a geological discontinuity about at the same latitude as Meredith	Between Little River and the Werribee River. The Werribee River was also a boundary which separated the Wadawurrung from the Woiworrung Language Groups. Northern boundary, the Great Divide. Southern boundary, the northern	Northern border along Armstrong's Creek. East Border, Reedy Lake, Lake Connewarre and Barwon Estuary western banks. Southern border, Bass Strait west as far as the left bank of Spring Creek Estuary where it debouches into the sea and including Point	Between the Yarrowee/Leigh and the Moorabool Rivers, north of the Barwon, this formed its southern border. The other rivers were western and eastern boundaries. The northern border approximated a geological discontinuity, roughly half-way between the	Part of the western border of this clan and its northern border lie along the right bank of an upper portion of the Barwon River. Southern border: Bass Strait from Rocky Point on Spring Creek to Airey's Inlet: west border from Airey's Inlet, then north-westerly along	Their Property lay between the Moorabool and Little Rivers, the streams forming part of their Hordal borders. The northern border has not been well defined. Southern border, the northern shore of Corio Bay and Outer Harbour.	Their northern border lay along the right bank of the Barwon southern border along the northern (left) bank of Armstrong's Creek (according to Lane) or the Waurrn Chain-of-Ponds (Barwick).

	(approximately seven thousand (7,000) Yrs. B.P. This low area formed the western boundary.	Township, north of which lived the Men-of-the-Mountains.	shoreline of the western arm of Port Phillip Bay, sometimes called 'Bellarine Port', nowadays.	Danger.	future towns of Geelong and Ballarat.	Painkallac Creek and northwards to the Barwon near the now township of Birregurra: this line is thought to have been their south/west border, separating them from the much feared but elusive Otway's rain-forest People, the Kutabanut Language Group.		
Upland	The Black Hills of Bellarine, which they called banyulwoogaring	Great Dividing Range of Victoria.	Great Dividing Range of Victoria.	Mt. Duneed, an extinct volcano, which is isolated from the Barrabool Hills by Armstrong's Creek.	Nil. The very name 'Tolloora', a derivative of 'Tol' meaning a Plain and 'lehura' meaning lava, proclaimed the owners 'Men of the Plains'.	The elevated foothills of the Otway Ranges.	The You Yangs Range: the 'Three Sisters' of the Anakie Hills and the Brisbane Ranges.	Barrabool Hills, plus Mt. Moriac and Mt. Pollock which defined the dividing boundary between the two clans of that area the Wudtaurung and the Tjuraaltja.
Lake side property	McLeod's Holes and Lake Lorne. Eastern shores of Reedy Lake,	Nil - except for swamps at all the River confluences and	Nil - except for swamps at all the River confluences and	Lake Murtnaghurt (Monmart = Cold Lake)	Nil - except for swamps at confluences of permanent	Lake Modewarre from Mode = Still and Warre = Water. [Another	Duck ponds, near the You Yangs on Hovell's Creek	Many billabongs along the Barwon.

	Lake Connewarre, and the Barwon Estuary The huge black soil cooking mound adjacent to McLeod's Holes, they called Ballawiin This term was the origin of 'Bellarine' which was the earliest name for Drysdale. In addition, there was an extensive Djerimal with a narrow inlet from Port Phillip Bay, about half a kilometre north of the now St. Leonards township round the salt lake would have flourished the salty vegetables, an important element of their total diet as well as the creatures	semi-permanent lava depression lakes.	semi-permanent lava depression lakes.		streams and lava depression shallow lakes.	version of the name origin claims it was derived from Moodiwarr: the Musk Duck] (<i>Biziura lobata</i>). Also Lake Wurdibolak = Big Lake and Lake Gherang, and great areas of swamp where the fowlers speared and trapped waterfowl.	and Lake Borrie at the mouth of Little River which is a brackish lagoon.	
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	which dwelt in the salty water not to mention Swan Bay, the natural fish hatchery.							
Coastal Property or Sea side access	The south shore of Corio Bay and Outer Harbour (including dunal lagoons), which constituted their northern border, Port Phillip Bay, the eastern border and Bass Strait (as far as east bank of Barwon Estuary) made the southern border of their homeland.	Possible access to Corio Bay via Moorabool River and across Maruda*, where their passage, in safety, was protected by the Law of Marum.	Dunal lagoons:- Northern shore of Outer Harbour 'Bellarine Bay'	Along Bass Strait	Nil - but access to Sea via the Moorabool and across Maruda, to Corio Bay, protected by the ancient, Dreamtime Law of Marum.	Bass Strait from Rocky Point on Spring Creek to Airey's Inlet which was a brackish estuary which the clan called Mangowhauz - this translates as 'a good place to hunt swans'.	The northern shore of Corio Bay and Outer Harbour.	The littoral along the western shore of Corio Bay, east of Lovely Banks syncline, (perhaps as far north as Hovell's (or Lara) Creek which debouches into Corio Bay via Limeburner's Bay).
Resources (for trade)	A plentiful and varied array of food-stuffs to be harvested at every living station around their annual food circuit. e.g., great trees which vegetated the Bellarine	Not known	Not known	The Monmarts had access to valuable tradable timber in the Ironbark Basin. The plumes of the white Sea-eagle were also exchangeable, to be worn in headbands on	The Tolloora clan owned a most valuable deposit of epidiorite, commercially tradable to other clans for the production of polished greenstone	The rose-red beaks of swans were admired as decorative pendants, as were their black and white plumes. Ribbed cowries from Bass Strait rock-pools were	Crystal quartz and carnelian from the pegmatite seams in the granite monadnock. These crystals were reputed to have magic properties and were especially	There was a deposit of bright green epidiorite in Wudtauring Territory, in a place now called 'Ceres'. This made very good 'axe' stone. Not that the Indigenes had

	Massif.** A red-ochre cliff at Clifton Springs and a china-clay out-crop crop situated just east of Ballawiin (Drysdale), provided the clans people with all the red and white pigments they could desire.			special occasions. The scarlet and emerald-green feathers of the King-parrot. Fossiliferous flint from Discovery Bay floated there by streamers of bull-kelp and thrown upon the strand was additional wealth, because inland clans coveted the stone for knapping scalpels, used for creating keloidal scars which were body decor announcing Tribal status.	hatchet blades during the later stages of stone-tool culture. Perhaps the baierr arena was there but, sadly, no note of it seems to have been made by early ethnographers.	valued. Timber from the Ironbark Basin. This was desirable for making strong but resilient helves for Greenstone 'axes'. As well, the Tjuraaltja clan owned a huge deposit of red ochre which they quarried adjacent to Jarosite Headland, N/W. of Godokut (Point Addis). Flint from Bass Strait-strand.	valued among the Mages and Medicine-men. Green peridot crystals in part of a geode, characteristic of those found among the Newer Basalts, were found on a living-place at 'the Granites'. Some crystals had been prised from their butts. The rattling quill-feathers of an emu or the neck-bib of a plains turkey were valued for ritual regalia.	any bladed tool, swung with both hands, similar to a European steel axe. A polished Greenstone blade was hafted to create the same shaped cutting tool as a tomahawk or a steel hatchet. Buckley spoke of trapping possums at Mt. Moriac. Possum pelts were pegged out on swampy ground to cure, and could be presented for gift exchange at baierr, either as loose pelts or laced with sinew to form cloak rugs.
Baierr ground (?)	This was on a knoll in the now Town of Drysdale (near the corner of Murradoc and	Not recorded. The very soil of their homeland was destroyed by the Gold rushes which	Not known.	Not known.	Not known. It is likely that a baierr arena may have existed where opalite quartzite and red	Not positively known, though it is likely that the mating of the 'Jolly-tails' would provide a	Has been recognized near Mt. Rothwell. The stone alignment has been studied and	Was situated in the suburb of Geelong now called Grovedale. The dancing-floor

	Portarlington Roads). The Indigenes called the precinct 'yeraiioo', which meant 'the place for rejoicing'.	commenced in 1851.			silcrete was quarried near Sutherland's Creek, for cores, blades and flakes of this attractive stone is to be found on all living sites in Geelong and District. The rock was traded far and wide.	glut of fish-flesh enough to prompt an assembly of four clans near the 'blackened mound.	recorded and has been declared a National Estate.	was remembered by an early vintner, named Winter, as being in the vicinity of Boolarong Creek not far from a notable living mound overlooking Jerringot Wetland.
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* Maruda, (a common possession arena), granting access to the sea for clans dwelling in more inland areas. Travellers would be quite safe there. The Law of Marum guaranteed that they would in no way be harmed. It was forbidden to carry weapons of offense or to harbour malice to anyone met on Maruda.⁵⁷

** Bellarine Massif can be seen in Image 3-7, drawn by Wedge and is one of the first sketches of the region - 14th August 1835.

Image 3-7 Bellarine Hills, Wadawurrung Country

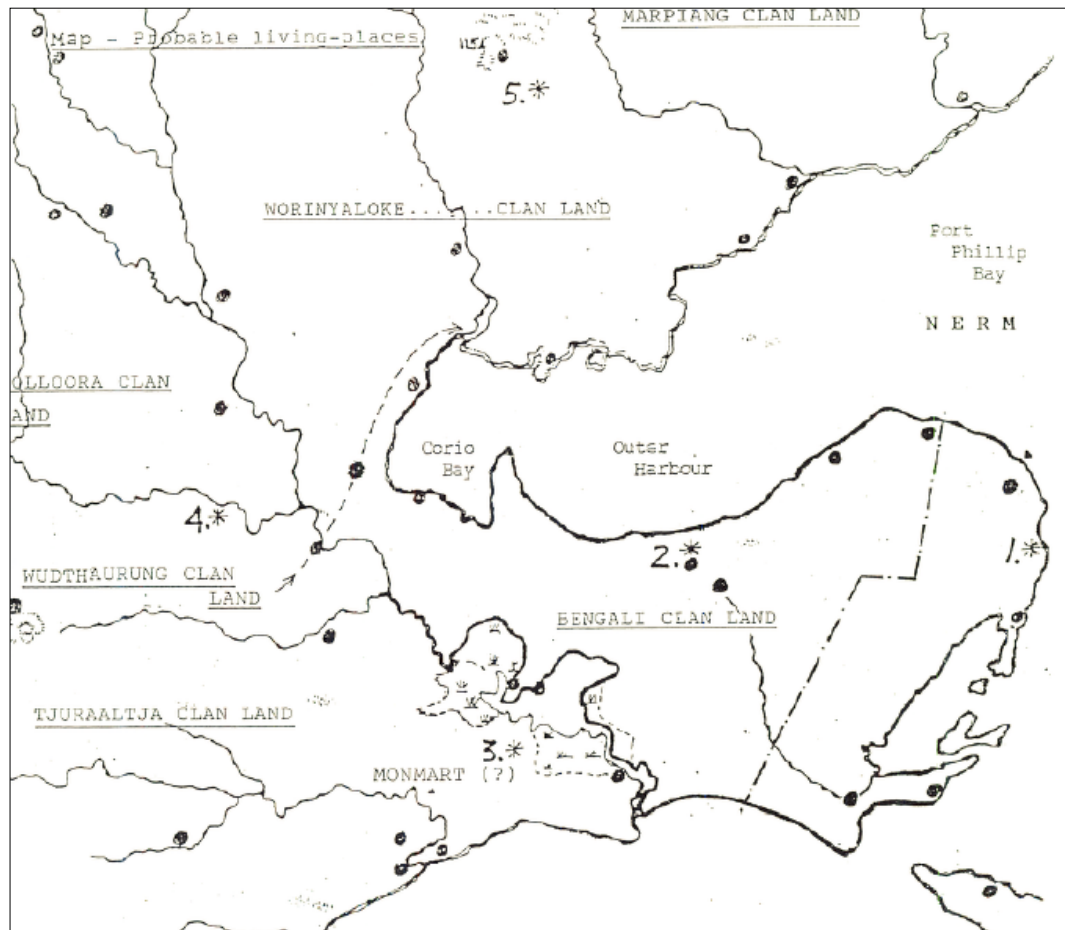


Source: Wedge⁵⁸

3.4.5 Probable living stations

During Lane's time with the Geelong Archaeological Society, in the early 1970s, archaeological investigations in the region revealed numerous artefacts which provide evidence consistent of living-stations of the Wadawurrung People. These sites are represented by round dots in Image 3-8. These interpretations are not suggesting they are the only living stations of the S.E. Wadawurrung merely that these have been identified and have survived European colonisation and subsequent urbanisation.

Image 3-8 Probable living stations



Source: Lane⁵⁹

Humans change the landscape by additions to the land upon which they live. The very chemistry of the soil is altered. The porosity and colour of the soil is changed - charcoal and organic matter reacts with natural minerals causing occupation-lenses which are visible as profiles when the soil is dug.⁶⁰

3.4.6 Origins of the Wadawurrung name

Bruce Pascoe, a commentator on Wadawurrung culture, explains in *Wathaurong: The People Who Said No* that 'The Wadawurrung say 'wada' for no and the word for speech (literally the lips) is wurru, so Wada wurrung, or Wathaurong, are the people who say wada for no.'⁶¹

Clark⁶² also cites Koenig⁶³ explaining 'Witto' = no, people who said 'wito' for 'no'. However Lane discovered another interpretation, drawn from her detailed research into the Wadawurrung language, that explains how the various combinations of words join together to form a reference to the rivers in Wadawurrung Country:

THAUR (TAUR) means owning or belonging to but because the Indigenes could not articulate letters 'TH' as English language speakers do, the Letter 'T' [with a bar underneath] indicate the Aboriginal Double-Sound 't', as in tap, followed, without hiatus, with 'th' as in that See> WA:TAURUNG and WA:TA:WURRU

UNG = is a common affix to a Tribal-title.

WA = Water (fresh or salt).

WA:TA:WURRU = The language spoken by a member of the WA:TAURUNG-Tribe. Term also employed as an abbreviation of WA:TAURUNG.

*WA:TAURUNG = The Tribe who own the Waters - the term alluding to the splendid permanent rivers which flowed through the territory of the S/E. WA:TAURUNG-Tribe.*⁶⁴

There are many splendid rivers which flowed and still flow through S.E. Wadawurrung Country (with some of them marked on Lane's clan map in Image 3-6) including the Barwon, Moorabool, Yarrowee (known as the Leigh in the lower reaches), Anglesea, Erskine, Werribee and Little Rivers, as well as some substantial creeks including Painkalac, Waurin Ponds, Armstrong, Spring, Deep, Bruce's, Hovells, Sutherlands and Thompson (known as Bream Creek in its lower reaches). This coupled with ocean and bay frontage makes it plausible to think the Wadawurrung People (and others) referred to themselves as the 'People of the water'.⁶⁵

Pallyang (Balyang), the Bat Deity was not a moiety but was the brother of Bundjil. Pallyang created all females and was the God of the waters, including the lakes, rivers and swamps, and all of the denizens of the water including the eels, fish and frogs. The Kulin believed that Pallyang dwelt in the land of the Wadawurrung at Wurdi Youang (the You Yangs - Flinders Peak).⁶⁶ Today, there is a district just north of the You Yangs called Balliang. It is logical that they thought that the God of the water would reside in the land of the water, amongst the People of the water.

3.4.7 Wadawurrung landscape

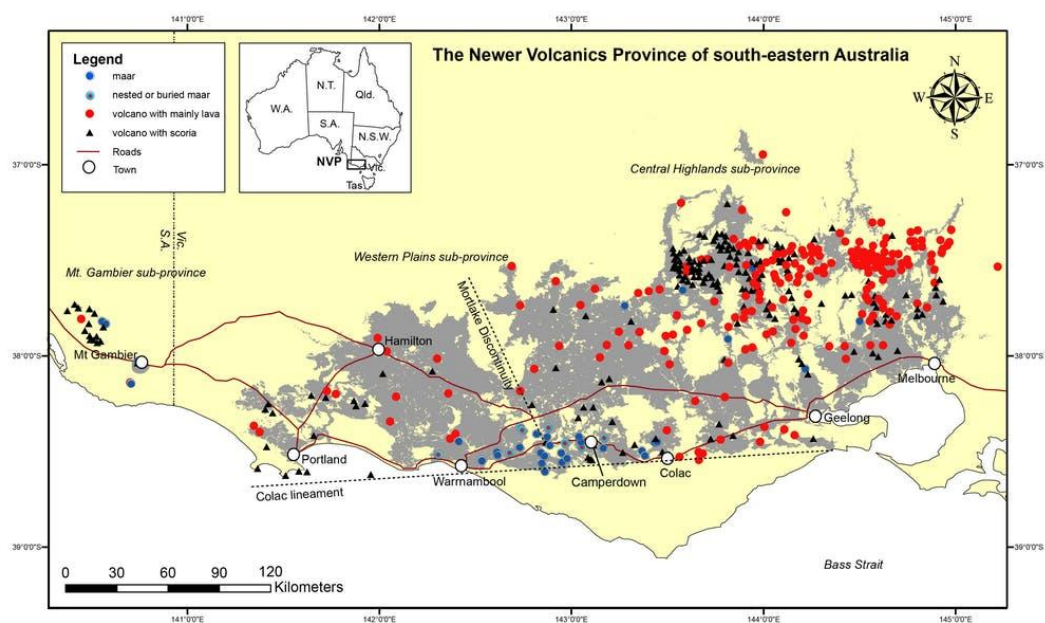
Following 230 years of colonisation and subsequent deforestation, Australia is scientifically classified as a ‘mega diverse’ nation. Australia’s biodiversity is both rich and unique; between 7 and 10 per cent of all species on Earth occur in Australia. Australia’s biodiversity has developed largely in isolation over many millions of years, making it one of the world’s mega-diverse countries.⁶⁷

The *Biological Resources Study*, undertaken across Australia in 2009 estimated that 566,398 species exist in Australia, of which 24,716 are plant species, and of those 85% are endemic to the Australian continent.⁶⁸ This equates to over 21,000 plant species that are unique to Australia. However much of the continent remains ‘botanically unexplored, it is likely many species have yet to be identified’.⁶⁹

Wadawurrung Country encompassed signification ecological diversity including rainforests of the Otway Ranges to the woodlands of the Victorian Dividing Range. In between were lakes, wetlands, rainforests and grasslands of the basalt plains and these were all bordered by ocean and bay coasts providing a great variety of indigenous flora and fauna.

A volcanic belt that runs along the south east coast of Australia is part of the ‘world’s longest chain of continental volcanoes’,⁷⁰ stretching for more than 2,000 km. The Newer Volcanic Province, as seen in Image 3-9, has about 400 volcanoes stretching from Melbourne to the South Australian border, and it is the main volcanic region in Australia considered to be still active with the most recently active volcanoes, having erupted about 5,000 years ago.⁷¹ The Victorian Volcanic Plains sit within much of Wadawurrung Country and has been classified as 1 in 15 of Australia’s most biodiverse hot spots.⁷²

Image 3-9 Map of the Newer Volcanic Province of southeast Australia



Source: Jozua van Otterloo, 2016⁷³

These volcanoes have created and influenced the terrain, microclimate, soil fertility and resulting vegetation which has evolved and adapted its environment creating a uniqueness with characteristics such as ‘woody stems, small, hard leaves, high oil content, hard fruits and non-deciduous habit’.⁷⁴ This diversity provided more bountiful harvests than in Australia’s arid areas, and abundant plant selections unique to this continent, which was also advantageous for the Wadawurrung’s trading opportunities, health and well being.

The Wadawurrung People and their neighbours had populated these lands long before the last eruption and had developed words such as Yowang (meaning chucking mountain – an erupting landform) and created myths to explain their perception of these events.

By 2003, it was reported that less than 5% pre-colonisation remnant vegetation remained in Wadawurrung Country around the Greater Geelong Region. Fifteen years later, with the recent intense urbanisation of the region, it is suspected that this number is significantly less. However what remains in this Country is an area that supports a higher than expected number of rare or threatened plants and animal species. The region grows over 1,000 indigenous plant species that was recorded in 2001/2002 as part of the region’s biodiversity inventory. Of these there are 82 classified rare or threatened Victorian species that are supporting over 100 rare or threatened native animals and birds.⁷⁵

Additionally, the City of Greater Geelong has the ‘largest area and widest range of coastal saltmarsh vegetation of any Victorian municipality and this resource has Regional, State, National and International significance for its flora and fauna values.’⁷⁶ Salt was a valuable commodity traded throughout the rest of the world and although there’s no evidence to suggest the Wadawurrung harvested salt, they did have access to high-salt iodine-rich vegetable-matter which grew along the lagoons behind the coastal dunes⁷⁷ which possibly enhanced their trading power.

3.5 Wadawurrung People

The Australian Indigenous People were considered to be an egalitarian civilisation supported by a deeply spiritual relationship with nature. Although it is considered by anthropologists and scientists that the Wadawurrung People originate from Murrayian People, not unlike many religions today including Christians, the Wadawurrung People had a different view of their origins and used mythological parables to convey stories of their creation.

3.5.1 Wadawurrung origin mythology

Lane reviewed the work of Maddock’s (1974) *Aborigines: A portrait of their society* and interlaced her interpretations along with those of others to translate Aboriginal mythology. Lane understood that they believed that the Deities were the Progenitors of the People who inhabited the Land. All the men of a clan were related, they were fathers and sons, brothers and uncles, grandsons and cousins and they all claimed descent from the primordial ancestor who was partly Deity, partly Animal and partly Human.

This superhuman Being had created the landscape of the clans-land from a level, cold, drear plain over which nothing moved except the wind. Having thrown up the mountains and hollowed out the water-ways, their Ancestor caused the vegetation to clothe the landscape and made all the creatures which would thrive in this verdant habitat'.⁷⁸

In the beginning, it was believed that the world was a flat, bare, bleak and a featureless plain that had no vegetation and therefore, no creatures. According to Aboriginal Sages, many mythical Beings moved across the Primordial land and created all species in a period the Aboriginal People refer to as 'The Dreaming' (which was, according to Aboriginal faith, a continuum: the Past - the Present - the Future).⁷⁹ Aboriginal People took a pantheistic view of creation and regarded land as a religious phenomenon.

The earth, according to their myths, owed its geographical features to the acts of world-creating powers or Deities who appeared, mysteriously, and travelled about on the chaotic surface, shaping it. When their works of creation were done, they either sank into the ground or the water or rose into an equally mysterious place beyond the sky leaving a populated world behind them. The Kulin believed their 'All-Father', Bundjil, having created the landscape as they knew it, now resided in Tharangulk, the Country-beyond.⁸⁰

Tharangulk was the home of the Deities above the firmament where they retired after their work of creating the universe was complete. Tharangulk translates as 'the gum tree country', which is meant to be a similar place to where humans live, but infinitely superior. This haven is believed to be a 'perpetually pleasant place of green trees, of flowers and fruits and many singing birds: a home where there was no strife and no want'.⁸¹

Bundjil created 2 male figures out of clay mixed with wattle gum, moulding them from the feet up. 'He coifed them with fibres from the stringy bark tree, making one curly haired and the other straight haired'.⁸² This is consistent with Tindale's physical description of the first two migration waves. He created brothers, first he created Karkeen (sometimes called Karween) who was the Brolga or the Crane Deity and the second man was called Waa the Crow Deity and he showed them how to hunt.

Pallyang (Balyang) the Bat Deity (flying fox/fruit bat) who was the brother of Bundjil, was believed to have created all females and gave the Women their digging sticks so they could supply vegetable foods for their families. And he showed them how to forage. It is to Pallyang that all females prayed. He was the lord of the waters.⁸³

The Deities promulgated the laws by which the People would live and served as an example of appropriate behaviour, this governed their human ancestor's everyday actions. 'Every clansman was ambitious to obey the laws of the Dreamtime',⁸⁴ it was their aspiration to obey the ancient laws without question, to abide by the Dreaming. Lane cited Maddock who said 'to obey the law was a soul-satisfying exercise'.⁸⁵

As the Dreamtime Deities were also believed to be the prototypes of today's species, it followed that Human relationship with the land was associated with relations to all other forms of life.

Humanity experienced a one-ness with all nature. This belief scholars call Totemism - a term borrowed from elsewhere. To the Aborigines, before invasion, the land, as a whole was nameless. Various places where the Powers acted and created distinguishable form (crag, waterholes, caves, ranges, etc.) were named and were religiously significant to the Indigenes as evidence of the Creators of the Dreamtime.⁸⁶

As such, the design of their Country and all of its geographical features has complex cultural values and significance as representation of signs of the Dreaming. The Wadawurrung People had a spiritual connection with the land and the

... ecological relationships were thoroughly understood by Indigenes who had specific names for each type of soil within their own Territory. Each stand of trees was named for its characteristics. Every natural feature, each hill, swamp or river elbow, every season and each conspicuous star had a specific name: even a fresh new growth of sward upon a tract of land that had been fired had a distinctive name. This close relationship with nature cannot be divorced from the social and ritual existence of the clans and/or tribes which were continually in interaction.⁸⁷

The Wadawurrung People worshipped their Deities during baierr and celebrated their good deeds. The myths of the Dreamtime were repeated for the edification of the clan. The Deities were satisfied with the ritual praise of their human descendents, so they rewarded them amply with foodstuffs on the Great Basalt Plains and promised a continuation of their lifestyle, 'technically simple, but culturally complex, yet enduring tradition'.⁸⁸

3.5.2 Movement across Wadawurrung Country

Human movement across Wadawurrung Country was not aimless but predictable as they itinerated within their clan's estate along their customary migration trails called 'baaring'. Many of those tracks were utilised by the European settlers because of water availability and have since become the sealed roads of today. Movement also followed the animal tracks such as emu or wallaby as they would move between water sources to graze on the sweetest herbaceous plants. Most water courses were used as highways as these would always provide navigation assistance and sustenance for a long journey. Aside from the daily foraging and hunting routes for food and raw materials, there were trade routes to interconnected external venues. Dawson reported that the Wadawurrung attended inter-group assemblies at 'Mt. Noorat and Mirrewuae swamp'.⁸⁹ Buckley also reports the Bengali clan visiting these parts with journeys to Lake Corangamite in the season when waterfowl laid their eggs and to Lake Modewarre for the minnow.

Movement also took place to locations containing natural resources that were 'in-part' unique to Wadawurrung Country. Sourcing these materials in readiness for

barter during meetings of clans or other Language Groups, commonly known as ‘corroborrees’ (which is a term of New South Wales colonial translated linguistic origin), but known to the Wadawurrung and their neighbours as ‘byerr’ or ‘baierr’.

3.5.2.1 Baierr

Members of the Kulin association participated in regular meetings called ‘coayang’⁹⁰ which involved the trade of economic goods, the sharing of knowledge through storytelling, arbitrating over differences and socialising. These events took place during specific times usually when there was an abundance of food to be able to feed all of the participants.

Intra-clan meetings of the Wadawurrung clans were known as ‘baierr’. They involved clustering ‘at times of food resource abundance provided by trapping large numbers of migrating eels (late summer/early autumn), the gathering of abundant yam daisy (late spring/early summer) or through large scale communal hunts for emus and marsupials.’⁹¹

Aboriginal culture provided for the frequent contact between contiguous clans and Language Groups.⁹² Commonly living in dispersed communities, these assemblies permitted the maintenance of a complex social structure. Individuals were aware of belonging to their own, particular clan, yet comprehending the relationship with other clans and Language Groups within the larger community.

A baierr enabled the congregation of several clans or Language Groups which was a most important occurrence in the lives of people as cultural events and exchange. These ‘conventions’ were of political, economic and religious necessity convened in times of food over supply. The clans would meet to trade commodities ‘including the affiancing of female infants’.⁹³ Settlement of disputes by arbitration instead of through violence was on the agenda as well as the initiation of clan’s men. Ritual dances were performed to honour the Deities to secure the continuity of food and the use and conservation of needful food supplies was also often on the agenda.⁹⁴ A baierr was also held to socialise and maintain oral traditions of storytelling. ‘Communication between clans was an important survival technique. The small groups of people would have perished had they lived in isolation’.⁹⁵

3.5.2.2 Trade

George Augustus Robinson, the Chief Protector of the Natives of Victoria (1839 - 1849), considered the Wadawurrung to be the most powerful and influential People in the Western District.⁹⁶

The Wadawurrung were renowned for their stones and making quality hafting mastic known as ‘jark’ or ‘korrang’. According to Dawson the Kirrae Whurrong People from the Warrnambool region called the imported mastic ‘leel’. Sticks of jark (leel) were traded far and wide. They valued it highly and must have paid for it dearly to a middle man for the Wadawurrung did not trade directly with them.

The Aborigines from the Geelong district brought the best stones for making axes and a kind of wattle gum celebrated for its adhesiveness. The

*Geelong gum is so useful in fixing the handles of stone axes and the splinters of flint in gum and for cementing the joints of bark buckets, that it is carried in large lumps all over the Western District.*⁹⁷

3.5.2.3 Seasonal food circuit

Movement across Country was with intention not only to satisfy daily needs but was a response to the seasonal food circuit which initiated movement between established locations. The Wadawurrung were conscious of their dependence on the munificence of nature, which instigated movement to prevent the depletion of their food source in any one location but also to benefit from bountiful harvests in other locations. This movement could involve the relocation of an entire clan and their chattels from one semi-permanent living station to another.

The Wadawurrung People held a deep understanding of their surrounding landscape and ‘had an intimate knowledge of their environment with its maturing crops of plants and the movement of its animals, particularly the migration of fish and birds’.⁹⁸ They knew what raw materials were suitable for each purpose, they knew when the breeding season was for each type of animal, they knew when the plants would be in fruit and so they planned their migrations to correspond.

*Their peregrinations were always triggered by signs of nature which occurred about their dwelling-places. The appearance of blossoms upon a certain tree might remind the Wise-Ones that it was time to itinerate to a particular place in anticipation of the seasonal abundance of another known supply. There was nothing happenchance in their movements.*⁹⁹

Being sensitive to their environment and the impacts of weather and fully aware that they were at the mercy of the seasons, they knew that in times of drought the clans had to respond accordingly and divide into smaller groups.

*... each man took his nucleic family and departed for an assigned and isolated place. The usual hunting strategy needed to be modified. The foragers were sometimes obliged to gather food which was not usually on the menu. The small families waited until the weather conditions improved and the clan could coalesce again.*¹⁰⁰

However, Wadawurrung Country was served by many permanent rivers that it was seldom that they had to separate. The Country typically provided its inhabitants with natural resources including a plethora of food required for daily living.

*In effect, they lived in a natural garden of Eden. The coastal areas, in particular, were rich in resources - fish, kelp, seals and shellfish and a variety of coastal vegetation. The main stream systems of the hinterland provided a range of freshwater fish and shellfish, including eels in almost unlimited quantities, aquatic birds and a diverse variety of plant foods. The grassy, volcanic plains were frequented by kangaroo and emu, bustards and brolgas and were colonised by a host of edible vegetables.*¹⁰¹

Various triggers would prompt the food circuit movement. The diminishing supply of vegetation would indicate that it was time to move on, their laws prevented them from stripping bare their environment. But this was generally the last alternative as movement would have been encouraged by the appearance of certain animals or changes in their behaviour.¹⁰² The appearances of astrological features were also triggers, such as a star they called Marpiang, who's the Progenitor of the Marpeang clan of the Wadawurrung, who lived between Little and Werribee Rivers.

Marpiang was a Dreamtime Heroine who first discovered how good it was to eat the larvae of the cossid moths which infested the Eucalypts along all the river margins. When the half animal/half human Deity was transposed into heaven, she became a star. Her Descendants knew that when Marpiang, the star, showed over the horizon, it was time to leave their summer-time residences near the coast, to migrate inland to harvest the wood grubs which were ready to emerge from the bark.¹⁰³

Marpiang's appearance in the sky is a reminder that the larvae of the cossid moths have matured and are ready to eat.

Plants were also triggers indicating a change in season, the Wudtaurung clan of the Wadawurrung Language Group who camped at Jerringot for the season of the migrating jacksnipe, watched for the blooming of the *Melaleuca* because this would indicate it was time to travel down the Barwon River to the seaside for the warmer months.¹⁰⁴ This seasonal bio-cultural knowledge had been communicated down through generations.

These ecological triggers indicated that the food resource opportunities lay elsewhere within their clan territories. Such triggers were well recognised and often embraced as they delivered a much anticipated change in diet and protection from changes in the weather. Buckley explains that the Wadawurrung deliberately moved to obtain variety in their food.

The sites that they relocated to were often selected on the basis of multiple criteria including the abundance of vegetation in the area that enabled efficient foraging and passive agricultural activities. Additionally a site had to be protected from climatic elements, close to a potable freshwater source, and thus was often situated near the confluence of two water courses. While the riparian vegetation that was found along the edges of these water courses was useful in providing a reliable habitat for birds, amphibians and other protein sources, the vegetation also provided human food and fibre that was essential in everyday living. Where junctures occurred in fresh and saline waters (in lakes, seas, estuarine environments) the diversity and choice of food resources escalated. The time spent at these particular locations may have also been extended because the greater the intersections of overlaps of disjunct in vegetation communities and water sources, the more a sedentary existence with 'homes' were created of more permanent materials such as the stone huts made by the Gunditjmarra People found at Tae'rak (Lake Condah).

The intersection of landscape types in Wadawurrung Country often involved freshwater, grassland and open woodland environments of which plants, terrestrial animals and birds, aquatic animals were all consciously ‘cultivated’ respectfully by a culture that carefully managed, burnt, tilled lands and applied hydraulic engineering principles towards the nurturing and harvesting of fish and short-finned eel (*Anguilla australis*) populations.

3.5.3 Traditional Knowledge

Traditional Indigenous approaches to managing the land were ‘essentially sustainable and by and large avoided the creation of problems such as soil erosion, salinity, river pollution, depleted fishing stocks and impoverished ecosystems’,¹⁰⁵ that is all too common in the modern era.

Vegetation conservation was just as important as vegetation acquisition. The Wadawurrung People knew the volume of food required for the number of mouths to feed and they knew when to avoid harvesting plants to mitigate the risk of depletion of a key food source. Wadawurrung botanical knowledge therefore extended beyond simply knowing the purpose and exact location of vegetation species in their Country, to understanding the lifecycle of plants and their regeneration process after harvest or fire. Such was the importance in planning the time span involved before returning to a former living station. This ‘reading’ of time allowed sites to ecologically heal and recover the vegetation and the fauna that it traditionally supported.

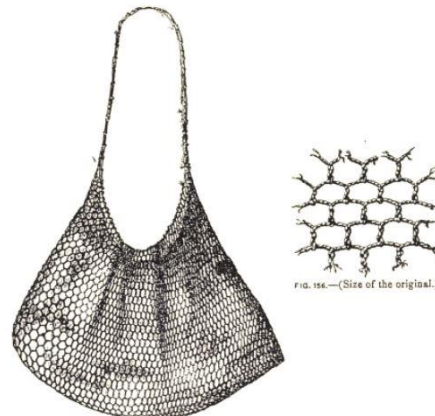
However the Wadawurrung also knew how to manage and manipulate the landscape to hasten this process through the use of fire and soil tillage to stimulate new growth, which had the added benefit of attracting fauna to enjoy the sweet young foliage that would appear post burn.¹⁰⁶ Firestick farming was a technique used by Australian Aboriginal People to enhance their foraging gains by burning off tall dry grasses which enabled the easier identification of fleshy perennial herbs such as the yam daisy (*Microseris scapigera*)¹⁰⁷ and the common bracken fern (*Pteridium esculentum*) which was the first green food to recover after bushfire. Both were a highly favoured root food staple in the Wadawurrung diet. Firestick farming also aided in the removal of dense understory making the mustering of game more strategic and ‘ensured the maintenance of open sites for the growth of all the herbaceous perennial food plants.’¹⁰⁸ Thousands of years of utilizing this approach created permanent grasslands, which unbeknownst to the Wadawurrung, led to the acceleration of the colonisation process because the open grassy fertile plains enabled the immediate implementation of grazing agricultural practices by the sheep and cattle of early colonists.

Wadawurrung People’s Traditional Knowledge was embedded in the clear demarcation of roles and responsibilities determined by gender and age. Every able person within the clan played a role in contributing to the group. From the time children of both sexes could toddle, they accompanied their mothers as part of foraging parties and learnt the various skills required for gathering raw vegetable materials for all of their needs. They would carry kanan (digging sticks) and dhilli bags (carry-alls) and often a binnuk (a basket) as seen in Image 3-10, manufactured out of their local vegetation, to bring home their groceries.¹⁰⁹ The foraging party would not have to commute far from home and they knew exactly

where to source the raw materials they required within their Country as these regular locations and routes had been employed and discussed through thousands of generations. Foraging distances were often defined by clan borders which in turn were usually defined by ecological and geological discontinuities and changes aligned to water courses such as lakes, rivers and sea shores which produced environmental changes in vegetation communities. Tindale considered that ‘areas of strong relief with marked discontinuities in terrain and vegetal-cover accounted for boundaries’.¹¹⁰ This provided easily recognisable borders to distinguish which was their estate and the estate that was not theirs.

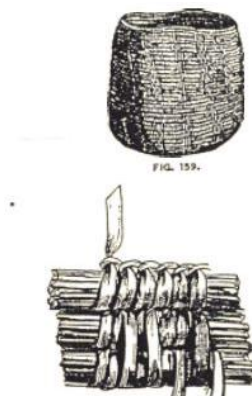
The diverse vegetation enabled denser clan occupancy territories by virtue of the richness, food reliability, and allied potable water and the parallel diversity of animal food resources. Thus, ‘tribal’ holdings (‘territories’) were small in the felicitous land of Victoria because the climate enabled a plenitude of edibles, especially when compared with the arid inland Language Groups that hosted less dense vegetation composition and a lesser diversity in food resources. Although these inland communities comprised the same number of people, ‘they had comparatively much larger areas of land over which they travelled to obtain their living’.¹¹¹

Image 3-10 Carry receptacles typically used by Wadawurrung women



Source: Smyth¹¹²

A ‘dhilli’ – a net bag made from plants and woven with fur or hair.



Source: Smyth¹¹³

A ‘binnuk’ – a basket made from various plant species and woven together using a Fuegoan stitch.

After the women and pre-adolescent children had returned from their morning's foraging, they would feed the elderly and their babies, then rest and play with their offspring before preparing for their afternoon crafting tasks. These tasks might include:

*... spinning a hank of string from grass or bark fibres which were beaten, and blended with human hair or possum fur; perhaps stretching a possum-skin or lacing two pelts together with sinew; perhaps twining a creel from rushes which had been gathered some time previously, parched and retted, or knotting a string-bag.*¹¹⁴

During these crafting sessions, whilst they were manufacturing string from various plants, the women would orally and physically exchange knowledge, skills and ideas. They had spent their early years living with another clan or Language Group, so they had been exposed to different environments, and sometimes different vegetation species, therefore they had learnt different skills or remedies for different ailments, which gave them much to discuss.

*The exogamous law of marriage, which encouraged the redistribution of Tribal population, was the reason why Aboriginal culture had remarkable similarity all over the vast continent. Regional cultures differed from place to place, of course; but new ideas, techniques and new fashions were rapidly disseminated.*¹¹⁵

The women held the deepest knowledge of the vegetation that grew in their Country because they foraged within 'it' and for 'it' daily. Their daily routine was governed by knowledge of knowing exactly where to find the plant species they needed, and what properties each plant provided for consumption, medicinal or use as fibres or artefacts.

All Wadawurrung children were educated in the art of foraging. This included boys up until the age of initiation when they were removed from their mothers' care and educated by the men in their clan who would tutor them in the rituals designed to puzzle or scare them. They were taught to hunt and fight:

*They were subjected to ordeals to indurate them against hardships. The males that embarked upon their Tribal education would take twenty years to master. It would not be until they were fully initiated into all the skills, techniques and ritual secrets of their Deities, clan and their Language Group that they could be united with a woman.*¹¹⁶

At the same time, young girls were prepared for their new lives in their future clans and prepared for new languages, vegetation communities and local protocols that these changes may result. They were taught the skills and techniques required to ensure continuity of their family's existence before they were of an age where they were conveyed to their betrothed's clan.

3.5.3.1 Conservation practices

The Deities formulated the rules by which their human descendents would abide: for they were wise and all-seeing.¹¹⁷ For example laws were maintained that

avoided depleting natural resources. No landscape patch was completely denuded, and there was deliberate replanting of tuber-bearing species.¹¹⁸ There were laws that prevented the removal of ‘children’ plant tubers that would become a future meal for the following season. A ritual of re-planting the leafy tops of the roots and undersized roots which had been harvested surely held the seeds of agriculture practice.¹¹⁹ No plant bearing seeds were to be dug up after they had flowered to prevent the loss of seed dispersion and thus regeneration.¹²⁰

Both teenage boys and girls were carefully educated in the laws of conservation refining their foraging practices and hunting protocols whilst conserving their natural resources to ensure food security for the following year, for generations to come, and in anticipation of the return of their Creation Beings. They were taught to always leave at least one egg in its nest, never to divest any shrub of all of its fruit, nor to dig every root from their foraging territory so there was a basis for regeneration.

*A manifestation of this wisdom is the selective hunting of kangaroo which was discovered at Keilor by studying the bones that had been discarded after meals over the centuries. Old Man Kangaroo was not hunted. They knew that he was the breeder of the does in his harem. Does with joeys-in-pouch were not hunted. Those Joeys would produce more meat if they were not slaughtered now. Only young bachelor kangaroos were pursued. These principles tended to guarantee the continuation in the supply of meat-food so essential for strength and health.*¹²¹

Education of the upcoming generation was imperative. The students were taught the laws that governed strict but respectful food foraging and hunting. They learnt to understand that all plants and animals were valued; there was no element of waste, unnecessary destruction or recreational sport in foraging or hunting practices. The practice of selectively hunting young male kangaroos and the restrictions placed on the consumption of certain foods demonstrated the need for and a conscious practice of resource conservation and management.

A clan was a self sustaining, economic unit of a Language Group. A clan was generally an extended family of 3 generations that consisted of the Patriarch and his spouse(s), the Patriarch’s son(s) and spouse(s) and the Patriarch’s grandchildren. Sometimes the Patriarch’s brothers, nephews and unmarried daughters augmented the average clan size. On average there were often 6 couples (12 adults) and 24 minors. Maintaining these population numbers was a conscious economic decision to keep in balance with their food supplies. Population management was a primary principle in sustaining their environment and thus their lifestyle which they achieved through various methods including preventative measures as well as infanticide. Both methods were enabled by the use of particular plants.¹²² Additionally teenage boys were not in contact with girls or women throughout their sexual prime and were engaged in intensive training and education until their initiation was complete until their late twenties, thus they endured ‘psychic deprivation at the height of their sex-drive’.¹²³

Authorities state that the late marriage of males was one way the Aborigines had of limiting the increase of the population of a given clan.

*Late marriage meant that the blood-related men did not produce offspring until they were competent and disciplined to responsibility. There was no such thing as boy/girl romances in Aboriginal societies.*¹²⁴

In addition to maintaining the expansion of a clan's size, managing the existing population from diminishing was also critical as each had a role to play in the everyday operations of a clan. Their code for survival was so deep-seated, that avoiding warfare and violent conflict was critical and was mitigated through arbitration during baierr.

Although the average size of a clan was thought to be no more than a population of 50, the actual size of the clan was often determined by the geographic scope of the clan territory and by the optimal food production and harvesting capacity that the vegetation (in conjunction with animal food resources) could sustain.

It has been approximated that 70% of the Wadawurrung People's daily diet was vegetable matter, which was supplemented with a small amount of animal-sourced protein. Plants provided carbohydrates in the form of roots, tubers, bulbs and rhizomes, stems, shoots, piths, buds and leaves. Seeds and kernels also carried proteins and minerals whilst tubers, corms, stalks and tendrils supplied carbohydrates, and that blossoms and fruits supplied vitamins.¹²⁵ Drinks were often sweetened by blossoms soaked in water for children to digest as a treat and sometimes fermented to provide a soma which was administered to dancers in religious ceremonies.

At birth all children were given moiety totemic names associative of plants or animals or natural phenomenon within their birth Country. The totem was to be protected and revered and could not be eaten, hunted or gathered – they became food taboos. This effectively curbed the demand for a species and essentially provided a human advocate for the protection of that species. A totem was a manifestation of a strict law, and totemism is considered to be a view of nature and life, of the universe and human.¹²⁶

It is believed that the Wadawurrung and all Australian Indigenous People's relationship with the land and their refined conservation practices provided food security throughout their continuous occupation of the Australian continent for over sixty five millennia.

4 Chapter 4: Louis Lane Profile

4.1 Introduction

This thesis explores the 36 year endeavour and vocation of a remarkable individual called Louis Norma Lane. Due to the nature of this thesis, it therefore appropriate to profile her life, training and education to contextualise her research and activities, especially in terms of informing the scope of this thesis. The author of this thesis did not have the good fortune to meet Lane before her death in 2015. As such the gathering and assembly of her life's milestones – from education, experience and her personal life was akin to assembling a giant jigsaw puzzle. This profile has been assembled following an investigative research methodology that involved discussions with many people around Australia who knew Lane in some capacity either professionally or personally. Searches were undertaken in various databases including the National Archives and Trove amongst other historical databases. Letters and Lane's own files generated snippets of information that provided further clues or insights into her journey. Additionally, Lane's son, John Boetje, was instrumental in providing certificates, personal details and photographs as seen in Image 4-2.

Image 4-1 Mrs L.N. Lane, 25 years



Source: Extracted from
'Form of Application for Registration'
30/1/1945 citing Lane as 25 years old, 5ft 2in,
blue eyes, brown hair & recently married.

Image 4-2 Mrs L.N. Lane in her later years



Source: Courtesy John Boetje.
Received 2015

4.2 Background

Lane was born on 29th August 1919 as Louis Norma Shepherd in Geelong to parents George Herbert Shepherd from New Zealand and Ruby Leila Shepherd (*née* Thomas) of Tasmania after they had settled in Geelong in 1910. Lane had two older siblings, a sister Helen and brother Victor, and they grew up in the family home in East Geelong. Lane was named after her grandfather – Louis Shepherd.

Lane grew up in Geelong and spent much time with her family enjoying the surrounding landscape and natural history of the district. In the early 1930s Lane's father purchased a second-hand Dodge car so that their Sunday nature-study pilgrimages could extend further than they could go on foot.

*The roadway wound through scrubland, its margins bright with heath and ferns and honey scented 'pin cushions'; the aroma of eucalypts, warm in the sun, swept through the car's side curtains ... We would search for lilies and fungi, for beetles and caterpillars: and see who was first to identify birds or butterflies which came within our orbit.*¹²⁷

These early formative years inspired her passion of Wadawurrung Country. Lane wrote in one of her files:

I, myself, am a native of the place of the home territories of the Wadawurrung clans and the natural history of the district are well known to me, thanks to the deep and abiding interest my Parents had in nature and what they showed me of the countryside. My Father loved the bush: my Mother, the strand. For instance, I have heard the leaping mullet waiting to escape from prison behind the sand bar of Spring Creek and have caught flapping fish with my bare hands as they slithered over the barrier in the first trickles of water on the spring tide. I have sought fungi and flowers in the Otway forest and marvelled at the ferns under the forest giants. I have harvested winkles from the reefs and pink-spotted trivia from the beach at Black Rock. We have climbed the Warrions to see a hawk hovering below us. Having visited most of the places in the 1920s when there seemed to be only the odd farmhouse when we went on our rambles - and with what I have read since in the course of my studies, I expect I am as able as the next one to imagine, in the mind's eye what the pristine landscape would have looked like before the white invasion.*¹²⁸
(*the hills at Warrion)

Throughout Lane's long life she saw the vast changes in the surrounding landscape due to urbanisation and the extension of infrastructure:

I knew this area fairly well having spent many holidays at Point Roadknight, near Anglesea in my youth. I have noticed, with dismay, the changes from substantially virgin land in the days when I first saw it (at the time when the Great Ocean Road was only grey gravel and one motored in a permanent haze of gritty dust) - the gross alterations to the

*environment which have been wrought by drainage and road making as well as the proliferation of suburban housing.*¹²⁹

4.3 Lane's Education

At the age of 17, Lane had successfully completed her Leaving Certificate from Geelong High School in 1936 in English (Honours), Geography, Chemistry, French and Drawing. Additionally, she undertook various training courses gaining multiple certificates in primary and secondary education. In 1940 Lane obtained her Trained Teacher's Certificate in Manual Arts and commenced teaching. The Victorian Department of Education appointed Lane to various teaching assignments around Victoria and she spent the early 1940s teaching in Melbourne where she also joined the W.R.A.N.S. (Women's Royal Australian Naval Service) holding various positions from Sub-Lieutenant, to Lieutenant Drill Instructor, Lieutenant Commander Disciplinary Officer and ultimately becoming Captain Commanding Southern Rifles V.V.F. Within these military circles was where she possibly met her first husband, Willem Boetje of Haarlem, Holland, then a Paymaster of the Royal Netherlands Navy, who was also residing in Melbourne at this time. They married at Christ Church South Yarra on 3rd October 1944 but soon divorced (12th September 1946) after the birth of her only son, John.

Despite the setbacks in her personal life, Lane continued advancing her career and education and went on to complete her training as a Teacher Librarian (1955) and had various appointments in Victoria and was additionally registered as a teacher in New South Wales (N.S.W.). Lane moved to Newcastle, N.S.W., and married her second husband, Samuel Lane (17th January 1956) who was a Marine cook. After 12 years of marriage, they divorced on 19th May 1968. A few months later (8th December 1968) Lane changed her surname by deed poll to Rubella which is a compaction of her mother's (Ruby) and sister's (Helen) names. Although Lane's legal surname remained as Rubella she maintained the pseudonym of Lane, which is how she referenced herself throughout her extensive research.

During her time working as a Teacher Librarian in N.S.W., Lane started collecting gemstones and petrified wood. This ignited an interest in Aboriginal culture and artefacts as she participated in archaeological expeditions around Queensland and N.S.W. Lane's turning point may have occurred during the following experience:

My expertise lies in the study of Aboriginal stone artefacts which are, mainly, the only relics we have to tell us something of the clever Humans who inhabited the paradise which Australia was for 40,000 years since the first wave of them migrated to the Great South Land from Southern Asia. I was first introduced to the fascinating world of stone tool components while I was a practising lapidarian in Wollongong, N.S.W. We rock hounds used to scour the sand dunes at Bellambi Point, north of Wollongong to collect shards of fossil-wood, agate, silcrete and rhyolite of gemstone quality to be cut and polished or processed in a mechanical tumbler. I was putting some stones into the barrel when a friend declared: 'You can't put that in because it's an elouera!' She sounded quite scandalized. Now, I didn't know what an elouera was and I said so. This elouera turned out to be an ancient, multi-purpose, stone tool; a scraper-

*knife worked on a wedge-shaped piece of petrified wood. It has one fine edge to use as a saw or a knife-blade: the opposite, thick margin for use as a scraper or plane for processing wooden implements. Such tools were probably grasped in the fingers without benefit of a handle. When I looked over half a bucketful of choice pieces I had selected to cut on a diamond-wheel and polish for cabochon-gemstones I found they were all tool components of one kind or another. That was forty years ago. I have had immeasurable pleasure in collecting and studying stone tools ever since. If I do say so, myself, I know something of the Aboriginal stone tools of N.S.W. and Victoria and have collected a few pieces in both Queensland and South Australia. Wherever I travel, I don't look at the scenery. I look at the ground.*¹³⁰

Lane retired from teaching in 1967 from Port Kembla High School, N.S.W. and pursued her interests in Indigenous culture and archaeology with gusto. In the same year Lane became a fully paid up member of the Anthropological Society of N.S.W., attending lectures in archaeology and anthropology as well as various Summer Schools hosted by the University of Sydney at Tocal Agriculture College in 1969 – refer Appendix 10.10 for detailed programme of the Summer School where Lane received her first academic training in anthropology and archaeology and was taught the technique of observing to recognise, study and record Aboriginal living stations in N.S.W.¹³¹

Following Lane's archaeological training in N.S.W. she spent time in a group of archaeology and anthropology students who gathered for digs between Sydney and Newcastle. Lane also spent 'considerable time recording the rock-carvings in Darke's Forest between Wollongong and Sydney as seen in Image 4-3, and searching for living sites in the Wodi:Wodi area, as well as photographing and/or sketching rock art in the caves of the Wandandian clans'.¹³²

Image 4-3 Lane recording rock carvings in N.S.W.



Source Lane: Lane¹³³

Lane pictured left with colleague 'Freddy' (n.d. c. late 1960s. Freddy, Zeddy and Lou were a Wollongong team who investigated and recorded rock art in Darkes Forest between Wollongong and Sydney. Here, Freddy and Lou, having followed the Plains Turkey's footprints incised in rock, have found the famous bird and outlined it with sand in preparation to photograph it for the archives. Freddy wanted to know why it had, apparently, no beak. Lou explained that, when the male displays, the neck-ruff elevates and quivers; consequently, the beak is obscured among the feathers.¹³⁴

After returning to live in her birthplace Geelong in 1970, to care for her father who was dying of cancer and her Mother who was blind, Lane shifted her focus to study the local Wadawurrung People and their culture prior to European colonisation.

Lane's particular expertise was focussed upon the stone artefacts of Australia's Indigenous People. Her professional training as a manual arts teacher, and experience as a lapidarian gave her great appreciation for the craftsmanship involved in the assembly of these tools. 'I comprehend the importance of the choice of suitable materials and the manual skills needed to create them'.¹³⁵ As such she amassed a considerable collection. However her focus became extended when she realised upon her return to Geelong that there was a lack of information written about the Wadawurrung People. Therefore Lane initiated a systematic review of early ethnographic records to modern literature and consulted official records. This process spurred the need to identify and register the Aboriginal living sites within Geelong and District; to consolidate and document her knowledge and fill in the gaps on the Wadawurrung clan maps that were incomplete on Tindale, Barwick and Clark maps of Wadawurrung Country – whom Lane refers to with such deep admiration and considers them as her 'mentors'.¹³⁶

4.4 Archaeological Training in Victoria

As result of a long career of working as a qualified Teacher Librarian, Lane had developed exemplary research skills that carried through in the methodical approach she applied to her research of Wadawurrung culture. These skills gave Lane the ability to access the deep regions of library resources throughout the country, in a non-digital age.

Soon into retirement and with new found time on her hands, Lane responded to the call from the Victorian Archaeological and Aboriginal Relics Office (A.A.R.O.) to be trained as an archaeologist to help support the efforts of improving the knowledge of Aboriginal culture by undertaking field surveys across Victoria from north to south.

Prior to the Victoria Archaeological Survey (V.A.S.) education program there was no tertiary archaeological education offered in Victoria at that time. As such Lane was not tertiary qualified as an archaeologist however she undertook the extensive training programme that was offered by the V.A.S. Refer Lane's Certificates of completion in Appendix 10.11.

*While at the Summer Archaeological Schools run by the Victoria Archaeological Survey, we were required to learn to survey mounds, to measure up mounds and other types of sites, to prospect for new camping stations along rivers or around lakes, to work in the laboratory and to take turn at camp orderlies, etc. Some of our jobs were not very nice, but we were all required to do our stint. Dr Peter Coutts, the State Archaeologist gave us lessons on Archaeological Digging, in all its ramifications, as well as lectures on the life of the Indigenes.*¹³⁷

Whilst this snippet about Lane's experience provides an insight into the operations and training on the V.A.S. Summer Schools it is prudent to understand the background of the School's accreditation scheme to understand the rigour and scope of responsibilities bestowed on the students who paid to undertake these training programmes. Details of the programme are documented below.

4.4.1 Victoria Archaeological Survey Education Programme History

The A.A.R.O. (that became the Victoria Archaeological Survey (V.A.S.) from 1975 and predecessor to the Heritage Branch of Aboriginal Affairs Victoria), was an initiative of the Chief Secretary's Department of the Victorian State Government following the enactment of the *Archaeological and Aboriginal Relics Preservation Act 1972*.

There was little known, from an archaeological perspective, about Aboriginal history in Victoria prior to European colonisation. Thus, it soon became a priority to gather data with initial focus on urban and coastal areas under threat of development. The A.A.R.O's objectives were defined in the *Act* and included the following:

1. The compilation of a register of archaeological sites
2. Investigation of Aboriginal sites
3. The implementation of a public education programme¹³⁸

The A.A.R.O. was established with a staff of four; only one being an archaeologist. Its inaugural Director was Dr Peter Coutts. In order to fulfil their objectives it was necessary to recruit support from the interested public and provide an education through a Summer School. 'Thus although the basic aim of the School was to provide training for amateurs, the motives behind their inception were not entirely philanthropic. A Summer School was to be held on a different map sheet in Victoria each year and would involve systematic collection of survey data, visitation of all landholders and limited excavation. In this way the Summer Schools achieved all of the major objectives of the *Act*.'¹³⁹

People attending the Summer Schools were allocated one of three major tasks: excavation, field survey or laboratory work. Some of the more advanced students (such as Lane) worked on special projects. 'People were usually rotated from one task to the next during their stay, spending one or two weeks on each task. Lectures were held at the schools and as part of the increasing formalisation of the Summer Schools an 'Accreditation Scheme' was initiated in the summer of 1975-76. The records were kept on the enthusiastic individuals who elected to enrol in the Scheme and on the basis of their performance in the field and the results of written and oral examinations; they were given one of five grades. The records were re-evaluated annually.'¹⁴⁰

The public profile page of Dr Peter Coutts provides details relating to the Summer Schools accreditation scheme: 'This is where participants studied archaeology, were examined and certified to undertake aspects of archaeological work unsupervised. At the time no university in Victoria offered courses in Aboriginal archaeology so this was an attempt to develop a community of researchers in the archaeology of Victoria. The development of the archaeology course at La Trobe

University from 1976 effectively put paid to this scheme although the two ran in parallel for a few years.’¹⁴¹

A recently qualified archaeologist from the University of London (1979), Gary Presland, joined the V.A.S. from 1983 to 1988 and became a Site Registrar with the V.A.S. Although the Summer Schools had finished by the time he had started with the V.A.S., Presland wrote a brief history of the V.A.S. and commented on the origins and purpose of the Summer Schools. ‘Lacking the staff to undertake this work, Coutts initiated the Archaeological Summer School program. These were field camps where anyone could pay to learn the rudiments of archaeology and record or excavate archaeological sites. The first was a small affair in January 1975 and nine others were run between 1975 and 1982. These were an important training ground for avocational and student archaeologists from all over Australia.’¹⁴²

Documented within the *Journal* of the V.A.S. the role of the Summer Schools and lecture series was discussed in such a way to emphasise their value to both students:

*Archaeology is an exception among the professions in the extent to which persons without advanced degrees can and do contribute to the accumulation and interpretation of knowledge on the subject. V.A.S. believes that the well trained amateur has an important role to play in the protection, preservation and investigation of Aboriginal sites. It is mindful of the damage that well meaning, but untrained personnel can do to archaeological sites. One of V.A.S.' major activities are its annual summer field program which is held in areas of archaeological significance. This enables amateurs and people interested in archaeology to participate in site recording and excavation programs as well as to undertake formal elementary courses in archaeology.*¹⁴³

It appears that Lane was heavily involved in supporting the Summer Schools for the Greater Geelong region as well as having the authority to conduct all levels of archaeological work.

Members of the scheme can enrol in the V.A.S. Accreditation Program which seeks to train personnel to carry out specific types of archaeological work. There are five grades, and certificates are awarded as each level is attained. All work conducted by accredited amateurs, no matter at what level, is supervised by professionals who accept responsibilities for their students. So far, this has been one of V.A.S.' most successful schemes; on the one hand providing amateurs with the opportunity to learn about and to 'do' archaeology, on the other hand providing the Survey with much need man-power, and ultimately a pool of semi-skilled, enthusiastic amateurs. During the summer program hundreds of farmers are interviewed, providing V.A.S. with the means of communicating directly with the public. These schools have been singularly successful and more than 1000 students have now passed through them. Many of these students continue to be associated with

*V.A.S. and its activities, and several have been employed on special projects and on Environment Assessments.*¹⁴⁴

Lane also noted in her files that ‘after training at several Archaeological Schools under the aegis of the V.A.S, Coutts encouraged Lane to record sites in Geelong and Districts’.¹⁴⁵ Dr Coutts provided a letter of authorisation to Lane to proceed with field work on behalf of *The Office* in 1975 – refer letter in Appendix 10.11.

It is interesting to note the enormous dependence the V.A.S. had on voluntary unpaid labour to fulfil its objectives of the Act. The voluntary labour (including Lane) conducted the majority of the V.A.S. activities and undertook the vast task of surveying and recording the State’s historic sites during the 1970s and 1980s.

Ian Johnson from the Department of Prehistory Research School of Pacific Studies, Australian National University (A.N.U.), validates this discussion about the opportunities the V.A.S. accreditation scheme provided students. Johnson explains that only students with higher certificates permitted their holders to excavate. As Lane was active in excavating various sites around Greater Geelong including 2 significant Aboriginal living stations - Yollinko Park and McLeod’s Holes, it suggests that she obtained accreditation at the highest level:

*The Survey offers its students the opportunity of enrolling in an Accreditation programme which aims to train people in specific aspects of archaeology and qualify them at each stage of their training. Assessment is continuous from one year to the next and students can rise through the ranks as they successfully complete each phase of their training. Certification enables students to carry out the categories of field work for which they have qualified, on their own initiative, or at the request of the Survey. Holders of higher certificates may excavate sites, but only in close liaison with the Survey; the Survey in fact assumes full responsibility for what its students do in the field and for this reason the higher certificates which permit their holders to excavate are awarded only in exceptional cases.*¹⁴⁶

Furthermore, Coutts’ vision for amateurs was to elevate them to ‘professional standards’ as he anticipated that amateurs would become the main force in archaeology in Victoria:

*During the summer of 1975 the Office undertook to run a Summer School in archaeology which provided members of the general public with an introductory course in archaeology, plus practical aspects of conservation, excavation and laboratory processing. It is envisaged that similar schools will be run during future summers. Eventually we hope that the amateur, through the medium of such schools, will become a main force in archaeology in this State. As the amateur graduates to ‘professional standards’, excavation permits will be granted when adequate supervision, laboratory facilities, equipment and advice is available.*¹⁴⁷

At the commencement of the Summer Schools, there is a clear intention to take the ‘amateur’ and elevate their skills through training and education to that of a professional enabling the student to perform duties of a professional archaeologist such as excavation.

Other roles that were bestowed upon Lane by the V.A.S., are detailed below, and included roles such as ‘Warden’ and ‘Inspector’. The high level summary of these roles are also discussed by Coutts in *Australian Archaeology*:

*A State-wide network of surveillance has been set up. Victoria has been divided into eighteen regions each controlled by an inspector under our Act, whose job is to supervise Wardens in areas under his control. There are now approximately 180 Wardens and Inspectors in Victoria. The Inspector is the site record keeper for his own area and is responsible for maintaining surveillance of sites within his sphere of control. Superimposed on this system, there are Wardens with roving commissions who exercise control wherever it is deemed necessary. A third category of Wardens are those which are appointed to administer specific sites.*¹⁴⁸

Lane held position of both Inspector and Warden at various times, details can be found in the following section.

4.5 Lane’s roles

4.5.1 Active member of the Geelong Archaeological Society

The Geelong Archaeological Society (G.A.S.) was inaugurated in June 1968, ‘for persons interested in archaeology in general: or visiting places where the Indigenes had lived in Geelong and District, and interested in Aboriginal stone tool components which were the principal relics which could be found in the countryside to indicate the living stations where the Aborigines had dwelt’.¹⁴⁹ Lane joined the G.A.S. upon her return to Geelong and quickly became an active member. Members would assemble monthly for meetings or field trips.

In 1972, after Coutts was appointed as the State Archaeologist to head up the A.A.R.O., the G.A.S. were invited to join the A.A.R.O. at an official Archaeological dig at Wickliffe, in the Western District, in the Country of the Tjap:Wuron Language Group. Lane, and three others representing the G.A.S., attended the first Archaeological School there and were ‘involved in the back breaking work on a properly controlled dig, the frustrations of surveying the countryside in the field, or working in the laboratory making records’.¹⁵⁰

However with the introduction of the *Archaeological and Aboriginal Relics Preservation Act 1972*, which banned the collection of ‘Aboriginal artefacts’ except under the aegis of the A.A.R.O., membership in the G.A.S. waned and the Society was dissolved in 1977. Lane continued her quest under the authority of the A.A.R.O.

Lane’s childhood fascination with the natural history of S.E. Wadawurrung Country and the people that lived in it prior to European colonisation motivated a desire to formulate in her own mind ‘an understanding of why the vanished People camped where they did. What were their sources of foodstuffs and the

materials required for the processes of their daily living activities? Curiosity regarding the reasons the People may have had for selecting that particular locality to dwell a while'.¹⁵¹

Lane's pragmatic reasoning for inspecting sites was to 'confirm the presence of Aboriginal relics on the land, establish their type and state of conservation. To discuss management of the sites in respect of:

1. preventing further disturbance or erosion in the immediate future;
2. conservation of the area in the event of development'.¹⁵²

4.5.2 Aboriginal Relics Inspector

After completing her extensive training Lane became accredited by the V.A.S. as an amateur archaeologist. She was issued with a warrant in 1976 by Coutts on behalf of the V.A.S. and Ministry for Planning and Environment as the 'Aboriginal Relics Inspector for the Parish of Grant' (Geelong and District or S.E. Wadawurrung Country) from 1977 to beyond 1984. This role was never revoked.¹⁵³

Lane became the 'go-to' person for information and knowledge regarding Wadawurrung culture providing a service in the community preceding the establishment of the Wathaurong Aboriginal Co-operative, and its predecessor the Geelong Aboriginal Co-operative. 'The Wathaurong Co-operative was formed by the community in 1978 and registered in 1980 to support the social, economic and cultural development of Aboriginal People within Geelong and surrounding area.'¹⁵⁴ In these early years when the Co-operative was establishing, focus was on support of the community, therefore they had limited resources to represent the Wadawurrung culture in public forums which are the roles in which Lane actively participated.

4.5.3 Warden under the Archaeological and Aboriginal Relics Preservation Act 1972

Lane became a Warden under the *Archaeological and Aboriginal Relics Preservation Act* in the mid 1970s which involved visiting each site at least every three months. Lane carried out many surveys in the Geelong region herself and led survey teams with the regular V.A.S. summer schools. The V.A.S. *Records* often include activities reports where Lane is mentioned extensively.

Lane's role within the V.A.S. was valuable in extending their reach as her local knowledge of S.E. Wadawurrung Country and beyond helped draw their attention to the stone alignments at and north of Lake Bolac township where she had surveyed the Lochaber alignment in Lake Bolac, amongst many others.

4.5.4 Guardian of McLeod's Holes

The V.A.S. appointed Lane the 'Guardian' to McLeod's Holes at Drysdale which is a significant site for the Bengali clan of the Bellarine Peninsula. The site comprises two freshwater lakes and 22 living stations and is the resting place of three known Aboriginal skeletal remains.

Lane was instrumental in arranging with the Geelong Aboriginal Co-operative, the Bellarine Shire Council and the Victorian 150th Anniversary Celebration organisation, a plaque in memory of the Bengali clan of the Wadawurrung Language Group as seen in Image 4-4.

Image 4-4 A plaque in memory of the Wadawurrung People



Source: Lane¹⁵⁵

The inscription reads ‘This tablet commemorates the Aboriginal People of the Wathaurung tribe, who were landholders of the Bellarine Peninsula from time immemorial. Archaeological evidence of their culture has been found at McLeod’s Holes. Because of its permanent water supply, this lagoon was an important camping and hunting place for the Aborigines’.

4.5.5 Secretary of the Kardinia Pre-history Society

The Kardinia Pre-history Society was formed in 1983 so the members had authority to request that a section of the Kardinia Creek living station (Yollinko Park) be conserved and used as a teaching aid to schools in Geelong. The Society comprised of a small group of members including Trevor Edwards of the Geelong Aboriginal Co-operative. Lane took on the role of Secretary as she was the founding member and initiator of this project. The Society was successful in achieving their remit and so the Society was disbanded in 1988.

4.5.6 Lane’s role in ethnobotany

Lane is not known as an ethnobotanist, but due to her quest and interest in Wadawurrung culture and lifestyle, she understood the importance that vegetation played in their daily lives. This is evidenced by the 1390 citations of plant species and their uses found within her 255 typescripts. In order to establish Lane’s position in Victorian ethnobotany a comparison of Victoria’s only ethnobotanist, Dr Beth Gott is required.

Gott, is an Honorary Research Fellow at the School of Biological Sciences, Monash University focussed in botany, plant physiology and ethnobotany and has spent a large part of her career documenting plants and their uses by the Victorian Indigenous Peoples. Gott has written several papers and books such as *Koorie Plants Koorie People: traditional Aboriginal food, fibre and healing plants of*

Victoria (1992), which was co-written with Nelly Zola. Gott also co-authored *Victorian Koorie Plants* (1991) with John Conran, reviewing the Indigenous Peoples from Hamilton, Gunditjmara Language Group. Gott's primary references include ethnographic resources for the most part whereas Lane's research methods included (in addition to the similar ethnographic resources), her own archaeological surveys of the region and findings and knowledge as a manual arts teacher to explain how things were made and used. Lane's methods also included oral translation through Indigenous networks and the local community.

It is important to note that historical records were often observations based on generalisations about the Aboriginal People's approach to living and use of plants, which was often thought to have been homogenous across Language Groups. Rather, the use of plants may not have been homogenous across the continent, due to the different plant species that grew across regions and the seasons the plants were harvested; the different climates and soils and the differences in culture, language and protocols between communities.

Table 4-1 shows a comparison of the inputs and outputs of Gott's and Lane's work which helps to understand Lane's position and focus in Victorian Ethnobotany:

Table 4-1 Comparison of inputs and outputs of Lane's and Gott's work

	Beth Gott	Louis Lane
Education background	Botanist	Trained Archaeologist and qualified Teacher Librarian and Manual Arts teacher with 30 years combined experience in both fields.
Area of expertise	Plant anatomy	Research techniques
Perspective/focus	Botanical	Anthropology/archaeology/cultural/lifestyle/protocols
Geographic Focus	Victoria wide. In part N.S.W., TAS and SA.	Greater Geelong and district S.E. Wadawurrung Country
Research Resources	Ethnographic data in the form of historic letters, books journals and reports of early settlers. Consultations with a number of Indigenous People amongst others.	Ethnographic data in the form of historic letters, books journals and reports of early settlers. Consultations with a number of Indigenous People amongst others. Plus archaeological findings.
Output	Database Botanical list of species by use.	Typescripts which include ethnobotanical information along with anthropological detail.

Lane's prolific papers were written by someone who is highly educated, someone who is well read, eloquent, articulate and informed through extensive research. Lane's anthropological and archaeological research gives her ethnobotanical findings a contextual depth.

Lane's interest in Indigenous culture extended for over 70 years. 'I remember being chidden by my Headmistress as late as 1940 for wishing to buy a copy of the United Nations book on Aboriginal Art for the school library. She would not

hear of it... 'Aborigines have no art' was her expression.'¹⁵⁶ Despite the cultural climate of Australia during the first half of the 1900s, Lane's interest in Aboriginal culture was already gaining momentum.

As a retired pensioner she dedicated the last 36 years of her life to researching and documenting the Wadawurrung culture – with little recognition and no remuneration or compensation for the time and personal finances she invested.

Lane became a doyen of Wadawurrung culture from her extensive research and documentation and from actively participating as a volunteer to the V.A.S. for many years. Lane's years of dedicated researching was self-motivated, she was a driven woman who enjoyed looking for Aboriginal sites and evidence to tell the Wadawurrung story.

4.6 Accomplishments

In addition to researching and producing 255 files, many which are housed in the Special Collections of the Alfred Deakin Prime Ministerial Library, Lane also wrote 43 essays, a fictional book of over 200 pages, an Index of place names and meanings¹⁵⁷, and was involved in recording over 100 living stations in Victoria, Queensland, South Australia and N.S.W. The full list of the Aboriginal living sites on which Lane collected from 1955 to 1999 can be found in file titled H/D. 45 Living Sites where Lane Collected Artefacts¹⁵⁸

Lane achieved many accomplishments including:

4.6.1 Discovered the Wurdi Youang Stone Circle

In 1971 Lane discovered the Mount Rothwell ovoid stone alignment (now known as Wurdi Youang) on the north-eastern flank of the You Yangs. Lane conducted a two year study of the site before taking her work to Professor's Golson and Mulvaney at the A.N.U. because there was, at that time, no authority in Victoria. Following her formal training at the V.A.S., Lane returned to fully document the site and spent several years striving for the site to become declared a place of National Significance, thus becoming recorded on the Register of National Estates. Subsequently it has been recorded on the Victorian Aboriginal Heritage Register, the Victorian Heritage Register (H1107), and the City of Greater Geelong Planning Scheme Heritage Overlay (HO294).

4.6.2 Comprehensive field study of McLeod's Holes, Drysdale

The McLeod's Holes site comprises two freshwater lakes, 22 living stations and is the resting place of three known Aboriginal skeletal remains. 'I was responsible for the discovery of the (female) skeleton in Mound 9, McLeod's Holes and helped persuade the Bellarine Council and the Drysdale Police to stop all traffic over the mound after the skeleton was partly excavated, studied, drawn, photographed and re-buried *in situ*. I personally removed a sapling which had been planted immediately on top of the burial'.¹⁵⁹ Lane recorded this site on behalf of the V.A.S. in 1975/1976 then later in 1984. This was the second Aboriginal site from Geelong and District listed on the Register of National Estates, the first being Wurdi Youang (the Mount Rothwell Stone Arrangement).¹⁶⁰

4.6.3 Comprehensive field study of Point Campbell, Lake Connewarre

Lane co-opted the services and advice of the late Edmund Gill whom Lane had a long and fruitful working relationship. She assisted Gill, a palaeontologist and former Curator of Aboriginal Relics in the State Museum in Melbourne, in investigating the shell mound at Point Campbell at Lake Connewarre. This important site was subsequently declared a National Estate.¹⁶¹ As an outcome of this investigation Gill and Lane published an article on the result of radiocarbon dating the shells in *The Proceedings of the Royal Society of Victoria*.¹⁶²

4.6.4 Discovered Yollinko Park

Lane discovered the Kardinia living station in Highton, in 1981 and requested a complete inspection by the V.A.S. with the objective of finding the presence of Aboriginal relics on the land and to discuss management to protect and conserve the area. Refer the V.A.S. Inspection Report in Appendix 10.12. Yollinko Park was classified as a site of Cultural Heritage Sensitivity in 1982.¹⁶³ With the support of the 'Kardinia Pre-history Society', Lane conducted a 10-year study on the site, where one out of three living stations (mounds) had been conserved. An Indigenous term has also been conserved, in 'Yollinko' Park, and the word is now recognized by the residents of the day. In 1985, the 'Kardinia Prehistory Society' installed a Plaque in Yollinko Park in memory of the original owners of the land refer Image 4-5. In 1991 the Park was officially opened which included an Aboriginal garden, refer Image 4-6. Invitations and a program to the event can be seen in Image 4-7 and Image 4-8 where Lane is listed as a speaker on the history of the area. Lane can be seen after the ceremony talking with some of the locals in Image 4-9.

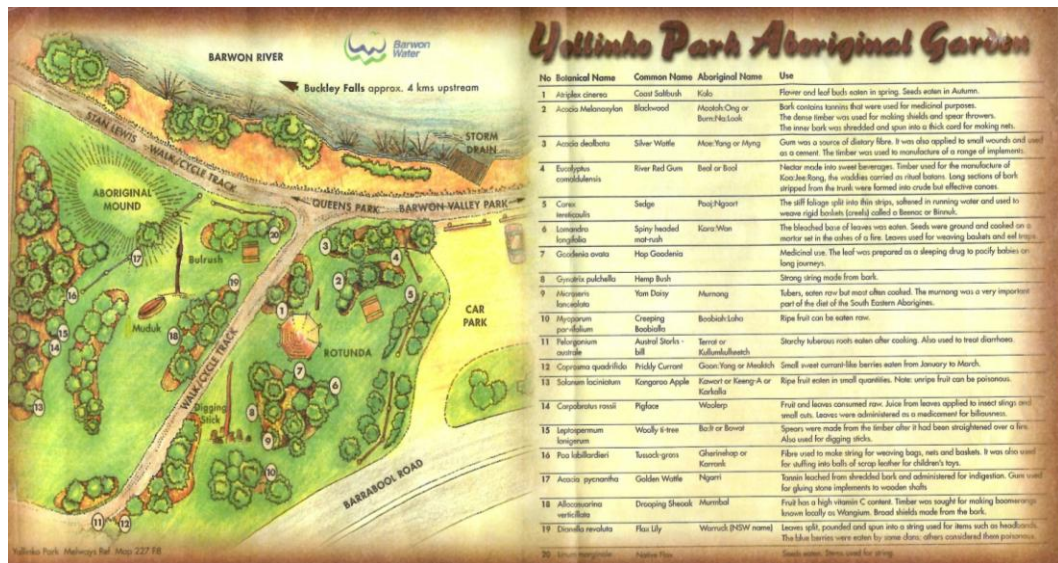
Image 4-5 Unveiling of the Kardinia Pre-History Society Plaque



Source: Lane¹⁶⁴

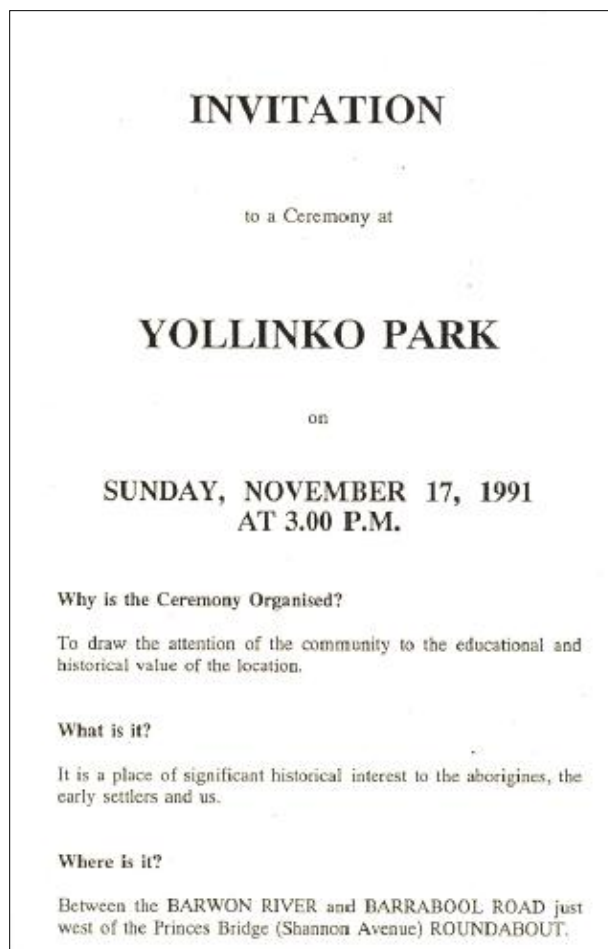
The Mayor of South Barwon, Cr. Sykes, Mrs Lane and Mr David Tournier
unveiling the Kardinia Pre-History Society plaque.
Mr and Mrs Pyle who donated the greenstone boulder. Jack and Heather McCarthy.
Dr R Brady and Family, Kay Edwards and the Wadawurrung community.

Image 4-6 Yollinko Park Aboriginal Garden Brochure



Source: Courtesy Peter Byrnes – formerly Geelong Water Board

Image 4-7 Invitation the opening of Yollinko Park



Source: Lane¹⁶⁵

Image 4-8 Ceremony Program

YOLLINKO PARK		Page ..
CITY OF SOUTH BARWON		
GEELONG & DISTRICT WATER BOARD		
ROTARY CLUB OF HIGHTON		
YOLLINKO		
(Koori for "Yesterday")		
A Ceremony to recognise the Historic and Educational Value of this Location		
Sunday, November 17, 1991 at 3.00 p.m.		
Introduction	Lawrie Miller City Engineer City of South Barwon	
Welcome	Cr. Roger Sykes Mayor City of South Barwon	
	Wai Whiteside Chairman Geelong & District Water Board	
	Darcey Sellers President Rotary Club of Highton	
History of the Area	Mrs. Louis Lane Kardinia Pre-History Society	
Unveiling "Wathaurong" Plaque		
Unveiling Development Plaque		
Tree Planting Ceremony	Zelda Razen, Betty Tournier Wathaurong Aboriginal Co-Operative	
Close		

Source: Lane¹⁶⁶

Image 4-9 Lane talking with the locals after the ceremony

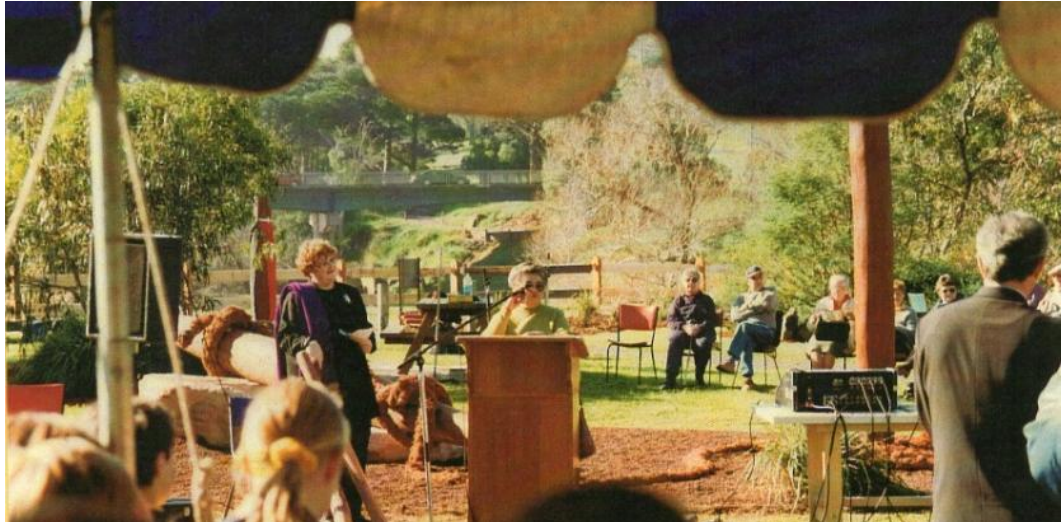


Source: Lane¹⁶⁷

Mrs L Lane speaking to Mr Ron Lee. Mrs Pyle sitting on the background against the Mound 3 tree.

In 1997 sculptural additions were included into Yollinko Park and a further ceremony held for their unveiling with speakers including Wadawurrung Elder the late Aunty Betty Image 4-10, the Minister of Aboriginal Affairs Ann Henderson Image 4-11 and the artists involved in creating the sculptures Image 4-12.

Image 4-10 Wadawurrung Elder Aunty Betty



Source: Barwon Water¹⁶⁸

Image 4-11 Minister of Aboriginal Affairs, Ann Henderson



Source: Barwon Water¹⁶⁹

Image 4-12 The artists involved in creating the sculptures



Source: Barwon Water¹⁷⁰

Artists L-R Glenn Romanis, Flip Ernest, Mark Trinham,
Viktor Cebergs

4.6.5 A Lexicon of Aborigine terms

Lane compiled a Lexicon of ‘Aborigine’ terms, along with a reciprocal English / Aborigine Dictionary. It was Lane’s ambition to have this 500 page book properly bound with a copy in every school library in the Geelong Area. This ambition has not yet been realised.

4.6.6 Study of William Buckley

Lane completed an in-depth study of Morgan's book on William Buckley¹⁷¹ for the V.A.S., identifying the place Buckley called Jerringot and was instrumental in having that word adopted for the Geelong Field Naturalist's Wild Life Sanctuary in Belmont.

4.6.7 Completed the Barwick clan map of Wadawurrung Country

Lane identified the extent of the land holdings of the Monmart and the Tjuraaltja clans in order to complete the Barwick and Clark map of the clan’s lands of the South East Section of Wadawurrung Country. (Refer Appendix 10.13 for map).

4.6.8 Investigated an historical Aboriginal trail in Ceres

In the year 2000, Lane undertook her final field studies: the ‘Berramongo’ property at Ceres in the clan Territory of the Wudtaurung bulluc in order to investigate an historical Aboriginal trail. This was suggested by the late Peter Alsop, the then President of the Geelong Historical Society.

This subsequently included a study of ‘Stonehaven’ where there was an Aboriginal living station on the left bank of the Barwon River in Tolloora clan territory. Here, a collection of ancient, stone artefacts was collected from the basement of a living station where a great deal of sand had been extracted in recent years. The relics included a multi-faceted spherical boulder which is suspected of having been a ritual stone.

4.6.9 Established a memorial plaque at the Duneed Aboriginal Land Reserve

In 2002 Lane was involved, in co-operation with Mr Trevor (Reg) Abrahams, the then Cultural Officer of the Wathaurong Aboriginal Co-operative, in the establishment of a memorial plaque for the Duneed Aboriginal Land Reserve at Waurin Ponds as well as recording the opening of a walking track from Wyndham Vale, on the Plains of Iramoo, to Lollypop Ponds.

4.6.10 Addressed various local societies and communities

Lane delivered fifteen lectures throughout the district that were illustrated with diagrams / maps / photographs / slides / transparencies and/or stone tool components.* Lane can be seen delivering one of her lectures in Image 4-13. She spoke to the following groups:

1. Geelong Historical Society re: 1. 'Natives of South Coast Littoral' of N.S.W. (where Lane worked on sites with a Group from Canberra before returning to Victoria) and 2. 'The Inhabitants of Terra Nullius'.
2. Queenscliff Historical Society. 1. 'Natives of Paywit' and 2. 'Tale-endings of the Bengala Story' re: the Thylacine-bone from Portarlington Cliffs.
3. Friends of the Anakies (Talk given at Lake Condah) re: vegetation from Geelong and district and how it was used by the Indigenes.
4. Friends of the Eastern Gardens re: The Indigenes who occupied that area - what they ate. Where they hunted meat and where they gathered vegetable foods.
5. Balliang Farmer's Association re: The Indigenes of their geographical area (Tolloora bulluc estate) - Lifestyle and Artefacts.
6. Probus Club, Highton re: Hunting techniques and diets of the Tribal-people.
7. Probus Club, Drysdale re: The Material Culture of the local Indigenes. The matter from this lecture was shared with the Association for the Blind under the heading of 'Voices in the dark' a group of Blind People connected by phone for mutual conversation.
8. Bellarine Historical Society re: Lifestyle of Aboriginal clans adjacent to Drysdale, with tour of the complex of living mounds around 'Two Lakes'.
9. Retired Tramways Employees re: Stone artefacts of the local clans people.
10. Pt. Lonsdale Reconciliation Walk re: the First Folk who inhabited Pt. Lonsdale / Queenscliff area.
11. Multiple Clubs at Highton re: Whose land are we living on?
12. Fine Arts School Group Studio on the Barwon re: The origins of the Indigenes of Australia.

* Note: Lane had an extensive collection of artefacts (several thousand) that had been meticulously catalogued and cross-referenced to site locations on maps and classified using the standard archaeological system. Some of these are housed in the National Archives of Australia in Canberra and with the Wathaurong Aboriginal Co-operative archives; many were disposed of to the Geelong tip prior to her immediate relocation to a Queensland nursing home.

Image 4-13 Lane delivering a lecture



Source: Lane's personal files

Lane mentioned in one of her typescripts her sincere objective and willingness to talk to people and create awareness of the pre-history of this Country.

I am frequently asked to speak to Groups re: the Indigenous People, and it is my sincere hope that what I tell my audiences will help them to understand something of Aborigines and their lives prior to the invasion of white migrants from Europe.¹⁷²

4.6.11 Conducted short courses on Aboriginal culture

Lane noted in one of her typescripts her objective in sharing her knowledge:

It has become my aim, after years of study into the lifestyles of the Indigenous Peoples of this particular District to make sure all my audiences are made aware that the Aborigines were a well organised and highly disciplined Society whose lives were constantly directed and modified by their religious faith in the teachings of their primeval Ancestors who, they believed, promulgated the Law in the far past.¹⁷³

Lane also conducted courses on 'Traditional Aboriginal Lifestyle' (Geelong and District) including short courses of the Local Indigenous tongue at:

1. University of the 3rd Age for two years, and
2. Narana Creations for two years.

I taught them that the Indigenes of Terra Nullius enjoyed an egalitarian and well-regulated Society, most of whose activities were controlled by religious motives and that many of their customs are comparable with our own. If they learned that the Indigenes practised methods which conserved

*their natural habitat in a land wherein they not only survived but also prospered, I will have done something to allow them to understand our Indigenes better than they did before.*¹⁷⁴

It was during her time teaching at the University of the 3rd Age that her adult students desired to hear about working on a 'dig'. 'I had enjoyed doing so at Bluegum Creek in Darke's Forest, N.S.W., at Jumbuk in the far Western District, Victoria, at Wooreena in Queensland, at Wood Wood, near Swan Hill, Victoria, and had visited many living sites on the South Coast of N.S.W. and Victoria. I chose Woork:Woork on the Murray River (which meant the Boobook Owl)'.¹⁷⁵ Details of the daily routine and the scope of activities and processes completed on an hour by hour bases can be found in the file: Lane, L.N. 'Working on an archaeological dig at Woork:Woork'(1996).¹⁷⁶

4.6.12 Consultant

Lane's prolific and dedicated research made her the 'go to' person within the Geelong region for Indigenous interpretation, giving many an address to communities, to school groups and various societies during the 1970's and 1980's. Lane became a Consultant for the following organisations:

1. Narana Creations
2. Wathaurong Aboriginal Co-operative.

The Cultural Officer of the Wathaurong Aboriginal Co-operative at the time, Mr Trevor (Reg) Abrahams often referred outside queries to Lane.¹⁷⁷ This resulted in many people contacting her for advice, including:

1. C.S.I.R.O
2. Geelong Aboriginal Co-operative (predecessor of Wathaurong Aboriginal Co-operative)
3. South Barwon Municipal Council
4. The Geelong Art Gallery
5. Jerringot Wildlife Committee
6. Norlane High School
7. Bellarine Historical Society
8. Native Plant Garden, in Belmont
9. Local Aboriginal Artists
10. LaTrobe Library
11. South Barwon College
12. Geelong and District for Senior Class Aboriginal studies
13. Deakin University – students and staff
14. Wetland Education Centre, Serendip
15. Friends of the Gardens
16. Geelong Cemeteries Trust
17. Council of Greater Geelong
18. Plus many residents of the Greater Geelong region

4.6.13 Joint curator of exhibition with Deakin University 1993

Lane provided the raw materials, locally discovered artefacts, along with supporting documentation and an explanation of Wadawurrung names,

background and cultural overview for the exhibition held at Deakin University in 1993.

4.6.14 Instrumental in converting private land to heritage sites

Lane was instrumental and often the catalyst for converting private land into heritage sites or archaeological reserves after her discoveries or site investigations. Places such as Jerringot and Yollinko Park, which was once a part of Harrison's farm, and Wurdi Youang which once stood on the Chirnside estate, are now sites that recognise the Traditional Owners of this Country.

Lane was also instrumental in ensuring that living monuments to the Wadawurrung were conserved and maintained such as the Canoe tree located on Queens Park Golf Course, Geelong refer Image 4-14.

Image 4-14 Lane conserving Indigenous Monuments



Source: Lane¹⁷⁸

Photo by Laurie Connole,
V.A.S. 10.8.1988

Left to right: Ivan Earl, Tree Expert.

Gary Cotton, Reporter, *Geelong Advertiser*

Lane, Sites Recorder, Geelong & District Maggie Baron, Conservator, V.A.S.

4.6.15 Establishing Wadawurrung terms into English language

Lane was instrumental in ensuring the Wadawurrung names were officially used for Jerringot Reserve and Yollinko Park amongst others. This has conserved part of the Wadawurrung language by passing these words into modern language as part of English orthography, albeit adapted from the spoken word by being recorded in English language. Lane took great pride in this accomplishment. 'Yollinko meaning 'whilom' or a time before the present; Jerringot meaning the place of many billabongs was applied to Belmont Common by the Wadawurrung and is now applied to the wild-life refuge, there'.¹⁷⁹

4.6.16 Recognition and dedication by V.A.S.

Despite over one thousand students attending the Summer Schools at V.A.S., and those couple of hundred that went on to become Wardens and Inspectors around

the state, it was Lane who received a dedication in the front of *The Records of the Victorian Archaeological Survey* (9th volume, August 1979) which reads:

*This volume is dedicated to Mrs L Lane, a true friend and supporter of the Survey throughout its formative years.*¹⁸⁰

This is quite a significant recognition for Lane, demonstrating her high regard as an enthusiastic amateur archaeologist and that her work was considered by those within the V.A.S. of a high standard. Documented within the V.A.S. Site Inspection Report for site 7721/142 the following was written by Gabrielle Brennan of the V.A.S. May 1992:

*Mrs Lane showed me the artefacts she had collected and was in the process of recording. Mrs Lane has a thorough understanding of Aboriginal stone technology gained through years of experience as an amateur archaeologist. It was my intention to take the artefacts and record them myself but Mrs Lane was still in the process of cataloguing and recording them. Furthermore I felt it was not necessary to make additional recordings as the work Mrs Lane was carrying out will provide a complete record of the assemblage ... Mrs Lane has a wealth of knowledge about the location and nature of Aboriginal sites in the Geelong area. I believe that Mrs Lane's knowledge should not remain untapped and from my impression I think she would welcome imparting the fruits of her research.*¹⁸¹

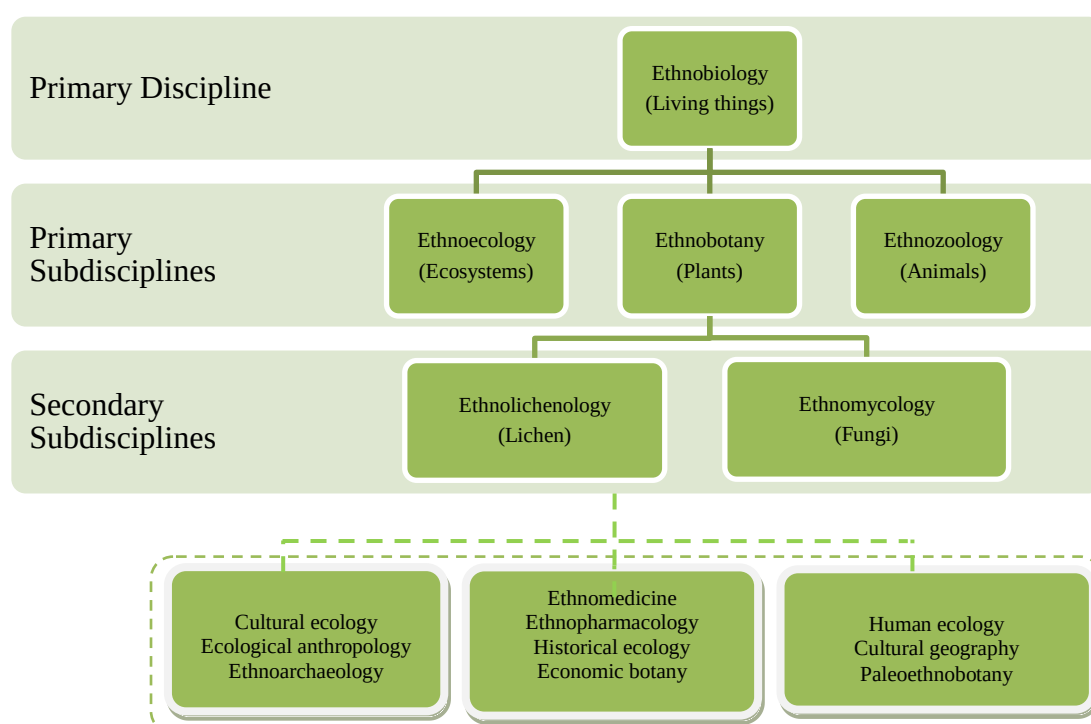
Lane was not only a conscious citizen and formidable researcher but she was an activist by initiating the conservation of sites and language and was willing to share her knowledge through consultations, lectures as a guest speaker or through the delivery of short courses.

In 2003 Lane suffered a mild stroke and needed to move into residential care in Queensland to be close to her only child. She passed away on 4th January 2015 in a Queensland nursing home, leaving her son¹⁸² John Boetje, his wife Marion and their son.

5 Chapter 5: Ethnobotany

Ethnobotany is an academic study of people and their use of plants. Because ethnobotany sits within the field of ethnobiology it is prudent to contextualise ethnobotany within the framework of other ‘ethno’ sciences. Figure 5-1 depicts the position of ethnobotany, as a sub discipline, sitting under the primary discipline of ethnobiology along with ethnozoology and ethnoecology. There are a number of correlated disciplines that sometimes overlap or are a subset of ethnobotany such as paleoethnobotany.

Figure 5-1 Ethno sciences



5.1 Definitions

To further contextualise ethnobotany, key primary and secondary disciplines are provided in detail below.

5.1.1 Ethnobiology

Ethnobiology is the holistic study of all living things and how they are used by different cultures. ‘*Ethnobiology* is the study of the relationships between people, the life forms surrounding them, and the environment in which they live, in the past or present.’¹⁸³

5.1.2 Ethnoecology

According to ethnoecologist Casagrande, ‘ethno’ refers to human culture and ‘ecology’ refers to interactions between organisms and the physical environment. Ethnoecology is the cross-cultural study of how people perceive and manipulate their environments.’¹⁸⁴ Essentially, it is a study of how different groups of people

living in various areas interpret the ecosystems surrounding them and interact in the environment that they live in.

5.1.3 Ethnobotany

The ‘father of ethnobotany’, Richard Evans Schultes, once explained that the academic discipline of ethnobotany simply means ‘investigating plants used by primitive societies in various parts of the world.’¹⁸⁵

Biologist and ethnobotanist Giovannini believes ‘the term ethnobotany comes from the Greek word *ethnos*, which means ‘people’, and *botane* which means ‘herb’, so literally it would be translated as ‘the study of people and herbs’, which usually is generalized as ‘the study of people and plants’.¹⁸⁶

The United States Department of Agriculture Forest Service defines ethnobotany in a broader sense as ‘the study of how people of a particular culture and region make use of indigenous (native) plants. Since their earliest origins, humans have depended on plants for their primary needs and existence. Plants provide food, medicine, shelter, dyes, fibres, oils, resins, gums, soaps, waxes, latex, tannins, and even contribute to the air we breathe. Many native peoples also used plants in ceremonial or spiritual rituals. Examining human life on earth requires understanding the role of plants in historical and current day cultures.’¹⁸⁷

Australian ethnobotanist, Clarke, similarly explains that ‘an ethnobotanical study is an investigation of specific groups of humans and their relationships with the plant world.’¹⁸⁸

Simply put, ethnobotany is the study of how plants are/were used by a particular culture. ‘Ethno’ from ‘ethnology’ is the study of culture and ‘botany’ is the study of plants. Therefore ethnobotany is the study of the relationship that exists between people and plants.

Ethnobotany also provides the detailed evidence from the diversity of plant species that ethnoecology debate is in-part based upon. Ethnobotany contributes to the pool of scientific evidence that endeavours to answer questions of the human species evolutionary past and how the society we live in came to be and why we live the way we are living. It helps us to understand change. This reflection will help us find answers for the future – either learning from the mistakes of our ancestors or learning how our ancestors achieved longevity by being dependant on the environment but without impacting it in the same way modern society has. One way of measuring biodiversity is looking at the past and how Indigenous People lived and used plants in nearly every aspect of their daily lives. This raises questions such as: what were the plants they used and how did they use them? Answers to questions like these establish a baseline of the types of plants that existed and their importance to many Indigenous communities.

5.1.3.1 Ethnobotanical lore

Ethnobotanical lore arises as ‘beliefs, stories, myths, instructions, songs, art forms, rituals, recipes, and practices. The lore has for millennia informed the young people of these cultures in how to be human in a natural world. *Lore* comes from the same root word as *learn*. It includes both knowledge and know-how,

passed down from ancestors.’¹⁸⁹ The ability for a culture to promulgate lore is fundamental to the survival of a culture as the essence of that culture’s beliefs are transferred in meaningful ways down through the generations.

5.1.4 Ethnolichenology and ethnomycology

Although fungi and lichen are classified as a separate kingdom to plants, in the ethnobiology world ethnomycology and ethnolichenology are considered a secondary sub-discipline governed under ethnobotany which is probably due to the comparatively lesser known knowledge in these areas to date. Nonetheless, ethnolichenology is the study of the relationship between people and lichens, whilst ethnomycology is the study of the relationship between people and fungi.

5.1.5 Economic Botany

From the pages of the journal *Economic Botany* published by the Society of Economic Botany, a broadly defined definition of economic botany is the study of ‘plants utilized either directly or indirectly for the benefit of Man.’¹⁹⁰ This was further explored to range from ‘in-depth knowledge on the use of plants in the wild (ethnobotany) through to an appreciation of the requirements for commercial production and to also include agriculture and industrial processing.’¹⁹¹

To many researchers, the terms economic botany and ethnobotany are used interchangeably. However to some, the name implies that the focus of economic botany is on those plants that generate economic value or significance such as medicines or food, and/or have an impact on an economy, whereas ethnobotany looks at the myriad of ways in which particular Indigenous cultures used plants and interacted with them, regardless of any economic value.

Wickens explains that ‘economic botany should be considered as a subdivision of ethnobotany with monetary implications and ethnobotany is the study of useful plants prior to their commercial exploitation and eventual domestication’.¹⁹²

Ethnobotanist Giovanni, believes that economic botany is a sister discipline of ethnobotany and comments ‘while the definition of the two disciplines is often the same, the main difference is that ethnobotany is more concerned in understanding and taking in to account local viewpoint and perceptions rather than only the scientific viewpoint. What is often referred in academic literature as the distinction between the emic and the etic view point.’¹⁹³

5.1.6 Traditional Knowledge (T.K.)

Traditional Knowledge (T.K.) is at the heart of ethnobotany. Ethnobotany draws on Traditional Knowledge about plants and their uses by particular cultural groups.

The Convention on Biological Diversity (C.B.D.) defines T.K. as employed to mean knowledge, innovations and practices of Indigenous and local communities embodying traditional lifestyles.¹⁹⁴ The C.B.D. further explains this knowledge has been

developed from experience gained over the centuries and adapted to the local culture and environment, T.K. is transmitted orally from generation

*to generation. It tends to be collectively owned and takes the form of stories, songs, folklore, proverbs, cultural values, beliefs, rituals, community laws, local language, and agricultural practices, including the development of plant species and animal breeds. Sometimes it is referred to as an oral tradition for it is practiced, sung, danced, painted, carved, chanted and performed down through millennia. Traditional knowledge is mainly of a practical nature, particularly in such fields as agriculture, fisheries, health, horticulture, forestry and environmental management in general.*¹⁹⁵

T.K. is also used interchangeably with the term ‘Indigenous Knowledge’ (I.K.) which is defined by The United Nations Educational, Scientific and Cultural Organisation (U.N.E.S.C.O.) as the ‘local knowledge that is unique to a culture or society. Other names for it include: ‘local knowledge’, ‘folk knowledge’, ‘people’s knowledge’, ‘traditional wisdom’ or ‘traditional science’. This knowledge is passed from generation to generation, usually by word of mouth and cultural rituals, and has been the basis for agriculture, food preparation, health care, education, conservation and the wide range of other activities that sustain societies in many parts of the world’.¹⁹⁶

5.1.7 Traditional Ecological Knowledge (T.E.K.)

Traditional Ecological Knowledge (T.E.K.) is considered a subset of I.K. or T.K. Berkes *et al.* defines T.E.K. as a ‘cumulative body of knowledge and beliefs, handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment’.¹⁹⁷ Furthermore, Berkes *et al.* highlights the importance of T.E.K. not only for its ‘own sake and for its social/cultural value’, but for many practical reasons to which they list as the following:

1. T.E.K. offers new biological knowledge and ecological insights
2. Some T.E.K. systems provide models for sustainable resource management
3. T.E.K. is relevant for protected areas and conservation education
4. The use of T.E.K. is often crucial for development planning and
5. T.E.K. may be used in environment assessment.¹⁹⁸

5.1.8 Indigenous Biocultural Knowledge (I.B.K.)

Indigenous Biocultural Knowledge (I.B.K.) is an adapted term of T.E.K., ‘but with the emphasis on the importance of cultural connections between humans and what western science identifies as the biophysical world’.¹⁹⁹ Ethnobotanist and Mbabaram (Aboriginal) Traditional Owner Gerry Turpin explains that IBK is ‘knowledge that encompasses people, language and culture and their relationship to the environment’.²⁰⁰

5.2 History of ethnobotany

The academic discipline of ethnobotany (although not yet named as such) was gathering momentum during the 17th century at the time of European and colonial expansion. During a historical review as part of a joint undertaking with U.N.E.S.C.O. and the United Nations University (U.N.U.), they identified that:

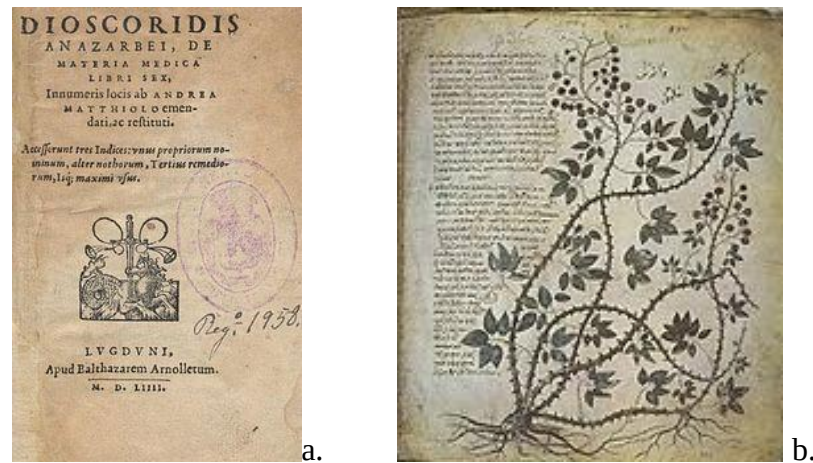
*Traditional Knowledge is as ancient as humankind, and it is in Traditional Knowledge that the origins of science are rooted. In the seventeenth and eighteenth centuries, with European colonial expansion, the newly established scientific disciplines of ethnobotany and ethnozoology thrived on an influx of new knowledge from Traditional Knowledge holders across the globe. Their primary mission, however, was not to understand these other knowledge systems per se, but rather to glean from them information for the development of colonial science. Their efforts focused on compiling lists of ‘useful’ plants and animals unknown to European science.*²⁰¹

However the principle of ethnobotany has been around for much longer than the U.N.E.S.C.O. report suggests, ‘since the beginning of human civilisation, people have used plants as food and medicine. Indian Sanskrit and Rigveda show thousands of plant species used as food, medicine, agriculture tools, and for religious purposes. Perhaps as early as Neanderthal man, plants were believed to have had healing power’.²⁰²

Uddin, ethnobotanist and Head of the Ethnobotany Laboratory, Department of Botany, Chittagong University, Bangladesh, has researched the history of ethnobotany. Uddin observed from Jain and Mudgal that recorded ethnobotany in the Indian subcontinent may be the earliest in the world and date back to 4000-1500 B.C. ‘Plants were recorded in use for worship, medicine, food, fuel and as agricultural implements which are mentioned in the ancient Indian literature and in the religious books of the Hindus. These are Rigveda, Atharvaveda, Upanishads, Mahabharata and Puranas.’²⁰³ ‘The earliest recorded uses found in Babylon circa 1770 BC in the Code of Hammurabi and in ancient Egypt circa 1550 B.C.’²⁰⁴

In AD 77, the Greek surgeon Dioscorides published *De Materia Medica*, which was a catalogue of about 600 plants in the Mediterranean and the medicines that can be obtained from them. It has been one of the longest and most widely circulated and translated publication of any non-religious book. It was a primary reference book that was commonly used by physicians and in hospitals for over 1,500 years and was still known to be in use in the early part of the 20th century. Image 5-1a illustrates a cover of an early printed version of *De Materia Medica*, Lyon, 1554, whilst Image 5-1b shows an illustrated Dioscorides manuscript written in the original Greek language from sixth-century Constantinople showing a blackberry plant and its uses.

Image 5-1 a&b Early printed versions of De Materia Medica

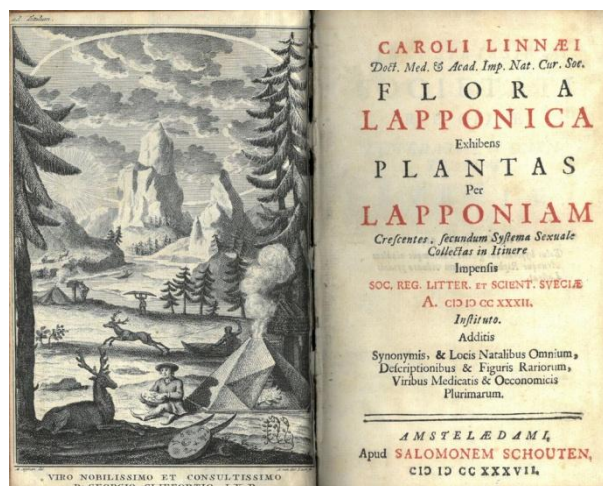


Source: Hefferon²⁰⁵

Throughout the medieval period, botanical knowledge and ethnobotanical studies were primary functions of monasteries where research was undertaken to identify suitable plants to heal applicable ailments. These medicinal plants were then grown in physic gardens alongside hospitals for application of this knowledge.

In 1732 Linnaeus was appointed by the Royal Academy of Sciences to journey to Sápmi, then known as Lapland, on a research expedition 'to describe the nature of what was then considered a remote wilderness.'²⁰⁶ Linnaeus spent time with the Sami people investigating how they survived in such a harsh environment and identified plants and animals that enabled their survival. Linnaeus published a book from this expedition called *Flora Lapponica* as seen in Image 5-2, listing plants of the region and their uses. Observations from this expedition, amongst others were instrumental in developing the hierarchical system of the classification of nature.

Image 5-2 Flora Lapponica by Carl Linnaeus



Source: Linnaeus²⁰⁷

During the 18th and 19th century naturalists, botanists and plant collectors such as Charles Darwin, Joseph Banks and Ferdinand von Mueller were not only focussed on finding exotic plants from far flung countries, but there was particular interest in those plants that had been used by Indigenous People that had a functional

purpose or potential economic value. Banks was responsible for exporting Australian species to herbariums and plant collectors in England, by 1800 there were 170 cultivated Australian species in Britain.²⁰⁸

However it was Harshberger a botanist and lecturer at the University of Pennsylvania who 'first introduced the term ethnobotany in about 1895,' according to ethnobotanist Mohamad.²⁰⁹ It was coined in 'the study of the utilitarian relationship between human beings and vegetation in their environment, including medicinal uses'.²¹⁰

Although Harshberger first used the term, the founding father of ethnobotany, as an academic discipline, is considered to be Richard Evans Schultes (1915-2001). Schultes was a Harvard trained biologist dedicated to the study of ethnobotany of the plants and Indigenous People of the Amazon. During his field trips he collected over 30,000 herbarium specimens, which upon his death was bequeathed to the Harvard University Herbaria.

Schultes ethnobotanical studies had been fostered and guided by his doctoral advisor Oakes Ames. Ames was Harvard educated and maintained his career at Harvard as the Professor of Botany and Director of the Botanic Garden and Chairman of the Council of Botanical Collections amongst many other positions. Ames was responsible for the classification of most of the *Orchidaceae* family and donated his collection to Harvard University, including a large herbarium. The Harvard University Economic Herbarium of Ames consists of about 40,000 specimens of economically important plants of cultivated and wild origin.²¹¹

As a result of ethnobotany becoming accepted as an academic discipline at the early part of the 20th century with Harvard University becoming the epicentre for ethnobotanical education and the benefactor for research expeditions; various educational institutions spawned their own ethnobotanical courses around the world. The resulting alumni from these courses established societies such as The Society for Economic Botany (1959) and The Society of Ethnobiology (1977).

These societies were instrumental in initiating a code of ethics to guide researchers, such as the ethics guidelines of the Society of Economic Botany 1994 and the International Society of Ethnobiology in 2006.

During the 20th century there was an explosion of interest in the use of plants primarily for medicinal, psychoactive and psychedelic drug purposes from pharmaceutical companies to herbalists to the amateur healer or user.

Although the academic study of ethnobotany has been gaining traction during the 20th and 21st centuries, inversely the amount of knowledge holders and their knowledge is in decline. The demise in ethnobotanical knowledge in Europe was attributed to a 'shift from a rural, agriculturally based subsistence economy to a market oriented one.'²¹² Much unlike Australia where the T.E.K. of the Indigenous Peoples was largely lost since European colonisation which brought disease, displacement and genocide along with the introduction of foreign animals and plants that destroyed or out competed many indigenous plants.

5.3 International initiatives and governance

5.3.1 United Nations governance initiatives

The unprecedented global interest in ethnobotanical commercial pursuits sparked concerns for the impact on Indigenous cultures and an exploitation of their knowledge base primarily by pharmaceutical companies. A realisation was taking place by the international community during the latter part of the 20th century that Traditional Ecological Knowledge was not being conserved and or being used for ‘the greater good’ such as topical environmental issues like food security and climate change. With this, the United Nations (U.N.) and their relevant bodies intervened and introduced governing policies such as Principle 22 of the ‘*Rio Declaration on Environment and Development*’ (June 1992) that came out of the United Nations Conference on Environment and Development in Rio de Janeiro, which sought to build upon and reaffirm the *Declaration of the United Nations Conference on the Human Environment*, adopted at Stockholm on 16 June 1972. Principle 22 reads as follows:

*Indigenous People and their communities and other local communities have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognize and duly support their identity, culture and interests and enable their effective participation in the achievement of sustainable development.*²¹³

The U.N.’s *Declaration on the Rights of Indigenous People* was a resolution adopted by the General Assembly on 13 September 2007. The resolution recognises:

*...the rights of Indigenous Peoples on a wide range of issues and provide a universal framework for the international community and States. The Declaration sets out the rights that countries should aspire to recognize, guarantee and implement. In that sense, the Declaration establishes a framework for discussions and dialogue between Indigenous Peoples and States.*²¹⁴

The *Declaration* recognises:

*... that respect for indigenous knowledge, cultures and traditional practices contributes to sustainable and equitable development and proper management of the environment.*²¹⁵

More specifically, Article 24 of the U.N.’s *Declaration on the Rights of Indigenous People* states:

*Indigenous Peoples have the right to their traditional medicines and to maintain their health practices, including the conservation of their vital medicinal plants, animals and minerals.*²¹⁶

Additionally, Article 31 of the U.N.’s *Declaration on the Rights of Indigenous People* states:

*Indigenous Peoples have the right to maintain, control, protect and develop their cultural heritage, Traditional Knowledge and traditional cultural expressions, as well as the manifestations of their sciences, technologies and cultures, including human and genetic resources, seeds, medicines, knowledge of the properties of fauna and flora, oral traditions, literatures, designs, sports and traditional games and visual and performing arts. They also have the right to maintain, control, protect and develop their intellectual property over such cultural heritage, Traditional Knowledge, and traditional cultural expressions.*²¹⁷

This *Declaration on the Rights of Indigenous Peoples* was initially adopted by the General Assembly by a majority of 144 states in favour, 4 votes against - Australia, Canada, New Zealand and the United States plus 11 abstentions.²¹⁸ The Australian Government later announced its support for the *Declaration* in 2009.

5.3.2 U.N.E.S.C.O. governance initiatives

In October 2016 U.N.E.S.C.O. led a workshop on ‘Mainstreaming Traditional Knowledge to support Climate Change Adaptation Policies’. This workshop was focussed on the valuable role that T.K. plays in its ‘adaption to climate change variations. The objective of the workshop was to present and receive inputs to strengthen the role of T.K. in climate change adaptation by integrating T.K. in climate research and resource planning and to explore strategies to incorporate T.K. into climate change assessments, policy and adaptation efforts at local level including gender concerns.’²¹⁹

Additionally, as an annex to the action plan for the implementation of the U.N.E.S.C.O. Universal Declaration on Cultural Diversity (adopted in 2001), the document refers to the rights of Indigenous Peoples:

*Respecting and protecting Traditional Knowledge, in particular that of Indigenous Peoples; recognizing the contribution of Traditional Knowledge, particularly with regard to environmental protection and the management of natural resources, and fostering synergies between modern science and local knowledge.*²²⁰

5.3.3 Other international governance initiatives

Other international standard-setting instruments provide for the protection of Indigenous Peoples.²²¹

1. Convention on the Protection and Promotion of the Diversity of Cultural Expressions article 7;
2. Convention for the Safeguarding of the Intangible Cultural Heritage, article 15;
3. Convention on Biological Diversity (C.B.D.), articles 8j, 10c, 15

The United Nations Environment Programme (U.N.E.P.) initiated the *Convention on Biological Diversity (C.B.D.)* in 1988, and recognizes the dependency of Indigenous and local communities on biological diversity and the unique role of Indigenous and local communities in conserving life on Earth:

*Earth's biological resources are vital to humanity's economic and social development. As a result, there is a growing recognition that biological diversity is a global asset of tremendous value to present and future generations. At the same time, the threat to species and ecosystems has never been as great as it is today. Species extinction caused by human activities continues at an alarming rate.*²²²

Article 8j states that:

*... each contracting Party shall, as far as possible and as appropriate and subject to national legislation respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge innovations and practices.*²²³

The C.B.D. is a multilateral treaty and is the most widely supported international environmental agreement and involves most of the world's governments, with 193 parties, including Australia whom ratified the C.B.D. on 18 June 1993. In 2002, the C.B.D. adopted a Global Strategy for Plant Conservation (G.S.P.C.). This was subsequently updated in 2010 with the aim of freezing the loss of plant species worldwide by 2020. The updated G.S.P.C. includes 16 targets to be achieved by the year 2020.

Under the heading 'Objective (2) of Plant Diversity Conservation', Target 9 stipulates that '70 per cent of the genetic diversity of crops including their wild relatives and other socio-economically valuable plant species are to be conserved, while respecting, preserving and maintaining associated indigenous and local knowledge'. This target coupled with Target 13 which stipulates 'Indigenous and local knowledge innovations and practices associated with plant resources maintained or increased, as appropriate, to support customary use, sustainable livelihoods, local food security and health care'²²⁴ are fundamental guiding principles.

The United Nation's *Convention on Biological Diversity* coupled with U.N.E.S.C.O. policies are the main instruments for conserving T.E.K., which is at the heart of ethnobotany.

5.4 Ethnobotany knowledge contribution

Ethnobotany contributes to the body of knowledge as research may identify new properties or use of plants compared to those previously recognised or those currently cultivated or engaged in use today. This could provide new opportunities or meaning to indigenous plants to prevent the destruction that is seen as a result of rapid urbanisation and climate change.

Ethnobotanical research has been motivated by many drivers. Some of them have less than honourable motives that are more economic based benefits such as those that exploit ethnobotanical knowledge for pure profits. The pharmaceutical

industry has been known to perpetuate this theory with little or no regard to the knowledge base in which the T.E.K. was gleamed. However, there are other beneficial uses of this knowledge for the greater good that can include the following.

5.4.1 Environmental conservation and management

Other motivations can be more virtuous such as establishing sustainable agricultural management practices or searching for a cure for diseases and or protecting native habitats such as those in Utah and Nevada. Ethnobotanist Cox, who is an activist for biological conservation, contributed to the establishment of the 50th US National Park by defeating the proposed MX missile project by using ethnobotanical knowledge to protect endangered species.²²⁵

Contending with environmental change was the focus of the joint U.N.E.S.C.O. and United Nations University (U.N.U) report on *Traditional Knowledge for Climate Change* which recognises the important role that Traditional Knowledge plays in this plight:

*These knowledge systems are transmitted and renewed by each succeeding generation, and ensure the well-being of people around the globe by providing food security from hunting, fishing, gathering, pastoralism or small-scale agriculture, as well as healthcare, clothing, shelter and strategies for coping with environmental fluctuations and external forces of change.*²²⁶

This report also recognises other substantial contributions to knowledge that T.E.K (including ethnobotany) has already made:

1. biodiversity conservation and wildlife management
2. customary marine resource management
3. impact assessment
4. natural disaster preparedness and response
5. rural development and agro-forestry
6. traditional medicine and health²²⁷

5.4.2 Re-establishing cultural identities

At the turn of the millennia there was a great rise in globalisation and along with this arrived homogenisation of cultures, languages and the standardisation of processes. As a reaction to this, many cultures have found an enhanced need for differentiation or decentralised regionalism in order to re-assert regional identities which can be seen ‘characterised by regional foods, music, artefacts and products’.²²⁸ In a world competing globally for the tourism dollar, advancing the Indigenous cultural offerings can be a way of growing the local economy.

Ethnobotany has been instrumental in communities re-establishing their identities. Thus, ‘some of these wild plants and the practices associated with them have received renewed attention as symbols of local identities’²²⁹ or forms of intangible cultural heritage which is now protected by the *U.N.E.S.C.O. Convention for the Safeguarding of Intangible Cultural Heritage 2003*.

Many ethnobotanical studies originate from Europe as its 45 countries and 239 languages, which are further subdivided into regional dialects, are considered to be one of the most bio-culturally dynamic places on the planet. It has led to a multitude of ecological conditions, agro-ecosystems, cultures and ethnobotanical traditions due to its geographical linguistic historical richness'.²³⁰ However, this assessment does not take into consideration the approximate 500 Language Groups of Australia that are further subdivided in to various clan dialects that lived in considerable geographic and biodiversity.

Pardo describes how gathering practices of food and medicinal plants are becoming more popular throughout Europe. 'This is often a result of the new regionalism and the accompanying tourism that demands local authenticity in food, wine, architecture and even landscape. Across Europe's many small markets, numerous local, plant-based products are appearing.'²³¹ These unique and non-homogenous plant products are often rebadged as gourmet foods or customised boutique wares.

5.4.3 Ecotourism

More recently, there has been a popular shift toward Ecotourism which is creating demand for 'natural' experiences with 'controlled access to sensitive habitats.'²³² Using ecologically sustained approaches whereby the tourist can 'interact with the local and/or Indigenous People in a culturally sensitive way, allows people who live in endangered areas of rich biodiversity to earn more money from preserving their environment than by logging it to grow cash crops.'²³³ It is during these experiences that 'eco-tourists' seek to be informed to enhance the value or meaning of their encounter, and this information is usually ethnobotanical in nature. Generating local income in these communities can help support the retention of the Indigenous community without having to seek income elsewhere. Tourist income can additionally be used for further research and conservation and retention of cultural and species diversity.

Pardo also raises concerns for the future which has an impact on ethnobotany moving forward:

in the context of Europe's dynamic past and present, the sustainable use of plant resources into the future is a common interest of many authors. Since many of these are wild plants, their conservation and sustainable use is problematic. With land being squeezed for expanding cities, housing, roads and pasture, where are wild plants going to survive? Who controls wild plants? Can public policies regulate these resources?'²³⁴

And here in lies the importance of ethnobotanical knowledge - as the study of cultures and their use and dependence on the diversity of plants can assist in establishing the value of preserving these plants and habitats for the future.

5.5 Education in ethnobotany internationally

Ethnobotany has been formally recognised as an academic discipline for over 100 years, since Harvard University established formal academic learning in ethnobotany. Since then other universities and institutions have followed their lead. Table 5-1 Academic courses in ethnobotany is a sample of the available

courses in ethnobotany, but a more comprehensive list is found on The Society for Economic Botany's website²³⁵ listing over 50 universities and institutions offering an education in ethnobotany:

Table 5-1 Academic courses in ethnobotany

Institution	Qualification	Overview (profiles sourced from respective web pages)
Harvard University	BSc - plants, potions and pharmaceuticals: ethnobotany and biopiracy	With rising pandemics of mosquito-borne viruses like Zika, malaria, dengue and continuing searches for cures for Ebola, cancer and HIV/AIDS, plants (as well as animals) provide insight, inspiration, and often resources /ingredients for possible cures. The World Intellectual Property Organization and the United Nations Educational, Scientific, and Cultural Organization have dedicated special programs for Traditional Knowledge (folklore) and genetic resources (biological specimens of plants and animals). The high value placed on Traditional Knowledge, particularly from indigenous communities, has led to vandalism and biopiracy of plants and animals across national borders. This course will examine how the category of the plant, not simply the animal, is politically-charged, particularly in terms of biodiversity conservation, indigenous intellectual property rights, and pharmaceutical development. Among our readings and foragings, we will encounter the works of famed Harvard ethnobotanist Richard Evans Schultes and his successors. https://courses.harvard.edu/detail?q=id:d_colgsa_s_2016_2_203877_001&returnUrl=search%3Ffq_dept_area_category%3Ddept_area_category%253A%2522Folklore%2520and%2520Mythology%2522%26q%3D%252A%26sort%3Dscore%2520desc%252Ccourse_title%2520asc%26start%3D0%26rows%3D25
Yale University	Ethnobotany - MSc	Ethnobotany is the scientific study of mutual relationships between peoples, plants and the environment. This course will present ethnobotany as a broad interdisciplinary field at the interface of anthropology and botany and discuss its methodology, ranging from plant inventories to multivariate analysis of plant knowledge. The course will focus on classic themes of interest to ethnobotany, such as the importance of plants for local livelihoods (including nutrition and medicine) and the ethnobotanical importance of selected plant families, but will also explore topics of current ethnobotanical investigation, such as urban ethnobotany, intellectual property rights, development cooperation, biocultural diversity and conservation. The course topics have been selected to provide an all-round overview of how ethnobotany research has evolved over the past decades and represent a well-rounded mix of theory and practice, with the aim to prepare

		an aspiring junior ethnobotanist for field research. https://environment.yale.edu/courses/2016-2017/detail/681/
The University of Kent partnered with the Royal Botanic Gardens at Kew, Botanical Gardens Conservation International, The Eden Project and The UCL School of Pharmacy.	Ethnobotany - MSc	Ethnobotany is quintessentially interdisciplinary, involving knowledge and use of plants and their ecology in the context of their cultural, social and economic significance. This programme combines anthropological studies of human-environment interaction and socio-cultural knowledge of plants in different parts of the world with ecology, conservation science, biodiversity management and climate change science. It also covers medicinal plant use and ethnopharmacology, plant conservation and sustainable management practices, taxonomy, and economic botany. Students will receive practical training in mixed methods and learn to conduct interdisciplinary research in ethnobotany, in preparation for doctoral research or a career in related fields. https://www.kent.ac.uk/courses/postgraduate/189/ethnobotany
Columbia University	Environmental Biology	A survey of the relationships between people and plants in a variety of cultural settings. Sustainability of resource use, human nutrition, intellectual property rights, and field methodologies are investigated. http://e3b.columbia.edu/courses/graduate/
The City University of New York	Post graduate research focus	Faculty dedicated to Economic Botany, ethnobotany and Pharmacognosy. https://www.gc.cuny.edu/Page-Elements/Academics-Research-Centers-Initiatives/Doctoral-Programs/Biology/Faculty/By-Research-Focus/Economic-Botany,-Ethnobotany,-And-Pharmacognosy
Frostburg State University	Bachelor of Science in ethnobotany	This degree is one of a few undergraduate programs in ethnobotany in the United States. Students can major or minor in the relationships between peoples and plants. http://www.frostburg.edu/ethnobotany/

5.6 International ethnobotany and economic botany organisations

There are various societies and organisations that share similar objectives that include exploring the use of plants by humans past and present. These organisations are made up of multidisciplinary members from ethnobotanists, botanists and ethnobiologists amongst many others disciplines. Some of the more globally known and longest established are the following:

5.6.1 The Society of Economic Botany

Established in 1959, The Society for Economic Botany (S.E.B.) has membership across 64 countries and encourages scientific research and education. S.E.B. hosts annual conferences around the globe and releases a quarterly peer review journal called *Economic Botany* which ‘publishes original research articles and notes on a wide range of topics dealing with the utilization of plants by people, plus special reports, letters and book reviews and specializes in scientific articles on botany, history, and evolution of useful plants and their modes of use’.²³⁶ S.E.B. website: <http://www.econbot.org/>

5.6.2 The Society of Ethnobiology

Established in 1977, The Society of Ethnobiology mission is ‘to promote and perpetuate the interdisciplinary study of the relationships of plants and animals with human cultures worldwide, including past and present relationships between peoples and the environment’.²³⁷ The Society of Ethnobiology produce three peer reviewed publications:

1. Journal of Ethnobiology, four issues per year,
2. Contributions in Ethnobiology, a digital monograph series,
3. Ethnobiology Letters, a digital publication for short contributions.

The Society of Ethnobiology’s website: <https://ethnobiology.org/>

In June 2018 the Society for Economic Botany and the Society of Ethnobiology hosted their 2nd joint conference at the University of Wisconsin, Madison, U.S.A. The author was fortunate enough to attend and present progress on this thesis and network with potential research partners and appreciate the cross-discipline of the ‘ethno’ sciences and increase cross-cultural knowledge and awareness by participating in field trips. These field trips explored Aztalan – a Mississippian mound centre and northern outpost of Cahokia as seen in Image 5-3. ‘This fortified town-and-mound centre was established between AD 1050 and 1100 when migrants from western Illinois joined Late Woodland settlers on the west bank of the Crawfish River. By AD 1250, the site was abandoned and not reoccupied until Anglo-Americans arrived in the early 19th century’.²³⁸

Image 5-3 Aztalan – a Mississippian mound centre



Source: Bottom row images by Jennifer Dearnaley c2018.
Top image courtesy of S.E.B. photo gallery 2018.

Wisconsin is home of the Ho Chunk nation and palaeoecological and archaeological evidence suggests that they have ‘actively managed their botanical resources since mid-Holocene times, primarily through planting, tending, selective tree felling, and burning.’ This second field trip toured effigy mounds (ca 700-1050 AD) and relict agricultural fields and ‘highlighted the roles of nature and culture in shaping the surprisingly diverse ecosystems of south central Wisconsin, including prairies, oak openings, closed-canopy deciduous forests as seen in Image 5-4, mixed coniferous-deciduous forests, riparian forests, and wetlands’.²³⁹

Image 5-4 Closed canopy deciduous forest



Source: Images courtesy of S.E.B. photo gallery 2018

The field trip also toured a rock shelter which is the oldest dated site of human occupancy in north-eastern North America which sits adjacent to a natural sandstone bridge that had been created by years of glacial erosion, wind and gravity as seen in Image 5-5.

Image 5-5 Natural Bridges State Park



Source: Images by Jenifer Dearnaley c2018

5.6.3 The International Society of Ethnobiology

Established in 1988, the International Society of Ethnobiology (I.S.E.) has membership across 70 countries. Its mission is to ‘support the vital role of indigenous, local, and traditional peoples in protecting their ecosystems and knowledge bases’,²⁴⁰ as they are primarily concerned with the effect of how the loss of this knowledge affects the loss on biological, cultural, and linguistic diversity. Whilst the I.S.E. generates newsletters, they do not publish peer review journals. They do focus their efforts on sponsoring three programmes: The Global Coalition for Biocultural Diversity; the Ethics Program; and the Darrell Posey Fellowship for Ethnoecology and Traditional Resource Rights. I.S.E. website: <http://www.ethnobiology.net/>

5.6.4 Ethnobotanical Conservation Organisation for South East Asia

Established for over 15 years, the Ethnobotanical Conservation Organisation for South East Asia (E.C.O - S.E.A.) is a non profit organisation that works with local Indigenous communities and actively focuses on the ‘conservation of native Southeast Asian biological diversity (plants, animals, fish, fungi) and cultural diversity (languages, knowledge, beliefs, customs, traditional practices)’.²⁴¹ E.C.O - S.E.A. website: <http://www.ecosea.org/index.html>

5.7 International ethnobotanical repositories

Collections, databases and websites connecting researchers from ethnobiological disciplines and its subsets such as ethnobotany for the purposes of exchanging knowledge has been compiled into a centralised list in Table 5-2.

Table 5-2 Ethnobotanical collections, databases and websites

Institution /Organisation	Overview (text sourced from respective web pages)
Harvard University's Economic Herbarium of Oakes Ames	The collection consists of about 40,000 specimens of economically important plants of cultivated and wild origin. The Herbarium was a part of the Botanical Museum, which also included the Economic Botany Collections the Palaeobotanical Collection, the Economic Botany Library and Archives, the Ware Collection of Glass Models of Plants, the Orchid Library of Oakes Ames and Herbarium, and the Archives of the Oakes Ames Orchid Library. The history of the Herbarium can be traced back to 1918, when Oakes Ames donated his collection to Harvard University. Since then, the collection has increased considerably, especially from the ethnobotanical research of Prof. Richard E. Schultes and his students in the Andes and the Amazon. http://guides.library.harvard.edu/c.php?g=420132&dp=2876807
Centre for Economic Botany, Royal Botanic Gardens in Kew	The collection contains about 90,000 raw plant materials and artefacts representing all aspects of craft and daily life worldwide, including medicines, textiles, basketry, dyes, gums and resins, foods and woods. The Collection was founded in 1847 as the Museum of Economic Botany and continues to grow by about 800 accessions each year. https://www.kew.org/science/collections/economic-botany-collection
Natural Products Alert Project (NAPRALERT) Department of Pharmacognosy and Pharmacology, College of Pharmacy, University of Illinois, U.S.A.	Established 1975, this website offers a relational database on the chemistry and pharmacology of natural medicinal materials. It includes more than 200,000 scientific papers representing organisms from all countries of the world, including marine and microorganisms. It covers comprehensive literature topics including ethnomedical information on more than 20,000 species of plants. https://www.napralert.org/
Missouri Botanical Garden International Ethnobotany Database (ebDB)	ebDB is a new, public database that fills in the existing gaps in functionality, and provides a standardized, secure, independent, and non-commercial repository for ethnobotanical data. Multilingual, has a glossary, more than 20 categories of data, complete location information, strong searching, and data export features. Currently, the database houses data from Ecuador, Perú, Kenya and Hawai'i. http://www.missouriherbarium.org/plant-science/plant-science/william-l-brown-center/wlbc-resources/wlbc-databases/international-ethnobotany-database.aspx
International Centre for Ethnobotanical Education Research and Service	The International Centre for Ethnobotanical Education, Research and Service is a philanthropic, non-profit organization dedicated to 1) the integration of ayahuasca, iboga and other traditional plants as therapeutic tools in modern society, and 2) the preservation of the indigenous cultures that have been using these plant species since antiquity on their habitat and botanical resources. http://www.iceers.org/

Dr. Duke's Phytochemical and Ethnobotanical databases developed at the United States Department of Agriculture National Agricultural Library	Dr. Duke's phytochemical and ethnobotanical databases facilitate in-depth plant, chemical, bioactivity, and ethnobotany searches using scientific or common names. Search results can be downloaded in PDF or spreadsheet form. Of interest to pharmaceutical, nutritional, and biomedical research, as well alternative therapies and herbal products. https://phytochem.nal.usda.gov/phytochem/search
United States Department of Agriculture Forest Service	Examining human life on earth requires understanding the role of plants in historical and current day cultures. https://www.fs.fed.us/wildflowers/ethnobotany/
Bangladesh Ethnobotanical Online Database	The largest ethnobotanical information source for Bangladesh. It consists of ethnobotanical information of traditional plant uses by different native communities of Bangladesh for medicine, food, cosmetics, dye, insecticide and pesticide, weaving, house making, tools and crafts and other necessities. http://www.ebbd.info/
Ethnobotany Society at Brown University	The Ethnobotany Society at Brown allows Brown students to nurture curiosity in their relationship with plants. Somehow in modernity, humans have lost first hand interactions with nature. This group is meant for the exchange of knowledge and awareness. http://brownethnobotanysociety.tumblr.com/about

5.8 International scientific journals that publishes ethnobotanical data

Table 5-3 depicts a list of international scientific journals that publish ethnobotanical data and it is noted in the end column whether they are peer reviewed.

Table 5-3 International scientific journals that publishes ethnobotanical data

Title	Peer Reviewed
<i>Academia Journal of Medicinal Plants (AJMP)</i>	Yes
<i>Acta Societatis Botanicorum Poloniae</i> (Polish Botanical Society)	Yes
<i>American Anthropologist</i>	Yes
<i>Curare – Journal of Medical Anthropology</i>	Yes
<i>Ecology of Food and Nutrition</i> (Taylor and Francis)	Yes
<i>Economic Botany</i> (Springer)	Yes
<i>Emirates Journal of Food and Agriculture</i> (United Arab Emirates University)	Yes
<i>Environmental Conservation</i> (Cambridge University Press)	Yes
<i>Ethnobiology and Conservation</i> (Federal University of Paraíba)	Yes
<i>Ethnobotany Research and Applications</i> (Botanical Research Institute of Texas) *	Yes
<i>Evidence - Based Complementary and Alternative Medicine</i> (Hindawi)	Yes
<i>Food and Foodways</i> (Taylor and Francis)	Yes
<i>Genetic Resources and Crop Evolution</i> (Springer)	Yes
<i>Human Ecology</i> (Springer)	Yes
<i>Journal of Ethnobiology</i> (Society of Ethnobiology)	Yes
<i>Journal of Ethnobiology and Ethnomedicine</i> (BMC/Springer)	Yes
<i>Journal of Ethnopharmacology</i>	Yes
<i>Journal of Mountain Sciences</i> (Springer)	Yes
<i>Latin American and Caribbean Bulletin of Medicinal and Aromatic Plants</i>	Yes
<i>National Geographic</i>	No
<i>Planta Medica</i>	Yes

*note that this journal has not accepted submissions as of October 1, 2015

5.8.1 Notable international ethnobotanists

Ethnobotany is a growing science and a multi-disciplinary academic field where ethnobotanists ‘aim to reliably document, describe and explain complex relationships between cultures and the use of plants: focusing, primarily, on how plants are used, managed and perceived across human societies’.²⁴² Ethnobotanical enquiry has different approaches to research often borrowing methods and theory from anthropology, archaeology, botany, phytochemistry, ecology, ethnobiology, ethnoecology, ethnography, folklore studies, medicine, mycology, mythology, pharmacology and taxonomy.

Ethnobotanists usually have a primary background in which they found their way into this discipline such as anthropology, botany, archaeology and landscape architecture. However, there is an attraction to this discipline by pharmaceutical companies sponsoring ‘bio-prospecting’, which is often at the expense of Traditional Knowledge holders. ‘The more ethically minded ethnobotany community’²⁴³ recognise the governance of the U.N. and the relevant treaties that uphold the rights of Indigenous Knowledge holders and the importance of traditional ecological conservation. Whilst there is a global community of ethnobotanists or significant contributors to the field, the list found in Table 5-4 is to name but a few.

Table 5-4 International ethnobotanist or significant contributor to ethnobotany

Abbott	Isabella	Pawley	Andrew
Balée	William	Peschel	Keewaydinoquay
Balick	Michael	Piacenza	Luigi
Berlin	Brent	Pieroni	Andrea
Conklin	Harold C.	Plotkin	Mark
Cox	Paul Alan	Plowman	Timothy
Davis	Wade	Posey	Darrell A.
Duke	James A.	Samorini	Giorgio
Ellen	Roy	Schultes	Richard Evans
Fadiman	Maria	Siebert	Daniel
Giovannini	Peter	Simcox	Joseph
Gunther	Erna	Simmon	Jim
Gupta	Shakti M.	Sobiecki	Jean-Francois
Harshberger	John William	Torres	Constantino Manuel
McKenna	Dennis	Turner	Nancy
McKenna	Terence	Uddin	Shaikh Bokhtear
Mohamad	Sapura	Vilbaste	Gustav
Nesbitt	Mark	von Reis	Siri
Nabhan	Gary Paul	Wagner	Gail
Ott	Jonathan	Winston	David
Pardo-de-Santayana	Manuel	Wong	James

The brief biographies below serves only as an exemplar of some of the notable international ethnobotanists listed in Table 5-4, noting either their role in the evolution of ethnobotany as a formal academic study or as a contributor to current day ethnobotanical thinking and/or connections with key supporting institutions.

5.8.2 John William Harshberger

Image 5-6 shows Harshberger (1869-1929) who was an American botanist and conservationist who specialized in plant geography, ecology and plant pathology. During his 35 years of lecturing at the University of Pennsylvania he was credited for first using the term ethnobotany in 1895.

Image 5-6 John William Harshberger



Source: Harshberger²⁴⁴

5.8.3 Richard Evans Schultes

Image 5-7 shows Schultes (1915-2001) in South America; he was considered to be the father of ethnobotany. Schultes was an American biologist and Harvard University lecturer who closely studied the Indigenous People of the Amazon. Amassing an enormous collection of ethnobotanical materials, Schultes bequeathed these to the Harvard University Economic Herbarium of Oakes Ames upon his death.

Image 5-7 Richard Evans Schultes



Source: Harvard University Herbaria²⁴⁵

5.8.4 Dr Wade Davis

Davis (1953) was a student of Schultes at Harvard where he completed a Ph.D. in ethnobotany. Following in the footsteps of Schultes, he spent over three years as a plant explorer in the Andes and Amazon, living in eight Latin American nations and amongst fifteen Indigenous groups whilst making some 6,000 botanical collections as seen in Image 5-8. Davis has written over 10 books and published over 180 papers in ethnobotany and anthropology with a focus on traditional uses and beliefs associated with psychoactive plants.

Image 5-8 Dr Wade Davis



Source: Central Washington University²⁴⁶

5.8.5 Professor Mark Nesbitt

Professor Mark Nesbitt as seen in Image 5-9, is the Research Leader for Economic Botany Science Directorate at the Royal Botanic Gardens Kew, and Curator of Kew's Economic Botany Collection which contains over 100,000 objects. Nesbitt is also responsible for co-ordinating the Kew-based module of the University of Kent's MSc in ethnobotany.

Image 5-9 Professor Mark Nesbitt



Source: Royal Botanic Gardens Kew²⁴⁷

5.8.6 Timothy Plowman

Plowman (1944-1989), was also a student of Schultes at Harvard University and curator of the Field Museum of Natural History in Chicago. Plowman spent much of his time researching the genus *Erythroxylum* (the plant that contains the drug cocaine), and along with Davis the cultivated coca species. Plowman amassed a collection of over 700 species which is now housed in the Field Museum and published over 80 scientific papers.

5.8.7 Dr Michael Balick

Balick obtained his Ph.D. and A.M. in Biology from Harvard University, with an undergraduate major in horticulture and plant science from the University of Delaware. Balick has worked at The New York Botanical Garden and is currently in the position of Curator of Economic Botany and Director of the New York Botanic Garden Institute of Economic Botany and the Vice President for Botanical Science. Balick also teaches ethnobotany at Columbia University and at The City University of New York.²⁴⁸ Balick has authored (and co-authored) 18 books, written numerous papers, conducted over 56 international field trips and has a strong media presence in relation to maintaining Traditional Knowledge.

5.8.8 Siri von Reis

Reis, (1931) is an educated botanist and Associate of the Botanical Museum of Harvard University, honorary Curator of Ethnobotany, New York Botanical Garden, N.Y., U.S.A.

5.8.9 Dr Peter Giovannini

Giovannini is a trained biologist and ethnobotanist with extensive experience in conducting research and managing projects in the Pacific and Latin America region. Giovannini is currently working as a research fellow at the Royal Botanic Gardens Kew in the Diversity and Livelihoods group of the Natural Capital and Plant Health Department. Giovanni has written several books in ethnobotany and published in scientific journals as well as delivering lectures in ethnobotany and maintaining an informative website on the topic.

<http://petergiovannini.com/index.html>

5.8.10 Professor Andrea Pieroni

Professor Andrea Pieroni gained a Ph.D. in Life Sciences from the University of Bonn, Germany and is currently the Professor of Ethnobotany at the University of Gastronomic Sciences. Pieroni's research focus is in ethnobotany and ethnobiology of 'wild' foods and maintains a website of ethnopharmacologist which focuses on natural foods and herbs, medicinal plants, and their use by different peoples, which can be found using this link: <http://www.etnobotanica.de/> Pieroni has served as the Vice-President and President of the International Society of Ethnobiology (2008-2010) and he is the founder and Chief Editor of the *Journal of Ethnobiology and Ethnomedicine* (www.ethnobiomed.com), and sits on the boards of diverse international ethnoscientific associations and peer-reviewed publications.²⁴⁹

5.8.11 Dr Nancy Turner

Turner (1947) has a botany undergrad but obtained her Ph.D. in ethnobotany and focussed her research on the names for plants and their uses of the Indigenous

groups in the Pacific North West of British Columbia, Canada. Scientific analysis of this data has enabled her to draw conclusions and identify two primary outcomes, firstly, the important role that plants play in these group's culture and secondly the contribution that Indigenous People have had historically on shaping the landscape of Canada, which Turner documented in her book titled *Exploring Ethnobiology* (2010). Turner has written several books and published many papers, and received the Order of British Columbia in 1989 by the Government who recognised and described her work in the following way:

*Turner is an internationally distinguished scholar and scientist who has devoted her life to documenting the endangered knowledge of First Nations. As a pioneer in ethnobiology, her more than 25 years of research have focused on the diverse interactions of First Peoples in British Columbia with the ecosystems they depended on and the critical role of plant resources for foods, medicines and materials. Her research will be seen as a most valuable compendium of Aboriginal culture and plant lore in British Columbia.*²⁵⁰

5.8.12 Dr James A. Duke

Duke (1929) gained his Ph.D. in botany at the University of North Carolina in 1961 and is considered a leading authority in the U.S.A. on medicinal herbs, which he is famed for publishing several books. Duke is also responsible for developing the Phytochemical and Ethnobotanical Databases for the United States Department of Agriculture.

5.8.13 Mark Plotkin

Plotkin (1955) researched under Schultes and studied at Harvard University, the Yale School of Forestry and Tufts University and has penned several books on ethnobotany. Plotkin is known for his efforts on protecting the Amazon rainforest as he co-founded the Amazon Conservation team which partners with over 32 local Indigenous groups throughout the Amazon.

5.8.14 Dr Erna Gunther

Gunther (1896-1982) received her M.A. in Anthropology from Columbia University in 1920, but spent most of her career in the Anthropology department at the University of Washington and was the Director of the Washington State Museum then moving to the University of Alaska Fairbanks, to become chair in 1967. Amongst her books includes *Ethnobotany of Western Washington: the Knowledge and Use of Indigenous Plants by Native Americans*, (1973) which is still extensively referred to in American ethnobotany circles today.

5.8.15 James Wong

Wong (1981) refers to himself as a 'Kew trained botanist, science writer and broadcaster based in London'. Wong graduated with a Master of Science degree in ethnobotany from the University of Kent in 2006 where he now guest lectures. His research focus is on 'underutilised crop species, ethnopharmacology and traditional food systems through field work in rural Ecuador, Java and China'.²⁵¹ Wong went on to become a Garden Designer and has won 4 Royal Horticultural Society (R.H.S.) Awards at both Chelsea Flower Show and Hampton Court Palace Flower Show and has gone on to become an R.H.S. Ambassador. Wong

has authored internationally best-selling books *Grow Your Own Drugs* (which was the fastest selling gardening book in U.K. history) and *Homegrown Revolution*. His presenting work spans a range of B.B.C. programmes, presenting 'his own television series *Grow Your Own Drugs*. The award-winning B.B.C. Two series demonstrates a number of natural remedies sourced from plants, and became the highest-rated gardening series on U.K. television. Wong is also a regular reporter on the B.B.C. One rural affairs series *Countryfile* since its reformatting in April 2009, as well as being a regular panellist on B.B.C. Radio 4's *Gardeners' Question Time* and presenter of the Channel NewsAsia series *Expensive Eats*.²⁵² Wong's work is a good example of demonstrating the appetite the mainstream population has with ethnobotany.

5.8.16 Dr Paul Alan Cox

Cox (1953) gained his Ph.D. from Harvard University and later served as a Research Fellow at the University of Melbourne. Cox became an ethnobotanist after the direct influence of Schultes, and his research is focussed on identifying new medicines from investigating the health and ill-health patterns of Indigenous People. Cox's work is a good example of how ethnobotany can lead to significant conservation efforts such as defeating the MX missile project proposed for Utah and Nevada, which led to establishing the 50th U.S. National Park.²⁵³

5.9 Ethnobotany in Australia

Although the world of ethnobotany is well established internationally and there are a handful of long standing accomplished academic ethnobotanists in Australia, which will be explored in the following Literature Review; as an academic discipline ethnobotany could be considered in its infancy in Australia.

5.9.1 Education in ethnobotany in Australia

There are no undergraduate degrees or Masters by course work dedicated to the topic of ethnobotany in Australia. There are some courses that contain indigenous and anthropological studies and botanical subjects that touch on the topic of ethnobotany. Ethnobotany is probably considered too specialised at this point in time in Australia as there is an unclear road to employment and mainstream Australia has not yet fully embraced the importance and responsibility of conserving T.E.K., which therefore does not stimulate demand to justify dedicated university programs.

5.9.2 Australian organisations and groups with ethnobotanical interests

Aside from the recently formed Tropical Indigenous Ethnobotanical Centre in Cairns, Queensland, there are no dedicated organisations within Australia focussed on ethnobotany. There are a number of anthropological societies organised at state level around Australia with interests in ethnobotany, which suggests much of the academic knowledge has developed in silos. This was recently (if not only temporarily) overcome by the Indigenous Bio-Cultural Knowledge working group which is discussed below.

5.9.2.1 The Australia Centre for Ecological Analysis and Synthesis (A.C.E.A.S.)

Sponsored by the A.C.E.A.S., the Indigenous Bio-Cultural Knowledge (I.B.K.) working group was formed in 2013²⁵⁴ to enable 'the involvement of Indigenous

People and their knowledge, skills, aspirations and land in national ecology debates’²⁵⁵ The project aims to comprehensively analyse Australian Indigenous bio-cultural data, and develop an interactive map that identifies culturally important species, regions and ecosystems. The working group was made up of notable Australian ethnobotanists such as Clarke, Gott, Turpin, ecologist Emilie Ens, amongst other members to ‘collate and synthesise existing I.B.K. material’²⁵⁶ This data was then geographically plotted onto a map to illustrate where place-based, localised documentation of I.B.K. has occurred. The map can be found in this link: <http://aibk.info/map/> As can be seen in this map, there is very little documented and published I.B.K. that currently exists for Wadawurrung Country displaying only 2 references. These 2 documents listed in the map are *Vocabularies of the Geelong and Colac Tribes, Collected in 1840*, published in 1899 authored by J.J. Cary and *Wathaurong Medicines* by Sue Ferrier published in 1992.

5.9.2.2 Tropical Indigenous Ethnobotany Centre

During 2011, the Tropical Indigenous Ethnobotany Centre (T.I.E.C.) was established at the Australian Tropical Herbarium on the James Cook University campus in Cairns. This centre evolved following a workshop in 2010 which united Traditional Owners, scientists and other interested parties to develop the idea. The T.I.E.C. is an Indigenous driven initiative and the first Indigenous driven centre in Australia focussed on ethnobotany, which is built on mutually beneficial partnerships including:

1. Traditional Owners
2. James Cook University Cairns Institute
3. Queensland Department of Environment and Resource Management
4. The Department of Science, Information Technology, Innovation and the Arts (D.S.I.T.I.A.)
5. C.S.I.R.O.
6. Ecosystem Science
7. and other government agencies and organisations.

The activities of the T.I.E.C. includes ‘documenting, recording and researching cultural plant use knowledge, which could be of mutual benefit to Traditional Owners and their partners. It collates existing ethnobotanical data, promotes and carries out research in a respectful and culturally appropriate way, and provides awareness, training and education.’²⁵⁷ The scope of the Centre is primarily focussed on plants and communities in North Queensland.

The T.I.E.C. web page on the James Cook University website describes the purpose of the centre: ‘The T.I.E.C. aims to empower Indigenous People to renew and strengthen their cultural knowledge and practices about plants. Many Traditional Owners believe that keeping their knowledge alive and passing it on to the next generation is very important. The T.I.E.C. will support Traditional Owner information sharing, practice and collaboration, and also support keeping plant collections and data for Traditional Owners through shared protocols and agreements.

The functions of T.I.E.C. include:

1. Supporting Indigenous decision-making about plants and plant knowledge
2. Keeping traditional and cultural knowledge alive
3. Protection of Indigenous intellectual and cultural property rights over plants
4. Passing the knowledge on to the younger generation
5. Focusing on building up trust with Traditional Owners before involving other agencies
6. Getting information back into the community'²⁵⁸

The Tropical Indigenous Ethnobotany Centre website can be found here:

<https://www.jcu.edu.au/australian-tropical-herbarium/research-and-programs/tropical-indigenous-ethnobotany-centre-tiec>

5.9.2.3 Australian Institute of Aboriginal and Torres Strait Islander Studies

The Australian Institute of Aboriginal and Torres Strait Islander Studies (A.I.A.T.S.I.S.) is a research, collections and publishing organisation who undertakes and encourages 'scholarly, ethical, community-based research in a variety of sectors, including health, native title, languages and education.'²⁵⁹ A.I.A.T.S.I.S. hosts collections that can be searched via a catalogue tool called Mura® which is 'the name the Ngunnawal language meaning pathway.'²⁶⁰ The catalogue can be found at this link:

http://catalogue.aiatsis.gov.au/client/en_AU/external/

The A.I.A.T.S.I.S. database houses ethnobotanical data with a focus on the Australian use of plants for food and medicine. This database also houses the various databases compiled by Dr Beth Gott. A.I.A.T.S.I.S. also provides a list of online resources for Indigenous Australian plant use for Food and Medicines²⁶¹ along with a list of Bush Products and local food networks²⁶².

5.9.2.4 Australian National Botanic Gardens Library

The Australian National Botanic Gardens Library²⁶³ provides a list of books, newsletters and internet sites that are focussed primarily on bush food plants.

5.9.2.5 Atlas of Living Australia (A.L.A.)

The A.L.A. is Australia's national biodiversity database and is hosted by C.S.I.R.O. which receives support from the Australian Government through the National Collaborative Research Infrastructure Strategy. It is also part of the Global Biodiversity Infrastructure Facility. The database is free to access and houses millions of records. 'A.L.A. is assisting scientists, planners, managers and others to create a more detailed picture of Australia's biodiversity. The A.L.A. database is used for research, environmental monitoring, conservation planning and management, education, and citizen science activities. It is also an essential resource for biodiversity conservation, sustainable ecosystem development, new species discoveries, systematics (relationships between living things), taxonomy (naming and classification), digitisation of biological collections, natural resource management and environmental impact assessments.'²⁶⁴

A.L.A. have introduced an Indigenous Ecological Knowledge (I.E.K.) program which 'aims to provide tools to enable and empower greater Indigenous

participation in biodiversity information management and assessment, and to support other aspirations of Aboriginal and Torres Strait Islander people related to ecological or biodiversity knowledge.²⁶⁵

5.9.2.6 Other Australian organisations with relevant T.E.K. contribution

Aboriginal Affairs Victoria

<http://www.dpc.vic.gov.au/index.php/aboriginal-affairs/aboriginal-affairs-overview>

Aboriginal Tourism

www.aboriginaltourism.com.au

Australian Tropical Herbarium

<https://www.ath.org.au/australian-tropical-herbarium>

Bureau of Meteorology

<http://www.bom.gov.au/iwk/>

Friends of Geelong Botanic Garden

<http://friendsgbg.org.au/wordpress/>

Geelong Botanic Gardens

<http://www.geelongaustralia.com.au/gbg/>

Geelong Heritage Centre

<http://www.geelongaustralia.com.au/heritage/>

Geelong Historic Society

<http://www.geelonghs.org.au/>

Wathaurung Aboriginal Corporation (trading as Wadawurrung)

<https://wathcorp.com.au/>

Wathaurong Aboriginal Co-operative

<http://www.wathaurong.org.au/contact.html>

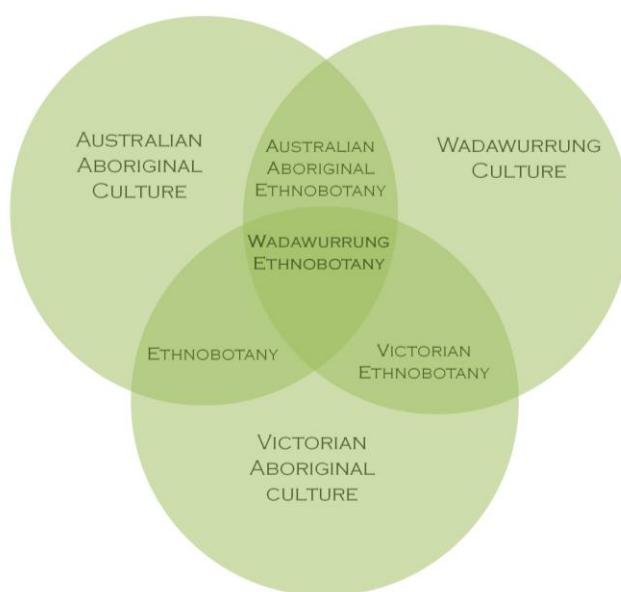
6 Chapter 6: Literature Review

6.1 Literature Review introduction

The purpose of this literature review is to outline the fields of research and knowledge in the area of Australian Aboriginal ethnobotany in order to contextualise the focus of this thesis about Wadawurrung ethnobotany. Figure 6-1 depicts where Wadawurrung ethnobotany sits in context and shows the key drivers for the literature review.

A review of ethnobotany internationally, the history of this academic field, the supporting structures, such as organisations, governance, societies and publications as well as a brief profile of key contributors was discussed in Chapter 5: Ethnobotany. The scope of Part I of this chapter is Australian literature in relation to contemporary ethnobotany, and Part II reviews the literature that Lane referenced throughout the course of her research.

Figure 6-1 The Context of Wadawurrung ethnobotany



6.2 Literature Review research methodology

The preliminary stages of the literature review involved researching library catalogues and databases on variations of anchor words such as Wathaurong, Wathaurung, Wadawurrung, Australian Aborigines, Australian Indigenous People, etc. In addition, the publications of Gott, Clarke, Clark and Latz amongst others were researched. Once the output of these authors was reviewed, their references were interrogated to facilitate widening the research field. The initial search criteria and research tools were documented on a spreadsheet to keep track of the findings and to avoid duplicating the search criteria. Table 6-1 shows a small sample of the initial starting point for the search anchor points. The columns indicated in red shows the gap in literature for dedicated Wadawurrung ethnobotany. Remedying this literature gap is the intention of this thesis.

6.3 Literature Review search approach

Table 6-1 Research anchor points

Lit Review Search	Australian plants and their cultural uses by indigenous people						Culture		Authors						
Research Anchor Points:	Ethnobotany	Aboriginal Ethnobotany	Australian indigenous ethnobotany	Wathaurong/Wadawurrung Ethnobotany	Geelong+ indigenous plants (& uses)	indigenous plants & their uses	WathaurOng	WathaurUng	Louis Lane	Beth Gott	Philip Clarke	Bruce Pascoe	Peter Latz	Jennifer Isaacs	Sue Ferrier
Sources															
Deakin Library Catalogue	104	15	1			1	13	158	204	2	5	6	3	4	1
Deakin Library Articles	4179	5	x			5921	27	9	0	4	2	2	1	6	0
Bonus+	0	0	0			0	0	0	0	0	0	0	0		0
TROVE	3701		1			1	2	0	1	1	5	1	1		2
Google Books	172000	0	54			0	0	0	0	9	0	0	1		0
Google Scholar	41200	7230	8150			84000	116	28	0	2	52	26	226		33
Australian Policy Online (APO.org.au)															
DRO - Deakin Research ONLINE	9	8	9			144	25	8	0	0	9	0	0		0

6.4 Key words

Some of these key words are used interchangeably, and are clarified in the definitions and naming conventions sections.

1. Wathaurong/Wathaurung/Wada Wurrung/Wadawurrung
2. Ethnobotany
3. Indigenous/Aboriginal plant types
4. Indigenous/Aboriginal plant uses
5. Traditional Ecological Knowledge/Traditional Knowledge/Economic Botany

6.5 Naming conventions

Wathaurong – This name was adopted by the Wathaurong Aboriginal Co-operative, an Indigenous organisation based in North Geelong.²⁶⁶ The Wathaurong Aboriginal Co-operative is a legal entity and the name ‘Wathaurong’ is commonly still in use orally around Greater Geelong.

The Registered Aboriginal Party (R.A.P.) for Wadawurrung Country is a separate legal entity, ‘The Wathaurong Aboriginal Corporation (W.A.C.), trading as Wadawurrung’, was initially based in Ballarat, with an office opening in Geelong in 2017. ‘W.A.C. has a statutory role in the management of Aboriginal heritage values and culture within the region, under the *Victorian Aboriginal Heritage Act, 2006*’.²⁶⁷ Wadawurrung (being the *Country* nomenclature), is the word used today by the Victorian Aboriginal Heritage Council under the *Aboriginal Heritage Act 2006*. Wathaurong is referenced in connection to the language of the Wadawurrung People who reside in Wadawurrung Country. However, sometimes these terms are used interchangeably.

There are various spellings of Wadawurrung and Wathaurong. According to Clark²⁶⁸ there are over 130 variants; ‘The Australian Institute of Aboriginal Studies favours Wada wurrung’.²⁶⁹ However in light of the R.A.P.’s preferred approach to this spelling, the central space will be removed and shall be used in this manner for the purposes of this thesis and will be mostly represented as Wadawurrung (sans space). Note, if the name appears differently it is for the purposes of referencing legal entity names and authenticity in referencing the work of Lane or other authors such as Ferrier and Pascoe.

6.6 Part I - History of ethnobotanical literature in Australia

Australian Indigenous Traditional Knowledge is based on an oral tradition. Written ethnographic documentation of Australia’s Indigenous languages commenced following European colonisation commenced in 1788. The observations of plant use made by explorers, settlers, surveyors and missionaries were documented in diaries, journals and various writings by authors – very few having botanical training – with most individuals possessing little plant knowledge. This may have led to incorrect identification of some plants as well as misinterpretation of Indigenous language(s). Despite these challenges, these individuals were instrumental in collecting Traditional Knowledge in the formative years of the new British colony.

Interest in Australian indigenous plants and their uses was quite limited in the first 50 years of colonisation, and settlers were initially interested in their ornamental virtues. This was because there was ‘perceived’ little economic or food value in this knowledge. Once these perceptions began changing interest was driven by Western economic agricultural and horticultural agendas during the late 18th and 19th centuries. Ethnobotany had not been termed as an academic discipline until 1895 in the U.S.A. Therefore during the first hundred years of European colonisation of Australia, the identification of indigenous plants and their respective uses were captured in a random manner by a range of individuals with

varied backgrounds, interests and motivations. Some were plant hunters or botanists such as von Mueller; or explorers such as Batman;^{270 271} or surveyors such as Wedge;²⁷² others were early settlers such as Dawson, who penned the book of *Australian Aborigines*,²⁷³ and Robinson, the Chief Protector of Aborigines,²⁷⁴ whom made significant observations on landscape and noted various uses of plants in his diaries as did John Morgan who transcribed the adventures of William Buckley.²⁷⁵

It was during the mid 19th century that the Secretary of The Board for the Protection of Aborigines under the *Aboriginal Protection Act of 1869* (Vic), Robert Brough Smyth, edited a book titled *The Aborigines of Victoria* (1878), which conveyed many useful ethnographic details claiming to be an official account of what was known of the Indigenous People in the colony of Victoria to date. Amongst the chapters were lists of plants and their uses that had been compiled by various individuals working in some capacity within the Aboriginal reserves around Victoria. Authors included lay-preacher John Green (Manager of the Coranderrk Mission Station), the Rev. John Bulmer (Superintendent of the Aboriginal Mission Station at Lake Tyers, Gippsland), Joseph Shaw (from the Aboriginal Reserve at Lake Condah) and the Rev. Mr. Hartmann (of Lake Hindmarsh Mission Station). These individuals were able to study their *captive* audience and provide plant lists accompanied by their indigenous name(s) and use(s). Plant specimens were also sent to the Government botanist, Baron von Mueller, for identification.

Additionally, Smyth collected language lists that had already been published including from settler John Currie who claimed to have obtained names from ‘an intelligent black [man] at Queenscliff’.²⁷⁶ The list was published by Gideon Lang Esq. in a work titled *Aborigines of Australia* (1865). Currie’s list appeared in Volume II of *The Aborigines of Victoria* (1878).

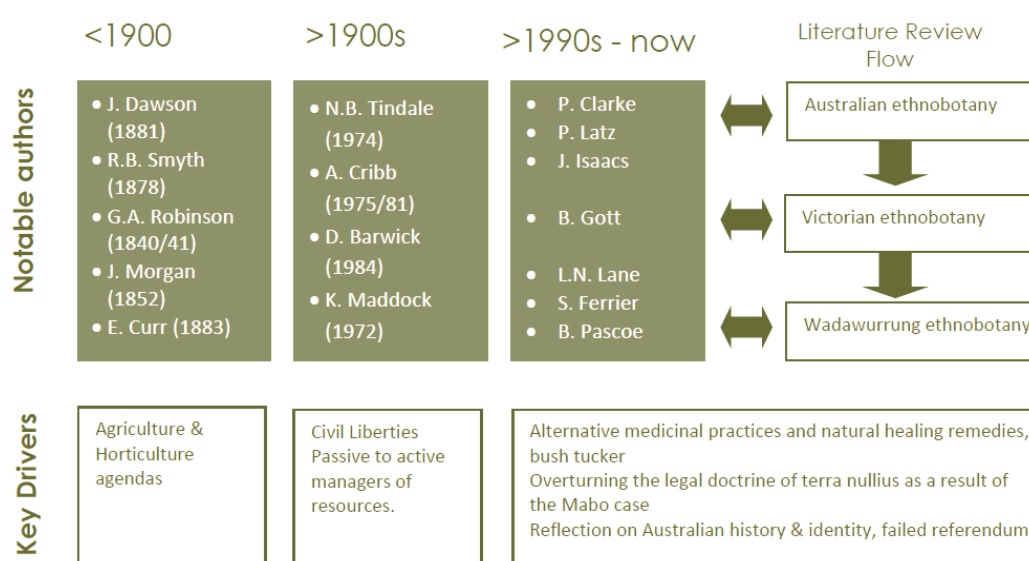
There were some individuals who had a genuine concern and interest in the welfare of the Indigenous population such as Dawson and Robinson. Therefore, their writings play an important role in reconstructing pre-colonised Aboriginal life. ‘Robinson came closer than most of his contemporaries to seeing that the essential nature of Aboriginal society is the relationship its members have with their land.’²⁷⁷

After a period of time, many Indigenous People, that were already confined to mission reserves, were forbidden to speak their Indigenous language or share their Traditional Knowledge otherwise they were usually punished. This coupled with foreign diseases that were introduced to the continent, such as ‘smallpox which killed far in excess of 70 percent of Aboriginal People in the late eighteenth and early nineteenth centuries,’²⁷⁸ led to the significant loss of much Traditional Knowledge.

Historically, many ethnobotanical contributions and observations have been random and fragmented in nature with various other motivations driving the compilation of knowledge. The lack of methodology or systematic approach to gathering data in this field has led to information gaps²⁷⁹ that contemporary ethnobotany aims to close.

Clarke describes ethnobotany in Australia as ‘an area of interest’ or ‘field’ of study than a discipline.²⁸⁰ This is in part due to the lack of available tertiary education to study as an ethnobotanist in Australia. Additionally few contributors to this field identify themselves as being an ‘ethnobotanist’. However many authors have contributed to the field of ethnobotany in Australia. Figure 6-2 summarises the notable authors or contributors to Australian Indigenous ethnobotanical literature recognising ‘popular thinking’ and key drivers of the time in which they were written. The body of the literature review focuses on authors from the most recent decades and follows the format as outlined in Figure 6-2, reviewing contemporary authors and their work following the logical sequence of Australian ethnobotany (with a focus on central, northern and South Australia) to Victorian ethnobotany and Wadawurrung ethnobotany.

Figure 6-2 Notable contributors to ethnobotany in Australia



6.6.1 Contemporary ethnobotanical literature in Australia

Prior to reviewing ‘academic’ research in ethnobotany, it is important to consider the context in Australia regarding indigenous plants and knowledge. Popular interest in the topic of ethnobotany is cyclical in nature, whilst academic ethnobotany has slowly but progressively grown over time due to pioneers such as Clarke, Gott, and Latz who have been champions in the field of ethnobotany and who possess a deep understanding of the relationship the Australian Indigenous People have with plants and the landscape. These authors and their research will be explored in detail following an account of the mainstream drivers.

During the mid 19th century, a time when Australia was densely populated with Anglo Saxon immigrants, the ‘prevailing scholarly opinion was that indigenous species were poor in terms of their human value’.²⁸¹ This sentiment was reinforced by botanists such as von Mueller who considered that Australian colonists were better served by the introduction of foreign plants than developing new foods from indigenous species.²⁸² There was also a lack of interest in academic botanical studies and generally the British settlers were primarily interested in recreating a landscape that possessed familiar references to their homeland.

However during the mid 20th century, migration waves became more multicultural and the population expansion delivered the urban sprawl. The ‘English’ way of living became diluted, with a lesser need to outwardly show an expression of ‘English-ness’. As such the demise of all things English, including the impractical English cottage garden subsided. Interest in plants suited to growing in Australian conditions became fashionable and the mainstream interest in indigenous plants spawned a range of books focussed on the identification and growing of Australian flora including Willis’ *Handbook of Plants in Victoria: Books I and II* (1972), and locally the *Field Guide to Flowers and Plants of Victoria* (1972), *Plants of the You Yangs Forest* (1976), and Pescott’s *The Otways* (1956), *By Field and Lane* (1976), *The You Yangs Range* (1995) amongst many others.

As Australia began to mature, a growing conscience was forming about the atrocities experienced by the Australian Indigenous People since colonisation. This was brought into the mainstream spotlight by catalysts such as the historic Australian High Court’s *Mabo v Queensland (No 2)* decision in 1992 that overturned the legal doctrine of *terra nullius*.

After nearly 200 years of suppression, the Australian Indigenous People were starting to be heard by ‘mainstream’ Australia. Interest in Aboriginal culture became more common, especially in regards to the Indigenous People’s use of plants in food and medicine.

6.6.1.1 Discipline-based contribution to ethnobotany

As ethnobotany involves multiple disciplines, such as archaeology, anthropology and biology amongst others, ethnobotanical literature may be biased towards the researcher’s field and focus only on a particular area such as medicine (Webb,²⁸³ Packer,²⁸⁴ and Pearn²⁸⁵). From the 1930s Donald Thomson, a Melbourne based biologist, ‘interacted with Aborigines during his field collecting expeditions in northern and central Australia, and apart from his extensive collection of photographs, biological specimens and artefacts, his copious field notes contain much ethnobotanical data’.²⁸⁶

Archaeologist Johan Kamminga focussed on the identification of tool uses and identified about 240 woody plant species from around Australia used to make artefacts.²⁸⁷ Kamminga’s research, plus a number of other sources of unpublished ethnobotanical data, can be found in the A.I.A.T.S.I.S. library whilst specimens are housed in various museums around Australia.

6.6.1.2 Food and medicine contribution to ethnobotany in Australia

During the 1970s *Wild Food in Australia* (1974) was published by Alan and Joan Cribb. This book was considered the authoritative guide to the edible plants of Australia in its time, and included extensive notes on identification, distribution, and preparation for ingestion.

In 1979 Alison Oates and Annette Seeman co-authored a pamphlet for the National Museum of Victoria called *Victorian Aborigines: Plant Foods*. The aim of this 34 page booklet was to illustrate the use of certain native plants as foods. The sample population for this study was from a small remote North West corner

of Victoria around Little Desert and included three National Parks (Hattah Lakes, Little Desert and Wyperfeld) that had experienced little European interference since colonisation and hosted saline flats and sand hills habitats, which are different ecosystems to that of Wadawurrung Country. The booklet profiled 23 plants, their habitats and discussion of the part(s) that was eaten. The booklet also summarised 2 domestic utensils that were made from plants; a digging stick and wooden vessels for carrying water.

During the 1980s public interest in bush tucker as a survival mechanism in the Australian outback came into focus. Successful television series sponsored by the A.B.C. saw former Australian Army soldier Les Hiddins present the *Bush Tucker Man* (1987-90) derived from the *Australian Military Survival Manual* (1987) that he authored. At this time only a small handful of books had been published such as a book authored by Jennifer Isaacs' *Bush Food: Aboriginal Food and Herbal Medicine* (1987) which focused on bush foods from northern and Central Australia. Following Hiddins' popularity on screen, two books followed his series - *Explore Australia with the Bush Tucker Man* (1999) and the *Bush Tucker Field Guide* (2001) which was a pocket-sized guide to 170 bush food and medicines but also included some exotic species.

In conjunction with the surge of interest in bush foods, alternative medicinal practices and natural healing remedies in the form of bush medicine was also topical. During the 1980s popular books such as Cribb's *Wild Medicine in Australia* (1981), and Stern's *Australian Weeds: A source of natural food and medicine* (1986), were supplemented with reports such as Ferrier's local writings on *Wathaurong Medicine* (1992).

Publications of indigenous plants used for food or medicines grew exponentially with works written by Isaacs who wrote *The Bush Food Handbook* (1989) co-written with Vic Cherikoff (a pioneer of the Australian Wild Food Industry). The species and processes described are those used by Indigenous People who knew or still use these foods. Additionally Isaacs and Cherikoff covered topics such as foraging in the city, creating your own backyard garden foraging patch and recipes.

Isaacs then wrote *A Companion Guide to Bush Foods* (1996), which is a guide for understanding and observing nature. Derived from her larger book, *Bush Food: Aboriginal Food and Herbal Medicine* (1987), the scope is quite limited to plants used for food promising to provide horticultural guidance such as when each plant should be harvested. However, while this was mentioned in the book's introduction, it was not followed through in the content of the book. This detail could have made this book a more practical read. The book lists plants used for food alphabetically by common plant name which indicates that the book is targeting the 'every-day' person with little or no botanical or horticulture knowledge. The book also contains some random scattering of animals used as food. It also mentions the strict rules governing food without going into any detail and there is a brief introduction on the Dreaming/Creation linked to foods and seasonal indicators used for gathering, however this is also not discussed in detail.

Isaacs has also focussed on how bush food is cooked both traditionally by Australian Aboriginals but also suggests modern ways of cooking the indigenous plants. In *Bush Food 2nd ed.* (2002), she provides an extensive table of Aboriginal plant food on pages 217-226, and on pages 231-240 she lists herbal medicines. Unlike her other books, this book contains several references to key ethnobotanists.

Other authors also focussed on bush tucker, such as Tim Low, who generated a series of books in quick succession called *Bush tucker: Australia's wild food harvest* (1989); *Wild food plants of Australia* (1991); *Wild herbs of Australia and New Zealand* (1991).

Former nurseryman and prolific author on Australian indigenous plants, Neville Bonney, has also contributed ethnobotanical data. These include: *Native plant uses of Southern South Australia* (1994), which is a 36 page booklet that provides a list of plants used by Bunganditj (Boandik) people, the plant's distribution and names are given in Bunganditj, scientific name and common name; *Adnyamathanha and beyond: useful plants of an ancient land* (2007) which focussed upon indigenous plant use in the northern Flinders Ranges of South Australia; and, *Knowing, growing, eating edible wild native plants for southern Australia* (2010) which is an illustrated guide to where specific plants grow plus information on cultivation and some recipes.

Following on from the mainstream success of *Bush Tucker Man*, some authors have focussed purely on plants used as food, whilst most of Australian foremost academic ethnobotanists have gone deeper into regional surveys – which are probably in part due to the available Indigenous Knowledge and the regional base of authors, such as Latz, enabling a more holistic ethnobotanical lens.

Academics such as Gott and Clarke had published many papers on Aboriginal plant use prior to this surge in popular culture and mainstream publications. Clarke wrote papers that primarily focussed on ethnobotany in southern South Australia including 'The importance of roots and tubers as a food source for southern South Australian Aboriginals' (1985) and 'Fruits and seeds as food for southern South Australian Aboriginals' (1985); both of which were published in the *Journal of Anthropological Society of South Australia*. This was quickly followed with multiple papers on ethnobotany of southern South Australia in 1986. Clarke continued to generate prolific academic publications in parallel to the boom in mainstream culture of ethnobotanical subjects such as 'bush-foods'.

Gott was also actively publishing prior to the deluge in mainstream bush tucker books with papers including 'Ecology of root use by the Aborigines of southern Australia' (1982), 'Murnong – *Microseris scapigera*: a study of a staple food of Victorian Aborigines' (1983), 'The use of seeds by Victorian aborigines: The Food Potential of Seeds from Australian Native Plants' (1984) and her appraisal of 'Plants mentioned in Dawson's Australian Aborigines' (1985).

It was authors such as Latz, Clarke and Gott, who, although had commercial success with their books, provided sound academic research and a broader and deeper view of plant use and consideration of cultural and ecological factors. It is

the work of these latter three authors that will largely be the focus of the remainder of this review.

6.6.2 Notable contributors to central, northern and South Australian ethnobotanical literature

Recognising the evolution of ethnobotany in Australia, an assessment will be based on key contributors of the late 20th and early 21st centuries. The reason for this focus is that ethnobotany is a study of holistic plant use, not just focussed on plants just used for food or medicine.

6.6.2.1 Dr Philip A. Clarke

Clarke is a contemporary leading Australian anthropologist and ethnobotanist with a background in geography, anthropology and biology. Clarke spent many years curating the Australian Aboriginal Cultures Gallery Project at the South Australian Museum which deepened his interest in Aboriginal use of plants as foods, medicines and materials for making artefacts. Clarke's interest evolved to Aboriginal perception and use of the land, with a particular focus on the cultural geography of southern South Australia. This led Clarke to complete a Ph.D. on the Ngarrindjeri cultural geography of the Lower Murray in South Australia. In more recent years his work has been focused on exploring Aboriginal links to land in central and northern Australia.

Clarke has spent many years working as a consultant anthropologist on various projects from native title and cultural heritage projects across various industries from mining to government. Clarke spent time as a Senior Research Fellow at Griffith University to study Indigenous adaptation to climate change in south-eastern Australia.

To understand how the Aboriginal People succeeded as a nation for over 65,000 years,²⁸⁸ there needs to be an understanding of the relationships the Aboriginal People had with plants. Clarke explains in his book *Australian Plants as Aboriginal Tools* (2012) that their survival was underpinned by understanding 'the diversity, seasonality and spatial distribution of plants and animals within their foraging territories.'²⁸⁹ Clarke presented, in his earlier book *Aboriginal People and Their Plants* (2007), an opposing argument to the earlier perceptions that Aboriginal People were passive managers of their resources and recognises that they 'actively manipulated their environment for particular intended outcomes.'²⁹⁰ Clarke's argument is in direct opposition to, what he explains as recent as 60 years ago, Australians were still considering the Aboriginal People of Australia as nomads, 'seeking his food from God, like ravens.'²⁹¹ Clarke initially addressed the argument that Aboriginals were aimless wanderers in *Where the Ancestors Walked* (2003) where 'Aboriginal hunters and gathers limited their short-term impact upon the landscape through dispersing themselves thinly and by constantly moving according to season.'²⁹²

Clarke has written numerous professional papers and chapters, and authored five major books on Indigenous relationships with the environment including:

1. *Where the Ancestors Walked* (2003) which is an anthropological study of Aboriginal Culture and their connection with the land which enables Clarke to give the reader a detailed yet broad overview of ethnobotany in Australia. Clarke explains that 'plants had economic and social importance ... that went beyond subsistence, as well as being traded, they were planned for, as Aboriginal hunters and gathers they negotiated the landscape in order to make the most of the surplus food when it came into season ... the seasonal abundance of food sources allowed for the surplus to be traded and provided opportunities for visitors to share in feasts'.²⁹³ This book is valuable in that it illustrates the importance of plants to the Australian Indigenous Peoples and as such has been widely used as a text book in Aboriginal studies. Clarke also provides 27 pages of references which is useful for further reading.
2. *Aboriginal People and Their Plants* (2007) is a dedicated and holistic ethnobotanical view of how Aboriginal People used Australian native plants in their everyday lives, going beyond nutritional purposes. Clarke provides the reader with the scale of complexity and sophistication of the Indigenous Peoples use of plants by providing an estimate of the volume of plant species that are valued in their culture: 'The Australian flora contains more than 20,000 terrestrial plant species, many of which are economically and culturally significant to Aboriginal People'.²⁹⁴
3. *Aboriginal Plant Collectors: botanists and Australian Aboriginal People in the nineteenth century* (2008) explores the importance of ethnobotany in greater detail providing a background to ethnobotany in Australia by looking at ethnobotanical contributions in Australia by plant hunters and botanists and focusing on the interactions they had with Aboriginal People during the 19th century. Clarke's cites von Mueller, who was the first director of the Royal Botanic Gardens, Melbourne and whom exemplifies the attitudes of early settlers to ethnobotany during the 19th century: 'von Mueller's interest in Aboriginal plant use was restricted to the plants they used, particularly those that might develop horticultural use'.²⁹⁵ Clarke relates theories of human evolution, anthropology and the study of plants to the work of Darwin's²⁹⁶ *Origin of Species* (1859). The book also discusses the future of Australian contemporary ethnobotany.
4. *Australian Plants and Aboriginal Tools* (2012) describes the species that were essential as the means for manufacturing Aboriginal clothing, tools, weapons, ceremonial objects, watercraft, shelter, etc., and excludes the 'more' studied uses such as food, drink and medicine. The book compares the similarities and differences of plant uses across Aboriginal Australia and to other parts of the world. Clarke argues that Australian native plants have helped shape Aboriginal cultures over the millennia given how plants are used in their everyday processes. 'This book is primarily focused on material culture, which is the sum of beliefs and traditions concerning the tangible belongings of a People.'²⁹⁷
5. *Discovering Aboriginal Plant Use: Journeys of an Australian Anthropologist* (2014) argues that by understanding how the Indigenous People see and use plants we can better understand their culture. The book is ordered into two geographical parts and makes use of Clarke's field experience and journeys in the first part through South Australia with focus on plants used in the Adelaide Plains, the Lower Murray and south east of South Australia. The second part looks at the arid interiors with focus on plants used in eastern

Central Australia - Northern Flinders Ranges, Western Desert (Anangu Pitjantjatjara Yankunytjatjara lands), and the northern deserts across the Tropic of Capricorn.

Clarke's recent work has seen a foray into ethnozoology focusing on birds with a paper on 'Birds and the Spirit World of the Lower Murray, South Australia', published in *Journal of Ethnobiology* by the Society of Ethnobiology (2016).

Image 6-1 Dr Philip Clarke



Source: Clarke²⁹⁸

6.6.2.2 Gerry Turpin

Turpin completed a Degree in Botany at the University of Queensland (becoming the first Western-trained Indigenous ethnobotanist in Australia) and transferred from Queensland Herbarium in Brisbane to the Australian Tropical Herbarium in Cairns to manage the Tropical Indigenous Ethnobotany Centre. Turpin, an Mbabaram Aboriginal Elder and Traditional Owner from northern Queensland, is in a unique position, which he explains in a 'TED' talk, of having his feet planted in two worlds – one in Western science and one in Traditional Knowledge.²⁹⁹

Turpin's contribution to ethnobotany is more practical than academic because his Centre's role includes documenting, recording and researching cultural plant use knowledge, as well as collating existing ethnobotanical data. Turpin provides awareness, training and education and has been involved in a small handful of academic papers including:

1. 'An online spatial database of Australian Indigenous Biocultural Knowledge for contemporary natural and cultural resource management',³⁰⁰
2. 'Indigenous biocultural knowledge in ecosystem science and management: Review and insight from Australia',³⁰¹ and
3. 'Indigenous driven tropical ethnobotany',³⁰² this paper explores the benefits that an Ethnobotanical Centre would have in supporting Indigenous Peoples

knowledge about the cultural values of plants and was the premise for establishing the Centre.

Image 6-2 Gerry Turpin



Source: SBS Science³⁰³

6.6.2.3 Peter Latz

Latz spent the first 17 years of his life growing up amongst the Arrernte people at Hermannsburg Mission, Northern Territory. Consequently he is focussed on Central Australian Aboriginal cultures profiling the environment, plants and uses, seasons and firestick farming in his book *Bushfires and Bushtucker: Aboriginal Plant Use in Central Australia* (1995). Latz has spent a lifetime compiling his research which has enabled a very comprehensive collection of plant use organised alphabetically by botanical name, and exploring the nutritional value of plants providing extensive summary tables of all useful plants including availability and a rating of importance. Latz also cross-referenced these plants with those used in other parts of Australia and the world although no specific Language Groups are mentioned.

Praise was awarded from Gott to Latz in an article from *Aboriginal History* (1998) in her review of *Bushfires and Bushtucker: Aboriginal Plant Use in Central Australia* (1995) concluding that ‘the most interesting aspect is the listing of names for the plants in up to 7 of the languages of Central Australia. Linguistically, this is almost unique; and only a person of Latz’s qualifications and experience could have done it.’³⁰⁴

Latz also addressed bushtucker and survival skills. In *Pocket Bush Tucker: a field guide to the plants of Central Australia and their traditional uses* (1999) he ordered plants by type, e.g. grasses and sedges. The botanic name, common name and various indigenous names were listed with the plant’s habitat and an explanation of its use. Each plant was illustrated to help the reader easily identify each plant. While he pointed out that there are over 2,000 plant species in Central Australia, he focused on the most common plants and the more widely available noting that 140 species are still edible today.

Latz had the benefit of living amongst Indigenous People and learning first hand their Traditional Knowledge. It is thanks to this experience that the Central Australian ethnobotanical knowledge has been well documented.

Image 6-3 Peter Latz



Source: Alice Springs News³⁰⁵

6.6.2.4 Glenn Wightman

Wightman is known as a botanist and ethnobiologist. He was commissioned by the Conservation Commission of the Northern Territory (C.C.N.T.) to author *Gurindji Ethnobotany Aboriginal plant use from Daguragu Northern Australia* (1994). The book details Gurindji names and plant use information, with scientific and common English names for 196 plants species. A comparison is also made with other floristic zones. It contains alphabetical listing of Gurindji plant names of which 76 species are illustrated. Table C on page 66 provides a comparison table of Gurindji, Mudbarra and Ngarinyman plant use (identifying a count of species per use – headings included are Food, Implements, Material and Medicine). The purpose of this comparison is to identify similarities between these three neighbouring Language Groups and it was noted that a maximum variation of 5% food species, 10% medicinal existed between these Language Groups. The methodology applied in this book enabled quantifying species per use. Within the index (page 72-75) there is an alphabetical listing of Gurindji plant names with associated scientific name.

During the early 1990s, the C.C.N.T., co-authored by Wightman, published multiple books and identikits to aid identification of bush food and medicines with the following titles:

1. *Ethnobotanical notes from Belyuen, Northern Territory* (1989).
2. *Bush Tucker Identikit: Common native food plants of Australia's Top End* (1991);
3. *Bush Medicine Identikit: Common medicinal plants of Australia's Top End* (1991);
4. *Colour and String: Plants traditionally used for dye and fibre by Aboriginal People of the Top End* (1991);

6.6.3 Notable contributors to Victoria ethnobotanical literature

6.6.3.1 Dr Beth Gott

Pertinent to Victorian ethnobotany, the most notable figure is Gott (b.1922). Gott is a graduate in botany of The University of Melbourne, and the University of London where she completed her Ph.D. focussed on the life-cycle of rye cereals. Gott spent several years living and working in Hong Kong, Prague and as an anthropologist studying North American Indians in the U.S.A. before returning to lecture in Botany at The University of Melbourne. Gott has been on staff at Monash University since 1980 and became Adjunct Research Fellow of the School of Biological Sciences specialising in botany, plant physiology and ethnobotany. Since the 1980's she has assembled databases of plants used by the Aborigines of south-eastern Australia which is now housed with the Australian Institute of Aboriginal and Torres Strait Islander Studies (A.I.A.T.S.I.S.).

Gott's significance to ethnobotany in Australia has been her deep focus and investigations into Victorian ethnobotany – an area of research that is more difficult to access as it relies mostly on historical research given the lapse of time since foraging practices existed in this region of Australia.

Gott has published a number of papers, but her notable books include *Koorie Plants Koorie People: Traditional Aboriginal food, fibre and healing plants of Victoria* co-written with Nelly Zola in 1992 that focuses on traditional Aboriginal food, fibre and healing plants of Victoria. This book describes 50 useful plants used by the Victorian Indigenous People up to the 1830s. It is organised by ecological feature, e.g. coastal, dry country, mountain forests, plains and open forest, river/water plants etc. The book also describes gathering and cooking processes, medicines and fibre. Gott's introduction refers to the richness of protein and vitamins in these foods given they have been uncultivated and not genetically modified and usually harvested at the appropriate seasonal times. She not only attributes the health of the Australian Indigenous People to the selection of food types, but the methods in which the plants were cooked that ensured minimal loss of nutrients.

Gott is not only a historic documenter of ethnobotanical information but she has been instrumental in teaching and educating people in plant use by the Australian Indigenous People. Not only has Gott created the Aboriginal garden at Monash University, but she lists gardens for viewing Aboriginal plants around the state in order to encourage the adoption of indigenous plants and create awareness of Indigenous Knowledge.

Within in her various books, Gott mentions that she has created a database that contains at least 900 plants that were used by Victorian Koories, despite her books only focussing on 50 or so of the more useful plants. She was the first to develop a comprehensive Aboriginal ethnobotanical database for south eastern Australia.³⁰⁶

Victorian Koorie Plants (1991), by Gott and Conran, reviewed the Indigenous People from Hamilton, of Gunditjmara Country, with 50 plants in focus. Gott's methodology for capturing this data is not explained, although her references

indicate extensive research from the early ethnographers in Australia. The authors have organised the plant listings based on use and the plant parts which were used. When available, Gott also includes indigenous plant names or the area or the relevant Language Group. Also included within this book is an explanation of how the Indigenous People of Victoria managed the ecology through fire, thinning of roots, tilling of soil and she creates an interesting table comparison between current agricultural practices and foraging techniques.

This later led Gott to explore the use of fire in 'Fire-Making in Tasmania: Absence of Evidence Is Not Evidence of Absence' (2002)³⁰⁷ and 'Aboriginal fire management in south-eastern Australia: aims and frequency' (2005).³⁰⁸

Gott has published a number of papers focussing at a micro level on specific plants or plant parts such as: 'Murnong – *Microseris scapigera*: a study of a staple food of Victorian Aborigines' (1983)³⁰⁹; 'Cumbungi, *Typha* species: a staple Aboriginal food in southern Australia' (1999)³¹⁰; and, 'Ecology of root use by Aborigines of southern Australia' (1982).³¹¹ Additionally she published a review of the 'Use of seeds by Victorian Aborigines' in *The Food Potential of Seeds from Australian Native Plants* (1984).³¹²

Gott has provided reviews of her contemporary's publications in *Aboriginal History*. She reviewed both Latz's and Clarke's work in 'A Review of Bushfires and Bush Tucker - Aboriginal Plant Use in Central Australia by Peter Latz' (1998)³¹³ and 'A Review of Aboriginal Plant Collectors: Botanists and Australian Aboriginal People in the Nineteenth Century by Philip A Clarke' (2008).³¹⁴ She has also reviewed in *The Artefact* (1985) the historical writings by Dawson, *Australian Aborigines* (1881), in terms of the plants that were mentioned in this book.³¹⁵ To supplement the Aboriginal garden at Monash University, Gott documented a 24 page pamphlet *Aboriginal Plants in the grounds of Monash University* (2010)³¹⁶ Additionally she provided the content on the use of plants for the Royal Botanic Gardens *Indigenous use of plants in south-eastern Australia* (2008).³¹⁷ Gott had published several other publications which are referenced in the back of this thesis and her work and findings has provided an interesting comparison to Wadawurrung ethnobotanical findings which has contributed to closing the south-eastern Australian ethnobotanical knowledge gap.

In 2017 Gott was awarded the Order of Australia (A.M.) for significant service to the biological sciences as an ethnobotanist specialising in the use of native plants by Indigenous People.³¹⁸

Image 6-4 Dr Beth Gott in front of her Aboriginal Garden, Monash University



Source: European Plant Science Organisation³¹⁹

6.6.4 Notable contributors to Wadawurrung ethnobotanical literature

Louis Lane is the only significant contributor to Wadawurrung ethnobotanical literature. She is one of a small number of other contributors, who would not necessarily identify as ethnobotanists, but who have contributed at a macro-level about Wadawurrung culture knowledge or ethnoecological knowledge; these people include Pascoe and Clark. Ferrier is also a contributor but has been focussed on the micro-level looking at medicinal plants of part of the Bellarine Peninsula, which is a geographic segment of Wadawurrung Country.

6.6.4.1 Bruce Pascoe

It is important to review Wadawurrung ethnobotany in context of understanding their culture to provide meaning and context. However there is very little information in the public domain about the Wadawurrung culture. Of the little known information the most useful books available have been written by Yuin Bunurong Tasmanian man, Bruce Pascoe.³²⁰

Pascoe has published 17 books. One of his earlier works, *Wathaurong Too Bloody Strong* (1997), discusses what it is like living off the land recalling first-hand foraging and gathering techniques. His narrative derives from stories recorded and transcribed by members of the Wathaurong Aboriginal Co-operative from oral histories to short fictions over an age range from 18-78. Pascoe explains the vigour of the Wadawurrung People's 'determination to survive in order to honour the land that created them'.³²¹

Pascoe's book, *Convincing Ground – Learning to Fall in love with your country* (2007) also contains Wadawurrung language samples, a map, place names of the Geelong and Ballarat region and a Geelong historical timeline in its appendices. Unfortunately this book contains very little plant information. However, this book has extensive referencing (9 pages) and includes one of the few known public citations of Louis Lane's 'History: With some echoes of a lost language' (2001) published by the Kardinia Prehistory Society. This file is called 'Lost Language' in the Deakin catalogue.

Pascoe's objective, when he wrote *Wathaurong The People Who Said No* (2003), was 'to create a curriculum for year 7 and 8 presenting Koori life and customs in relation to the environment'³²² providing an account of Australian history

according to the Wadawurrung. The book looks at the land and the people, languages place names and boundaries, discusses the future, and provides solid references for further reading.

Although Pascoe identifies more as an author than an ethnobotanist, his re-assessment of accepted Australian history that determined by European settlers, is more of an ethnoecological position through his re-definition of the label of 'Hunters and Gatherers' in *Dark Emu* (2014). Through investigating documentation from the early settlers, Pascoe recognises the sophisticated relationship the Indigenous People had with the land evidenced by their complex land management techniques such as 'building dams and wells, planting, irrigating and harvesting seed, preserving the surplus and storing it in houses, sheds or secure vessels, creating elaborate cemeteries and manipulating the landscape.'³²³ Along with these were animal management techniques and systems such as elaborate fish traps and nets, built villages, terraced agriculture and grains produced from domesticated grasses and methods of baking that were techniques developed 15,000 years prior to the Ancient Egyptians.³²⁴ Similarly to Lane, Pascoe has identified from the writing of early settlers some plants that were used by the Indigenous Peoples prior to colonisation. However, Pascoe is more focussed on the macro level and the processes of living as he defines the chapters in this book from agriculture to aquaculture, population and housing to storage and preservation and so on.

Image 6-5 Bruce Pascoe holding a yam daisy



Source: Good Food³²⁵

6.6.4.2 *Professor Ian D. Clark*

Clark obtained his Ph.D. from Monash University in Aboriginal Historical Geography focusing upon documenting Aboriginal land tenure in western Victoria towards interpreting the processes of dispossession in this region. Clark's map of Wadawurrung Country³²⁶ is the preferred reference for this thesis.

Clark has written extensively on Victorian Aboriginal history including editing the journals and papers of George Augustus Robinson and is a prolific writer of academic papers with a strong emphasis on historical geography.

Although Clark is not a direct contributor of Wadawurrung ethnobotany, his historical geography of Wadawurrung territory is important as it defines the scope of the region and therefore the plants that grew in that landscape.

Clark, currently Professor of Tourism at Federation University Australia, is currently pursuing research themes in regional tourism and Indigenous tourism along with cultural heritage management.

6.6.4.3 Sue Ferrier

As a subset of ethnobotany, medicine for the Wadawurrung has been covered in some detail by Sue Ferrier in *Wathaurong Medicine* (1992) in a report that was commissioned by the National Estate Trust to identify potential areas of indigenous medicinal flora of the Bellarine Peninsula that could be included into the National Estate Register. This was initiated by a paper outlining the possibilities and advantages of developing an Australian Aboriginal Pharmacopeia authored by Clarey (1986) *An Australian Pharmacopoeia*, an unpublished paper written for the Aboriginal Research Centre, Monash University. Ferrier's booklet is the only dedicated data in the public domain relating (although only in part) to Wadawurrung ethnobotany.

Ferrier completed extensive research and her methods included consultations with Indigenous Peoples from around the district where she obtained oral history relevant to the environment of the Bellarine Peninsula as it was before European settlement.

Ferrier also had various consultations with the Victoria Archaeological Survey (V.A.S.) who provided information about archaeological evidence for the Bellarine Peninsula (which was possibly sourced from Lane as her role was the Aboriginal Relics Inspector with the V.A.S. for Geelong and District). Additionally a vegetation survey of Bellarine Peninsula roadsides and various surveys of the vegetation of reserves were used to determine the presence of medicinal plants. Ferrier also conducted field studies with her results found in various sections of her report including sections 3.2, 6.2 and 7.

On page 21, section 3.2, Ferrier refers to a report authored by Rhoads (1986) entitled *Bellarine Peninsula: Archaeological Site Assessment and Management Study*; an unpublished report for the V.A.S. This report classifies and identifies various types of vegetation along the Bellarine Peninsula, including: open eucalypt forest, a swamp forest, woodland and grassland, mangrove woodland, salt marsh, coastal scrub and coastal dune communities - they worked out what vegetation would have existed prior to clearing the land by looking at the soil type and climate. Rhoads' aims were towards: 1. documenting the natural and cultural context of the region's archaeological deposits; 2. identifying sites whose current preservation characteristics confer significance; and, 3. indicating areas where important, but as yet undiscovered cultural remains may occur.

Rhoads relies on Lane and Gill's analysis of the Point Campbell midden at Lake Connewarre as well as Lane's report for the V.A.S. on McLeod's Holes amongst others. In Appendix 2 Rhoads lists 'Probable Vegetation Formations across the Bellarine Peninsula' and Appendix 3 Provisional List of Ethnobotanical Resources however, over 50% of this list is focussed only on the vegetation of the area. He does reference Gott, Cribb, Oates and Seeman who are also discussed in this thesis. Within Appendix 5 there is an ethnographic index of 'The Life and Adventures of William Buckley compiled by Louis. N. Lane, James W. Rhoads Jim Stockton' which contains valuable ethnobotanical detail. 'At the request of Jim Stockton, L. N. Lane assessed and indexed Buckley's account³²⁷ for items of Aboriginal interest. Unknowingly, I carried out a similar exercise before taking up this consultancy. Appendix 5 presents a combination of our efforts'.³²⁸

Ferrier³²⁹ undertook a survey to validate Rhoads' findings but failed to find evidence of four of Rhoads' vegetation associations. Ferrier³³⁰ also reviewed Wedge's (1835)³³¹ historical vegetation analysis who described the Barrabool Hills area as having 'very few trees being predominately casuarinas and grasses, the Buckley's Falls area as having scattered red gums and casuarinas and Indented Heads area as having scattered manna gums and casuarinas and the Bellarine Hills as being almost treeless.' Although Ferrier's geographical scope was limited to the Bellarine Peninsula, she provides an extensive 'Plant List for Wathaurong Territory' in Appendix P³³² which is based upon a report written by Beaglehole (1983) entitled *The Distribution and Conservation of Vascular plants in the Melbourne Area, Victoria, Portland, and Western Victoria Field Naturalist Clubs Association*. Section B provides a list of the plants of the Melbourne study area which in part covers some of Wadawurrung Country and extends into Country's of neighbouring Language Groups with different ecological environments.

Nine years later, Wesson (*née* Ferrier), was contracted to investigate the *Aboriginal flora and fauna names of Victoria: As extracted from early surveyor's reports* (2001) through an initiative of the Victorian Aboriginal Corporation for Languages and the Victorian Biodiversity Strategy. Wesson's methodology included examining material from the archives the State Library of Victoria, the Department of Natural Resources and Environment, the Australian Archives Office and the Victorian Public Records Office. Although an informative report, its focus is on language through plant species identification, it lacks a description of their use and accordingly is not classified as a contribution to Wadawurrung ethnobotany.

6.6.5 Part I conclusion

The common themes and issues that have surfaced from this literature review demonstrate a cyclical appetite in popular culture of ethnobotanical data relating mostly to food and medicine. In both academic and non-academic writing, an assumption has been made by the majority of authors that the use of plants is homogenous across the continent. This suggests that a plant growing in the northern tip of Australia (assuming it grows in southern regions), is used in the same way. The assumption lies in this knowledge being communicated across hundreds of Language Groups across thousands of kilometres and many Countries and diverse vegetation regions. However, Clarke³³³ in investigating

regional relationships and variations suggests that ‘similarity between the types of plants used may suggest intergroup relationships’. Clarke³³⁴ also claims that the level of botanical knowledge within each community varies considerably citing Kean³³⁵ and explaining that ‘the acquisition and retention of such information would be affected by many factors, regions traversed, sex, age and even individual spiritual associations with particular areas of land and associated totems. Accordingly, knowledge can be viewed as an individual or a community/cultural attribute.’

However, it is not the purpose of this thesis to prove or disprove this theory and in many cases it is too late to be able to witness and guarantee that the use of these plants in such a way by the various Language Groups.

What is also evident from this literature review is that the methodology in collecting this information has not been transparent for some authors; therefore their sources could be considered questionable.

Australia has academic specialists in the field of ethnobotany such as Gott and Clarke with a deep knowledge of indigenous plants and their various uses, but the science of ethnobotany is relatively small in Australia compared to the U.S. and Europe which defies logic given the Australian Indigenous People are one of the oldest continuous civilisations on the planet.

6.7 Part II - Review of Lane's references

Although Lane's referencing methods was an acceptable approach at the time of writing her typescripts, they are not considered conventional by today's academic standards thus making cross-referencing and validation of her data difficult. To overcome this hurdle, in part, a review which scrutinises the references Lane used in her work will help to establish the suitability of her references.

Lane referenced a total of 1,564 references throughout the 255 typescripts she generated. Several sources were included multiple times across many of the typescripts such as Smyth, Dawson, Tindale, Barwick, as Lane referred to these sources as her 'bibles'. Of these 1,564 references cited, 394 were unique (refer Appendix 10.3). Lane also spent considerable time investigating and interviewing individuals or asking for guidance from individuals who were considered 'experts' in their field. As such, she has acknowledged 166 people throughout her typescripts from historians, to individuals from government departments and local Indigenous and non-Indigenous individuals (refer Appendix 10.14).

Of the 394 unique references, 14 of those were written between 1805-1849; 35 were written between 1850-1899. Thirty-three were written between 1900-1949; with the balance from 1950 to the end of her writing career at the turn of the new millennium as seen in Table 6-2 and seen as a percentage of the total in Figure 6-3.

Table 6-2 Number of Lane's references based on published date

Date Range	Count	Percentage
1805-1849	14	3.6%
1850-1899	35	8.9%
1900-1949	33	8.4%
1950-1999	291	73.9%
2000+	1	0.3%
no date	20	5.1%
Total	394	100.0%

Figure 6-3 Number of Lane's references - published date as a percentage

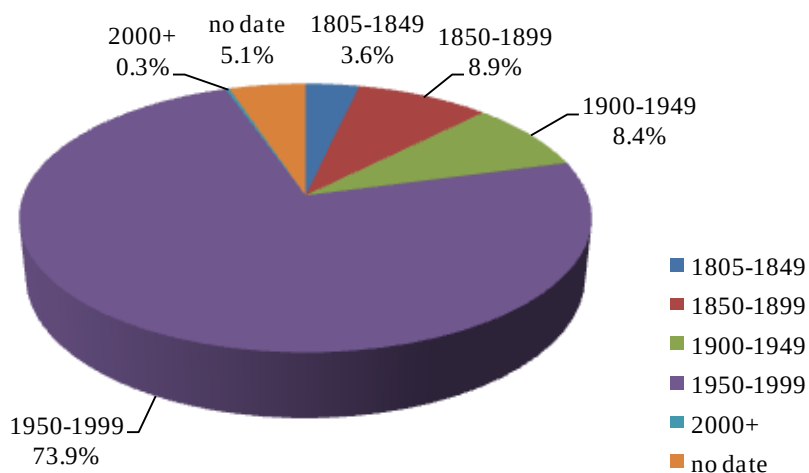


Table 6-3 provides a summary of the types of references Lane used. These categories have been subjectively applied and may not be the best classification for each reference but it serves as a general indicator as to the nature of Lane's source data. The 'anthropology' category also contains many historical documents, diaries and letters, which have inflated the count. The 'references' category includes encyclopaedias, police and cemetery records etc.

Table 6-3 Lane's references by type

Reference type	Count
Anthropology	189
Archaeology	45
Australian Flora	39
Language	25
Australian Fauna	28
Geography	22
Aboriginal Art	17
References	17
Geology	12
Total	394

After scrutinising Lane's and Gott's references it is believed that the point of differentiation with Lane's work is Lane's broad research scope where she takes an interest in the holistic view of Aboriginal culture coupled with a regional focus on S.E. Wadawurrung Country. This enabled her to drill down into historical and anthropological works of the region. Additionally Lane's focus towards stone tools and artefacts led her research into archaeological and geological references. Lane also had a strong belief in understanding a culture through language. She was interested with those individuals who attempted to communicate with the Indigenous People at the time of colonisation and those who created word lists or lexicons. She explored these in great detail and uncovered a rich source of data. Many of these types of references such as Cary, Davenport/Sievwright, and Tyers do not appear in Gott's research.

6.7.1 Lane's historic linguistic sources

Clarke³³⁶ noted that 'linguists have added considered ethnobotanic data to the literature, with several dictionaries of Aboriginal language containing detailed descriptions of how plants are gathered, prepared and used'. Lane also recognised this early in her research and identified that the language resources were a rich source of information as she recognised that:

... ecological relationships were thoroughly understood by Aborigines, who had specific names for each type of soil within their familiar area; each stand of trees was named for its characteristics; each natural feature, each swamp, hill or river elbow: every season and all conspicuous stars had special names. Even the fresh new growth of sward, after a tract of land had been fired, had a distinctive name. This close relationship with nature cannot be divorced from the social and ritual

*existence of the Indigenes. Clans and tribes were continually in dynamic inter-action.*³³⁷

*To study Indigenes, one finds oneself needing to know the geology and zoology of their living places and the reason for their itinerations round their Home-territories. Finally the music of their spoken expressions has inspired me to gather items of the vocabulary of our vanished 'Barrarboolers'.*³³⁸

It appears that Lane's methodology included the systematic review of the language lists compiled by the early surveyors, missionaries, protectors and guardians, and anyone who took an interest in understanding the beliefs and customs of the Indigenous People. Some of these individuals are briefly outlined below. Of the large waves of settlers, very few made any effort to learn the language to be able to converse, and few had linguistic training, and most performed this task only as a supplementary consideration in addition to their own work. Others undertook the task of compiling dictionaries such as early surveyors Eyre and Tyers and those who worked on missions or reserves, 'the missionaries, having a *captive* population under their care had the longest time to compile vocabulary lists'.³³⁹

These vocabulary lists commonly referred to plants and sometimes their uses, and were often created alongside overviews of customs and beliefs. So they make a desirable source of information. As a result of establishing vocabulary lists, it was discovered that most Indigenous People were multi-lingual, which is thought to be a result of the marriage laws where the women were bestowed to other clans or Language Groups.

6.7.1.1 Robert Brough Smyth

Robert Brough Smyth's two tomes, *The Victorian Aborigines Bks I and II* (1878), was referred to by Lane as her 'bible'. Smyth was the Secretary of the Central Board for the Protection of the Aborigines which was formed in 1860. Smyth consolidated language lists that were contributed by: D. Bunce, Rev. J. Bulmer, Rev. A. Hartman, Rev F.A. Haganauer, A.W. Howitt, J. Parker, and W. Thomas. These lists came from various locations around the colony and from individuals with differing abilities and professions. To provide context, a brief profile is provided below on the individuals who collected the vocabularies.

6.7.1.2 Daniel Bunce

Language of the aborigines of the colony of Victoria and other Australian districts: with parallel translations and familiar specimens in dialogue, as a guide to Aboriginal protectors and others engaged in ameliorating their condition (1859) by Bunce provides vocabulary lists from the Woiwaroo and the Boonaroo only, which would have been language familiar to all members of the Kulin. Regrettably Bunce did not include language of the Wadawurrung whilst establishing the Geelong Botanic Garden. Lane is somewhat dismissive of Bunce's efforts claiming 'his dictionary, in the Smyth tomes is rather ridiculous or childish. It seems to be an exercise in finding the greatest number of synonyms to the vocabulary he collected in the Yarra Region and down the east coast of Port Phillip Bay ... If he knew anything regarding the hand gestures modifying the

spoken word by the Indigenes, or the combination of two or three expressions, he made no note to this effect'.³⁴⁰

6.7.1.3 Rev. J. Bulmer

Bulmer, based on the Lake Tyers Mission Station, in Gippsland, authored *The language of the Kurnai tribes of Gippsland* (1996), in the 1870s. His studies have been valuable according to Smyth.

6.7.1.4 Alfred William Howitt and Joseph Parker

Warden and Police Magistrate of Bairnsdale, Howitt, studied the Kurnai People of Gippsland in 1869 recording their vocabulary, customs and beliefs. However due to the acrimony between Kurnai and Kulin, it is unlikely that their language was understood by members of the Kulin. Similarly Parker, collected a word lists from the Jaara People of Dja Dja Wurrung Country.

6.7.1.5 John Green

Green's 'Dictionary of the Woiwurrung People at Coranderrk' was written at the time when the Woiwurrung People had adopted a reasonable knowledge of the English language, which enabled Green to write a more comprehensive word list; an opportunity not afforded to earlier lexicographers. At the time of compiling his dictionary, Green had been appointed Manager of Coranderrk, (Korumderrk to the Woiwurrung) and subsequently appointed Inspector of all Aboriginal Reserves in the Colony.

6.7.1.6 Edward J. Eyre

Another surveyor of inland Victoria, Eyre, and Protector of Indigenes based at Moorundi in S.A., compiled word lists for the British House of Commons in 1838. It was Eyre who reported that 'NG' was common in dialects of Port Phillip. One of his word lists was also published in Smyth's tome *Aborigines of Victoria: Vol. II* as 'The Woddowrong or the Corio Natives'.

6.7.1.7 Nathan Thornley

Contract Land Surveyor in Western Victoria, Thornley, also compiled vocabulary of some western Indigenous People of Victoria, although this language would have been too remote for Wadawurrung People to understand.

6.7.1.8 Robert A. Keble

Similarly Keble was a geologist who set about recording the basic sounds and language of the plants in the district of the Kulin nations in 'Aboriginal Plant Names their Etymology' published in the *Victorian Naturalist* (1917). Keble³⁴¹ had reviewed the lists consolidated by Smyth some 60 years earlier and commented that 'the lists were regarded as unsatisfactory by linguists, he remarked that few attempts had been made to analyse them'. Keble, undertook his etymological examination of the plants names of the collection that the Victorian Government Botanist – von Mueller, had identified based on the 'specimens ... collected ... by Messrs. [John] Green, [Adolph] Hartmann, and [Joseph] Shaw, of the Coranderrk, Lake Hindmarsh and Lake Condah Aboriginal stations, and labelled by them with the native names'. This study was instrumental in defining the structure of the Aboriginal language of the Kulin nation. It is believed that much of the Kulin language was shared amongst the various Language Groups

such as the Wadawurrung, Woiwurrung, Boonwurrung, Djadjawurrung and Daungwurrung. The language across these groups was similar and would be familiar to every member of the Kulin nation and their neighbouring Language Groups. Lane noted that she deliberately chose terms which are similar to the tongues of the Kulin when compiling her own 500 page lexicon of Aboriginal terms.

6.7.1.9 Rev's George Langhorne and William Wakefield

Lane's other primary linguistic sources include Langhorne who managed the Mission Station in South Yarra, Melbourne. Wadawurrung language, then called Wathaurwurru vocabulary was compiled by Wakefield also of South Yarra Government Mission Station in 1839-1840 and was known as *Wakefield's Dictionary hand-written Lexicon of Vocabulary of the Indigenes of the Geelong-area*. Wakefield took special note of place names which were often indications of vegetation sources or natural environmental features.

6.7.1.10 William Buckley in John Morgan

Morgan's book, *Life and adventures of William Buckley: thirty-two years a wanderer amongst the Aborigines of the then unexplored country round Port Phillip, now the province of Victoria* (1852), was examined by Lane for the V.A.S. in 1975, and Rhoads again in 1986. Buckley's account of his time with the Wadawurrung was dramatised by journalist, Morgan, who was considered a pamphleteer; 'it seems that Morgan dwelt on scandalous or sensational facts which he prised from the reluctant Buckley. But the careful perusal of its pages brings insight into the lives of the Indigenes as Buckley knew them'.³⁴² As such, Morgan did however, provide valuable insights to language and plant use.

6.7.1.11 Edward M. Curr

Vocabulary from *Along the Moorabool River* (1883) was compiled by settler Curr. Despite providing some valuable terms he was remiss in not identifying the clans from which he gleaned in his dictionary. The Kureet, the Marpiang and the Tolloora were the clans of the Wadawurrung Language Group who resided either side of the Moorabool River and spoke varying dialects of Wadawurrung language. Curr, son of a squatter based near the Goulburn River Valley in Northern Victoria, learnt to speak the local Aboriginal dialect (Ngurai-illam language) in his childhood. This language would have been understood by the Kulin nations as they neighboured the Daungwurrung Language Group. Later Curr authored *The Australian race: its origin, languages, customs, place of landing in Australia, and the routes by which it spread itself over that continent* (1886-1887) in 4 volumes drawing upon his own experiences as well as correspondence with various mission stations to obtain information on the lifestyles of the Indigenous People from different regions. Curr's vocabulary lists were instrumental in establishing that the Australian Indigenous People spoke a multitude of different languages in different regions and were also multilingual. Curr also theorised that 'the letters F, S, X, and Z did not exist in Aboriginal language and that J, A, and V were rarely used. He recognized the nasal velar 'NG' occurred at the beginning of many words. The use of this consonant was often overlooked by other persons making vocabulary lists. It is also interesting to observe that he does not list many complete nouns commencing with vowels'.³⁴³ 'Later Researchers, like the Language Committee of the University of Adelaide, 1935-1940, stated that the lack of accurate phonetic symbols had been responsible for much confusion in the early spelling of Aboriginal words. They

confirmed Curr's conclusion regarding the lack of sibilants and the fricative 'F', though they allowed 'V', bracketing it with 'W'. They allowed 'J', but this was often combined with 'D' or 'T'. They also allowed 'A', but indicated the sound 'A' was as 'U' as in cut'.³⁴⁴

6.7.1.12 John Cary

Cary's *Vocabularies of the Geelong and Colac tribes, collected in 1840* was based on notes of missionary Rev. Francis Tuckfield, who was in charge at the Wesleyan Methodist Aboriginal Mission at Buntingdale Station near Birregurra. Cary published this language list in 1898 after he presented it as a paper to the Sydney session of the Australasian Association for the Advancement of Science. What is important with this work is that Cary was meticulous with separating Wadawurrung language to the terms of the Dantgurt and Kolijon Language Groups. According to Lane, these diligent researchers apparently detected a significant difference between the vocabulary of the northern and southern clans of the Wadawurrung.³⁴⁵ Lane included this variation in her own lexicon by distinguishing between north or south Wadawurrung using the symbols Sth. or Nth.WA alongside the terms.

6.7.1.13 Charles W. Sievwright and F.A. Davenport

Lane meticulously scrutinised her own references, and she cross referenced words to ensure their validity. In the case of the Davenport Dictionary (Davenport being the daughter of Protector of Aborigines Sievwright, who, in 1842, lived at the Aboriginal Reserve at Bukar buloc now known as Fyansford where she wrote the names of the Aboriginal People who assembled there), Lane's analysis revealed that the 'Siewwright Protectorate extended west to the South Australian border, the Census taken in 1842 cannot be guaranteed to contain only Wataurwurru (Wadawurrung language). In fact, a comparison of the clans folks names in Todd's and Davenport's census lists suggest strongly that other Tribes-people were involved when Davenport created her word list'.³⁴⁶

6.7.1.14 James Dawson

Dawson was a settler at Kangatang, and an Aboriginal Guardian in Western District, took upon himself to learn several dialects of the local clans of the Gunditjmarra, so he could communicate with them and compile the *Australian Aborigines: the languages and customs of several tribes of Aborigines in the western district of Victoria* (1881) where he provides valuable detailed word lists despite this language most likely not being familiar to the Wadawurrung People.

6.7.1.15 John Helder Wedge

The surveyor Wedge, who landed at Indented Head in Wadawurrung Country with John Batman in 1835, explored the local region providing us with observations of the landscape and an insight into the ecological boundaries that divided them plus providing us with the names of the clan based at Lake Modewarre (Modiwarre) - Gerarlture (Tjuraaltja) clan. Wedge provided us with many local words and various spellings of these and hand drawn illustrations of the Wadawurrung People going about their daily routines, these observations have been valuable.

6.7.1.16 Charles Tyers

Surveyor Tyers was instructed by Sir George Gipps in 1840 to survey the border between the colonies of South Australia and Victoria (then New South Wales). Whilst recording the key geographical features he also noted down language lists of the Indigenous People living along the various rivers including the Crawford/Stokes and Wannon/Glenelg.

6.7.1.17 Philip L.S. Chauncy and Philip C. Crespigny

Other word lists were assembled by Chauncy whilst working as a District Surveyor in Ballarat (1862-1868) capturing language of the Wadawurrung People from the north west locality. Crespigny also collected a list of words from the Talbot district, south of Maryborough, from the Tjapwurrung People in 1869. North west clans of the Wadawurrung may have understood some of this vocabulary.

6.7.1.18 Rev. George Taplin

Lane also studied word lists outside of Victoria including those of Taplin from South Australia who narrated that the local Indigenes ‘often uttered inarticulate sounds. He said they were skilled in the utterance of emotion by creating unworded sounds.’³⁴⁷ Lane compared his notes which revealed that ‘parents so adored their children that they adopted the name of their latest offspring. This found agreement with William Todd’s notes at ‘Indenture’ Head, as well as a remark quoted by Morgan, after Buckley, ‘that parents changed their names whenever a child was born’. This common custom may argue cultural-connections between Indigenous People in Victoria and South. Australia’.³⁴⁸ This analysis by Lane demonstrates her ability to cross reference details from various sources.

6.7.1.19 William Thomas

Thomas was the Assistant Protector of Aborigines in Western Port and Melbourne regions from 1839-1849. Thomas was appointed Guardian of Victoria's Aborigines, in 1863 until 1888 which allowed him time to study the language and customs of the Boonerong and his studies are valued for the structural explanation of the language used for the ‘plural’ of living and inert objects.

6.7.2 Contemporary language sources referred by Lane

6.7.2.1 Ian D. Clark and Gary Presland

Modern day studies provide a great deal of value for Lane such as Clark's 'Aboriginal Languages and Clans' (1990) and Presland's (1977) interpretation of the *Journals of G.A. Robinson* (1841) which provided 'much useful; vocabulary and general information'.³⁴⁹ The handwritten diaries of Robinson contain a host of useful references for Lane however her great complaint, in this regard, is that 'he did not study the People of Geelong in any depth; this is because the Indigenous People declined in population so rapidly'.³⁵⁰ Lane first met Presland at Yambuk, and Lane mentions that 'he has always, thereafter, been a very good friend: generous with advice and permission to use his maps, etc. His patient interpretation of Robinson's vile scrawl plus his own book, *Aboriginal Melbourne: the lost land of the Kulin people*' [1994] have been of infinite help'.³⁵¹

6.7.2.2 Norman Tindale

Lane had a deep admiration for Tindale, and wrote the following comments about him: 'What can one express but admiration for the lifelong work of this man? His knowledge of the political customs of the People he studied is legendary. He endeavoured to standardize the spellings of Aboriginal words by providing phonetical tables in *Aboriginal Tribes of Australia*, (1964); his maps are masterly even if he did make an error, in this district, confusing the Kurung Tribe with the Kurungjang bulluc whose territory lay on the left bank of the Werribee River in Woiwurrung Country'.³⁵² Lane's local knowledge of Wadawurrung Country and research into the clan borders gave her the authority to correct Tindale's map and complete the Barwick and Clark maps.

6.7.3 Lane's other Sources

Of the close to 400 sources that Lane refers to in her typescripts, it is her friendships with people such as archaeologists John Mulvaney, Josephine Flood, Edmund Gill and historian Philip Brown that provided her with insights and guidance.

6.7.3.1 Prof. John Mulvaney

Lane notes that Mulvaney was the Executive Member of Australian Institute of Aboriginal Studies at the time 'John was an old friend from way back and has always tendered encouragement to me. His books have likewise been a constant inspiration'.³⁵³

6.7.3.2 Josephine Flood

Lane writes that she knew Flood from the Canberra days when she was Director of Aboriginal Heritage in the Australian Heritage Commission. Lane concedes that Flood's book *Archaeology of the Dreamtime* (1983) is a favourite and notes that Flood also studied the work of others when she authored this book.³⁵⁴ 'I found the books of Josephine Flood an inspiration, more particularly her tome on Ochres. On every living site I studied from 1970-1999, I had found ochre artefacts - even some classic pencils'.³⁵⁵

6.7.3.3 Edmund Gill

State Palaeontologist, Gill 'had an abiding interest in all things Aboriginal and was a great help to me when I returned to Geelong from N.S.W. in 1970 and over the later years of his life'.³⁵⁶ Lane and Gill worked together on joint projects. One joint project was to explore the terraces in the Batesford lime quarries. Another joint study was the prehistoric shell mound at Campbell's Point which has now been declared a National Estate. This latter joint project culminated in an article for the *Proceedings of the Royal Society of Victoria* entitled 'Sea levels and Aboriginal oyster midden at Lake Connemare, Victoria, Australia' (1985). Lane commented that Gill was 'so willing to share his knowledge of all things geological'.³⁵⁷

6.7.3.4 Philip Brown

Lane comments with affection on Brown's *The Todd Journal* (1835), 'that precious gem of a book, had to wait until the year, 1989 before being edited by Brown, Geelong's own Historian, to become available to the public'.³⁵⁸ Lane refers to his seven volume work, *The Clyde Company Papers* (1941–1971) 'has many very useful historical references of the troubled frontier days'.³⁵⁹

6.7.3.5 Frederick McCarthy

Due to Lane's long standing interest in stone artefacts which initiated her research into the Wadawurrung People's lives, she favoured the writings of McCarthy 'a very early authority on Aborigines who wrote *Australian Aboriginal Stone Implements: including bone, shell and tooth implements*, in 1976 after many years of experience in the field'.³⁶⁰ This was a valuable source for Lane as she mentions that she has worn through multiple copies.

6.7.3.6 Kenneth Maddock

Maddock's (1972) *The Australian Aborigines: a portrait of their Society* gave Lane an insight into the 'spiritual life of the Indigenous People, more particularly of the Indigenous People of the South Coast, N.S.W.', where Lane's studies began.³⁶¹

6.7.3.7 Lindsey Arkley

Lane refers to her 'modern bible' *The Hated Protector: the story of Charles Wightman Sievwright, protector of Aborigines 1839-42*, by Arkley (2000), as a treasured thoroughly researched and detailed account of the years that Charles Wightman Sievwright worked conscientiously for the Indigenous of the S/W as Assistant Protector of Aborigines, Geelong and Western District Sector from 1839-1842. Lane considered this a valuable source, despite being published at the end of her second career.³⁶²

6.7.3.8 Victoria Archaeological Survey (V.A.S.)

Lane's time with the Victoria Archaeological Survey (V.A.S.) resulted in a long-standing valued friendship with Dr Peter Coutts, the Victorian State Archaeologist and Director of the V.A.S. Coutts encouraged Lane to register living sites in Wadawurrung Country. Coutts and members of the V.A.S. generated prolific output which inspired Lane. Lane mentions her 'fondest memories of the Archaeological Schools, and all the characters with whom Lane associated at the Archaeology Schools in the 1970s, Peter Coutts, Stuart Simmons, David Clarke,

Mike McIntosh, Dan Witter, et al, have, every one of them, increased her knowledge. They have all been generous with their instructions and ready help'.³⁶³

In a file found on Lane's hard drive she wrote 'The Editor wishes to acknowledge the expertise of the following authors whose works have been her constant companions during her thirty year studies regarding the living places and the stone artefacts, of the Indigenes of this district as well as her subsequent enquiries into their ways of life and their languages.'³⁶⁴ Lane was always conscious of acknowledging her references albeit unconventionally by today's standards, it would be an ignorant miscarriage to be dismissive or allow academic snobbery to rule out the 36 years of research and the evidence that Lane provides the reader.

6.7.4 Part II conclusion

Lane used a wide range of suitable references both historical and contemporary sources and complemented these with consultations with Wadawurrung representatives, the Geelong community and with specialists in various fields. The relationships she forged resulted in instrumental and valuable connections that provided her with guidance and instruction to further deepen her knowledge. Lane's references reflect this authoritative inquiry style and are relevant because they follow the evolution of botanic and ethnobotanic wisdom in Australia.

7 Chapter 7: Findings

7.1 Findings from Lane's data

The following analysis is based on a population of data that was extracted from the research of Louis Lane. Additionally the data of Beth Gott found in her VICUSE database was interrogated in a comparative analysis to establish if any new plant species and / or 'uses' could be identified.

The process of analysing this data is not intended to de-personalise the culture of the Wadawurrung People, but serves as an attempt to gain a deeper insight in to the value and importance of the vegetation that grew in their Country by understanding the applicable cultural meaning from its former use. There is no assumption being made that this is neither a complete data set nor a complete view of how the Wadawurrung People chose to live their lives prior to European colonisation.

During the course of extracting the plant data from Lane's typescripts, a total of 230 species of plants have been identified (Table 7-1). Of these, 155 are unique to Lane's research as compared to that of Gott's. Of the 872 'uses' identified in total in Lane's work, 764 are unique to Lane's research as compared to that of Gott's. This means that 88% of Lane's data set is unique. Refer to Figure 7-1 below for an explanation of this calculation.

Of the 1390 entries that were discovered through the course of reviewing Lane's typescripts, there were 518 duplicates that were either an exact duplicate or very similar and could be consolidated with other entries (refer Appendix 10.15 for plant list and summary quantities or Appendix 10.20 for full listing of plants and their uses).

Table 7-1 Findings from Lane's data - summary

Total species	Species unique to Lane's data set	Unique species as percentage of total species	Total uses	Uses unique to Lane's data set	Unique uses as a percentage of total uses	Entries throughout Lane's typescripts
230	155	67%	872	764	88%	1390

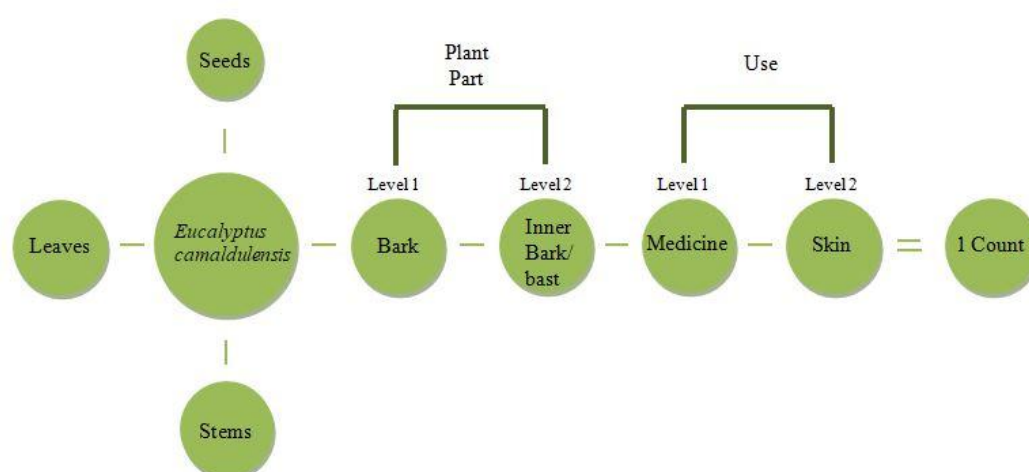
The following is an explanation of the formula involved in establishing 'one' count (of the 872 'uses'):

$$\text{Species} + \text{Part (L1 + L2)} + \text{Use (L1+L2)} = 1 \text{ count}$$

To understand this formula better,

Figure 7-1 shows how a particular plant species can have different plant parts and be used in different ways. Each of these constitutes a single count. From Lane's work there are 872 of these combinations.

Figure 7-1 Count calculation example



A species of plant is not exclusive to a ‘use’ category and can be used across a range of Level 1 ‘use’ categories; i.e. a plant can be used for human consumption but also used as medicine.

Table 7-2 Example of Lane's findings as listed fully in Appendix 10.20

	Unique Use to Lane Y/N	Botanical Name	Common Name	Indigenous Name	Name Explanation	Plant Part Level 1	Plant Part Level 2	Use Level 1	Use Level 2	Purpose &/or Preparation - Lane's text	Lane's Reference as ADPML Digital Code & page number	Comments
2	N	<i>Acacia implexa</i>	Lightwood	Kon-mung or Yowan(g)	Not specified	seeds	seeds	human consumption	food	Green wattle pods were warmed on ashes near the hearth until the pods opened. The seeds were eaten like green peas.	lane1990fftyuseful p11; lane1991fortyuseful pt13; lane1994howaboriginal p4	
15	Y	<i>Acacia implexa</i>	Lightwood	Kon-mung or Yowan(g)	Not specified	stems	wood	materials	weapons	The timber was cut for throwing truncheons called 'konung'. These fighting weapons were shaped to a point at both ends & could be used to stab an enemy when in combat at close quarters.	lane1990fftyuseful p11; lane1991fortyuseful pt13; lane1994howaboriginal p4	Lumps of pumice, imported from the warrigles, were kept for sharpening and polishing these weapons.
16	Y	<i>Acacia implexa</i>	Lightwood	Kon-mung or Yowan(g)	Not specified	exudate	gum/kin	human consumption	food	The gum was edible.	HD 31 Flora p14	
21	Y	<i>Acacia implexa</i>	Lightwood	Kon-mung or Yowan(g)	Not specified	stems	wood	materials	weapons	Bent boughs sought for carving wangium (boomerangs).	HD 31 Flora p15	
22	Y	<i>Acacia implexa</i>	Lightwood	Kon-mung or Yowan(g)	Not specified	stems	wood	materials	weapons	The light timber was also sought for spear shafts.	HD 31 Flora p15	
23	Y	<i>Acacia implexa</i>	Lightwood	Kon-mung or Yowan(g)	Not specified	exudate	gum/kin	materials	adhesives	Gum was made into glue.	HD 31 Flora p15	
24	Y	<i>Acacia longifolia</i>	Coastal wattle	Boobiah-laha (Tas)	Not specified	seeds	seeds	human consumption	food	Green pods toasted, unripe seeds eaten half cooked. Mature seeds ground to a grist.	lane1982mirmmyong pb7	
25	Y	<i>Acacia longifolia</i>	Coastal wattle	Boobiah-laha (Tas)	Not specified	bark	not specified	materials	fibres - general	Used as string.	lane1990kuarkadorta pt14	
26	Y	<i>Acacia longifolia</i>	Coastal wattle	Boobiah-laha (Tas)	Not specified	entire plant ex situ	not specified	fuels	firewood	The whole plant flammable - wet or dry.	lane1990kuarkadorta pt14	
27	Y	<i>Acacia longifolia</i> subsp. <i>sophorae</i>	Coastal wattle	Boobiah-laha	Not specified	live plant in situ	not specified	social uses/ protocols	totem	Totem plant - totem taboo was strictly observed in their family (therefore not permitted to eat the seeds).	lane1975legendstolm pb15	
28												

Table 7-2 is a sample format of Lane's findings which has been extracted, consolidated and loaded into a M.S. Excel spreadsheet. The detail in Table 7-2 is not intended for reading but to illustrate the layout. Given the volume of data (103 pages) the full listing can be found in Appendix 10.20. The benefit of this approach is that all the data can be filtered in a microsecond based on any column including use, plant part or species. Aside from Lane's file titled: 'The development of the pharmacopoeia' (1997) which orders the data by 'use' (for 15 ailments), no other document exists that orders by 'use' amongst her files as Lane listed plant data by botanic or common name. This means that you can filter on a particular use and identify what plants and their parts were used, e.g. what plants were used for utensils or weapons?

The table in Appendix 10.20 may appear to have some repetition however there can be subtle changes in plant parts or it may be indicative of the similar properties shared amongst various plants (usually) within the same genera. However, multiple plants even from different genera could be used in the same way. For example, *Eucalyptus viminalis* and *Exocarpos cupressiformis* were both used for crafting spear levers. Some plants parts and their uses can be interpreted

in various ways when applying the Level 1 and 2 descriptors which is further detailed below. There should be no definitive judgement carried in these allocations.

Table 7-3 provides an explanation of the headings used in the spreadsheet found in Table 7-2 or Appendix 10.20.

Table 7-3 Heading explanation

Column	Heading	Explanation
K	Unique use to Lane Y/N	This highlights the 764 unique uses that Lane has identified. Y= yes (unique to Lane), N= No (not unique to Lane)
L	Botanical name	This shows the most current botanical name (as some of the species cited by Lane have undergone changes since documenting her files.
M	Common name	The ‘every-day’ name applied to a plant – which may vary by region, therefore sometimes multiple common names are listed. This list is not intended to be exhaustive.
N	Indigenous name	There can be many variations of the spelling of the Indigenous names as it is based on an interpretation of the spoken word from an oral tradition. This interpretation could vary depending on the linguists own language and accent at the time the words were first documented. There can be many names also listed. Where the word is known to be Wadawurrung language it is identified as such. Lane commonly used colons to indicate syllables in order to aid pronunciation, e.g. Moo:i:yung. These have also been faithfully transcribed to ensure authenticity as authored by Lane.
O	Name explanation	This is to provide an explanation of the Indigenous name. This data is not always available.
P	Plant part Level 1	This refers to the 15 descriptors that have been applied to Lane’s findings. Refer detailed explanation in section 7.2.1 and Table 7-4 for full list
Q	Plant part Level 2	This refers to the 56 descriptors that have been applied to Lane’s findings. Refer detailed explanation in section 7.2.1 and Table 7-4 for full list
R	‘Use’ Level 1	This refers to the 12 descriptors that have been applied to Lane’s findings. Refer detailed explanation in section 7.2.2 and Table 7-5 for full list
S	‘Use’ Level 2	This refers to the 70 descriptors that have been applied to Lane’s findings. Refer detailed explanation in section 7.2.2 and Table 7-5 for full list
U	Purpose and preparation – Lane’s text	This details the use of the plant and where available the preparation process. Data has been transcribed faithfully from Lane’s original typescripts, with minor updates such as the botanical nomenclature, to ensure authenticity as authored by Lane.
V	Lane’s reference	This identifies the digital file name, year written (where available) and page number which is written as pt or pb and then the number. This is documented in such a way as to cross reference to the page numbers on Lane’s files. The pt refers to page ‘top’ or pb refers to page ‘bottom’. In most instances there were 2 different numbers Lane used on each page, for reasons unknown to the author. The digital file name can be crossed referenced to Lane’s file name in Appendix 10.1. Those files starting with ‘H/D’ refer to files that came from Lane’s hard drive as opposed to the files that are housed in the A.D.P.M.L.
W	Comments	This provides for any additional comments relating to the use of the plant from either the author or Lane.

7.2 Process to validate and structure Lane's data set

Lane's data was extracted from her typescripts and loaded into a new database that was designed and built similar to that of the Royal Botanic Gardens (R.B.G.) Kew – Economic Botany Data Collection Standard. This Standard is a detailed 146 page document outlining standardised descriptors and terms attached to taxonomic data sets. In 1989 the International Working Group on Taxonomic Databases for Plant Science (T.D.W.G.) decided to initiate a data standard for economic botany. This initiative was led by a representative of the R.B.G. Kew's Economic Botany Collection who had extensive experience in coding and working with the existing 3 databases at Kew, namely 1. Survey of Economic Plants for Arid and Semi Arid Lands; 2. The Catalogue of the Economic Botany Collections; 3. The Economic Botany Bibliographic Database.

As there is not a global standard or consolidated global ethnobotanical database, the R.B.G. Kew Standard was selected as the baseline standard for this exercise. Although the purpose of this thesis is not to build a comprehensive ethnobotanical Wadawurrung database, the data set should nonetheless be structured in a manner that enables analysis and future referencing with the ability to easily become a comprehensive ethnobotanical database in the future.

Key elements were used in structuring the data to align with the R.B.G. Kew structure and principles. Not all descriptors were relevant and therefore not included. However, there were a handful of additional descriptors that were added to further enhance the structure such as 'calendar plants' and 'funerary' which are plants used in a type of funeral process.

Validation of Lane's content included confirming the 'regional habitat' of each plant species to ensure that the plant grows (or has grown) within Wadawurrung Country. This process step was undertaken using a variety of sources including the Atlas of Living Australia (C.S.I.R.O.), Flora of Victoria (Royal Botanic Gardens Victoria); indigenous plants of the Geelong Region (City of Greater Geelong Environment Unit, Department of Sustainability and Environment, David Perry and Mark Trengove). This latter resource had identified 146 species of dominant indigenous plants found, or once found, in the Greater Geelong region. Of these 61 appeared in Lane's data set. However given that Lane's data included a broader scope that covers the S.E. Wadawurrung Country (which includes part of the current Surf Coast Shire & Golden Plains Shire), you would expect to see these differences.

7.2.1 Descriptors applied to Lane's plant parts

The anatomy of a plant can be a complex topic, distinguishing the correct part and applying the correct anatomical name was done in reference to multiple sources, primarily The Plant Information Network System of the National Herbarium of The Royal Botanic Gardens, Sydney, N.S.W. and Domain Trust along with Clarke & Lee's *Name that Flower - the Identification of Flowering Plants* (1994).³⁶⁵ The plant parts were classified into 15 descriptors at Level 1 and 56 descriptors at Level 2 (see Table 7-4).

Table 7-4 Plant part descriptors applied to Lane's data set

Plant Part		
Level 1	Level 2	Explanation
ash	wood	ash taken from the burnt wood of a plant
ash	bark	ash taken from the burnt bark of a plant
bark	inner bark / bast	fibrous material from under the outer bark of a plant
bark	not specified	where Lane did not specify beyond bark, this category allows for this data
bark	outer bark / cortex	the outermost layer of a plant
core	medulla / pith	centre of the stem of the plant
entire plant ex situ	not specified	whole plant not in situ
exudates	gum / kino	decomposition of the plant's cellulose in a process called gummosis, gum is soluble in water
exudates	juice	leaf juice, stem juice, root juice
exudates	latex	a milky juice that exudes from some plants
exudates	manna	a sweet gum
exudates	nectar	a sugary liquid produced by the flowers
exudates	resin / oleoresin	oxidation products of essential oils that are not soluble in water
exudates	sap	fluid of a plant's vascular system containing sugar and mineral salts dissolved in water
exudates	tannin	brown or yellow organic substance found in galls and bark
fungi	entire	whole fungi used
galls	not specified	external growth or swelling on the external surface of a plant
galls	stem galls	external growth or swelling on the external surface of the stem of a plant
inflorescence	flower buds	prior to opening
inflorescence	flowers	includes blossoms
inflorescence	spike	these often have tiny flowers on them
infructescence	bacca	an indehiscent fruit derived from a single ovary having one or many seeds within a fleshy wall or pericarp
infructescence	fruit	a ripe ovary of an angiosperm, includes gum-nuts
infructescence	fruit juice	juice from the fruit
infructescence	unspecified	where Lane did not specify beyond fruit, this category allows for this data
leaves	blades	leaf blades
leaves	fronds	fern leaves
leaves	leaf buds	leaves prior to opening
leaves	leaves	general
leaves	not specified	where Lane did not specify beyond leaves, this category allows for this data
leaves	old leaves	old leaves either in situ or ex situ

leaves	tomentum	a covering of closely matted or fine hairs on plant leaves
leaves	young leaves	fully opened new leaves
live plant in situ	not specified	whole living plant in its growing site
not specified	not specified	no data given on plant part, but data was available on species and use
roots	bulbs / corms	a solid, short underground stem that is surrounded by fleshy leaf bases that stores food matter
roots	not specified	where Lane did not specify beyond roots, this category allows for this data
roots	rhizomes	a horizontal, perennial underground stem
roots	roots	general
roots	shoots	shoots stemming from the root above ground
roots	tubers	a root or stem that is underground and swollen which contains stored food
seeds	pods	a pouch that contains the seeds
seeds	seeds	a reproductive part of a plant
seeds	spadix fluff	the fluff which is derived from the spadix - flower spike
stems	branch / branchlets/ twigs	branches - large or small including twigs
stems	canes	hollow stem of a plant
stems	cladodes	a flattened, photosynthetic stem
stems	culms	the stalk of a grass, reed or sedge that holds the inflorescence
stems	defoliated stems / branches	branches without leaves
stems	leafy stems / branches	branches with leaves
stems	sporocarps	a pod type structure that produces and releases spores, found on separate stems at the base of a plant
stems	stems	the axis of a plant that bears flowers, leaves or branches that can be subterranean or aerial
stems	stolons	an aerial stem that creeps along the ground
stems	tendrils	a stem designed to climb and wrap around supporting structures
stems	trunk	the large main stem of a tree
stems	wood	solid internal matter of a tree or shrub beneath the outer layer which may or may not include the heartwood and sapwood

7.2.2 Descriptors applied to Lane's 'use' categories

The definition of the word 'use' in this context is aligned with a plant's purpose or function within the Wadawurrung People's daily lives prior to European colonisation.

Lane's data has been structured over 2 levels, with 12 descriptors at Level 1 which breaks down into a further 70 descriptors at Level 2 (see Table 7-5).

Table 7-5 Plant 'use' Descriptors applied to Lane's data set

Use		
Level 1	Level 2	Explanation
agriculture	seed dispersal	seed sowing
animals	deterrent / repellent	insect repellent
animals	habitat	where specific fauna reside
animals	traps	plants used in the process of trapping animals
children's activities	toys	plants used in children's games
fuels	fire sticks / drills	plants used to create fire
fuels	firewood	used to enhance a fire
fuels	heating	in creating warmth
fuels	igniter	a flambeau used for carrying on the food circuit or tools used in the fire ignition process along with fire drills
fuels	illuminates - (static)	static lighting to illuminate a specific area
fuels	illuminates - torches (portable)	torch used when moving around
fuels	tinder	this category also includes kindling
human consumption	alleviate thirst	used as a refreshment or to quench thirst
human consumption	appetite suppressor	to suppress hunger pains
human consumption	beverage	a drink
human consumption	chewing gum	chewing for pleasure or to aid concentration
human consumption	food	food
human consumption	food additives	includes flavouring food (herbs etc)
human consumption	insulation	insulation to keep food cool
human consumption	stimulant	alcoholic soma, drugs
materials	adhesives	fixatives, mastics, glues
materials	adornment	clothing, clothing accessories - e.g. necklaces, head bands
materials	building (residence)	permanent structures or temporary shelters
materials	coatings (water proofer)	to make something water tight
materials	creative (art)	for dying fibres
materials	fibre - general	ropes, string, twine, bindings, thread, cordage
materials	fibre for bags / sacks / slings	soft, hanging, draped or loose bag e.g. dhilli bag or baby carrier
materials	fibre for baskets	hard or soft baskets, decorated or not decorated - cooking baskets, storage baskets for food or ornaments
materials	filtration (wells)	plants used to line wells to filter and purify saline water
materials	fishing equipment	nets, fishing spears
materials	furnishings	carpet / rugs / mats / interior wall

		treatments/mattresses
materials	insulation	used to trap in heat
materials	solid carriers	e.g. coolamon
materials	solid containers	vat for storing liquid or producing fermented beverages
materials	tools	construction or agriculture tools - mallets, axes, digging stick, sewing tools
materials	utensils / implements	e.g. brush, crockery, food hook, scoop, cooking utensils
materials	weapons	club, spear, waddy
materials	wrappers	food foil, swaddling babies
medicines	anaesthetic	numbing agent
medicines	antiseptic	protecting wounds
medicines	backache	pains in the back region
medicines	digestive system disorders	diarrhoea, flatulence, indigestion, constipation, stomach pains, digestion
medicines	disinfectant	cleaning wounds
medicines	earache	pains in the ear region
medicines	fever	high temperature plus possible other symptoms
medicines	headache	pains in the head region
medicines	infections	internal infections
medicines	inflammation	swelling
medicines	medical accessories	bandages/slings
medicines	pain	general pain
medicines	poisonings	to mitigate the effects of poison
medicines	pregnancy / birth	to aid in a protracted labour
medicines	respiratory system disorders	chest complaints including congestions, sniffles, coughs, common or head colds, sore throats, bronchitis
medicines	rheumatism	inflammation and pain in the joints, muscles, or fibrous tissue
medicines	sedative	inducing sleep or calming
medicines	skin	deep and shallow wounds to the skin, contusions, blisters, skin infections, abrasions, grazes, lesions, eruptions, bites, itches, scratches, stings
medicines	sore eyes	pain in the eye region or dry eyes
medicines	teeth	pain in the teeth region
medicines	tonic	general tonic
poisons	animal poisoning	to aid in poisoning animals
seasonal	calendar plant	a plant that has a seasonal variation which is used as an indicator
social uses / protocols	ceremonial	used during sacred or religious ceremony baierr (corroboree)
social uses / protocols	communications	message sticks, signs (signposts)
social uses / protocols	ensorcellment	magical sorcery / bewitching / enchanting
social uses / protocols	funerary	catfalque, sepulchre, funeral type processes
social uses / protocols	musical instruments	e.g. clapping sticks

social uses / protocols	symbolism	used as a gesture to symbolise something
social uses / protocols	totem	believed to have spiritual significance and adopted as an emblem
trade	not specified	used in trading
transport	watercraft	includes different types of canoes

7.3 Plant part analysis

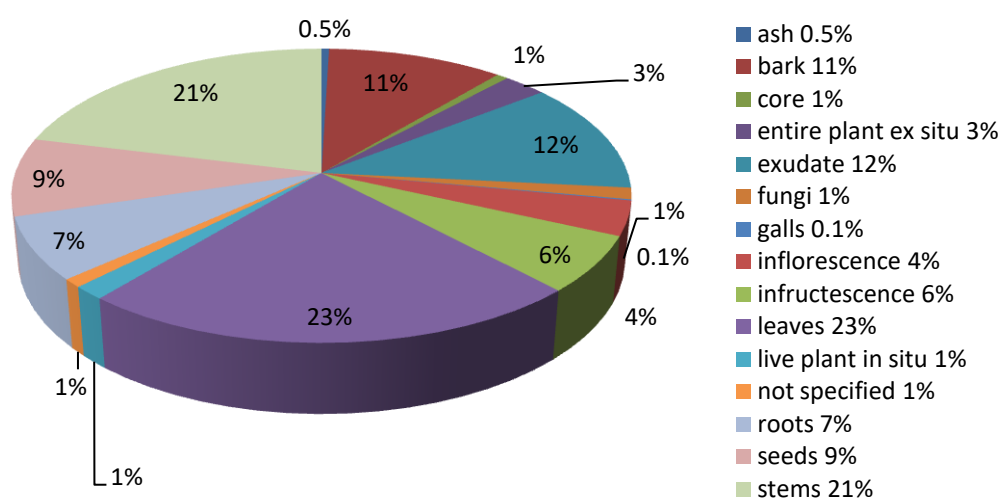
From the data gathered from Lane's research there is considerably more use of plant parts such as bark, leaves, stems and exudates than any other parts of a plant. Table 7-6 and Figure 7-2 illustrates the following:

1. Leaves were used 201 times out of the 872 (23%) 'uses' identified.
2. Stems were used 184 times out of the 872 (21%) 'uses' identified.
3. Exudates were used 106 times out of the 872 (12%) 'uses' identified.
4. Bark was used 93 times out of the 872 (11%) 'uses' identified.

Table 7-6 Plant part most used at Level 1

Plant part most used	Count	% of total
ash	4	0.5%
bark	93	11%
core	6	1%
entire plant ex situ	23	3%
exudate	106	12%
fungi	11	1%
galls	1	0.1%
inflorescence	33	4%
infructescence	54	6%
leaves	201	23%
live plant in situ	13	1%
not specified	8	1%
roots	60	7%
seeds	75	9%
stems	184	21%
Total	872	100%

Figure 7-2 Plant part most used as a percentage of total ‘use’



7.3.1 Top 4 most used plant parts and how they are most used

7.3.1.1 Bark – use

Table 7-7 shows that bark is most commonly used as materials or in medicine. From this data, bark was not recorded as a ‘use’ in the human consumption category.

Table 7-7 How bark is most used (at Level 1 ‘use’ category)

Bark	Level 1 bark
Level 1 use	Count
agriculture	0
animals	1
children's activities	0
fuels	5
human consumption	0
materials	51
medicine	23
not specified	0
poison	1
seasonal	0
social uses/protocols	1
trade	0
transport	11
Total	93

The two main types of bark that were used were the inner bark (bast) and the outer bark (cortex). The outer bark layer had a greater range of ‘uses’ than the inner bark. The inner bark was mostly used for medicinal purposes, whereas the

outer bark was not used for this purpose at all. This is possibly due to the tannins contained in this layer which can sometimes be poisonous and as such was sometimes used for stunning eels in waterholes for easy picking.

The medicinal qualities of the aromatics and volatile oils found within the inner bark were well understood by the Wadawurrung People. The preparation to access these healing properties would involve the inner bark being broken into small pieces, pulverized on an anvil with a stone pounder and then steeped in cold water. The solute would then be administered to a patient suffering from respiratory system disorders to digestive system disorders such as indigestion, diarrhoea or flatulence.

The inner bark of various plant species also had antiseptic and disinfectant qualities. Many of the paper barks that have a soft texture were used against the skin as bandages to cover wounds or to swaddle infants.

The outer bark was primarily used as various forms of material; largely as a wrapping product that was supplied from the range of *Melaleuca* spp. These pliable layers of bark were often used like wrapping paper is today. The clans People would use the paper bark and wrap lumps of ochre, limonite or coloured clay to take to 'baier' (corroboree) for trading. These parcels were secured with string using the long sinewy runners of plants such as *Convolvulus erubescens*. Flesh foods were also wrapped with outer bark much like foil is used today in cooking. The food was doused with water, so that it would not scorch, then tied with bindings to keep the parcel intact and lowered into an earth oven for slow cooking similar to a casserole. This form of parcel cookery was called 'yudarn tookoo'. The parcel was then removed from the oven and was sliced open at the top to avoid the loss of gravy. The parcel would then function as a bowl and the contents scooped out with a mussel shell spoon called a 'timboon'.

The outer bark was also used for other materials such as fibres. The bark would be shredded into individual lengths and pounded with the butt end of a stone hatchet to make it pliable for twilling strong cordage. Products that did not require a soft or smooth texture, but required strength, used this cordage in crafting durable fishing nets or weaving rigid basket creels called 'binnuk'. This manufactured cordage was mostly provided from the outer bark from a range of *Eucalyptus* spp. and *Acacia* spp.

The outer bark was also used in the construction of permanent and temporary residential buildings but also for various types of watercraft. The bark for these purposes usually came from species such as *Eucalyptus camaldulensis* where a two metre ellipsoid shaped plaque was stripped from a trunk to form a canoe called a 'karrong', in which two people could cross a river or use for fishing. The processes involved in the construction of these canoes, were quite complex but gave the canoe longevity. This is compared to the instant rafts needed to cross a river, which were created with several sheets of bark lashed together with bindings such as those of the crawling vine - *Kennedia prostrata*. A spear was thrust through the middle of these outer sheets of bark to form a stabilizing keel and often the bark was re-purposed when the temporary watercraft was no longer required.

7.3.1.2 Exudates – use

Exudates come in many forms from gums or kino to resins or oleo resins. They also include nectar, juice, latex, sap, manna and tannin. Exudates were found to be primarily used in human consumption, medicine and materials as seen in Table 7-8.

Table 7-8 How exudates are most used (at Level 1 'use' category)

Exudate	Level 1 exudate
Level 1 use	Count
agriculture	0
animals	0
children's activities	0
fuels	0
human consumption	42
materials	24
medicine	36
not specified	1
poison	0
seasonal	0
social uses/protocols	0
trade	3
transport	0
Total	106

Exudates are almost equally used in human consumption as food or in drinks. Gums from various species was a ready source of dietary fibre, however, dissolved in water, the mucilage made a nourishing beverage. *Acacia* gums are nearly all soluble in water though a few form slimy gels. The pale varieties of soluble gums taste slightly sugary but dark coloured gums contain tannin and are not so palatable. The exudate of the *Acacia dealbata* (silver wattle) called 'myng' is of the same quality as gum arabic and is honey coloured and faintly sweet. Fresh gum was eaten directly from the trunk of certain trees that were notched in Autumn to ensure a good flow from the wounds in the bark. The men often used the exudates like chewing gum and they would chew these whilst they were out hunting to alleviate thirst and maintain their concentration.

Stands of this species of wattles would have been valued by the Wadawurrung People for eating and creating beverages. Each clan would have knowledge of all the properties and locations of *Acacia* spp. which grew in their Country.

Beverages made using gum, were made even sweeter when dissolved with the nectar from either the banksia or tea tree inflorescence. This provided a sweet and nourishing drink which was offered to the very old clan members or the toddlers when they returned from the morning's foraging activities with their mothers. The remainder of this solute was then stored in a 'tarnuk' (a large wooden vat), and placed near the fire to ferment. This process created an alcoholic soma which was administered by the mage to stimulate male performers at the time of ceremonial

dancing during baierr (corroboree). It was never consumed on a daily basis as the affects of the drug were well understood.

Dried balls of gum were stored in baskets in the homes of each family and transported whilst the clan itinerated on their food circuit and relocated to different sites. The balls would be reconstituted by soaking in water and when it became soft it could be eaten or used for work processes.

Adhesives were mostly reliant on exudates as the essential ingredient. The Wadawurrung People produced a superior adhesive called 'jark' and was traded far and wide among Western District artificers. The Giraiwurrung (Kir:rae) People (Terang district - based on the lakes around Camperdown) who obtained it after it had passed through several exchanges called this expensive glue 'leel'. The gum from the *Acacia pycnantha* (jerring:up) was particularly important to the Wadawurrung People as this was the key ingredient in this formula. They would gather the gum which was extruded and chew it until the matter was malleable. It was heated on a netherstone with limey sand or baked calcined crushed shells. Short lengths of human hair or possum fur was added to the mixture and the substance was wound onto a stick which set like a lollypop, converting the eating gum into a tough cement. The product was then ready for trading.³⁶⁶

This useful jark was not only used for hafting stone tools components to wooden handles it was also useful in waterproofing a bark bucket³⁶⁷ or rendering a hull of a canoe to make it watertight.³⁶⁸

Exudates such as gums, juices, latex were also used as medicines, primarily in healing skin conditions. Various gums were mixed with white ash from the burned bark of the same tree which formed a disinfecting emollient which was applied to treat small wounds, skin lesions or other skin eruptions. Juice exudates from various plant species were applied to relieve the itching of insect bites or relieve painful burns. Latex exudates were applied as a false skin over a lesion to inhibit infections.

7.3.1.3 Leaves - use

Leaves constitute a category containing leaf buds, blades, fronds, old and young leaves and tomentum, which is a covering of closely matted fine hairs found on some species of plants. Table 7-9 shows that leaves have been found to be mostly used in medicines, as materials and in human consumption.

Table 7-9 How leaves are most used (at Level 1 'use' category)

Leaves	Level 1 leaves
Level 1 use	Count
agriculture	0
animals	3
children's activities	2
fuels	6
human consumption	40
materials	72
medicine	75
not specified	0
poison	0
seasonal	0
social uses/protocols	3
trade	0
transport	0
Total	201

The greatest use of leaves is for medicinal purposes, with the majority used in respiratory system disorders, such as the mashed leaves of *Acacia myrtifolia* that were soaked in water and taken to relieve symptoms of the common cold. Likewise, the bud leaves of *Melaleuca squarrosa* were crushed together and provided a drinkable cough syrup.

The anaesthetising and antiseptic properties of *Mentha australis* leaves were well understood and used as a poultice for various treatments. Decoctions of crushed leaves in cold water was applied to persistent sores or skin abrasions as a soothing lotion. The leaves were also applied directly to the skin to stop the itching from insect bites. Ground leaves of *Mentha australis* were also administered as an abortifacient to women who were suffering from a protracted labour to help accelerate the birth.

Many leaves were used as purgatives as they had a powerful laxative effect such as *Rubus parvifolius*, *Samolus repens*, *Gratiola peruviana* amongst many others. Given the variety of species available to remedy digestive system disorders such as constipation or indigestion, these species must have been readily sought after indulging in a feast at baierr.

Other medicinal applications of leaves were used in the treatment of headaches or generalised aches and pains where the leaves of various plants were crushed

between the hands and the patient inhaled the aroma. Additionally many leaves had sedative effects and were used as a febrifuge to reduce fever.

Leaves from grasses, sedges, reeds and rushes were primarily used as fibre for general purpose string, twines and in particular basket making for storage containers, carrying or cooking containers.

The coastal sword sedge (*Lepidosperma gladiatum*) fibres were the best for making beenac or binnuk (small, rigid basket). The best basket creels (large, rigid baskets) were erected on a scaffold of stiff sword sedge warp. The materials, usually a mixture of strap like leaves were first split with the fingernail, parched, then retted in running water to make the fibres flexible. The horizontal structures were gatherings of 5 or 6 thin but stiffish strands of sword sedge. The reed and rush weft wrappings created decorative and coloured patterns.³⁶⁹

The chaffy saw sedge (*Gahnia filum*) was popular for weaving small shallow baskets that were used for storing food. However, undecorated baskets were fashioned from unprocessed fibres to contain roots to be baked in the earth ovens. As there was little or no flame in the oven, the fresh, damp, leafy threads of the chaffy saw sedge did not burn. They could be used as vegetable pots several times until the fibres became parched, brittle and disintegrated under ordinary handling.³⁷⁰

The lacustrine reed, *Phragmites australis*, was often used in making the dhilli bag (carry all bag); vertical stitches used either single strands of reed, rush or native flax which were less stiff. String bags came in several sizes. A female sometimes owned a small bag called a 'ballang:owat', made of *Poa* grass and fur just big enough to contain her valuables such as bone bodkins and her reed necklaces.

Grasses such as *Poa* spp. and *Themeda triandra* (after the rich grains had been harvested), were uprooted when the plants matured and stripped of their leaves when there was a demand for finer thread such as those used in personal adornment. Grass thread was much finer than that made from bark and was known to drape more comfortably. Many men of the clan wore neck reticules, called 'lowrn', for secreting their personal valuables, such as their 'lucky stones' (talismans), or knapping stone or ochre that was intended to swap with trading partners from another clans.

Netted hairband that were as fine as silk were made from *Dianella* spp. and frequently whitened with pipe clay or coloured with red ochre and adorned with feathers when being worn for ritual occasions. The blades of the *Dianella* were capable of being finely split along the grain, providing silky fibres. These were pounded into a rove. String spun from this substance was exceedingly strong. It was called 'pee:reep' a term also applied to animal sinew.³⁷¹ However, where the smoothness of the finished twine was not important, blades of the *Austrostipa* spp. was an alternative to be used in the manufacturing process.

Leaves were also used in human consumption, mostly as food but suprisingly none were identified for use in beverages although a small number of species

such as *Xanthorrhoea* spp. were used to alleviate thirst by nibbling on the soft, young, white bases of the leaves which were found to be refreshing.

Young leaves were commonly used as salad greens and older leaves were used more as cooked vegetables. The leaves of the native celery (*Apium annuum*) and inland pigface (*Carpobrotus modestus*), amongst many others, could be eaten crisp and raw, like salad, or lightly cooked on hot ashes as the accompaniment to whatever flesh food was being baked.

Bud leaves were often sought in Spring such as those of the *Chenopodium glaucum* and *Dysphania pumilio*, as they were rich in vitamins and minerals, especially iron and phosphorus.

Unfurled fronds of the common bracken fern (*Pteridium esculentum*) were picked and eaten also as salad greens. At the crozier stage the young shoots were a bitter herb element of the hunter gatherer's diet. This plant was a vegetable staple of the Aboriginal diet. Bracken is frequently the first green food to recover after bush fire.³⁷²

Leaves were used consistently in the cooking process either as a foil to prevent the loss of moisture or to mitigate the scorching of meats, but additionally the minty flavour of *Mentha australis* and *Prostanthera lasianthos* were used to mask foodstuffs.

7.3.1.4 Stems - use

The 'stems' category includes a range of stems from small plants (which can include tendrils), to large plants such as trees (which includes hard and soft woods). Table 7-10 shows that stems were primarily used as materials in producing a range of items to support the Wadawurrung People's ongoing needs.

Table 7-10 How stems are most used (at Level 1 'use' category)

Stems	Level 1 stems
Level 1 use	Count
agriculture	0
animals	0
children's activities	5
fuels	18
human consumption	20
materials	116
medicine	13
not specified	0
poison	0
seasonal	0
social uses/protocols	11
trade	1
transport	0
Total	184

Various types of stems had specific purposes such as culms, or branches. Culms are used in much the same way as leaves are used as fibre in making bags, baskets and fishing nets.

Branches of various *Eucalyptus* and *Acacia* spp. were used as the frames for constructing homes, whilst other branches could be turned into solid carriers called 'coolamons' or containers for storing food.

Certain woods were used in preference for creating specific items. Wattle wood (*Acacia* spp.) had various properties, understood by the artificers, for making particular tools and weapons. It is likely that the attributes sought were common to all wattles. However the materials available from the various species would have created preferences and / or fashions amongst the wood workers.³⁷³

Timber from the white iron bark tree - also known as yellow gum, (*Eucalyptus leucoxylon*) was considered the very best wood for the manufacture of the digging stick (kan:an) as it was remarkably strong, tough and durable. It was trimmed, scraped and shaped to a chisel point and not infrequently armed with a stone flake at one end to facilitate digging. Then it was indurated over low fire that hardened the oleo resins in the wood. The digging stick was the principal tool which was used for a variety of purposes only by Aboriginal women and was the symbol of Aboriginal womanhood (Image 7-1), as a spear was a symbol of Aboriginal

manhood. If this timber was not growing upon the clan estate it was acquired through trade from a clan where stands of these trees grew.³⁷⁴

Alternatively the wood was substituted by various species of *Melaleuca*, such as *M. decussata* and *M. squarrosa* and *Leptospermum laevigatum*. However, the white iron bark tree was the preferred choice.

Image 7-1 ‘A young lubra of Port Phillip’ 1850



Source: Brownhill³⁷⁵

The image was taken from a daguerreotype portrait of Port Phillip Aboriginal woman, published in the Illustrated London News in 1850.³⁷⁶

Trunk wood of the *Leptospermum laevigatum* was also used to fashion shafts for spears called ‘mogile’, the boughs were straightened over fire and the double barbed spear was armed with chips of basalt, quartz, flint or silcrete barbs set in mastic.³⁷⁷

The dense timber of the *Acacia melanoxylon* was sought for fashioning a ‘leonile’ which is a combat club. The timber was extremely dense and close grained. It was sought by warriors of the clans land or obtained through trade at baierr. The timber was also used for carving the narrow parrying shields used to deflect spears when engaged in human combat and for making spear casters. Whilst the wood from *Acacia dealbata* was used to make a ‘mulga’ which is a weapon of defence, the tough timber of the *Eucalyptus tricarpa* was suitable for making bent wood handles or hafts for heavy tools like axes and picks.

Acacia, *Eucalyptus*, *Melaleuca*, *Allocasuarina* and *Leptospermum* species are the primary species used for the wood in making weapons. From the data collected there are 52 different combinations of wood and weapon types that were recorded.

During the long course of a boy's education, the trainee hunters and warriors were introduced to each species, advised of their properties and locations and 'taught to be selective and how to obtain wood (not growing on their own estate) by barter'.³⁷⁸

7.4 Plant 'use' analysis

Of the 230 species identified in Lane's research, the majority of these are used in human consumption, medicines or as materials. Table 7-11 and Figure 7-3 reveals the following:

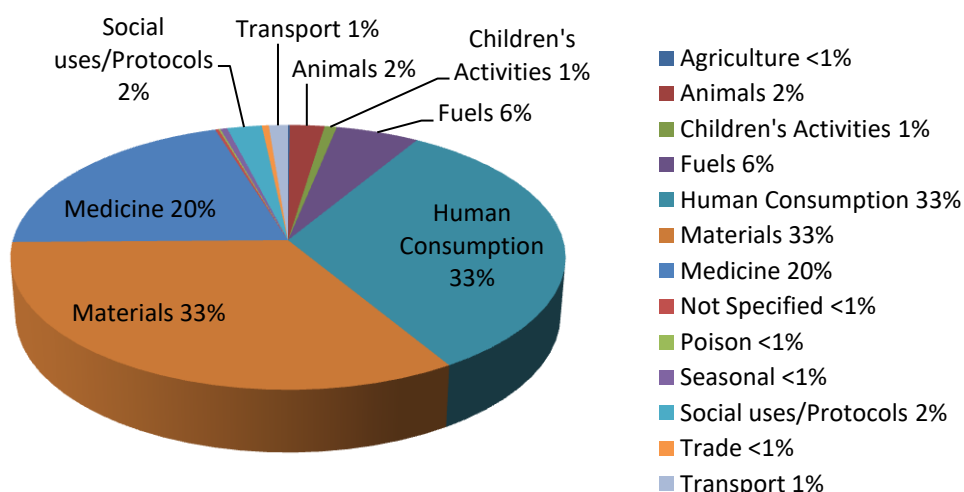
1. There are 158 species of plants used in human consumption and these are used in 284 (33%) different ways.
2. There are 112 different species of plants used as materials in making or constructing items and these are used in 292 (33%) different ways.
3. There are 77 species of plants used as a medicine which are used in treating ailments or injuries in 178 (20%) different ways.

Table 7-11 Number of species per 'use' at Level 1 and number of uses

L1 use category	Number of species used across use categories	Number of species as a % of total species used across use categories	Number of uses	Number of uses as a % of total use
Agriculture	1	0.23%	1	0.11%
Animals	13	3.05%	20	2.29%
Children's Activities	5	1.17%	7	0.80%
Fuels	32	7.51%	48	5.50%
Human Consumption	158	37.09%	284	32.57%
Materials	112	26.29%	292	33.49%
Medicine	77	18.08%	178	20.41%
Not Specified	1	0.23%	2	0.23%
Poison	1	0.23%	1	0.11%
Seasonal	4	0.94%	4	0.46%
Social uses/Protocols	11	2.58%	20	2.29%
Trade	3	0.70%	4	0.46%
Transport	8	1.88%	11	1.26%

Although the higher number of 'uses' per plant may suggest the more valuable the plant, it does not consider species that may have only been used in one way but were used on a regular basis such as *Microseris scapigera* (yam daisy) which was a staple root vegetable. Therefore, 'frequency' of use should be a contributing measure used to define the value of a plant and its use in society. However this data is not available as it has not been captured by Lane or other researchers or observed and documented by the early ethnographers.

Figure 7-3 Number of 'uses' as a % of total use



7.4.1 Top 3 'uses' at Level 1 with Level 2 subcategories

The data in the above pie chart indicates the most common use of plants which include human consumption 33%, materials 33% and medicine 20%. Within these Level 1 categories there are subcategories that provide a greater insight into their specific use. The following discussion at Level 2 provides an insight into the breakdown of each of these categories. As there are 70 descriptors at Level 2, only those that have a 'count' were included in the following Tables.

7.4.1.1 Human Consumption

'When the colonists first arrived in Victoria, they found the Indigenous People to be well nourished'.³⁷⁹ Not only would their active lifestyle contribute to this appearance, but the food in which they consumed, played a part, with a diverse range of plant species being a major contributor.

The range of species used for food by Indigenous People well exceeds the number of species used in Western culture. 'It has been estimated that Aborigines regularly used 207 species as food plants, compared with the 94 crops now used in the world'.³⁸⁰ From the data extracted from Lane's research, 96 species of plant have been used in Wadawurrung Country as food plants.

Table 7-12 shows there were 239 ways in which plants and their parts were used as a food supply in order to sustain life. Water would have been the prominent beverage of the time but the Wadawurrung People knew how to flavour water or sweeten it with the addition of nectars or gums.

Table 7-12 Details of human consumption at Level 2 use

Human consumption	
Level 2 use	Count
alleviate thirst	6
appetite suppressor	3
beverage	19

chewing gum	1
food	239
food additives/flavouring	7
insulation	2
stimulant	7
Total	284

The variety of fruit and vegetables available on the Wadawurrung menus would include bacca, bulbs/corms, flowers and buds, fronds, fruits, fungi, gum/kino, leaves – young, old and leaf buds, manna, medulla/pith, nectar, pods, resins/oleo resin, rhizomes, roots, saps, seeds, shoots, sporocarps, stems, stolons, tendrils and tubers.

Not all of the species found within these types of fruit and vegetables were available all year round such as berries, seeds, shoots, flower and leaf buds which were often a seasonal occurrence. As such, the requirement for variety and the need to avoid the depletion of resources was a contributing factor into the decision to relocate on the food circuit.

The women and pre-adolescent children of both genders had the responsibility of providing the bulk of the food for their clan on a daily basis. They foraged for vegetable foods which constituted about 70% of the Aboriginal diet along with small fresh protein sources including small reptiles, birds and their eggs when in season. They foraged every day, taking their offspring with them to learn the skills of finding food and raw materials. Before they were in their teens, children of both sexes had an intimate knowledge of the products of every corner of their clan's land.³⁸¹

Foraging would have taken place in the morning, before the heat of the day, and it has been estimated that due to the abundant vegetation in Wadawurrung Country, the activity would have taken a total of two hours per day to gather sufficient food and materials for their entire clan's needs for that day.³⁸² The foraging party would not have to commute far from home as they knew exactly where to source the raw materials they required within their Country as these regular locations and routes had been employed and discussed through thousands of generations.

Foraging distances were often defined by clan borders which in turn were usually defined by environmental features such as rivers, mountain ranges or changes in vegetation communities. The Wadawurrung's foraging and hunting distances were comparatively less than other Aboriginal communities in Australia's more arid locations that hosted less dense vegetation composition and a lesser diversity in food resources.

The tubers of all lilies were sought as staple vegetable foods though the common bulbine / yellow lily (*Bulbine bulbosa*) root called paik (which meant nasty) contained toxins that had to be dispersed by heat. The roasted tuber was edible and wholesome. This was unlike *Arthropodium milleflorum* that carried many crisp, white, non-starchy tubers that were usually eaten raw. However, older tubers became discoloured and needed to be hammered before being baked.³⁸³

The roots of the blushing bindweed (*Convolvulus erubescens*), called ‘tharook’, were an important vegetable staple during the coldest season. This was the principle root vegetable during the Winter months when yams daisies were unavailable or not fit to eat and tasted paik (nasty). They were dug with a digging stick and when baked the roots were mealy, like white flour. Portions were kneaded into ‘cakes’ on a sheet of bark and cooked in a basket alongside the meat in an earth oven or toasted as scone loaves and eaten as the carbohydrate element of a balanced diet. Bindweed roots could never be eaten raw for, in that state, they were unwholesome if not poisonous.³⁸⁴

Additionally, the roots of the common bracken fern (*Pteridium esculentum*) contained mucilaginous starch and were also a vegetable staple of the Aboriginal diet in the Western District. The roots were dug with the yam pole and were steamed over coals or baked and covered with hot ashes in an earth oven and served as the most common accompaniment to protein foods.³⁸⁵

The Wadawurrung People were well aware of the food plants that grew in their clan estate and the timing of their availability. They also knew the various preparations to remove toxins and combinations of food to sustain good health. They abided by the long established law in Aboriginal society which engendered the conservation of all species. It was against the law to take more than what was needed. It was also against the law to dig every root in a patch, or eat every flower from a bush to allow fruits to develop, and not every fruit from a bush was eaten to allow the seeds to ripen.

7.4.1.2 Materials

As seen in Table 7-13, it is not surprising that fibre to make rope, string, bindings, thread and twines were the highest count of materials. Differing plies, textures and colours were used for a variety of day-to-day activities for both men and women, and these were required to be available on demand.

Table 7-13 Details of materials at Level 2 use

Materials	
Level 2 use	Count
adhesives	18
adornment	20
building (residence)	11
coatings (water-proofer)	2
creative/art	2
fibre - general	65
fibre for bags/sacks/slings	10
fibre for baskets	32
filtration (wells)	1
fishing equipment	9
furnishings	9
insulation	1
Solid carriers	1
solid containers	7
tools	21
utensils/implements	7
weapons	52
wrapping	24
Total	292

These fibres were often made during the routine afternoon activities by the women and teenage girls following a morning of foraging. String was required for weaving baskets and knotting dhilli bags but also required for making fishing nets, stitching together clothing, rugs and neck reticules amongst many other things.

Consistent with the conservation approach to all species by the Australian Indigenous People, nothing went to waste and the native Australian hollyhock (*Malva preissiana*) was no exception. Lane writes that:

*The outer layer of the stems yielded fine, silky fibres. When they were baked for the evening meal, they were chewed and sucked to extract the malty farina. The inedible, strong fibres were expectorated into a wangat (a hearth shovel made of bark), to be combed with a timboon (a mussel shell tool) and spun forming a blonde, smooth, but durable cord suitable for setting Spring traps.*³⁸⁶

Grass string made from grass blades, or reeds and sedge leaves were beaten with a muller on a netherstone to flock and separate the fluffy fibres. The rove was spun and twilled. Grass string was much finer than that made from bark.³⁸⁷

The process for blending bark fibres was described by Lane:

Seated on the earth, the heel of one foot of a spinner was tucked modestly under the thigh of her other leg, the spinner extended the other leg out flat on the ground to form her work table. She rubbed some fat or oil upon her thigh. A handful of yarn fibres was rubbed back and forth with the flat of the hand (like a child making a worm out of plasticine) until the fibres were felted evenly together. [See Image 7-2] Another length was prepared the same way, and then they were spliced between palm and thigh much as woollen knitting yarn is spliced today. When a considerable length had been wound upon a spindle (sometimes a stick was used or a pelican's wing-bone) two women would work together to create a twilled cord.³⁸⁸

Image 7-2 Blending bark fibre and possum fur to create strong cordage.



Source: Linklater³⁸⁹

7.4.1.3 Medicine

Of the species identified within these Level 2 subcategories, plants used to treat conditions of the skin were the most commonly recorded (Table 7-14). This is largely due to the great variation in conditions that can impact skin such as blisters, infections, abrasions, grazes, lesions, eruptions, bites, stings, itches, contusions and deep or shallow wounds.

Table 7-14 Details of medicine at Level 2 use

Medicine	
Level 2 use	Count
anaesthetising	1
antiseptic	4
backache	3
digestive system disorders	31
disinfectant	3
earache	1
fever	3
headache	7
infections	1
medical accessories	15
not specified	4
pain	6
poisonings	1
pregnancy/birth	3
respiratory system disorders	24
rheumatism	2
sedative	7
skin	51
sore eyes	1
teeth	2
tonic	8
Total	178

Common maladies of the colder months that impacted the respiratory system included various symptoms from sniffles and coughs to chest and head congestion all of which were concomitant to the Indigenous People's, comparatively unsheltered lifestyle.³⁹⁰

Digestive system disorders were often remedied with the common field mushroom (*Agaricus campestris*) called 'bambra' during the wetter months whilst residing inland, which provided an alkali reaction in the digestive system.³⁹¹

During the summer months by the seaside, *Carpobrotus* spp. provided relief from the bilious affects from gourmandizing too much fatty food, the succulent leaves could not only relieve nausea and indigestion but they also moved constipated bowels.³⁹²

Although these scientific facts would have been unknown to the Wadawurrung People, thousands of years of observation of the practical results, passed down through generations of wai:we:rup (the clever men or wise women as these medical personages became known to the colonists of the 18th and 19th centuries) would have enlightened them on the comparative efficacy of the variety of plant species from which they made their choice.³⁹³

7.4.2 Top 3 ‘uses’ at Level 1 with most used plant part

The following section investigates the Top 3 ‘uses’ at Level 1 (human consumption, materials and medicine) and identifies the most common plant part used in these. As there are 56 plant part descriptors at Level 2, only those that have a significant ‘count’ (more than 10) were included. The others were aggregated into the category of ‘other’.

7.4.2.1 Plant Part (at Level 2) most used in human consumption

Although many plants parts are only seasonally available and / or desirable at certain times of the year, such as nectars and fruits, others have a larger window of availability, such as seeds.

Table 7-15 Plant part (at Level 2) most used in human consumption

Human consumption	
L2 Part	Count
fruit	37
leaves	25
nectar	17
roots	21
seeds	62
Others	122
Total	284

Table 7-15, reveals that seeds are the most consumed part of a plant. This is possibly attributed to the fact that they are usually visible and maybe easier to harvest as you do not need to dig for them. Once harvested, they can be made into flour and used for baking scone loaves and dampers which are food products that are filling and can last for a few days. The seeds could also be portable, stored against future need and had longevity. Having a stockpile was helpful to call upon during times of drought, food scarcity or during inclement weather which could hinder daily foraging.

Although roots, leaves and fruit were also important as part of the Wadawurrung People’s every day diet, seeds were nearly triple in ‘use’ frequency in comparison to root usage. This data is disproportionately higher than current ethnobotanical thinking where roots were thought to have been a primary plant source. ‘In the higher rainfall areas of south eastern Australia, plant underground storage organs ‘roots’ in the broad sense - constituted the staple foods’.³⁹⁴ This data suggests that foraging was possibly more focussed on seed collection than initially thought.

All grass grains are rich in proteins, vitamins, calories and the trace elements essential for healthy life. They are, like eggs, a complete food. The seeds

contained all the elements necessary to sustain life and were an essential item in their diet.³⁹⁵

Native grass seeds have been analysed for their nutritional composition and health implications and it was discovered that ‘the seeds were excellent sources of energy, high in protein and often essential fats too, and vitamins and minerals and also high in fibre’.³⁹⁶

The seeds were also collected from shrubs and trees such as the River red gum (*Eucalyptus camaldulensis*). These seeds were called ‘tartu’, and were gathered, dried and stored for eating when other food sources were scarce. The seeds were then ground into grist, mixed into a scone loaf and baked on a hot stone griddle. The scone was nobody's favourite dish for the taste was astringent; but it served as a nourishing Winter meal if the weather had been too inclement for the foragers to work. The seeds of the red gum were edible if not so well liked as *Acacia* spp. seeds or those of the *Carpobrotus* spp.³⁹⁷

The ripe seeds of the Myrtle wattle (*Acacia myrtifolia*) called ‘woolerp’ were gathered where ants deposited them around an ant mound. Aboriginal women ground the seeds and mixed them with ant-pupae to make a kind of porridge. The ant-pupae were rich in fat and made good shortening for a scone loaf and enhanced the flavour.³⁹⁸

The seeds of all *Acacia* spp. were edible and could also be eaten raw like green peas at the immature stage and they provided nourishment. The flavour of each was distinctive; therefore, some were preferred because of their taste or their chemical properties.³⁹⁹

Acacia seeds have also been evaluated for their nutritional composition and health implications and it was established that ‘*Acacia* seeds are outstanding in their nutrient content, being much higher in energy, protein and fat than any cereal crop such as wheat and rice. Their composition more closely resembles that of the legume family to which the *Acacias* actually belong’.⁴⁰⁰

The seed cases of pigface (*Carpobrotus* spp.) or as the early ethnographical writers called them ‘hottentot figs’ were considered excellent food. The seeds were minute but could be harvested if the whole plant was cut off and turned upside down on a cleared patch of ground. Collected with the dust they were winnowed (yandied) in the wangat, a small, oval hearth shovel used at the fire side. Crushed on a mortar and mixed with animal fat and shredded meat, they created patties which were rich in nutrients.⁴⁰¹

In Aboriginal society morsels of food, added to other morsels, constituted a good meal. Given the small size of seeds and the onerous process to manually collect the seeds, the dedication of time to this activity must have consumed a large part of the overall foraging time allowance. Although this was most likely only expended at certain times of the year when seeds were ripe for harvesting.⁴⁰²

7.4.2.2 Plant part (at Level 2) most used as materials

The most common Level 2 plant part used in materials are leaves (Table 7-16) which are manufactured into string and as fibre in the making of baskets. Wood came a close second and was used primarily for making weapons, tools and utensils. This appears to be consistent with current ethnobotanical profiling.

Table 7-16 Plant part (at Level 2) most used as materials

Materials	
Level 2 part	Count
Culms	27
Leaves	63
outer bark/cortex	31
Wood	59
other (52 plant parts)	112
Total	292

Leaves and wood that were used in materials was discussed in detail in sections 7.3.1.3 and 7.3.1.4. For the complete list of plant parts used as medicine refer to table in Appendix 10.20.

7.4.2.3 Plant Part (at Level 2) most used as medicine

Of all the plant parts available, leaves were most commonly used (Table 7-17) in healing ailments ranging from external to internal disorders. This appears to be consistent with current ethnobotanical profiling.

Table 7-17 Plant Part (at Level 2) most used as medicine

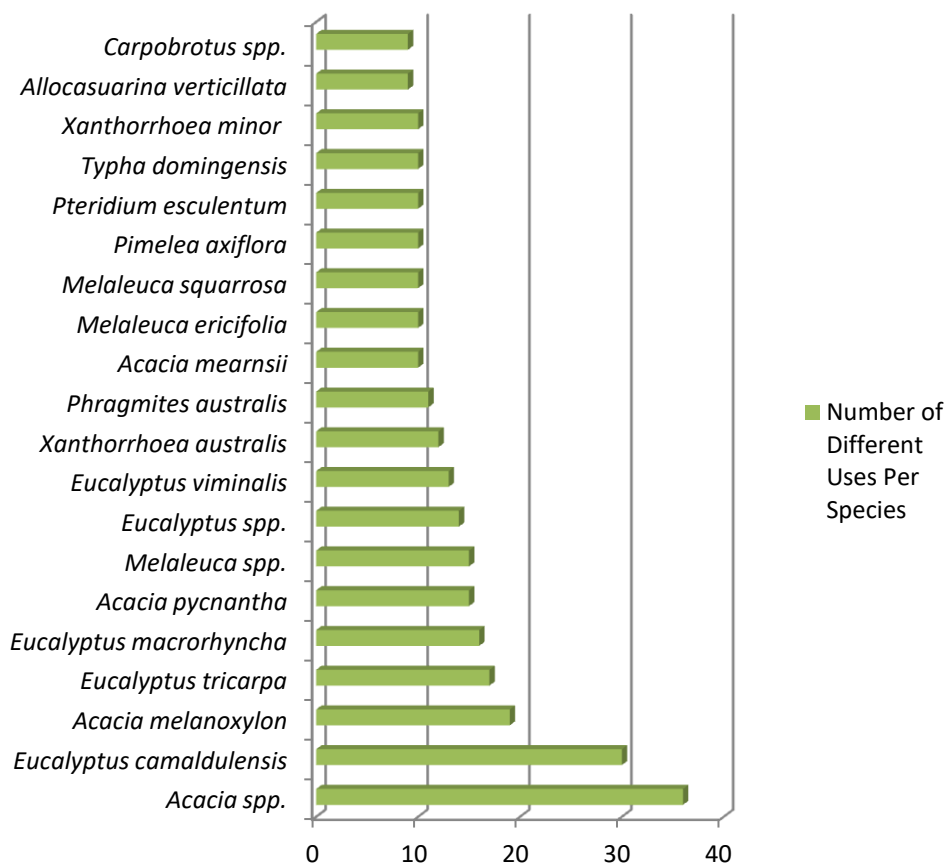
Medicine	
Level 2 part	Count
gum/kino	15
inner bark/bast	13
leaves	54
other (53 plant parts)	96
Total	178

Leaves used in medicine are discussed in detail in section 7.3.1.3. For the complete list of plant parts used in medicine refer table in Appendix 10.20.

7.4.3 Multiple plant use

It is well known that plants were integral in supporting the Wadawurrung People's lifestyle, providing them with a rich and bountiful existence. Plants were treated with respect for their contribution. Plants were viewed as an important ingredient in the essence of life. They were not simply disposable commodities, but were used in many varying ways. Some plants such as *Eucalyptus camaldulensis* had 30 different ways in which it was used – from its leaves, to fruits, flowers, bark and wood – and it was a prized and a respected tree that stood along the many waterways in Wadawurrung Country. Figure 7-4 shows the highest number of uses for the Top 20 plant species.

Figure 7-4 Number of different uses per plant species (Top 20)



Of the 'Top 20' most frequently used plant species, 65% are trees. There are three reasons for this:

1. The size of the tree provides more usage options as there are often more parts and a greater volume of these parts to utilise.
2. A tree provides year round opportunities for use, unlike many herbaceous perennials.
3. Observations made by the early ethnographers and colonists that are documented in these figures have a bias towards species that were considered useful to them such as trees for construction purposes. As many colonists

were not prepared to change their diet, smaller plants used for food were of little interest.

Within Figure 7-4 groups appear of undefined species (e.g. *Acacia* spp.) These have been included as a group because the species itself was not specifically identified by Lane, or her primary source. For this research, the decision was made to include this data based on two reasons:

1. No other species belonging to this genus were included; and/or
2. There are ‘uses’ within these groups that do not appear at the individual species record therefore removing them would remove valuable usage data.

Figure 7-5, shows 62% of plants have multiple uses compared to 38% of the species only having a single use recorded.

Figure 7-5 Multiple versus single ‘use’ of plants

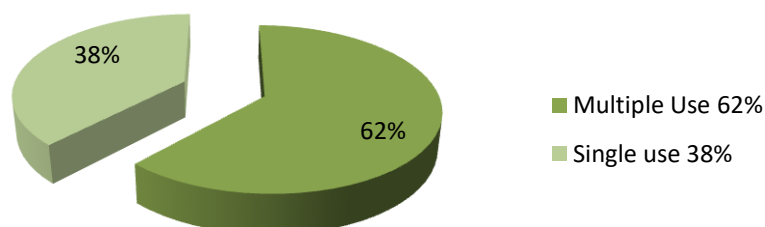
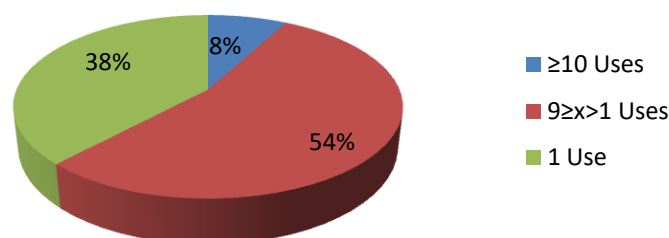


Figure 7-6 illustrates the following:

1. 8% of all the plant species have more than 10 ‘uses’;
2. 54% of all the plant species have less than or equal to 9 ‘uses’ but more than 1 ‘use’ per species i.e. a plant in this group can be used in more than 1 way, but less than 10 ways;
3. 38% of all species only has 1 ‘use’.

Figure 7-6 Number of ‘uses’ within a range



7.5 Comparison of Gott's and Lane's research findings

The purpose of comparing Lane's findings to those of Gott is purely to identify any gaps in knowledge that can add to the Traditional Ecological Knowledge base of the Victorian Indigenous Peoples. The identification of new species and or new 'uses' adds to the body of knowledge which has now been consolidated into an easily accessible format, that previously lay buried amongst Lane's typescripts. Gott's VICUSE database was selected for this comparative analysis as this is the only recognised consolidated ethnobotanical database for Victoria. There is no intent to pass judgement on either researcher's methods to collect data as their data sources heavily relied upon ethnographic literature which in itself can contain some ambiguity. This ambiguity was also acknowledged by Gott:

*It is therefore not surprising that lists of utilised plants prepared by researchers frequently contain errors both of commission and omission, not to mention botanical solecisms, and consultation with a botanist unacquainted with the ethnographic record will not always result in their correction.*⁴⁰³

7.5.1 Focus and geographic scope

Figure 7-7 demonstrates the different focus and geographic scope of Lane to that of Gott. Lane was focussed on the geographic scope of the S.E. Wadawurrung but with a broader focus on the culture of the Wadawurrung People as a whole. Gott was focussed more broadly across Victorian Indigenous Language Groups, but with a more defined ethnobotanical focus.

Figure 7-7 Differences between Lane's and Gott's focus and geographic scope

Focus	Ethnobotany	Gott
	Culture	Lane
		Geographic Scope
		Narrow (S.E. Wadawurrung Country)
		Broad (Victoria)

7.5.2 Plant species found in Gott's and Lane's research

Lane has documented 230 species and 872 plant uses throughout the course of her research on Wadawurrung culture (Refer to Appendix 10.15 for the plant list and summary quantities or Appendix 10.20 for the full listing of plants and their uses). Although Lane did not specifically focus on identifying ethnobotanical data, she nonetheless understood the value that this data contributes in relation to the

Wadawurrung Peoples’ lifestyle and continued success as a civilisation. As such it was included extensively amongst her many typescripts.

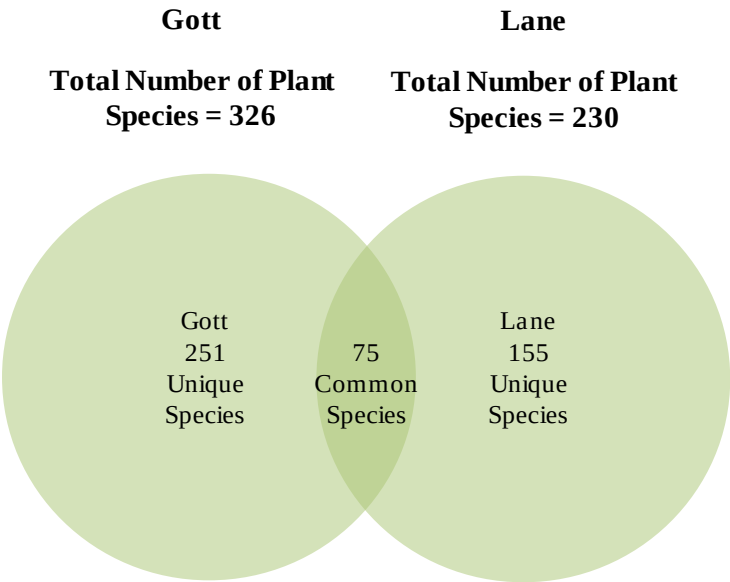
Of the 230 plant species that Lane has identified, 155 or 67.4% of these are in addition to Gott’s findings, i.e. Gott did not have these plants documented within her database. This variant is attributed to the variations in their source data and the large volume of references that Lane used as well as having a diversified focus that included Indigenous culture, language and archaeology. Although some of Lane and Gott’s references overlap (such as Smyth and Dawson), this has led to the overlap of 75 plant species (refer Appendix 10.16 for list). The unique references in Lane’s source literature enabled further ethnobotanical data to be identified. Lane’s former career as a librarian has most likely influenced this result given her ability to unearth resources buried deep in the bowels of many Australian library archives.

Table 7-18 and Figure 7-8 reveals that Gott has identified 326 plant species in total, 23% or 75 of these also appear in Lane’s data set. Of Gott’s 326 species, 77% or 251 of these are unique to Gott’s data.

Table 7-18 Gott and Lane's Plant Species Findings

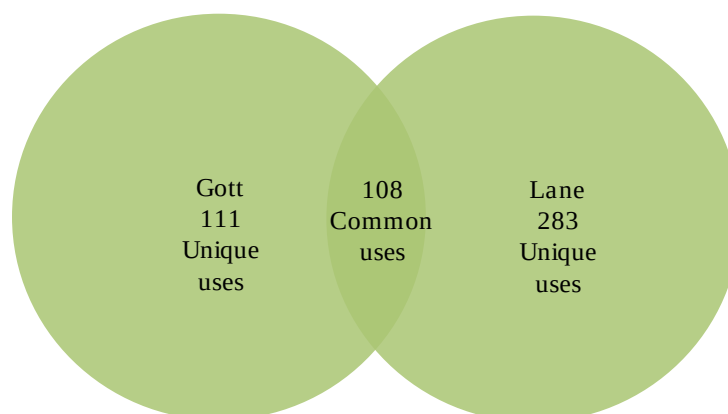
Researcher	Total Plant Species	Unique Plant Species
Gott	326	251
Lane	230	155

Figure 7-8 Gott and Lane's Plant Species Findings



Despite the overlap in 75 plant species, this group in itself was interrogated to determine if Lane had identified any new uses of these 75 overlapping species. Of the 75 species that overlap, Lane has identified an additional 283 uses that had not been recorded by Gott as seen in Figure 7-9.

Figure 7-9 Gott and Lane's 'uses' from the 75 overlapping species



Therefore, of Lane's 155 unique plant species, there are an additional 481 new uses that have been identified from these species. This coupled with the 283 unique uses from the 75 species that overlap, shows Lane has identified 764 unique new uses.

7.5.3 Gott's and Lane's data structure

Comparison of the two data sets proved challenging as Gott's data, which is in an M.S. Excel spreadsheet, is in a raw state to enable the upload into a more structured format within FileMaker Pro software with the objective of providing a single page profile on each plant. Gott's objective may not have been necessarily designed to enable data mining or analytics across the data. However Gott's dataset is designed as an ethnobotanical database with additional data points such as habitat of the plant, nutritional value and seasonal variations etc. Should the Lane data set be used to build a Wadawurrung Ethnobotanical Database, these additional fields would need to be researched and included.

The geographical scope of Gott's data has been broken down into 14 designated areas which is based on the 13 divisions by the Land Conservation Council of Victoria (derived from Beaglehole, A.C. *Victorian Vascular Plant Checklists*, West Victorian Field Naturalists Clubs Associations, Portland. 1980) plus an additional area to cover the whole state. The designated areas are shown in Table 7-19.

Table 7-19 Designated geographic areas of Gott's research scope

1	Mallee
2	Wimmera
3	Murray Valley
4	North Central
5	South West
6	Corangamite
7	Ballarat
8	Melbourne

9	North East
10	Alpine
11	Gippsland Lakes
12	South Gippsland
13	East Gippsland
14	Every Area

The difficulty with this structure is that it is not consistent with the recognised borders of each Language Group's Country found within Victoria. Secondly, Geelong has been classified into the Melbourne area, which separates Wadawurrung Country into two areas based on this approach - Ballarat and Melbourne.

7.5.3.1 *Gott's 'use' categories - descriptors*

Gott's data is structured into 6 'use' categories, in contrast to the 70 descriptors applied to Lane's data. Gott's descriptors are outlined in Table 7-20.

Table 7-20 'Use' descriptors applied to Gott's data set

Medicine	Food
Fibre	Implements
Adhesive	Other

The descriptors found in Table 7-20 were used as column headings and alongside these headings was an additional header called 'how used'. However this additional column contained many more uses than the 6 descriptor categories would allow. Additionally the plant part was, on occasion, not identified with the 'use' data making it difficult to interpret and thus compare.

7.5.3.2 *Gott's plant 'parts' – descriptors*

Gott has assigned 13 descriptors to the plant parts in contrast to the 56 descriptors applied to Lane's data, as seen in the Table 7-21. Although Gott does not have the same volume of descriptors or levels, the comparison was taken on face value and if these descriptors were similar to Lane's then they were counted as a duplicate.

Table 7-21 Plant part descriptors applied to Gott's data set

root	fruit	seed	flower	leaf	bark	stem
wood	gum	resin	manna	lerp	gall	

7.5.4 **Gott's and Lane's data content**

Both Lane's and Gott's data sets have relied significantly on ethnographic records. The original accuracy may be challenging to assess and the true extent of this Traditional Ecological Knowledge may never be known as it was largely lost as a result of rapid colonisation. Some plants have been originally identified by a common name and as these can vary from region to region, further investigation into the validity of the species was required. Where a common name was documented such as 'mistletoe' and it was too broad to identify a specific botanical name, then it was classified as 'not specified'.

Assumptions have been made in both data sets where only the genus has been documented. This implies that most of the species of that genus had the same use.

This has been indicated in the data as such e.g. *Acacia* spp. This assumption may or may not be correct, the fact there are variations in the data could suggest there were variations in ‘use’ across regions.

Both data sets required an update of the botanical nomenclature as changes existed for some species in the decade since the data sets were last edited due to advancements in phylogenetics which is governed by the International Code of Botanical Nomenclature.

Neither data set assumed a complete ethnobotanical listing for their specified scope. Nor did they presume to understand the deep complexities and sophisticated ways in which the Australian Indigenous Peoples used plants in their everyday lives.

The lack of systematic data collection and a more random approach to gathering the ethnographic data could lead to incorrect assumptions underpinning the findings. However, the 872 line items found in Lane’s data should be considered a sufficient sample population in which to conduct a reasonably comprehensive ethnobotanical analysis.

7.5.4.1 Gott’s data

Gott’s data collection ranged from 1990-2010. Although Gott’s 20 year data collection was undertaken over a shorter period than Lane’s, Gott’s output is focussed specifically on capturing ethnobotanical data.

Gott has used a more complex naming convention for listing the plant genus and species by including the person’s name who classified the plant in the first instance. For example: *Acacia longifolia* (Andr.) Willd. ssp. *sophorae* (Labill) F. Muell. This is opposed to Lane’s more straightforward approach. For example: *Acacia longifolia* subsp. *sophorae*. These differences in methodology made the comparative analysis more challenging and manual.

Table 7-22 shows Gott’s data set has included plant species across four ‘recorded’ categories:

1. Plants and their ‘uses’ that were recorded and observed in Victoria. This category contains 146 plant species out of the 326 total species (or 44.8% of the total database) that were actually recorded in Victoria.
2. Plant species that occur in Victoria but were recorded or observed in other parts of Australia (e.g. Clarke in S.A.). This assumes that the plants were used in the same way across the continent and across hundreds of Language Group Countries. Within this category there are 156 plant species out of the 326 total species (or 47.9% of the total database) that were actually recorded elsewhere in Australia (excluding Victoria) but has assumed the species and use was available and used in the same way throughout Victoria.
3. Additionally Gott has included a number of plant species ‘by reason of their close affinities with other utilised plants, and so can be regarded as ‘probably used’’. There have been 12 species classified in such a way.

4. Plant 'use' that is more uncertain are classified as 'possibly used'. There are 9 of these that are classified, however other cells contain question marks '?' which signifies doubt as to the identification of the species.

There are also a small handful of incorrect classifications that reduce the total number by a marginal amount.

Essentially over half of Gott's VICUSE Database or 55% of the species listed were not recorded or observed in Victoria. However by conducting the comparative analysis on Gott's full data set of the 326 species, Lane's research is being compared indirectly to findings from other states of Australia which makes these findings even more widely substantial in adding to the body of Traditional Ecological Knowledge across Australia.

Table 7-22 Gott's Recorded species Victoria versus other states

Gott's Plant Species	Total species	Species recorded in Victoria	Species recorded outside Victoria	Probably used	Possibly used	Anomalies
Count	326	146	156	12	9	3
Percentage	100%	44.8%	47.9%	3.7%	2.8%	0.9%

The greatest challenge of analysing Gott's database was the volume of free text in the cells and the lack of standardised descriptors which prevented running an exact comparison. As such the comparative analysis was a lengthy and manual process.

During the comparative analysis of the 75 overlapping plant species, if the detail in the column titled 'How used' provided an 'Ex-Vic' 'use' then this was not included in the count.

7.5.4.2 Lane's data

Lane's data collection ranged from 1966-2002. This 36 year data collection period was 16 years longer than Gott's, however Lane's focus was broader than documenting ethnobotanical data, with a focus on culture and lifestyle. However, Lane had a narrower geographic focus being that of the S.E. Wadawurrung Country.

It is not explicit whether Lane has recorded the data collected in the way that Gott has used non-Victorian references or 'possibly' or 'probable' categorisation, but it may be implied given how extensive Lane's research on Indigenous culture spanned.

7.5.5 Comments on Gott's and Lane's data sources

7.5.5.1 Lane's references

Lane's research was not initiated out of a Higher Education Academic institution and during the time frame that Lane documented her work commencing in the mid 1960's it was not a common standard to cite references within a paragraph.

As such Lane's references are mostly at the rear of her typescripts which makes it difficult to know exactly where each plant reference originated from. Nonetheless, Lane's references are extensive and appropriate for this topic. Lane documented 394 individual references in her research, refer Appendix 10.3, and she has also acknowledged over 166 people for personal communications and consultations from historians, to government departments and local individuals whom Lane interviewed throughout the course of her investigations in to the lives of the Wadawurrung People, refer Appendix 10.14.

Found within Lane's hard drive towards the rear of a document was a paragraph that provided an insight into Lane's voracious appetite for learning about the lives of the Wadawurrung People and the research journey she embarked upon:

When returning to my home town in Victoria, in the year 1970, I was horrified to find that there was nary a book on the WA:TA:WURRU [Wadawurrung], the original inhabitants of Geelong and District in the Municipal Library. No official study was undertaken, in 1835. Only the notes written by interested European individuals in letters and so forth were extant: mainly in Family archives. My first 'Bible', in Victoria, was 'The Aborigines of Victoria: Books I and II', edited by R. Brough Smyth, {the Secretary of the Board for the Protection of the Indigenes}, published in 1868. This afforded many useful, ethnographic references. 'The Todd Journal', 1835, that precious gem of a book, had to wait until the year, 1989 before being edited by Philip Brown, Geelong's own Historian, to become available to the public which was published by the Geelong Historical Society. Following reference clues I read any book about Indigenes which came to my notice, including the 'Aboriginal History' periodical which had been introduced to Prehistory students at Sydney University. This periodical is a collection of articles written by professionals like Isobel MacBryde, Ben Gunn, John Mulvaney, Edmund Gill, Ron Lampert, Jan Critchett etc. After 1930 funding was made available for researchers to be paid for fulltime research through ethnographic sources to organize the facts - sometimes only snippets of information as set down by ethnographers who studied the Indigenous People only as a personal side interest or intellectual curiosity in the course of their primary profession, for instance, as a Doctor, Surveyor, Missionary or Government Official. In the 17th and 18th century, Philologists were, to all purposes, conspicuous by their absence: which may explain why there are a multiplicity of spellings of many Aboriginal Language terms or grammars and no books written wholly in the Aboriginal tongue of the local Peoples.⁴⁰⁴

7.5.5.2 Gott's references

Although Gott has used extensive references throughout her database, her Victorian Recorded data is limited to 43 sources. However, the author suspects that re-organisation of Gott's file would possibly reveal more. Of the 43 references, the most frequently used is that of Smyth 1878 and data from the Intercolonial Exhibition of 1866. Seven of the 43 sources are from personal communications or oral tradition either in person or through other media; these are highlighted in Table 7-23. Gott has references from many other sources

originating outside of Victoria such as data from Philip Clarke in South Australia but these have also been used in the Victorian use database. Refer Table 7-23 for Gott's references found in her 'Recorded' data column filtered under 'Vic':

Table 7-23 Gott's references for the Victorian Recorded data

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Batey, ca.1840
Beveridge 1889
Bob Egan, Echuca 1982 oral tradition
Buckley in Morgan 1852
Bulmer ca.1860
Bunce 1851
Cairns 1858
Campbell 1973
Campbell 1973, Barmah oral tradition
Connie Hart, Lake Condah, April 1986, oral tradition
Curr 1883
Dawson 1881
Ewart, 1930
Fison & Howitt 1880
Helms 1895
Hercus 1986 oral tradition
Hope & Coutts 1971
Howitt 1904
Intercolonial Exhibition 1866
Kirby 1894
Krefft 1865
Lang 1865
Laura Kirby, Swan Hill 1984 oral tradition
Maiden 1889. (presumed Vic)
Massola 1969
Mitchell 1839
Morris 1943
Morton 1860
Mrs E. Karpary 1985, pers. comm.
Mueller 1855
Robinson, ca.1837
Shaw 1941
Smyth 1878
Stanbridge 1861
Stone 1911
Thelma Carter, oral tradition
Thomas ca 1841
Tindale 1974 (SA)?
Tuckfield 1840
Wedge 1835
Westgarth, W. 1846
Wheelwright 1861

8 Chapter 8: Conclusion

The Research Question posed at the start of this thesis was: *What is the ethnobotanical knowledge that can be identified for Wadawurrung Country from the research of Louis Lane?* All of Lane's 255 unpublished typescripts were synthesised and 1390 ethnobotanical references were extracted and de-duplicated creating a data set comprising a total of 230 plant species, delivering 872 different uses that were identified. As a result this research now provides a major ethnobotanical foundation for Wadawurrung People and their Country, as well as the wider community.

Of these uses, 764 (88%) are unique to Lane's data set and 155 (67%) plant species are also unique to Lane's data set compared to that of Dr Beth Gott's. These variations probably exist due to their respective different foci wherein Lane was concentrated upon the S.E. Wadawurrung geographic scope but with broader consideration of the culture of the Wadawurrung People. Gott was focussed more broadly across Victorian Indigenous Language Groups, but with a more defined ethnobotanical lens. Additionally Lane spent 16 years longer researching and gathering data than Gott, and cited 394 references in her work compared to the 36 references Gott cited.

The descriptors applied to Lane's data in this thesis draw from the Economic Botany Data Collection Standard developed by the Royal Botanic Gardens (R.B.G.) Kew that include 70 descriptors for use over 2 levels, whilst Gott applied 6 descriptors. Gott assigned 13 descriptors to plant parts in contrast to the 56 descriptors applied to the evaluation of Lane's data in this thesis. The importance of this analysis approach is that it provides a more detailed and accurate insight into what part of the plant was used, how it was utilised, and it enables the user to analyse the data with more accuracy. This in turn provides greater insight into the lives of the Wadawurrung People and their relationship to plants in their Country.

The new ethnobotanical knowledge that is now identified has been analysed in this thesis and reveals that there is considerably more use of plant parts, such as bark, leaves, stems and exudates, than other plant parts than previously understood. The data shows that bark and stems were most commonly used as materials; exudates were mostly used in human consumption and leaves were mostly used in medicine. The most commonly recorded medicinal use was for treating skin conditions. This is largely due to the great variation in circumstances that can impact skin such as blisters, infections, abrasions, grazes, lesions, eruptions, bites, stings, itches, contusions and deep or shallow wounds.

Of all the findings from this research, one of the most significant was the importance of seeds. From the analysis performed on the most common plant parts used, seeds were nearly triple in 'use' frequency in comparison to root usage, which is disproportionately higher than current ethnobotanical thinking. This is possibly attributed to the fact that they are thought of as a complete meal containing high protein levels making them a good energy source; that they are high in fibre; that they contain many vitamins and minerals and often essential fats. Moreover they maybe easier to harvest as you do not need to dig for them.

Seeds can be ground into flour and used for baking scone loaves and dampers that can last for a few days. Seeds could also be portable, stored for future need and had longevity. Stockpiling seeds was helpful in times of drought, food scarcity or during inclement weather which could hinder normal daily foraging.

The Wadawurrung People possessed and continue to maintain a deep spiritual relationship with their environment. Plants were and are viewed as an important ingredient in the essence of life; as such they were not considered as disposable commodities, but were used in many varying ways. ‘Multiple’ uses for plants compared to ‘single’ use was also a significant thesis finding. The data revealed that 62% of plants have multiple uses compared to 38% of the species only having a single use. There were some plants, such as *Eucalyptus camaldulensis*, that were identified to have 30 different ways in which parts were used.

These findings help to maintain Aboriginal culture and aid in closing the knowledge gap by providing consolidated ethnobotanical knowledge for Wadawurrung Country where little previously existed. Little of this knowledge would be known or identified without Lane’s 36 years of intensive research. The review of Lane’s research is particularly timely as many of the older Wadawurrung knowledge holders are passing away and their wisdom has not been transposed into contemporary society resulting in knowledge and practice loss. The significance of this research is that it consolidates and conserves Traditional Ecological Knowledge (T.E.K.) for the Wadawurrung People and Country, and creates a Western academically rigorous resource. In turn this may aid in the conservation of indigenous vegetation by understanding the importance of indigenous plants to Indigenous People within Wadawurrung Country. This is critical in a region experiencing rapid urbanisation where remnant vegetation was recorded in 2003 to be less than 5% in existence.

At a macro level, identifying and conserving T.E.K. of Indigenous cultures has been recognised by the United Nations as an obligation for every Member State as signatories to their *Declaration on the Rights of Indigenous Peoples* (2007). At a micro level, Wadawurrung T.E.K. helps us further understand the role of indigenous plants in Wadawurrung Country, which is an area that supports a higher than expected number of rare or threatened plant and animal species.

Given that Wadawurrung Country sits within a biodiverse hotspot with unique ecological diversity the research results may also contain unique findings not identified before in the academic world of ethnobotany. As the Wadawurrung People originate from Murrayian People, and the majority of Australia’s ethnobotanical research has been conducted on central and northern Australian Indigenous People who originate from Carpentarian People, variations may also exist domestically in Wadawurrung adaptation to their own unique environmental conditions. A comparison of data sources would be required to establish whether findings from Wadawurrung Country are unique, both domestically and internationally.

Future steps for this work could also include the development of a comprehensive Wadawurrung Country ethnobotanical database that includes this research that could be deposited in and housed with the Wathaurung Aboriginal Corporation,

A.I.A.T.S.I.S., the National Herbarium and Deakin University for future reference. The database should establish a universal standard framework for data recording given the numerous data fields. Additional fields that could be added include botanical and horticultural data relating to the plant habitats, growing conditions and their locations. Additional future research topics are listed in Appendix10.17.

9 Bibliography

Foreword: this bibliography intentionally omits the work of Lane, whose 255 papers have been read, synthesised and evaluated and can be found in a separate list in Appendix 10.1. Additionally Lane's 394 references can be found in Appendix 10.3.

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*Documents reports from members on cultivation, propagation and natural
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Currently produced by the N.T. Dept. of Natural Resources, Environment, the
Arts and Sport.

*Each issue has a distinctive theme. Issues 6,10, 11, 14-16, 18, 21-26, 29-30, 32-36
focus on ethnobotany or ethnobiology of different areas of the Northern Territory
and have been prepared in collaboration with the indigenous communities.*

Southern Bushfood Network newsletter, no. 1,1996 - no. 34, 2005
*The Southern Bushfood Association produced newsletters dedicated to the
Australian native food industry in southern Australia. The organization ceased in
2007.*

Australian Bush-foods Internet Sources

Source: Australian National Botanic Gardens Library 2011

Aboriginal bush foods

http://www.rbgsyd.N.S.W..gov.au/plant_info/aboriginal_bush_foods

Royal Botanic Gardens Sydney.

*Bush foods of the Cadigal, Darug and Dharawal people of Sydney and Blue
Mountains region, N.S.W.*

Australian Bushfood and Native Medicine Forum

<http://www.bushfood.net>

"Discuss bushfoods (bushtucker), Aussie spices, native medicine, and more."

Australian Native Food Industry Ltd

<http://www.anfil.org.au/>

ANFIL is the peak national body which represents all interests in the Australian native food industry.

Rural Industries Research and Development Corporation

http://www.rirdc.gov.au/programs/new-rural-industries/new-plant-products/native-foods/native-foods_home.cfm

The RIRDC Native foods sub-program publishes reports on the native food industry and research on various plants and plant products.

Additional Website references

The Victorian (Agriculture) Resources Online (VRO)

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Australian National Botanic Gardens <http://www.anbg.gov.au/index.html>

Royal Botanic Gardens of Victoria <https://vicflora.rbg.vic.gov.au/>

10 Appendices

10.1 Appendix: Louis N. Lane's Files

10.1.1 A.D.P.M.L. files

Table 10-1 Lane's Files in A.D.P.M.L.

Year written	Title	A.D.P.M.L. Digital Title
1966	The Eurt-eaters of the Great Basalt Plain	lane1966eurtatersgreat
1975	The legend of the stolen bride: an excerpt from 'Tan:Gambalanga talisman'	lane1975legendstolen
1980	The mullet festival	lane1990mulletfestival
1982	A mirrnyong ... what's that?	lane1982mirrnyong
1983	An appreciation of the book The life and adventures of William Buckley	lane1983appreciationbook
1984-1994	Balla:We:In: the Bellarine Shire Council move to preserve and distinguish an important Aboriginal component of Drysdale's past	lane1984ballaweinbellarine
1984	The economic importance of the Kardinia Creek living station: a sequel to The sheltered cup	lane1984economicimportanc e
1984	The sheltered cup	lane1984shelteredcup
1985	Yolla stack	lane1985yollastak
1986	The flake fabricator: what is its significance in the stone assemblages	lane1986flakefabricator
1987	Glass: the novel medium	lane1987glassnovel
1987	The Wathaurung: Geelong's earliest inhabitants	lane1987wathaurunggeelong s
1988	Aboriginal camping-sites among the fore-dunes at Point Impossible, Victoria	lane1988Aboriginalcamping sites
1988	Bat, bat come under my hat	lane1988batbat
1988	The Bengali hearth-groups of the Wathaurung tribe	lane1988bengalihearthgroup s
1988	The brown man from Ballark	lane1988brownman
1988	Geelong's monument to the fishing & fowling industries of a past civilization	lane1988geelongsmonument
1989	An enquiry into the spelling of Yarra Street, Geelong	lane1989enquiryinto
1989	Sepulchre & mortuary customs of the Aborigines	lane1989sepulturemortuary
1989	Some words to be cherished	lane1989somewords
1990	Borders: languages	lane1990borderslanguages
1990	The curious business of Wathaurung family-names	lane1990curiousbusiness
1990	A dictionary of Aboriginal-terms alluding to Wathaurung territory	lane1990dictionaryAborigina lterms
1990	Eagle and crow	lane1990eaglecrow
1990	Fifty useful plants	lane1990fiftyuseful
1990	The grand Co-ayang and Pioneering days in Western District	lane1990grandcoayang

1990	God's in his heaven	lane1990godsin
1990	Kuarka Dorla	lane1990kuarkadorla
1990	The last carefree children	lane1990lastcarefree
1990	Notes on the indigenes of Inverleigh Common	lane1990notesindigenes
1990	Steve Hart	lane1990stevehart
1990	Some more words to be cherished	lane1990somemore
1990-1993	The seventh tree & News about the Dodder Laurel	lane1990seventhtree
1990-1996	The striped dog	lane1990stripeddog
1990	Tribes, clans, moieties & land utilization & ownership	lane1990tribesclans
1990	The Wilton 'axe' from Fenwick, Victoria	lane1990wiltonaxe
1990	A woman's day	lane1990womansday
1990	Where did the brown-skinned people go?	lane1990wherebrownskinned
1991	Various names of the Barrarbool Tribal: people as recorded in the ethnography of the region compiled	lane1991variousnames
1991	Aboriginal place-names Geelong and district	lane1991Aboriginalplacenames
1991	Australia's very own conservationists	lane1991australiasvery
1991	Aboriginal vocabulary: (uncovered during the study 'Place-names Geelong and district')	lane1991Aboriginalvocabulary
1991	Bunjil:Carney Kolakngat: our respected foe, the Colac tribe	lane1991bunjilcarneykolakngat
1991	Bunjil:Dowang:Un	lane1991bunjildowangun
1991	Dooliebeal and Duneed	lane1991dooliebealduneed
1991	The destruction of Aboriginal society: some Victorian statistics	lane1991destructionAboriginal
1991	The eternal dreamtime: being notes from Kenneth Maddock's 'Aborigines: a portrait of their society' with added thoughts from other sources	lane1991eternaldreamtime
1991	Magic and mystery	lane1991magicmystery
1991	The Murnong experiment	lane1991murnongexperiment
1991	The nature of stone artefacts	lane1991naturestone
1991	Notes on the first national school in Waurn Chain-of-Ponds	lane1991notesfirst
1991	Query re: the Belmont Library site	lane1991queryre
1991	Some extra words to be cherished	lane1991someextra
1991	Selection of place names compiled for possible use at Grace McKellar (for Mr. David Davies)	lane1991selectionplace
1991	Trade exchange in Aboriginal society: a study	lane1991tradexchange
1991	Yollinko Park: text of an address to the Highton Rotary Club on 14th November, 1991	lane1991yollinkopark
1992	A black & white mini-history of Thompson's Creek Estuary	lane1992blackwhite
1992	Bo-Yards, black velvet and blue pills	lane1992boyardsblack
1992	Come and dine at Jerringot	lane1992comedine
1992	Forty useful plants	lane1991fortyuseful
1992	The hut on the mound	lane1992huton
1992	Jerringot living station	lane1992jerringotliving

1992	The Jerringot site	lane1992jerringotsite
1992	King Jerry	lane1992kingjerry
1992	The legend of the Min:Dii	lane1992legendmindii
1992	Our Willem Baa:Niip (i.e. Ni:ip)	lane1992ourwillem
1992	Sixty-five places round Geelong: what the natives called them	lane1992sixtyfiveplaces
1992	Timeline to annihilation: the last years of Willem BAA:NIIP's tribe in Geelong & district - half a century, 1835 to 1885	lane1992timelineannihilation
1992	Vocabulary from the Jerringot Study	lane1992vocabularyjerringot
1992	Vocabulary from The Valley of the sky	lane1992vocabularyvalley
1992	Willem Baa:Niip: the last of the Barrabool Indigenes	lane1992willembaaniip
1992	What is the nature of a sacred site?	lane1992whatnature
1992	A woman's role in pristine Aboriginal-society	lane1992womansrole
1993	Along the Barwon	lane1993alongbarwon
1993	Bullarto Korrang	lane1993bullartokorrang
1993	The Barwon Wetlands Art Exhibition	lane1993barwonwetlands
1993	Cooee, Coooeee, Billy Leigh: the story of a survivor under patronage	lane1993cooeecoooeee
1993	Dan:Dan:Nook: and his tomb	lane1993dandannookhis
1993	Dan:Dan:Nook	lane1993dandannook
1993	The fate of the Wa:Thaurung	lane1993fatewathaurung
1993	Fern's pick	lane1993fernspick
1993	Looking back sixty-three years: the school choir	lane1993lookingback
1993	Let's go gathering roots in Spring	lane1993letsgo
1993	The life of an Aboriginal female in a male dominated society	lane1993lifeAboriginal
1993	Letters to Zeddy from Umpteena	lane1993letterszeddy
1993	No bride for Billy Bunyip	lane1993nobride
1993	The natives of Paywit	lane1993nativespaywit
1993	Names of the Barrabool Tribes-people and their meanings	lane1993namesbarrabool
1993	Our mountains north of Corio Bay	lane1993ourmountains
1993	Over the ocean deep	lane1993overocean
1993	Plants, plants, plants: an appendix to Eastern Park, Geelong	lane1993plantsplants
1993	Pally:Ang, Waa:Waa & Boonjil	lane1993pallyangwaawaa
1993	Walert: the possum	lane1993walertpossum
1993?	The rape of Boolgan: the Lillipille blossom, after R. Brough Smyth	lane1993rapeboolgan
19921993	Jerringot, 1992-1993	lane1993jerringot19921993
1994	Aboriginal utilization of the floral element of their environment: Geelong area	lane1994Aboriginalutilization
1994	Bunce's lexicon	lane1994bunceslexicon
1994	Culture clash on the frontier: the Dennys letter	lane1994cultureclash
1994	Eastern Park, Geelong	lane1994Easternpark
	Plus 'Plants, Plants, Plants'	lane1994Easternpark
1994	The Geelong archaeological Society: a brief account	lane1994geelongarchaeological
1994	How the Aboriginal People utilized the plants which grew in their home territory	lane1994howAboriginal

1994	The inhabitants of Terra Nullius	lane1994inhabitantsterra
1994	A lake created ... the lake destroyed: the story of the Kerup:Maar, the people of the lake; and the Nillan Gundidj, the people of the swamp	lane1994lakecreated
1994	Lar:Goork: the stone girl	lane1994largoorkstone
1994	One hundred and three monuments to the vanished people	lane1994onehundred
1994	To be a boy in Aboriginal society	lane1994beboy
1994	Tale endings to the Beangala stories: text of an address to the Queenscliff Historical Society on October 27th 1994	lane1994taleendings
1994	Those foreigners: tales about Eastern Beach and the ladies baths, Geelong	lane1994thoseforeigners
1994	Voices in the dark: a chat with the N.L.T.G., on Wednesday, 23rd February, 1994	lane1994voicesdark
1994	Who killed the Kulin?	lane1994whokilled
1994?	The Davenport dictionary: the language of the Barrabool tribe	lane1994davenportdictionary
1995?	Corroboree in Market Square, 1848	lane1995corroboreein
1995?	Hearth groups, hordes and tribes	lane1995hearthgroups
1995	A Yule-tide gift for my mother: an essay on an heirloom	lane1995yuletidegift
1995	A talk to the Cubs at Highton	lane1995talkcubs
1995	To be a girl in Aboriginal society	lane1995begirl
1995	Billy Bunyip's stone knife	lane1995billybunyips
1995	From Todd to Davenport	lane1995fromtodd
1995	Harlequin & merriman	lane1995harlequinmerriman
1995	Karaaf & Maa:Maart	lane1995karaafmaamaart
1995	Material culture of the Australian indigenes: another chat with my N.L.T.G. friends on Wednesday, 24th May, 1995	lane1995materialculture
1995	Query regarding the importance of Dog Rocks to the local indigenes posed by Mr. W. G. D. Middleton, adviser to the Victorian Conservation Trust essay	lane1995queryregarding
1995	The Rheola hammer-adze	lane1995rheolahammer
1995	To be a child in Aboriginal society	lane1995bechild
1995	To become a man in Aboriginal society	lane1995becomeman
1995	Where is Boondjhil?	lane1995whereboondjhil
1996	Bai:Err	lane1996baierr
1996	Jibberin, the dictionary of E.M. Curr: vocabulary from along the Moorabool	lane1996jibberindictionary
1996	The lost language	lane1996lostlanguage
1996	My brush with the gerontocracy, U3A, Geelong:	lane1996mybrush
1996	Shellfish, baskets & proper names	lane1996shellfishbaskets
1996	Secrets of the medicine men	lane1996secretsmedicine
1996	Whose land are you living on?	lane1996whoseland
1996	Working on an archaeological dig at Woork:Woork	lane1996workingarchaeological
1997	The development of the Pharmacopoeia of the indigenes of Australia : with particular reference to the native plants of south west Victoria	lane1997developmentpharmacopoeia
1997	Len Broom's grand-father's stone-axe blade	lane1997lenbrooms

1997	A lament for the spirit of Willem Baa:Ni:Ip	lane1997lamentfor
1997	Seven Black Stones	lane1997sevenblack
1997	The bunyip study	lane1997bunyipstudy
1997	Ya:Yang: I ... The Worin:Yalok-clan of the Wa:Taurung-Tribe	lane1997yayangi
1998	Anglesea: notes for Glenn Romanis	lane1998angleseanotes
1998	Aboriginal watercraft in the eastern half of Australia: rafts, Murrayian floats, punts, rolled canoes, dug-outs and commerce	lane1998Aboriginalwatercraft
1998	Barak: the kangaroo-rat baierr	lane1998barakkangaroo
1998	Document for St. Luke's Church, Highton	lane1998documentfor
1998	Dreamtime to disintegration	lane1998dreamtimedisintegration
1998	Earths and ochres	lane1998earthochres
1998	Laws of the Indigenes of Central Victoria	lane1998lawsindigenes
1998	Of course there were renegades	lane1998coursethere
1998	Viktor Cebergs and the clapping-sticks	lane1998viktorcebergs
1998	The witnesses	lane1998witnesses
1994 - 98	Spiders make me laugh	lane1994spidersmake
1978 - 98	In search of the meaning of Boorong:Goop	lane19xxinsearch
1998 - 99	White witnesses of genocide	lane1998whitewitnesses
1999	Clans of the Wa:Ta:Wurru of Geelong & district	lane1999clanswatawurru
1999	First documented death by gunfire in Geelong	lane1999firstdocumented
1999	Genocide: Geelong & district - 1835-1885	lane1999genocidegeelong
1999	James Theophilus Dredge on the Aboriginal Protectorate in 1840	lane1999jamestheophilus
1999	Lou Lane's map of the Barrabool tribe's clan estates	lane1999loulanes
1999	Study of the Point Addis Koorie cultural walk pamphlet	lane1999studypoint
2001	Facts and opinions [Geelong, Vic.] : Wataurun Territory, 2001	lane2001factsopinion
2001	Tit for tat at Moonlight Head	lane2001titfortat
2001	Wathaurong Aboriginal Co-operative: with a special allusion to Jerringot living station in Sth. Geelong	lane2001wathaurongAboriginal
2001	What's in a name?	lane2001whatsname
2002	The puzzle map	Lane2002puzzlemap
n.d.	In whose territory do we dwell?	lane199Xinwhose
n.d.	Karn:Gun Aboriginal Reserve Winchelsea	lanexxxxkarngunAboriginal

10.1.2 Hard drive (H/D) files

(All date stamped 4th Aug 2002)

Table 10-2 Lane's Hard drive Files

1. Miscellaneous Notes on Tribes and Boundaries
2. Place Names
3. According to Charles Wightman Sievwright

4. Places of interest Along Barwon River
5. Names of Western District Indigenes
6. Mitchell Names at Lollypop Creek
7. List of authors in personal library
8. European People who interacted with Indigenes
9. Dictionary AB-to-EN
10. Barwon Bluff Project
11. Bio Here comes the Honeyman
12. Summary Topics 43 Short essays
13. Botany
14. In search of meaning Borronggoop
15. Clans
16. Photo Collection
17. Consultation
18. Prehistory timeline
19. Deakin files & summaries
20. Personal medical diary
21. Pioneer Dictionaries
22. List of maps
23. Notes on Fish The Eel
24 MAP list plus Jerringot essay
25. Dictionary ENG-to-AB
26. Kolakngat water catchment
27. Major Mitchell Lollypop Creek
28. Index paper clippings
29. Names and Reminders and Additions to Tangambalanga
30. List of Files
31. Flora
32. Index of all topics in files
33. Headings on disc of topics
34. Notes on some Laws Principles Customs
35. Plants utilized by Indigenes
36. Tangambalanga the Trauma
37. Index of subjects & photos
38. Summary of Living Stations, Weapon Utensil materials
39. To Whom it may concern BIO
40. Toolimbeal Plant list
41. Letter from LL to JB
42. Letter from LL to JB
43. Index to envelope subjects
44. Lakes & waterways
45. Living sites where LL collected artefacts
46. Lollypop Creek History
47. Stonehaven artefacts
48. Index of topics
49. List of maps & diagrams
50. Map Index
51. Lane's medical history
52. Summary essays on topics
53. List of files on disc
54. Onomatopoeia
55. Population statistics

56. People who studied the indigenes
57. List of pictures
58. Index Pic
59. Food & Fibre Plants
60. Aboriginal People
61. Puzzle Map
62. Resistance to Settlement
63. Artefacts collected on Thompson's Creek
64. Philosophical Snippings & Demise Timeline
65. Book of short prose
66. Towns in the area
67. Lament for the spirit of Willem Baanip
68. Sounds in Aboriginal Speech
69. Sources Personalities who recorded vocabulary
70. Table of Contents
71. Stone Tool Components
72. List artefacts
73. Tale of a Trail - Peter Alsop
74. Tangambalangas Talisman
75. Books in personal library
76. Facts & opinions
77. Tuckey & Geelong's 1st Gunfire
78. Unaipon The Man on the Fifty Dollar Banknote
79. Uplands Hills of the area
80. What's in a Name
81. Water-conservation practised
82. Wathauro Geographical features
83. Who Killed the Kulin poem & prose

10.2 Appendix: Lane's published articles

Most of the files listed below are extracts in part from the original files original files that sit within Appendix 10.1.

10.2.1 *Geelong Naturalist* – journal of the Geelong Field Naturalists

1. Lane, L.N., 1976, 'The Magic Circle', *Geelong Naturalist*, pp1-6.
2. Lane, L.N., 1977, 'Funny Fungus', *Geelong Naturalist* 14(3), pp66-68
3. Lane, L.N., 1977, 'A Mirrnyong – What is that?', *Geelong Naturalist* 14(2), pp41-45. (same file name and summary content as Deakin's file)
4. Lane, L.N., 1988, 'Notes on the Aboriginal Living-Sites Among the Fore-Dunes Near the Debouchment of Thompson's Creek (Known Locally as Bream Creek) into Bass Strait, Victoria - Adjacent to an Off-Shore Reef at Point Impossible, Victoria', *Geelong Naturalist* 25(2), pp68-71.
5. Lane, L.N., 1988, 'Notes on the Extensive Kitchen-Middens Near Bream Creek Outlet Adjacent to Buckley's Well at Karaaf - A Traditional Camping-Station Near Point Impossible, Victoria', *Geelong Naturalist* 25(2), pp65-67. (known as Aboriginal camping-sites among the fore-dunes at Point Impossible, Victoria in Deakin files)
6. Lane, L.N., 1988, 'Bat, Bat, Come Under My Hat', *Geelong Naturalist* 25(3) pp75-80. (same file name and summary content as Deakin's file)
7. Lane, L.N., 1988, 'Bush Tucker', *Geelong Naturalist* 25(3), pp75-80. (Annex to Notes on the 'Aboriginal Living-Sites Among the Fore-Dunes Near the Debouchment of Thompson's Creek (Known Locally as Bream Creek) into Bass Strait, Victoria - Adjacent to an Off-Shore Reef at Point Impossible, Victoria', *Geelong Naturalist* 25(2), pp68-71.)
8. Lane, L.N., 1988, 'There's more down the garden than cabbages and herbs', *Geelong Naturalist* 25(3), pp75-80. (Annex to Lane, L.N., 1990 'Spiders Make me Laugh *Geelong Naturalist*', 27(1) - same file name and summary content as Deakin's file)
9. Lane, L.N., 1988, 'I've got a wild Stanwella in my strawberry pot', *Geelong Naturalist* 25(3), pp75-80. (Annex to Lane, L.N., '1990 Spiders Make me Laugh', *Geelong Naturalist*, 27(1) - same file name and summary content as Deakin's file)
10. Lane, L.N., 1990, 'The Seventh Tree', *Geelong Naturalist* 27(2), pp27-30 (same file name and summary content as Deakin's file)
11. Lane, L.N., 1990, 'The Muddled Mum', *Geelong Naturalist* 26(4), pp98-101
12. Lane, L.N., 1990, 'Spiders Make me Laugh' *Geelong Naturalist* 27(1), pp19-20 (same file name and summary content as Deakin's file)
13. Lane, L.N., 1991, 'The Ghost of a Hearth Shovel', *Geelong Naturalist* 28(2), pp46-47. (Annex to Notes on the indigenes of Inverleigh Common within Deakin files)
14. Lane, L.N., 1992, 'Fifty Useful Plants', *Geelong Naturalist* 28(4), pp75-79 (same file name and summary content as Deakin's file)
15. Lane, L.N., 1992, 'Fifty Useful Plants' *Geelong Naturalist* 29(1), pp7-15 (same file name and summary content as Deakin's file)
16. Lane, L.N., 1992, 'The Hut on the Mound', *Geelong Naturalist* 28(3), pp51-53 (same file name and summary content as Deakin's file)
17. Lane, L.N., 1993, 'News about the Dodder Laurel Under the seventh tree' *Geelong Naturalist* 30(3), pp51-53

18. Lane, L.N., 1993, 'Cormorant Parade', *Geelong Naturalist* 30(1), pp8 (same file name and summary content as Deakin's file – annex to Spiders Make Me Laugh)
19. Lane, L.N., 1997, 'Come and Dine at Jerringot', *Geelong Naturalist* 32(9), pp6-12

10.2.2 *The Investigator* - journal of the Geelong Historic Society

1. Lane, L.N., 1987, 'Glass the novel medium', *The Investigator* 22(4), pp89-139 (same file name and content as Deakin's file)
2. Lane, L.N., 1988, 'The Wathaurungs', *The Investigator* 23(3) Sept, pp96
3. Lane, L.N., 1988, 'Geelong's Canoe Tree', *The Investigator* 23(4) Dec, pp165-169
4. Lane, L.N., 1990, 'Wathaurong Family Names', *The Investigator* 25(4), pp134-142 (Known as The curious business of Wathaurung family-name in Deakin's files)
5. Lane, L.N., 1991, 'Waurrn Ponds National School', *The Investigator* 26(3), pp104-116 (Known as Notes on the first national school in Waurrn Chain-of-Ponds in Deakin files)
6. Lane, L.N., 1992, 'Jerringot', *The Investigator* 27(1), pp106 (extraction of several Jerringot files within Deakin library)
7. Lane, L.N., 1994, 'The Inhabitants of Terra Nullius', *The Investigator* 29(4), pp117-135 (same file name and summary content as Deakin's file)
8. Lane, L.N., 1996, 'Culture-Clash on the Frontier', *The Investigator* 31(4) Dec, pp129-136
9. Lane, L.N., 1996, 'Those Foreigners', *The Investigator* 31(3) Sept,
10. Lane, L.N., 2002, 'Here comes the Honeyman, Mum', *The Investigator* 37(4), pp131-149 (found on Lane's hard drive, not in Deakin library as not related to Wadawurrung study, however provides some autobiographical insights)

10.2.3 Other publications

1. Lane, L.N. & Fullagar, R., 1980, 'Previously unrecorded Aboriginal stone arrangements in Victoria', *Records of the Victorian Archaeological Survey*, 10 (June), pp134-151, Ministry for Conservation, Vic
2. Gill E.D. & Lane, L.N., 1985, 'Sea levels and Aboriginal oyster midden at Lake Connemare, Victoria, Australia', *Proceedings of the Royal Society of Victoria* 97(2) June, pp95-100
3. Lane, L.N., 1980, 'Aboriginal earthen mounds along the Little Murray River', *Records of the Victorian Archaeological Survey*, 10(June), pp109-118. Ministry for Conservation, Vic

10.2.4 Various reports submitted by Lane to the Office of Aboriginal Affairs Victoria (O.A.A.V.) but remain unpublished

1. Lane, L.N., 1982, 'Manuscript Report and Notes on Artefacts Collected from Kardinia Creek Sites AAV 7721 /35-37'
2. Lane, L.N., 1991, 'Jerringot Living-Station: A Report for Mr. Laurie Miller and Mr. Bruce Howie, of South Barwon City Council, December 1991'
3. Lane L.N., n.d. 'Manuscript Report And Notes On Artefacts Collected From Bellarine Peninsula Sites, With Emphasis On The McLeod's Holes Locality, ca. 1975-1984'

4. Lane, L., 2009, 'Aboriginal stone structures in south western Victoria'

10.2.5 Known citations of Lane

1. Pascoe, B., 2007, *Convincing Ground – Learning to Fall in love with our Country*: Lane, L 2001 'History: with some echoes of a lost language', Kardinia Prehistory Society. (Titled 'Lost Language' in Deakin catalogue.)
2. Pescott, T., 2017, *Birds and Botanists, A Field Naturalist's History of Geelong* pp138-139
3. Rhoads, J.W., 1986, 'Bellarine Peninsula: Archaeological Site Assessment and Management Study', Department of Anthropology, University of Sydney
4. Rhodes, D., 2014, 'Desktop Heritage Review of Extensions to Aerolite Quarry, Brownes Road, Anakie, Proposed Under Work Authority 1535. Report for Rigby Cooke Lawyers Pty Ltd'
5. Norris, R.P. et al., 2013, 'Wurdi Youang: an Australian Aboriginal stone arrangement with possible solar indications.' *Rock Art Research* 30(1) pp55-66
6. Munster, P., 2000, 'The Story of Edwards Point: Who was Edward?', *The Investigator* 35(4) Dec, p107
7. Richards, T. & Jordan, J., 1999, 'Aboriginal Archaeological Investigations in the Barwon Drainage Basin', *Occasional report* 50, Aboriginal Affairs Victoria
8. O'Connor, A., 2016, 'Preliminary Aboriginal Cultural Heritage Study: Johnstone Park, Geelong, Victoria', prepared for the Department of Environment, Land, Water and Planning. Ecology and Heritage Partners Pty Ltd

10.3 Appendix: Lane's written references

Table 10-3 Lane's Written References

Author	Year	Title
Abbie, A.A.,	1969	<i>The Original Australians</i>
Abbie, A.A.,	1973	'Physical characteristics of Australian Aborigines', <i>Archaeology and Physical Anthropology in Oceania</i> 3
Aboriginal Arts Board	n.d.	An Exhibition of: Oenpelli painting on bark, presented by the Gallery Directors
Andrews, A.,	1920	<i>First settlement of the Upper Murray 1835 to 1845</i>
Angas, G.F.,	1847	Savage life and scenes in Australia
Armstrong, J.,	1987	'Boyhood memories', <i>The Investigator</i> 86
Arnold, V.H.,	1964	<i>Victorian Yearbook</i> 78,
Arnold, V.H.,	1970	<i>Victorian Yearbook</i> 84,
Australian Cement	1990	<i>Moorabool River diversion</i>
Australian Information Service	n.d.	<i>To paint was to pray</i>
Baglin, Moore	n.d.	<i>Places of the Dreaming</i>
Barnett, L., & the Editors of LIFE	1962	<i>The epic of man: special edition</i>
Barrett, C., Kenyon, A.S.	1950	<i>Australian Aboriginal Art</i>
Barwick, D.E.,	1971	<i>Change in Aboriginal population in Victoria: 1863 - 1966</i>
Barwick, D.E.,	1984	<i>Mapping the Past: an atlas of Victorian clans 1835-1904</i>
Basedow, H.,	1935	<i>Knights of the boomerang: episodes from a life spent among the Native Tribes of Australia, 1935</i>
Bastion, H.,	1963	<i>And then came Man</i>
Bates, D.,	1938	<i>Passing of the Aborigines: a life time spent among the natives of Australia</i>
Beck, E.J.,	1985	<i>The enigma of Aboriginal health</i>
Bennet, M.M.,	1930	<i>The Australian Aboriginal: as a human being</i>
Bennett, S.,	1867	<i>History of Australian discovery & colonization</i>
Bergamini, D. et al	1965	<i>Australian flora and fauna</i>

Berndt, R.M. & C.H.,	1954	<i>Arnhem land: its history and its people</i>
Berndt, R.M. & C.H.,	1964	<i>The world of the first Australians: an introduction to the traditional life of the Australian Aborigines</i>
Berndt, R.M. & C.H.,	1965	<i>'Aboriginal Man in Australia' Essays in honour of Emeritus Professor Elkin</i>
Berndt, R.M. & C.H.,	1969	<i>The first Australians</i>
Berndt, R.M. & C.H.,	1970	<i>Man, land & myth: the Gunwinggu People</i>
Berndt, R.M.,	1970	<i>Australian Aboriginal anthropology: modern studies in social anthropology of the Australian aborigines</i>
Berndt, R.M.,	1970	<i>The Sacred site: the western Arnhem Land</i>
Berndt, R.M., Phillips E.S.,	1973	<i>The Australian Aboriginal Heritage: an introduction through the Arts</i>
Beveridge, P.,	1889	<i>The Aborigines of Victoria & the Riverina</i>
Bickford, R.A.,	1966	<i>Traditional economy of the Aborigines of the Murray Valley</i>
Billis, R.V. & Kenyon, A.S.,	1974	<i>Pastoral pioneers</i>
Billot, C.P.,	1969	<i>Geelong then & now</i>
Biskup, P.,	1973	<i>Not slaves not citizens: the Aboriginal problems in Western Australia 1898 - 1954</i>
Blainey, G.,	1967	<i>Peaks of Lyle</i>
Blainey, G.,	1975	<i>Triumph of the Nomads</i>
Blake, L.J.,	1971	<i>Hagenauer</i>
Blake, L.J.W.,	1973	<i>Vision and realisation</i>
Blomberry, A.M.,	1972	<i>What wild-flower is that?</i>
Bolam, H.G.,	1923	<i>Trans-Australian wonderland 6th ed.</i>
Bonwick, J.,	1857	<i>Western Victoria - Narrative of an Educational Tour</i>
Bonwick, J.,	1867	<i>John Batman: founder of Victoria Ed. by C. E. Sayers</i>
Bonwick, J.,	1883	<i>Port Phillip settlement</i>
Booth, E.C.,	1873	<i>Australia in the 1870s: illustrated with contemporary drawings</i>
Bossence, W.H.,	1979	<i>Numurka</i>
Bozic, S.,	1972	<i>Aboriginal myths by Bozic with Alan Marshall</i>

Brimfield, B.H.,	1968	<i>Bi-polar, scalar artefacts from north eastern Tasmania</i>
Brown, P.L.,	1971	<i>Clyde company papers, Vols. II - VII,</i>
Brown, P.L.,	1986	<i>Memoirs recorded at Geelong by Foster Fyans</i>
Brown, P.L.,	1989	<i>The Todd journal 1835: Andrew alias William Todd (John Batman's recorder) and his Indented Head journal 1835</i>
Brown, P.L. & Alsop, P.,	1989	<i>Maps by Wedge, 1835 Interpreted by Brown, Philip (Ed.) & Alsop, Peter</i>
Brownhill, W.R.	1955	<i>History of Geelong & Corio Bay</i>
Bryden, W.,	1960	<i>Story of the Tasmanian Aborigines</i>
Bunce, D.,	1857	<i>Twenty-three years wandering in Australia & Tasmania</i>
Bunce, D.,	1859	<i>The language of the Aborigines in the Colony of Victoria and other Australian places</i>
Bureau Flora & Fauna (Canberra)	1968	<i>Flora of Australia</i>
Bureau of Flora & Fauna, Canberra	1983	<i>Zoological catalogue of Australia: 3: arachnid</i>
Caldere, D.B. & Goff, D.J.,	1991	<i>Aboriginal reserves & missions in Victoria</i>
Campbell, A.,	1986	<i>Australian Almanac</i>
Campbell, A.,	1987	<i>John Batman and the Aborigines</i>
Campbell, T.D., Edwards, R.,	1966	<i>Stone implements</i>
Cannon, M.,	1983	<i>Australasian sketcher 1873</i>
Cannon, M.,	1990	<i>Who killed the Koories</i>
Cannon, M.,	1993	<i>Black land: white land</i>
Cannon, M.,	1982/3	<i>Historical records of Victoria: Vol 2A</i>
Carnegie, D.W.,	1898	<i>Spinifex & Sand: narrative of five years pioneering & exploration in W.A.</i>
Carter, J.,	1968	<i>Stout hearts & leathery hands</i>
Cary, J.,	1898	<i>Vocabularies of the Geelong & Colac Tribes by Francis Tuckfield of Buntingdale</i>
Cecil, K.L.,	1842	<i>Sievwright Census - Airey's Inlet - Anglesea to Cinema Point</i>
Chauncy, P.,	1878	<i>Ballarat Western District word lists, in Smyth's 1878 The Aborigines of Victoria</i>
Chippendale, G.M.,	1968	<i>Eucalyptus buds and fruits</i>
Chisholm, A.H.,	1965	<i>Bird wonder of Australia</i>

Christie, M.F.,	1979	<i>Aborigines in Colonial Victoria 1835-86</i>
Clark Howell, F.,	1972	<i>Early man</i>
Clark, D.,	1970	<i>Prehistory of Africa</i> (Ancient people & places No. 72)
Clark, I.D.,	1990	<i>Aboriginal Languages & Clans: an historical atlas of western and central Victoria 1800 - 1900</i>
Clark, I.D.,	1991	<i>Lake Condah Mission - native plant walk</i>
Cloete, S.,	1964	<i>The forest</i>
Cogger, H.C.,	1975	<i>Reptiles & amphibians of Australia</i>
Corner, S.,	1973	<i>Captain Cook and Australia</i>
Costermans, L.,	1981	<i>Native trees & shrubs - S. E. Australia</i>
Cotton, B.C.,	1966	<i>Aboriginal Man: in south & Central Australia</i>
Coulson, A.,	1977	'Age-relationships of newer basalts in Geelong & district', in <i>Royal Society of Victoria. Proceedings</i> , 89(2), pp159-165
Coulson, A.,	n.d.	<i>The geology of Geelong & district</i>
Coutts, P.J.F.,	1975	'The prehistory of Victoria: a review', in <i>Records of V.A.S.</i> 2
Coutts, P.J.F.,	1976	'Victorian prehistoric sequences', in <i>Records of V.A.S.</i> 2
Coutts, P.J.F.,	1977	'Aboriginal colonization of Australia', in <i>Records of V.A.S.</i>
Coutts, P.J.F.,	1977	<i>An introduction to prehistoric archaeology in Victoria.</i>
Coutts, P.J.F.,	1978	<i>Readings in Victorian prehistory; 1: archaeological theory practice</i>
Coutts, P.J.F.,	1980	'Victoria Archaeological Survey activities report', in <i>Records of V.A.S.</i> 10
Coutts, P.J.F.,	1981	<i>Readings in Victorian prehistory; 2: the Victorian Aborigines - 1800 - 1860</i>
Coutts, P.J.F.,	1982	'Cultural resource management in Victoria 1979 – 1981', <i>Records of V.A.S.</i> 13
Coutts, P.J.F.,	1982	<i>Prehistory in Atlas of Victoria</i>
Coutts, P.J.F.,	n.d.	'Ethnography and archaeology', in <i>Readings in Victorian prehistory</i>
Coutts, P.J.F.,	n.d.	'Seasonality of sites, in Readings' in <i>Victorian Prehistory</i>
Coutts, P.J.F. & Cochrane, R.M.,	1977	'The Keilor archaeological area', in <i>Records of V.A.S.</i>
Coutts, P.J.F., Frank R.K. & Hughes, P.,	1978	'Aboriginal Engineers of the Western District, Victoria', in <i>Records of V.A.S</i> 7

Coutts, P.J.F. et al	1979	'Preliminary investigation of Aboriginal mounds in N/W Victoria', in <i>Records of V.A.S.</i> 9
Coutts, P.J.F. & Miller, R.,	1977	<i>The Mount William archaeological area. [Greenstone Areas, Victoria],</i>
Coutts, P.J.F. & Witter D.C.,	1977	'Guide to recording Archaeological Sites in Victoria', in <i>Records of V.A.S. Special Issue</i> , 3
Coutts, P.J.F. & Witter D.C.,	1977	<i>Impact of European settlement on Aboriginal society in western Victoria.</i>
Coutts, P.J.F. et al	1977	'Includes radio-carbon dates for Victorian archaeological sites', in <i>Records of V.A.S.</i> 4
Coutts, P.J.F., Witter D.C. & Frank, R.K.,	1976	'Mound people of western Victoria: a preliminary statement', in <i>Records of V.A.S.</i> 1
Coutts, P.J.F., Zallar, S.A. & Siow, K.,	n.d.	<i>Stabilization of archaeological sites in Victoria, in Pilot Study. Melb., Soil Conservation. Auth. & V.A.S.</i>
Cribb, A.B., & W.J.,	1974	<i>Wild food in Australia</i>
Cribb, A.B., & W.J.,	1981	<i>Wild medicine in Australia</i>
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Curr, E.M.,	1883	<i>Recollections of squatting in Victoria 1841 - 1851</i>
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10.4 Appendix: Ethics Approval

Human Research Ethics



Deakin Research Integrity
70 Elgar Road Burwood Victoria
Postal: 221 Burwood Highway
Burwood Victoria 3125 Australia
Telephone 03 9251 7123 Facsimile 03 9244 6581
research-ethics@deakin.edu.au

Memorandum

To: Prof David Jones
School of Architecture and Built Environment
F
cc: Ms Jen Dearnaley

From: Deakin University Human Research Ethics Committee (DUHREC)

Date: 17 June, 2014

Subject: 2014-107
Louis N Lane and ethnobotany of the Wathaurong

Please quote this project number in all future communications

The application for this project was considered at the DUHREC meeting held on 16/06/2014.

Approval has been given for Prof David Jones, School of Architecture and Built Environment, to undertake this project from 17/06/2014 to 16/06/2018.

The approval given by the Deakin University Human Research Ethics Committee is given only for the project and for the period as stated in the approval. It is your responsibility to contact the Human Research Ethics Unit immediately should any of the following occur:

- Serious or unexpected adverse effects on the participants
- Any proposed changes in the protocol, including extensions of time.
- Any events which might affect the continuing ethical acceptability of the project.
- The project is discontinued before the expected date of completion.
- Modifications are requested by other HRECs.

In addition you will be required to report on the progress of your project at least once every year and at the conclusion of the project. Failure to report as required will result in suspension of your approval to proceed with the project.

DUHREC may need to audit this project as part of the requirements for monitoring set out in the National Statement on Ethical Conduct in Human Research (2007).

Human Research Ethics Unit
research-ethics@deakin.edu.au
Telephone: 03 9251 7123

10.4.1 Appendix: Ethics approval - extension

Human Research Ethics

Deakin Research Integrity
Burwood Campus
Postal: 221 Burwood Highway
Burwood Victoria 3125 Australia
Telephone 03 9251 7123
research-ethics@deakin.edu.au



Memorandum

To: Prof David Jones
School of Architecture and Built Environment
F
cc: Ms Jen Dearnaley

From: Deakin University Human Research Ethics Committee (DUHREC)

Date: 01 November, 2018

Subject: 2014-107
Louis N Lane and ethnobotany of the Wathaurong

Please quote this project number in all future communications

The DUHREC Executive has reviewed the modifications to this project received on 8/05/2017 and found them to comply with the National Statement on Ethical Conduct in Human Research (2007).

The DUHREC Executive has granted approval for Prof David Jones, School of Architecture and Built Environment, to continue this project as modified to 17/06/2019.

The approval given by the Deakin University Human Research Ethics Committee is given only for the project and for the period as stated in the approval. It is your responsibility to contact the Human Research Ethics Unit immediately should any of the following occur:

- Serious or unexpected adverse effects on the participants
- Any proposed changes in the protocol, including extensions of time.
- Any events which might affect the continuing ethical acceptability of the project.
- The project is discontinued before the expected date of completion.
- Modifications are requested by other HRECs.

In addition you will be required to report on the progress of your project at least once every year and at the conclusion of the project. Failure to report as required will result in suspension of your approval to proceed with the project.

DUHREC may need to audit this project as part of the requirements for monitoring set out in the National Statement on Ethical Conduct in Human Research (2007).

Human Research Ethics Unit
research-ethics@deakin.edu.au
Telephone: 03 9251 7123

10.5 Appendix: John Boetje copyright approval



John Boetje <john.boetje@iinet.net.au>
Wed 5/09/2018 6:42 AM
Inbox

Mark as unread

To: ☐ JEN DEARNALEY;

• You forwarded this message on 5/09/2018 9:47 AM.

📎 1 attachment



[Download all](#)

Phish Alert

+ Get more apps

I, Johannes Boetje of 199 Dayboro Road, Petrie, Q 4502

... hereby approve the full use of the material supplied by my mother, Mrs L.N. Lane

... by Jennifer Dearnaley for use in her PhD thesis

The material includes documents housed in the special collections of the Deakin Library and covered by the attached Copyright document,
together with other personal documents supplied by me after my mother's death.

Signature Redacted by Library

10.6 Appendix: Research Integrity Training



This is to certify that

JEN DEARNALEY

has successfully completed the compulsory Research Integrity
online training.

Research Integrity – Deakin University

research-integrity@deakin.edu.au

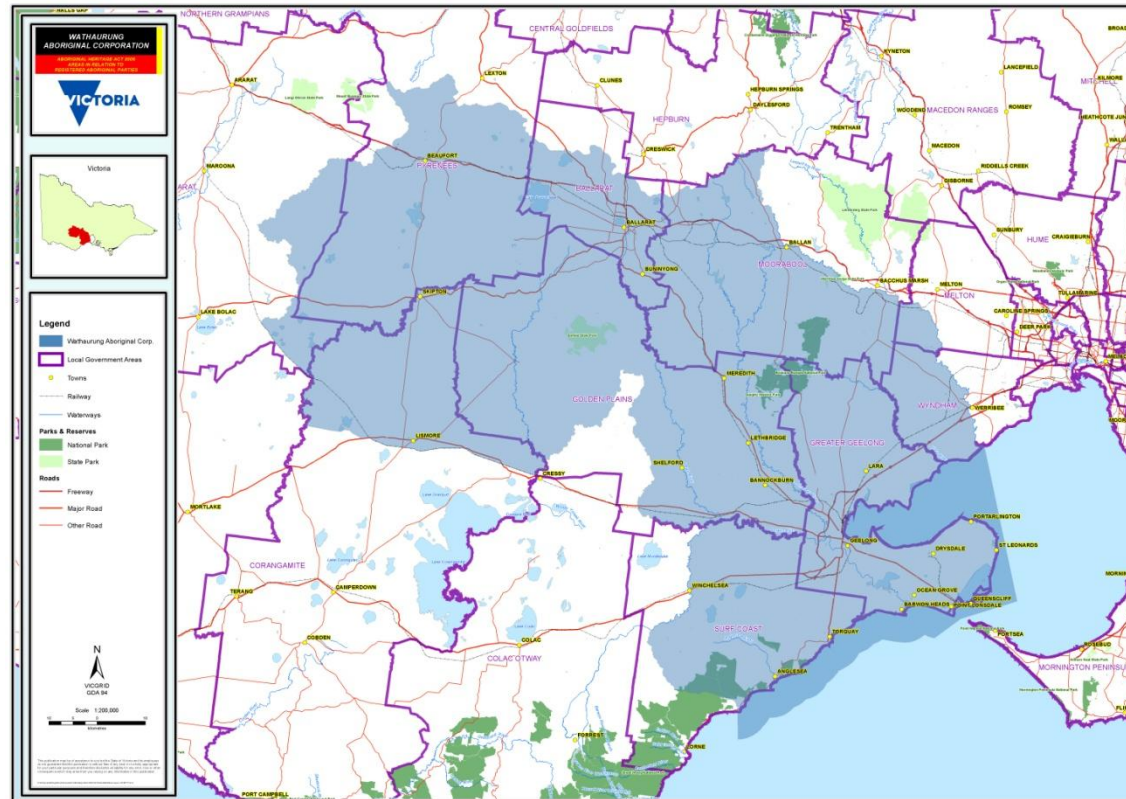
Date: 18/1/2017

Authentication number: 212528115v3



10.7 Appendix: Registered Aboriginal Parties (RAP) map

Image 10-1 Registered Aboriginal Parties (RAP) map



Source: Aboriginal Victoria - heritage⁴⁰⁵

10.8 Appendix: Wadawurrung boundary description

1989 No. 420 ABORIGINAL AND TORRES STRAIT ISLANDER HERITAGE PROTECTION REGULATIONS (AMENDMENT) - REG 6

-

Area 18: WATHAURONG ABORIGINAL CO-OPERATIVE LTD. The boundary commences at the low-water mark on Point Nepean, thence in a straight west-north-westerly line across the entrance of Port Phillip Bay to the low-water mark on Point Lonsdale, thence generally south-westerly along the coast to the point, approximately 1.9 kms north-east of Lorne, where a suspension foot-bridge runs from the coastal fore dune to the Great Ocean Road, thence north across this bridge to the Great Ocean Road, which is then followed south-westerly for approximately 120 metres to its junction with the Dean's Marsh-Lorne Road, thence generally north-westerly along this road to its junction with the Birregurra-Deans Marsh Road thence generally north-westerly along this road through to its junction with the Warncoort-Birregurra Road, which is then followed north-westerly to its junction with the Princes Highway, thence west-south-westerly along this Highway to its junction with the Colac-Ballarat Road, which is then followed in a generally northerly direction to the point where it is intersected by the Buninyong Shire-Leigh Shire boundary, thence easterly along this boundary to where it intersects with the Meredith-Mt. Mercer Road, which is then followed in an easterly direction to Meredith, thence east-north-easterly along the road between Meredith and Burdiwarrah to its junction with the Geelong-Ballan Road at Burdiwarrah, thence south-easterly along this road to the 'Y' junction with the road to Staughton Vale, which is then followed in a northerly direction to its junction with the Bacchus Marsh-Balliang Road, thence northerly along this road to its junction with the Geelong-Bacchus Marsh Road, thence northerly along the Geelong-Bacchus Marsh Road to where it crosses the Werribee River, thence generally easterly along this river to the western end of the Melton Reservoir, thence generally south-easterly along the northern shore of this reservoir to its eastern end, thence continuing south-easterly along the Werribee River to the southern point of its mouth on the western coast of Port Phillip Bay, thence in a straight south-south-westerly line to the low-water mark on the south-west tip of the northern island of the Mud Island group, thence in a straight west-south-westerly line to the low-water mark on Point Nepean, thereby completing the boundary.

Source: Aboriginal and Torres Strait Islander Heritage Protection Regulations ⁴⁰⁶

10.9 Appendix: Clark's list of Wadawurrung clans

Table 10-4 Clark's List of Wadawurrung clans

Number	Clan Name	Approximate Location
1.	Barere barere balug	'Colac' and 'Mt, Bute' stations
2.	Beerekwart balug	Mt.Emu
3.	Bengalat balug	Indented Head
4.	Berrejin balug	Unknown
5.	Borogundidj	Yarrowee River
6.	Burrumbeet balug	Lakes Burrumbeet and Learmonth
6a	Keyeet balug	Mt. Buninyong
7.	Caningum balug	Carngham
8.	Carninje balug	'Emu Hill' station, Linton's Creek
9.	Corac balug	'Commeralghip's station, and Kuruc-a-ruc Creek Carranballac
10.	Corrin corrinjer balug	Carranballac
11.	Gerarlture	West of Lake Modewarre
12.	Marpeang balug	Blackwood, Myrniong, and Bacchus Marsh
13.	Mear balug	Unknown
14.	Moijerre balug	Mt. Emu Creek
15.	Moner balug	'Trawalla' station, Mount Emu Creek
16.	Monmart	Unknown (Lane suggests this is the Torquay/Anglesea area)
17.	Neerer balug	Between Geelong and the You Yangs
18.	Pakeheneek balug	Mt. Widderin
19.	Peerickelmoon balug	Near Mt, Misery
20.	Tooolora balug	Mt Warrenheip, Lal Lal Creek, west branch of Moorabool River
21.	Woodealoke gundidj	Wardy Yalloak River, south of Kuruc-a-ruc Creek
22.	Wada wurrung balug	Barrabool Hills
23.	Wongerrer balug	Head of Wardy Yalloak River
24.	Worinyaloke balug	West side of Little River
25.	Yaawangj	You Yang Hills

Source: Clark⁴⁰⁷

10.10 Appendix: Summer School Programme

Programme of Summer School hosted by the University of Sydney at Tocal Agriculture College in 1969

Image 10-2 Summer School Programme

General Information

"Tocal"

The C. B. Alexander Presbyterian Agricultural College, "Tocal", Paterson, N.S.W., was opened in November, 1965. It is situated in the midst of the fertile Hunter Valley, nine miles north of Maitland and twenty eight miles from Newcastle. The historic Tocal Homestead, built in the early Nineteenth Century stands nearby.

The College complex was awarded the 1965 Sulman Medal for Architecture and the Blocker Award for Architecture. It is regarded as an outstanding architectural composition, vigorously conceived and sensitively identified with the site.

Accommodation:

Comfortable single bedroom accommodation can be provided for all students and dining and lecture room facilities are first class. Students who wish to live out may do so and meals will be supplied at the College for a small charge.

Fee:

The inclusive fee for accommodation, meals and lectures is \$42. For those students who wish to live out the lecture fee is \$12. All fees should be made payable to W.E.A.

Enrolment:

Closing date for enrolment is December 21. The attached enrolment slip should be completed and returned with the fee to the W.E.A., Box 170, P.O., NEWCASTLE WEST, 2302.

Transport:

Arrangements for travelling to "Tocal" are the responsibility of the individual. The nearest railway station is at Paterson and arrangements will be made to meet students at the station on the morning the school commences. There is ample parking space available in the College grounds.

General:

A comprehensive information sheet will be forwarded to each student on enrolment. Further details may be obtained from the Newcastle offices of the W.E.A. (phone 2-1666) or the University of Sydney (phone 2-4920).

Aborigines have lived in Australia for at least 20,000 years but until recently little has been known about them during this long prehistory. Now archaeological investigations in various parts of Australia, including several sites in the Hunter Valley, are revealing the pattern of aboriginal settlement. However, though the findings of the archaeologists are of the greatest significance, they are not readily available to the general public as they are not yet in print. To overcome this difficulty this school has been planned to bring interested people into touch with practising archaeologists who will lecture on South East Asian and Australian Prehistory. With this theoretical background behind them students will embark on field work which will occupy three of the six days spent at Tocal.

This practical experience and the instruction which will be given in the techniques of excavation should enable students to participate in further archaeological work and those who attend the school will be invited to assist Mr. David Moore in his continuing research programme in the Hunter Valley.

Lecturers at the school will include:

D. R. Moore, M.A., Dip. Anthropol.
Curator of Anthropology, The Australian Museum.

J. P. White, M.A., Ph.D.
Assistant Curator of Anthropology, The Australian Museum.

W. J. Webster, A.R.P.S.
Department of Photography, University of New England.

Miss Kathleen Pope, Dip. Anthropol.
Assistant, Department of Anthropology, The Australian Museum.

Mr. Harry Allen, Senior Research Student
Department of Anthropology, University of Sydney.

The school will be directed by J. W. Truner, M.A., Dip.Ed., Senior Staff Tutor, Department of Adult Education, University of Sydney.

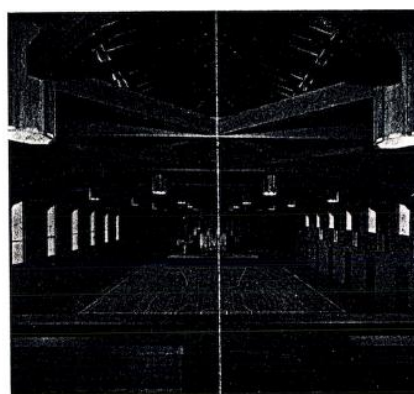
"THE ABORIGINAL PAST"

Prehistory and Field Archaeology

Residential and Non-Residential
Summer School

at

"Tocal" Agricultural College, Paterson, N.S.W.



Hunt Hall, "Tocal" College

January, 13-19, 1969

UNIVERSITY OF SYDNEY AND W.E.A.

Programme

Monday, 13th January, 1969

- 1.30 p.m. Introduction to Australian Prehistory
Mr. David Moore
- 3.00 p.m. The Background to Australian Prehistory
— South East Asian Prehistory.
Dr. Peter White
- 7.30 p.m. The Background to Australian Prehistory
— Melanesian Prehistory.
Dr. Peter White

Tuesday, 14th January, 1969

- 9.30 a.m. The Situation in Australia
Mr. David Moore
- 11.00 a.m. Evidence from Northern Australia
Dr. Peter White
- 1.30 p.m. Evidence from Tasmania and Victoria
Mr. Harry Allen
- 3.00 p.m. Evidence from the Hunter Valley
Mr. David Moore

Wednesday, 15th January, 1969

will be spent in the field inspecting Aboriginal camp sites and rock art at Singleton, Milbrodale, Sandy Hollow and in the Widdien Valley. Mr. Moore, Mr. Allen and Miss Kathleen Pope will be group leaders.

Thursday, 16th January, 1969

- 9.30 a.m. Excavation and Stratification
Mr. David Moore
- 11.00 a.m. Surveying and Drawing
Mr. Harry Allen
- 1.30 p.m. The Role of the Photographer
Mr. Bill Webster
- 3.00 p.m. The Typing of Stone Implements
Mr. David Moore

Friday, 17th January, 1969

will also be spent in the field inspecting excavations at Irrawong and methodically surveying the King's Hill area in search of ritual and living sites. Group leaders, Mr. Moore, Mr. Allen and Miss Pope.

Saturday, 18th January, 1969

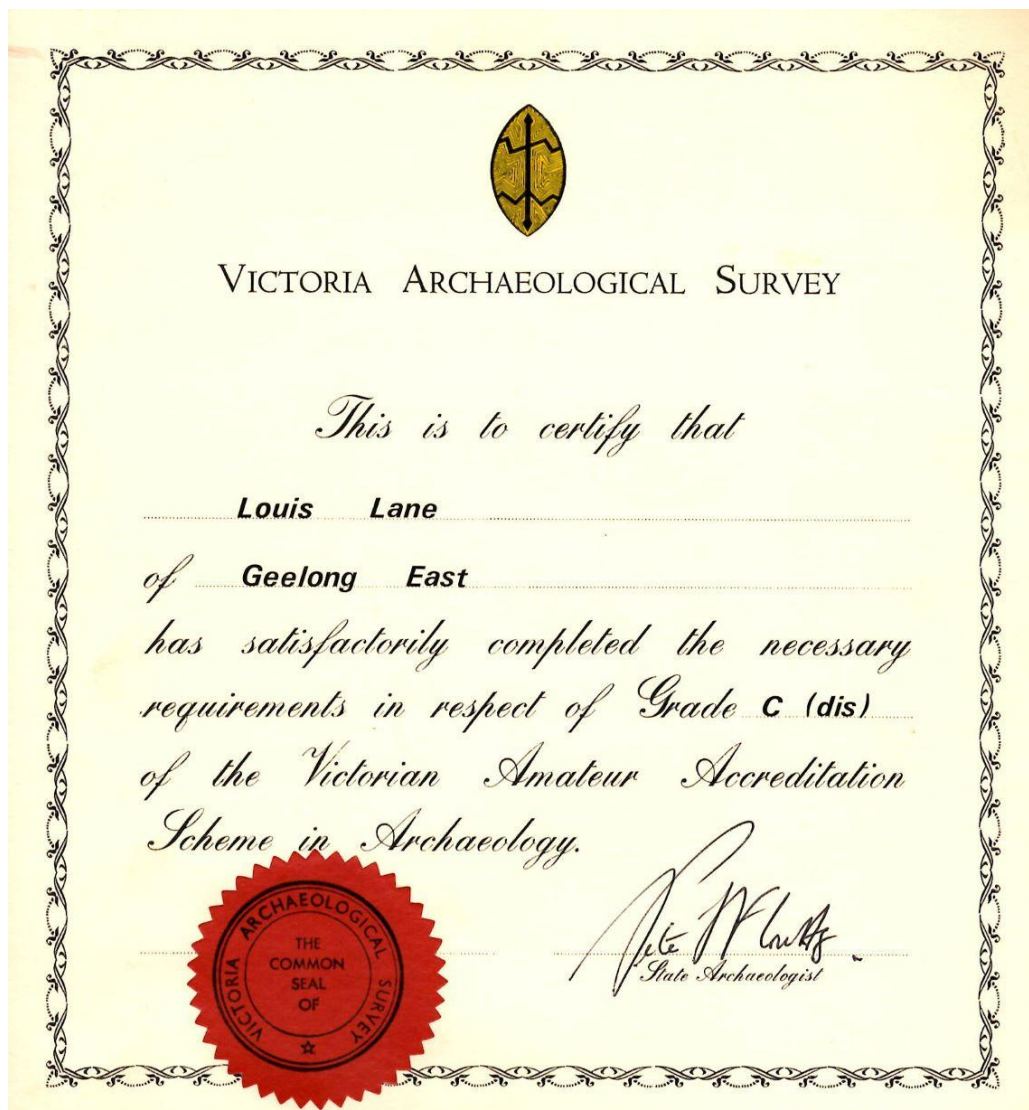
will be used to give students actual excavation experience on a site at Milbrodale. Mr. Moore, Mr. Allen and Miss Pope will provide supervision.

Source: Lane⁴⁰⁸

10.11 Appendix: Certificates and Authorisations

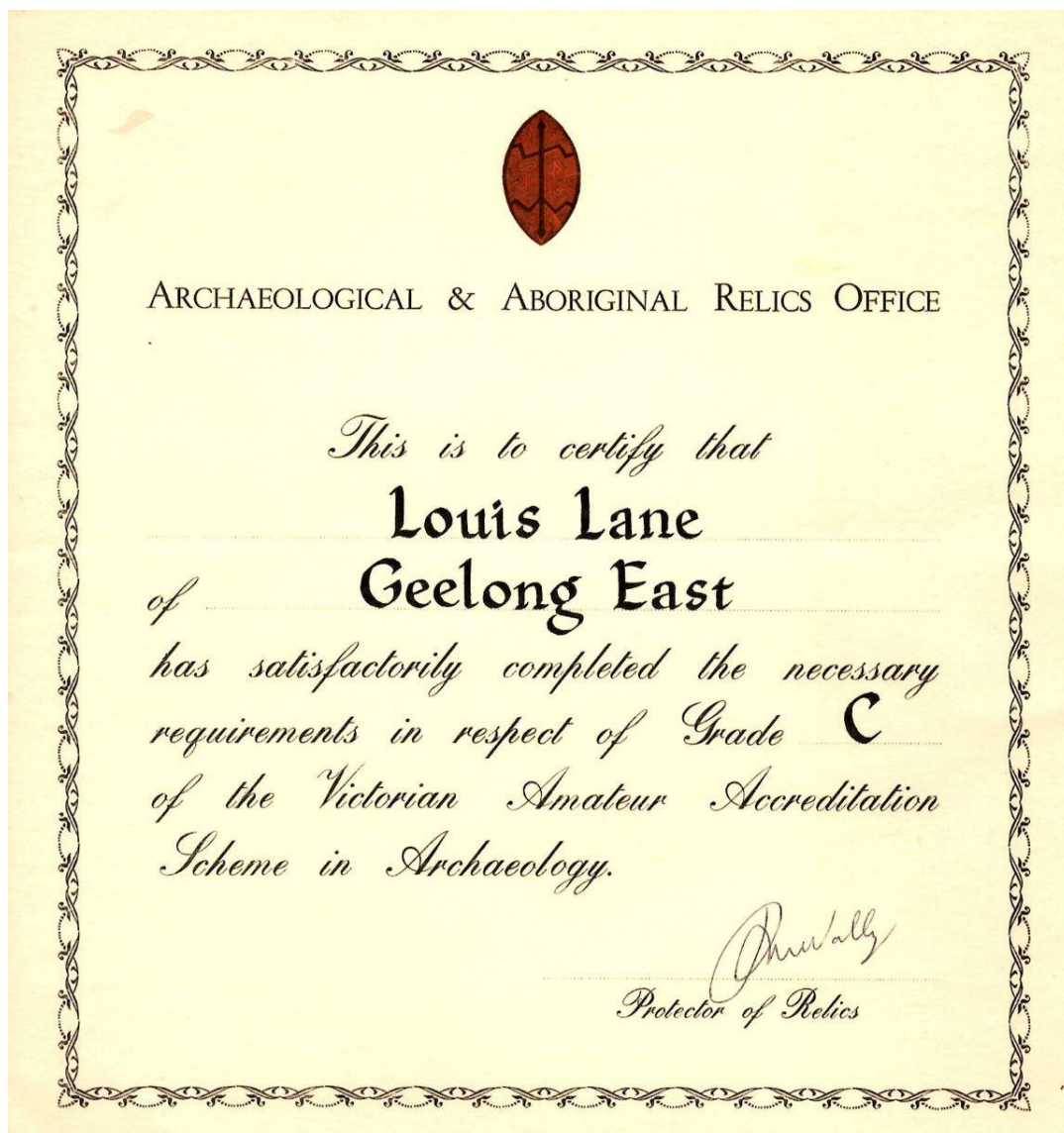
Lane's Certificates and Authorisation from the Victoria Archaeological Survey (formerly known as Archaeological Aboriginal Relics Office)

Image 10-3 V.A.S. Certificate



Source: Lane's personal files

Image 10-4 A.A.R.O. certificate



Source: Lane's personal files



*Archaeological
& Aboriginal Relics Office*

213 Lonsdale St. Melbourne 3000

Ph: 663 1662

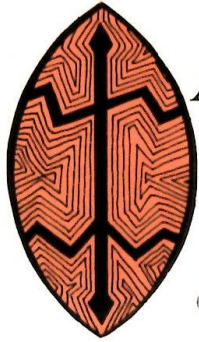
TO WHOM IT MAY CONCERN

This is to certify that Mrs. N.L. Lane of
Barkly Street, East Geelong, a member of the
Geelong Archaeological Society may undertake
on behalf of the Office site recording work
and I hereby recommend her to you. Your help
and co-operation will be gratefully appreciated.

Yours faithfully,

DR. PETER J.F. COUTTS
Archaeologist.

Source: Lane's personal files



*Archaeological
& Aboriginal Relics Office*

213 Lonsdale St. Melbourne 3000

Ph: 663 1662

Our Ref: PJFC/BL.

10th February, 1975.

Mrs. N.L. Lane,
Barkly Street,
EAST GEELONG. 3220

Dear Mrs.Lane,

re: Authorisation to proceed with
field work on our behalf

I enclose authorisation as promised .

Regards,

Pete

DR. PETER J.F. COUTTS
Archaeologist.

Enc.

Source: Lane's personal files

10.12 Appendix: V.A.S. Inspection Report

Image 10-7 V.A.S. Inspection Report Kardinia Living Station (Yollinko Park)



Victoria Archaeological Survey

SITE MANAGEMENT UNIT

INSPECTION REPORT

VAS FILE NO:

RELATED FILES: Project 82-35

SUBJECT: ABORIGINAL SITES NEAR PRINCES BRIDGE, GEELONG

1. Date of inspection: 27 October, 1982

2. Personnel: Mrs L. Lane, Barkley Street, Geelong East
Laurie Miller, Chief Engineer, South Barwon City Council,
Stewart Simmons, Victoria Archaeological Survey

3. Location of project area:

South bank of Barwon River, immediately downstream of former course of Kardinia Creek. On land zoned for use as a recreation reserve and extending into residential allotments, Nos. 35 and 36.

Geelong 1:100,000 map 7721 reference 658 719 Melways map 227 reference F8

4. Reasons for inspection:

At request of Mrs L. Lane, to confirm presence of Aboriginal relics on the land, establish their type and state of preservation. To discuss management of the sites with Mr L. Miller in respect of

- i. preventing further disturbance or erosion in the immediate future;
- ii. conservation of the area in the event of development.

5. Description of project area:

a) Natural environment

The area concerned is on a terrace or floodplain of Kardinia Creek and artefacts were found only in grey sandy soil on this landform. To the south, within the residential allotments, the land rises steeply to a crest overlooking the river valley. Isolated mature gums survive along the river bank, but in general the area has been cleared and developed for many years.

b) Land use and surface conditions

Kardinia Creek now flows in an underground culvert and its former channel has been filled to form a carpark and reserve.

The residential land, owned by the Harrison family, was subdivided in the 1960s but has not been developed.

A sewerage easement follows the boundary of the recreation reserve and crosses an extension of residential block 35. This easement may be taken as the south-western limit of the area likely to contain archaeological deposits.

Trackways, along the bank of the Barwon River and across the reserve have disturbed areas of the site and numerous artefacts were found in cuttings and eroded ground along these tracks.

c) Previous archaeological work

No systematic survey work has been carried out in the area. Numerous scarred trees and stone artefact sites are recorded along the Barwon & Moorabool Rivers upstream Geelong. This site is the first example of an artefact scatter to be found within the urban area.

6. Results of inspection

A concentrated scatter of chipped stone implements and manufacturing debris is present on the remaining sections of floodplain at the junction of Kardinia Creek valley and the Barwon River. Hearth stones are also present, and the site probably represents the remains of numerous camps.

The artefacts include microliths and blade tools which indicate that the site belongs to the later prehistoric period, 1,500 to 6,000 years before present. No structural remains or stratified occupation deposits are present, although the site may contain in-situ features such as hearths.

7. Assessment and recommendations

Few archaeological sites are likely to have survived urban development within Geelong, and this example therefore warrants protection from further damage and conservation during development of the reserve and adjoining residential land.

1. The track across the site should be closed to allow revegetation to take place.
2. No further widening of the track along the Barwon River bank should be permitted and existing cuttings should be consolidated.
3. All land east of the sewerage easement should be incorporated in the recreation reserve and developed without disturbance to the archaeological deposits.
4. As part of the development of the reserve, an information sign should be erected noting the past occupation of the area by Aboriginal people.
5. A display of artefacts from the site, as collected by Mrs L. Lane has been suggested for the City of South Barwon Civic Centre. Such a display could have considerable educational value, and should be installed in consultation with the Department of Anthropology, National Museum of Victoria.

Signature Redacted by Library

Signed.....

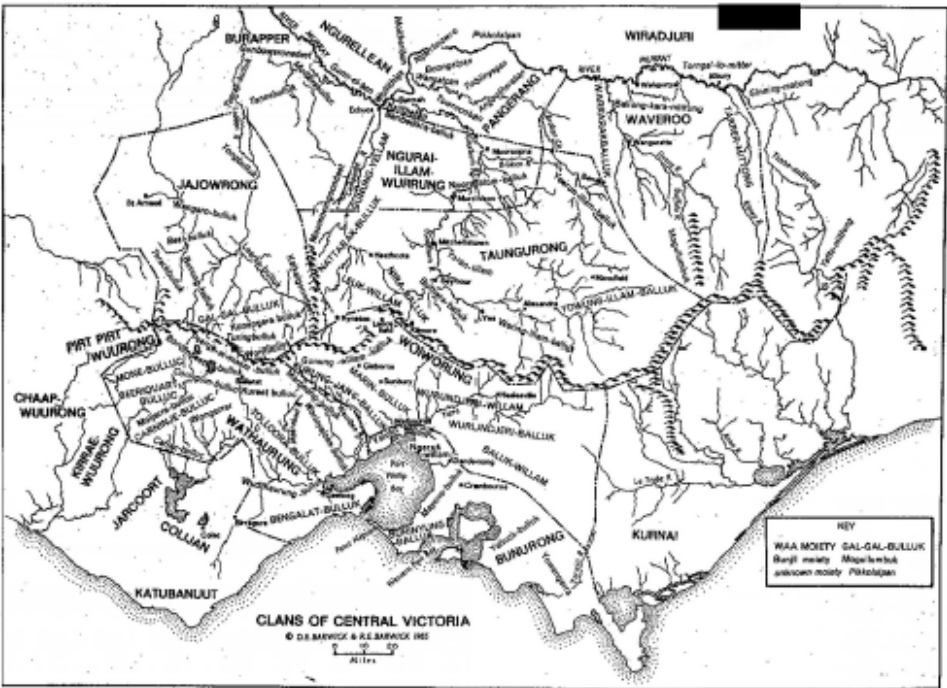
Date.....

12th March 1983

Source: Lane⁴⁰⁹

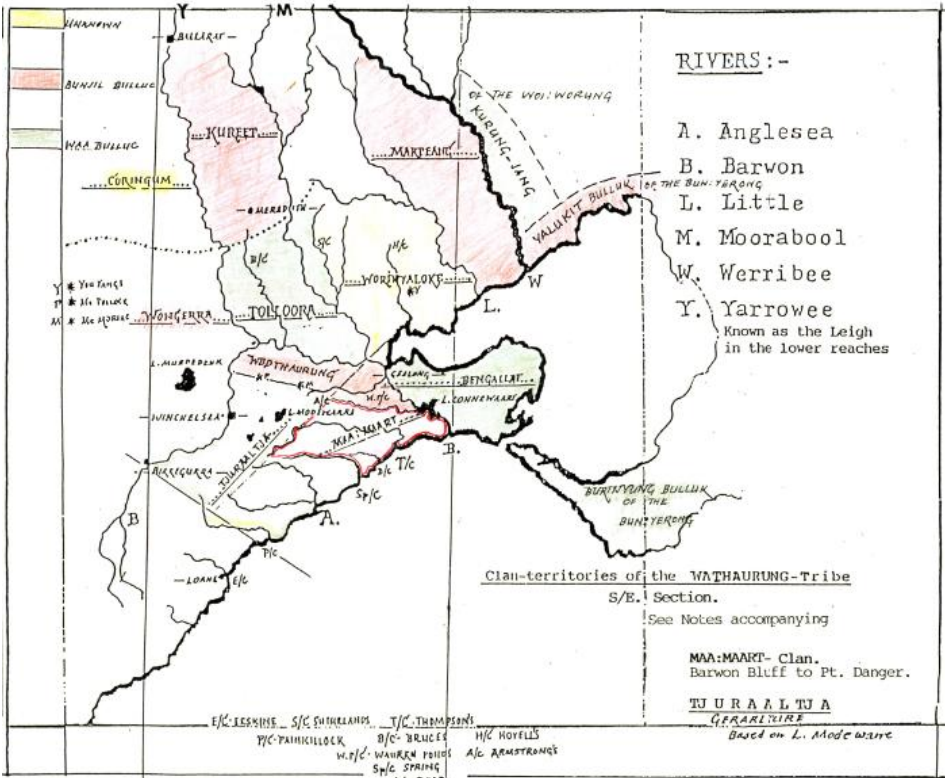
10.13 Appendix: Wadawurrung clans – Barwick & Lane maps

Image 10-8 Wadawurrung clans – Barwick map



Source: Barwick⁴¹⁰

Image 10-9 Wadawurrung clans: Lane map



Source: Source: Lane⁴¹¹

10.14 Appendix: Lane's oral acknowledgements

Key to Lane's acronyms:

D.P. Descendant Pioneers

I.A.R Interested in Aboriginal Relics

I.L.H Interested in Local History

Table 10-5 Lane's Oral Acknowledgements

Mr.	T.	Abrahams, Cultural Officer, Wathaurong Co-operative.
Ms.	A.	Abrahamsen Short Prose for inclusion in the Geelong Writers Book, 2002
Ms.	L.	Adams, Liaison Officer
Mr.	P.	Alsop, C/o Roads Board, Geelong Civil Engineer/Historian maps
Mr.	P.	Alsop, C/o Roads Board, Geelong. Civil Engineer/Historian maps. President of Geelong Historical Society
Ms.	H.	Anderson, Highton
Mr.	E.	Appleton
Ms.	P.	Austin local Indigenous customs
Ms.	J.	Bantow, Barwon Grange, Fernleigh St., Newtown
Ms.	R.	Barclay
Ms.	G.	Barton 2000
Mr.	A.	Batson, Lake Modewarre Farmer (D.P.)
Mrs.	J.	Baum of Waurm Ponds.
Mrs.	J.	Baum, Waurm Ponds (D.P.) I.L.H
Ms.	L.	Beardsley Red Cross Aboriginal Reconciliation Group
Mr&Mrs J&E		Beasley Wensleydale
Mr.	G.	Belcher, Batesford. Conservationist I.A.R.
Prof.	D.	Bell Deakin University
Mr.	J.	Bell, C/o Geelong Water Board Surveyor I.A.R
Ms.	D.	Bessie Staff at the Archives of the Geelong Cemeteries Trust after consultations with staff at West and East Geelong, 1993.
Ms.	C.	Bird
Mr.	I.	Bjork, Drysdale Farmer I.A.R
Mr.	G.	Black
Ms.	A.	Black
Ms.	G.	Black
Ms.	S.	Brady, Highton Artist
Mrs.	E.	Brady, Highton Nurse & Very Special Friend. I.A.R.
Mr.	R.	Brady, Highton Scientist. I.A.R
Mr.	L.	Broom
Mrs.	H.	Brotherton Uniting Aboriginal & Islander Christian Congress, Community Worker
Mr.	T.	Brown Head-master South Barwon Secondary College
Mr.	W.	Burns, Cororook Farmer
Mr.	P.	Byrne, Barwon Water, Lonsdale St., South Geelong
Mr.	D.	Caldere, Project Officer, Aboriginal Lands Group, of the Department of Conservation & Environment, Melbourne.
Mrs.	B.	Calvert Weering Cottage, Inverleigh - re. identifying artefacts found at Rheola & submitted to Deakin Archives
Mr.	R.	Casey, C/o Geelong Water Board Reserves-overseer (now Deceased)
Mr.	D.	Casey, Mt. Macedon Researcher - Stone Arrangements (Now deceased)
Mr.	V.	Cebergs artist, clapping sticks Belmont Primary amongst others.
Mr.	R.	Chirnside, Balliang Farmer I.A.R (Now deceased) Collection. Stone Arrangement. (D.P.)
Mrs.	M.	Clark. Customs of the Indigenes at Stieglitz
Mr.	R.	Clarke Balliang Farmers Federation
Mrs.	A.	Clarke Breamlee community

Mr.	H.	Clarke, Aireys Inlet Farmer I.A.R Collection
Mr.		Condon Shire of Bellarine - re. Drysdale Cemetery
Mrs.	V.	Connolly Leader of South Barwon Reconciliation Group
Mr's	T&D	Connor (& Parents) Descendants early Drysdale Settlers I.A.R
Ms.	J.	Cook Inverleigh (Student Narana)
Mr.	A.	Cooke re. The Local Aborigines, in the 1970s.
Mr.	A.	Cooke, Bell Post Hill Civil Engineer I.A.R (Now deceased) Principle Engineer of Geelong Waterboard
Mr.	A.	Coulson , Highton Geologist I.A.R (Now deceased) & Teacher, geology of You Yangs and Neerim:Bolak
Mr.	P.	Coutts, C/o Victoria Arch. Survey....Archaeologist
Dr.	P.	Coutts, State Archaeologist Long, fruitful association - infinite help rendered to Lane during the 1970s.
Mrs.	J.	Critchett Deakin Warrnambool
Mr.	F.	Cross, Leopold. Farmer I.A.R. Collection
Ms.	C.	Davenport Jan Juc
Mr.	D.	Davies
Mr.	D.	Davies, Highton Historian, Geelong Historical Society - Photos.
Mr.	J.	Day Balliang/Anakie Tree-planting Group
Mrs.	V.	Dedman Jerringot Wildlife Sanctuary Committee
Mr.	R.	Director of S.W. Victorian Schools
Mr.	P.	Dowie Morongo
Mr.	A.	Dunstan (Uncle Bert) Tommy-hawk Creek,
Mr.	A.	Dunstan, Colac Farmer I.A.R (Now deceased)
Mr&Mrs	T&M	Edwards Wathaurong Co-op
Ms.	U.	Emin Geelong Historical Society
Mrs.	M.	Filbray Bellarine Historical Society
Mrs.	A.	Galway Queenscliff {Historical Society}
Mrs.	V.	Garton Armadale University
Mr. & Mrs.	R.	George 'Hortonvale', Ceres
Mr.	R.	Giddins Geelong City Council - re. Aboriginal Sites in the Eastern Gardens
Mr.	E.	Gill, Canterbury. Palaeontologist (Now deceased) I.A.R. former Curator of Aboriginal Relics at State Museum, Melbourne. Long & fruitful association
Mr.	J.	Gillies, Basin Rd. , Drysdale Farmer
Mr.		Graham Barwon Water
Ms.	C.	Green Serendip Sanctuary Wetlands & Education Centre
Mr.	N.	Grigg, Newington Farmer
Mrs.		Gugger Lal 'Berramongo'
Mr.	G.	Guinane, Murghebolac. Farmer I.A.R (Now deceased)
Mr.	A.	Ham, Mt. Duneed Farmer
Ms.	J.	Hamilton Aboriginal Catholic Ministry, Thornbury
Mr.	N.	Hewett Geelong Records Office
Ms.	R.	Hill Drysdale
Ms.	S.	Hodgson, Aboriginal artist
Mr&Mrs	F&K	Holmes, on Site, at Mount Cooperabung, near Kempsey, 1969 and at Wellington, 1994.
Mr.	W.	Honey, Batesford & Ceres Farmer I.A.R
Mr.	I.	Hopper, c/o South Barwon Council Mayor., I.A.R. I.L.H. President of the Kardinia Pre-history Society
Mr.	C.	Hose Geelong Field Naturalists
Mr.	N.	Houghton Geelong Records Office
Mr.	E.	Horne Historian, St. Leonards
Ms.	D.	Hughes Geelong Records Office
Mr.	I.	Hunt Dorman St., Lorne - artefact collector
Ms.	P.	Jennings Staff at the Archives of the Geelong Cemeteries Trust after consultations with staff at West and East Geelong, 1993.
Mr.	S.	Johnson Ballarat & District Aboriginal Co-op

Mr.	G.	Jones President of the Friends of the Botanical Gardens
Mr.	R.	Kerger, Freshwater Creek Farmer I.A.R
Mr.	D.	King, Clifton Springs. Estate Agent I.A.R Collection
Mrs.	M.	Kinsey Indigenous
Mr.	I.	Knight, Gheringhap. Farmer
Mr.	D.	Knight, Maude Farmer
Mr.	K.	Krastins Heritage Officer of the Council of Greater Geelong
Ms.	A.	Laidlaw Narana
Mr.	R.	Leigh, Highton & Ceres. (D.P.) Historian I.A.R
Ms.	C.	Linford Marine Discovery Centre, Queenscliff
Mr.	N.	Longman Gellibrand axe
Mr.	T.	Lynch, Maude Farmer I.A.R
Mrs.	N.	Matthews, Lake Connewarre. Farmer, I.A.R
Mr.	L.	Mc. Namara, Friends of Belmont Common
Mr.	S.	McAdam, Highton. Historian I.L.H.
Mrs.	B.	McCann (formerly) of Mt. Duneed.
Mr.	E.	McCann, Fyansford. (Now deceased). Descendant of pioneer. Quarrymen
Mr.	B.	McCann, Mt. Duneed. Historian I.L.H
Mr.	G.	McCarthy
Mr.	J.	McCarthy, Belmont. Teacher I.A.R. Collection at Narana
Ms.	C.	McCormack Geelong Field Naturalists
Mr.	H.	McCracken, Leopold. Telecom Linesman I.A.R Collection Member of the Geelong Archaeology Club, as well as the Kardinia Prehistory Society
Mrs.	V.	McDonald (nee Harrison) Highton. (Now deceased)..D.P I.A.R. Historian I.L.H. Eyewitness
Mr.	E.	McKenzie, Portarlinton Interested in Aboriginal living stations
Mrs.	E.	McLeod, West Geelong Now deceased) Historian I.L.H.
		Members of the Catholic Women's Reconciliation Group
Mr.	B.	Morrow, Geelong Records Office
Prof.	D.	Mulvaney 1975
Mr.	D.	O'Connor, C/o Lands Dept., Geelong...maps
Ms.	K.	O'Halloran, according to Nancy Mathews, circa, 1972.
Ms&Mr	K.	O'Halloran, Moolap. (Now deceased). (D.P)
Ms.	B.	O'Leary Narana
Mr.	M.	Parker, Cement Works Quarry, Batesford. I.A.R
Mr.	T.	Pescott, Belmont. Civil Engineer I.A.R Naturalist
Miss.	M.	Phelan, Bell Post Hill Nursing Sister I.A.R Collection
Mr.	P.	Pohl. (Reedy Lake Farmer (Now deceased) Collection
Mr.	G.	Presland formerly of the Victoria Archaeological Survey
Mr.	G.	Pyle, Ceres Farmer
Ms.	L.	Ramsay Native plants specialist
Mrs.	V.	Rau
Mr.	J.	Rhoads, 1985/86
Mr.		Rogers Curator of Botanical Gardens
Mr.	I.	Rogers, 1993
Mr&Mrs	G&F	Romanis Aboriginal artists
Mr.	V.	Ross Narana
Cr.	F.	Rossack, formerly Mayor of South Barwon Council. Historian, re. Stewart's Reserve, 1983. I.L.H. Also I.A.R
Dr	D.	Rowe architect
Ms.	F.	Russell Deakin University
Ms.		Salmon Friends of the Botanical Gardens
Mr.	N.	Savory Geelong Council Heritage Officer
Ms.	G.	Searle South Barwon Council
Ms.	P.	Sezen Leader of Catholic Ladies Reconciliation Group
Mr.	S.	Simmons, Victoria Archaeological Survey 1984
Ms.	S.	Smith Museum of Victoria
Mr.	D.	Southcombe Geelong Field Naturalists

Rev.	R.	Spackman-Williams Narana & Mima Jalkyu Centre
Mr.	C.	Spiller, Maude Farmer
		Staff at the South Barwon Municipal Office for providing the parish maps
Mrs.	H.	Stevens, Geelong East. (Now deceased)
Mr.	D.	Stewart of Derrinallum, formerly Dooliebeal, Mt. Duneed.
Mr&Mrs L&M		Stewart Yan:Yan:Gurt
Mr.	D.	Sutherland Geelong Waterworks
Mr.	H.	Thomas, Drysdale Farmer
Ms.	T.	Toyne Queenscliff Borough Council
Mrs.	D.	Trainor of Dooliebeal, Mt. Duneed.
Mrs.	G.	Trainor, Mt. Duneed Farmer
Mr.	M.	Trengove, 1993 Native plants specialist
Mr.		van Doran, Colac Lands Office
Mrs.	V.	Vilmer Registrar Geelong Art Gallery
Mr.	J.	Walker, You Yangs Park Ranger. I.A.R
Dr.	J.	Willis - 1990
Mr.	T.	Wilson, C/o Newtown Council, Civil Engineer
Mr.	R.	Wilton, Ocean Grove (D.P) I.A.R.
Mr.	M.	Winchelsea Shire Office
Mr.	I.	Wynd, C/o Deakin University, Historian I.A.R.

10.15 Appendix: Plant species from Lane's typescripts

Table 10-6 Plant Species from Lane's typescripts

Count Use (rows) of each species	Botanical Name
63	<i>Not Specified</i>
36	<i>Acacia</i> spp.
30	<i>Eucalyptus camaldulensis</i>
19	<i>Acacia melanoxylon</i>
17	<i>Eucalyptus tricarpa</i>
16	<i>Eucalyptus macrorhyncha</i>
15	<i>Acacia pycnantha</i>
15	<i>Melaleuca</i> spp.
14	<i>Eucalyptus</i> spp.
13	<i>Eucalyptus viminalis</i>
12	<i>Xanthorrhoea australis</i>
11	<i>Phragmites australis</i>
10	<i>Acacia mearnsii</i>
10	<i>Melaleuca ericifolia</i>
10	<i>Melaleuca squarrosa</i>
10	<i>Pimelea axiflora</i>
10	<i>Pteridium esculentum</i>
10	<i>Typha domingensis</i>
10	<i>Xanthorrhoea minor</i>
9	<i>Allocasuarina verticillata</i>
9	<i>Carpobrotus</i> spp.
9	<i>Lomandra longifolia</i>
9	<i>Melaleuca lanceolata</i>
9	<i>Mentha australis</i>
9	<i>Sonchus oleraceus</i>
8	<i>Eucalyptus obliqua</i>
7	<i>Acacia myrtifolia</i>
7	<i>Allocasuarina littoralis</i>
7	<i>Cyathea australis</i>
7	<i>Melaleuca decussata</i>
7	<i>Poa poiformis</i>
6	<i>Acacia dealbata</i>
6	<i>Acacia implexa</i>
6	<i>Allocasuarina</i> spp.
6	<i>Carpobrotus modestus</i>
6	<i>Dianella</i> spp.
6	<i>Eucalyptus ovata</i>
6	<i>Leptospermum laevigatum</i>

6	<i>Malva preissiana</i>
6	<i>Prostanthera lasianthos</i>
6	<i>Rumex brownii</i>
5	<i>Acacia decurrens</i>
5	<i>Amyema preissii</i>
5	<i>Banksia marginata</i>
5	<i>Clematis microphylla</i>
5	<i>Dianella revoluta</i>
5	<i>Duma florulenta</i>
5	<i>Eucalyptus leucoxylon</i>
5	<i>Juncus pallidus</i>
5	<i>Sonchus asper</i>
4	<i>Disphyma crassifolium</i> subsp. <i>clavellatum</i>
4	<i>Eleocharis acuta</i>
4	<i>Enchylaena tomentosa</i>
4	<i>Exocarpos cupressiformis</i>
4	<i>Goodia lotifolia</i>
4	<i>Kennedia prostrata</i>
4	<i>Leptospermum juniperinum</i>
4	<i>Malva parviflora</i>
4	<i>Montia australasica</i>
4	<i>Muehlenbeckia adpressa</i>
4	<i>Oxalis corniculata</i>
4	<i>Persicaria lapathifolia</i>
4	<i>Poa ensiformis</i>
4	<i>Rhagodia candolleana</i>
4	<i>Rubus parvifolius</i>
4	<i>Schoenoplectus pungens</i>
4	<i>Tetragonia implexicoma</i>
4	<i>Themeda triandra</i>
4	<i>Xanthorrhoea</i> spp.
3	<i>Acacia longifolia</i>
3	<i>Acacia longifolia</i> subsp. <i>sophorae</i>
3	<i>Acacia paradoxa</i>
3	<i>Acacia retinodes</i>
3	<i>Acrotriche serrulata</i>
3	<i>Asperula conferta</i>
3	<i>Atriplex australasica</i>
3	<i>Atriplex paludosa</i>
3	<i>Carpobrotus rossii</i>
3	<i>Cassytha melantha</i>
3	<i>Cassytha pubescens</i>
3	<i>Centipeda minima</i>
3	<i>Chenopodium glaucum</i>
3	<i>Coprosma quadrifida</i>

3	<i>Dianella longifolia</i>
3	<i>Diuris pardina</i>
3	<i>Diuris</i> spp.
3	<i>Eucalyptus globulus</i> subsp. <i>Bicostata</i>
3	<i>Gahnia filum</i>
3	<i>Geranium solanderi</i>
3	<i>Lepidosperma laterale</i>
3	<i>Phellinus</i> spp.
3	<i>Poa billardierei</i>
3	<i>Poa sieberiana</i>
3	<i>Prostanthera nivea</i>
3	<i>Schoenoplectus tabernaemontani</i>
3	<i>Ulva lactuca</i>
3	<i>Wurmbea dioica</i>
2	<i>Acacia mitchellii</i>
2	<i>Acaena novae-zelandiae</i>
2	<i>Agaricus campestris</i>
2	<i>Amyema pendula</i>
2	<i>Apium annuum</i>
2	<i>Astroloma humifusum</i>
2	<i>Atriplex cinerea</i>
2	<i>Austrostipa flavescens</i>
2	<i>Austrostipa stipoides</i>
2	<i>Bedfordia arborescens</i>
2	<i>Bolboschoenus caldwellii</i>
2	<i>Bolboschoenus medianus</i>
2	<i>Bulbine bulbosa</i>
2	<i>Carpobrotus edulis</i>
2	<i>Centipeda cunninghamii</i>
2	<i>Chrysocephalum semipapposum</i>
2	<i>Convolvulus erubescens</i>
2	<i>Cyathea leichhardtiana</i>
2	<i>Cycnogeton procerum</i>
2	<i>Dicksonia antarctica</i>
2	<i>Distichlis distichophylla</i>
2	<i>Dysphania pumilio</i>
2	<i>Gastrodia sesamoides</i>
2	<i>Grevillea rosmarinifolia</i>
2	<i>Hemarthria uncinata</i>
2	<i>Isolepis marginata</i>
2	<i>Laccocephalum mylittae</i>
2	<i>Lachnagrostis billardierei</i>
2	<i>Lachnagrostis filiformis</i>
2	<i>Leptospermum continentale</i>
2	<i>Microseris lanceolata</i>

2	<i>Myoporum platycarpum</i>
2	<i>Notelaea ligustrina</i>
2	<i>Pittosporum bicolor</i>
2	<i>Poa labillardierei</i>
2	<i>Porphyra</i> spp.
2	<i>Rytidosperma setaceum</i>
2	<i>Samolus repens</i>
2	<i>Sarcocornia blackiana</i>
2	<i>Sarcocornia quinqueflora</i>
2	<i>Solanum</i> spp.
2	<i>Sonchus</i> spp.
2	<i>Tecticornia arbuscula</i>
2	<i>Tecticornia halocnemoides</i>
2	<i>Tecticornia pergranulata</i>
2	<i>Triglochin striata</i>
1	<i>Acacia stricta</i>
1	<i>Acacia verticillata</i>
1	<i>Agaricus arvensis</i>
1	<i>Alyxia buxifolia</i>
1	<i>Amphibromus recurvatus</i>
1	<i>Amyema quandang</i>
1	<i>Arthropodium fimbriatum</i>
1	<i>Arthropodium milleflorum</i>
1	<i>Asterotrichion discolor</i>
1	<i>Atriplex semibaccata</i>
1	<i>Atriplex</i> spp.
1	<i>Beyeria lechenaultii</i>
1	<i>Billardiera cymosa</i>
1	<i>Burchardia umbellata</i>
1	<i>Bursaria spinosa</i>
1	<i>Calandrinia calyptrata</i>
1	<i>Callistris</i> spp.
1	<i>Calochlaena dubia</i>
1	<i>Calvatia cyathiformis</i>
1	<i>Calystegia sepium</i>
1	<i>Carex tereticaulis</i>
1	<i>Caulerpa</i> spp.
1	<i>Clematis</i> spp.
1	<i>Dianella longifolia</i> var. <i>longifolia</i>
1	<i>Diuris orientis</i>
1	<i>Drosera glanduligera</i>
1	<i>Duboisia hopwoodii</i>
1	<i>Durvillaea potatorum</i>
1	<i>Ecklonia radiata</i>
1	<i>Eremophila sturtii</i>

1	<i>Eucalyptus baxteri</i>
1	<i>Eucalyptus cypellocarpa</i>
1	<i>Eucalyptus globulus</i> subsp. <i>Pseudoglobulus</i>
1	<i>Eucalyptus microcarpa</i>
1	<i>Eucalyptus radiata</i>
1	<i>Eucalyptus regnans</i>
1	<i>Frankenia pauciflora</i>
1	<i>Gahnia grandis</i>
1	<i>Gahnia radula</i>
1	<i>Gratiola peruviana</i>
1	<i>Hedycarya angustifolia</i>
1	<i>Imperata cylindrica</i>
1	<i>Isolepis cernua</i>
1	<i>Juncus filicaulis</i>
1	<i>Juncus kraussii</i>
1	<i>Juncus revolutus</i>
1	<i>Juncus subsecundus</i>
1	<i>Kunzea ericoides</i>
1	<i>Lepidosperma gladiatum</i>
1	<i>Leptospermum scoparium</i>
1	<i>Leucopogon parviflorus</i>
1	<i>Loranthaceae</i> spp.
1	<i>Lycoperdon</i> spp.
1	<i>Lythrum hyssopifolia</i>
1	<i>Macrocystis pyrifera</i>
1	<i>Marsilea drummondii</i>
1	<i>Marsilea mutica</i>
1	<i>Microseris scapigera</i>
1	<i>Microtis unifolia</i>
1	<i>Myoporum insulare</i>
1	<i>Myoporum viscosum</i>
1	<i>Myriophyllum muelleri</i>
1	<i>Myriophyllum salsugineum</i>
1	<i>Myriophyllum verrucosum</i>
1	<i>Ozothamnus turbinatus</i>
1	<i>Panicum effusum</i>
1	<i>Pauridia glabella</i>
1	<i>Pelargonium rodneyanum</i>
1	<i>Pimelea humilis</i>
1	<i>Plantago australis</i>
1	<i>Pomaderris aspera</i>
1	<i>Pterostylis nutans</i>
1	<i>Puccinellia stricta</i>
1	<i>Ranunculus amphitrichus</i>
1	<i>Ranunculus</i> spp.

1	<i>Ranunculus trichophyllus</i>
1	<i>Rhagodia baccata</i>
1	<i>Romulea rosea</i> var. <i>Australis</i>
1	<i>Rubus rosifolius</i>
1	<i>Solanum aviculare</i>
1	<i>Solanum laciniatum</i>
1	<i>Solanum simile</i>
1	<i>Solanum vescum</i>
1	<i>Spinifex sericeus</i>
1	<i>Thysanotus patersonii</i>
1	<i>Triodia scariosa</i>
1	<i>Wahlenbergia luteola</i>

10.16 Appendix: The 75 plant species common to Lane and Gott

Table 10-7 The 75 Plant species common to Lane and Gott

<i>Acacia dealbata</i>
<i>Acacia implexa</i>
<i>Acacia longifolia</i> subsp. <i>sophorae</i>
<i>Acacia mearnsii</i>
<i>Acacia melanoxylon</i>
<i>Acacia pycnantha</i>
<i>Acacia retinodes</i>
<i>Acacia</i> spp.
<i>Acacia verticillata</i>
<i>Allocasuarina</i> spp.
<i>Arthropodium milleflorum</i>
<i>Astroloma humifusum</i>
<i>Atriplex</i> spp.
<i>Beyeria lechenaultii</i>
<i>Bolboschoenus caldwellii</i>
<i>Bolboschoenus medianus</i>
<i>Bulbine bulbosa</i>
<i>Burchardia umbellata</i>
<i>Bursaria spinosa</i>
<i>Callistris</i> spp.
<i>Calystegia sepium</i>
<i>Carex tereticaulis</i>
<i>Carpobrotus modestus</i>
<i>Carpobrotus rossii</i>
<i>Centipeda cunninghamii</i>
<i>Centipeda minima</i>
<i>Clematis microphylla</i>
<i>Convolvulus erubescens</i>
<i>Coprosma quadrifidia</i>
<i>Cyathea australis</i>
<i>Cyathea leichhardtiana</i>
<i>Cynogeton procerum</i>
<i>Dianella</i> spp.
<i>Dicksonia antarctica</i>
<i>Disphyma crassifolium</i> subsp. <i>clavellatum</i>
<i>Diuris</i> spp.
<i>Durvillaea potatorum</i>
<i>Enchylaena tomentosa</i>
<i>Eucalyptus camaldulensis</i>
<i>Eucalyptus leucoxylon</i>

<i>Eucalyptus obliqua</i>
<i>Eucalyptus</i> spp.
<i>Eucalyptus tricarpa</i>
<i>Eucalyptus viminalis</i>
<i>Exocarpos cupressiformis</i>
<i>Gastrodia sesamoides</i>
<i>Hedycarya angustifolia</i>
<i>Imperata cylindrica</i>
<i>Kennedia prostrata</i>
<i>Kunzea ericoides</i>
<i>Lepidosperma gladiatum</i>
<i>Lepidosperma laterale</i>
<i>Leptospermum laevigatum</i>
<i>Leptospermum scoparium</i>
<i>Lomandra longifolia</i>
<i>Melaleuca</i> spp.
<i>Mentha australis</i>
<i>Microseris lanceolata</i>
<i>Myoporum platycarpum</i>
<i>Phragmites australis</i>
<i>Pimelea axiflora</i>
<i>Pittosporum bicolor</i>
<i>Pomaderris aspera</i>
<i>Prostanthera lasianthos</i>
<i>Pteridium esculentum</i>
<i>Schoenoplectus tabernaemontani</i>
<i>Solanum aviculare</i>
<i>Solanum laciniatum</i>
<i>Solanum simile</i>
<i>Solanum vescum</i>
<i>Sonchus oleraceus</i>
<i>Spinifex sericeus</i>
<i>Tecticornia halocnemoides</i>
<i>Tetragonia implexicoma</i>
<i>Themeda triandra</i>

10.17 Appendix: Future research topics

Through the journey of writing this thesis, many questions come to mind which would be of interest for future research topics, including the following.

1. Wadawurrung Country 'Living Station' places including archaeological sites - where are they? What exists in the landscape now? Can they be conserved or protected or teach us anything? Is there a consolidated map plotting their locations? What is the status and condition of them and appearance on landscape, (i.e. V.A.S. recorded, classified by relevant authority? Are they protected?)
2. Human Movement across Wadawurrung Country – could human movement be plotted on a map? Explore typologies and reasons for travel that has been conceptually discussed in this thesis including accessing natural resources for use or trade supplies, hunting and foraging sites, the seasonal food circuits, baier, access through other clans land to summer (seasonal) locations and communal food harvesting/sharing events; along with identifying the various clans Living Stations. These routes often followed water courses which may now be buried in culverts or have been sealed as the roads of today. What does this movement tell us about this region?
3. Plot Wadawurrung place names on a map (overlay existing maps). What do these place names tell us? (e.g. resource location)
4. Establish a Wadawurrung seasonal calendar. Although some calendar triggers for the food circuit have been identified e.g. Cossid Moth (*Coryphodema tristis*) – Marpeang star, arrival of early nancies to mark spring etc.; there may be sufficient data of what part of the plant was used; roots harvested in spring or sap from a tree coupled with breeding season of possums, dingoes, etc. to create a calendar and establish movement of clans from coast to inland, etc.; plant matter data would need to be married up to where these plants originally grew.
5. Creating a comprehensive ethnobotanical database that includes additional fields such as 'habitat' or 'form'; i.e tree, shrub, ground cover, etc., and 'seasonal features' such as flowers in winter, fruits in autumn, deciduous, etc., and mapped against pre-contact vegetation then this may enable a more comprehensive evaluation of the Wadawurrung culture and give potential insights into seasonal food circuits and other movement around their clans lands.
6. It would be interesting to compare the Wadawurrung findings to plants used today for economic purposes and how much of a plant is used; i.e. is a plant used in multiple ways today or in a single way then destroyed? A hypothesis could be established based on the Wadawurrung philosophy and laws of conservation about utilising every part of a plant versus today's disposable singular use mentality.
7. Of the plants that were identified in Lane's (and Gott's) research are any of these in use today – either for the same purpose or with other economic benefits?
8. Of the plant parts that were identified in Lane's research there is considerably more use of a plant parts such as the bark, leaves, stems and exudates. It would make an interesting study to compare what plant parts are used more today – possibly seeds and roots?

9. As the S.E. Wadawurrung had access to abundant coastal food resources, both bay and ocean coast, it would be interesting to understand the extent of these resources, especially the importance and value seaweed had in their daily lives.
10. As this thesis primarily focuses on the 8 clans of the S.E. Wadawurrung, investigation into the remaining 8 clans of the N.W. Wadawurrung would be useful to round out the full picture.
11. Nectar and fruits are usually only seasonally available (although this can vary by species), whilst leaves and roots usually have a longer window of availability, it would be interesting to map the seasonal variations to understand what the foraging focus would be from season to season that relate to the species within this data.
12. Comparison of Victorian, and in particular Wadawurrung plant use being ancestors of the Murrayian People compared to the findings of Clarke, Latz and Wightman who have been focussed on Central and Northern Indigenous People who are ancestors of the Carpentarian People. Do their origins coupled with the different environments they have adapted to make the ethnobotanical findings differ? If so, how?
13. Explore various theories using Lane's data to support or challenge existing ethnobotanical theories such as:
 - Gott's theory (2008) that seed use is greater in arid lands compared to root use which is greater in high rainfall areas.
 - Does a greater list of edible seed species than those for tubers translate to actually more use?
 - Were the views of the early ethnographers biased on such issues, and or their training?

10.18 Appendix: Jennifer Dearnaley's publications

- Thurstan, R., Brittain, B., Jones, D.S., Cameron, E., Bellgrove A., Dearnaley J.E.R., 2018 'Aboriginal uses of seaweeds in temperate Australia: an archival assessment', *Journal of Applied Phycology*, published Jan 2018 (*refereed*)
- Jones, D.S., Roös, P., Dearnaley, J., Threadgold, H., Nicholson, M., Wissing, R., Berghofer, D., Buggy, R., Low Choy D., Clarke, P.A., Serrao-Neumann, S., Kitson, G., Ryan, S., Powell, B., Powell, G., Kennedy, M.G., 2018, 'ReCrafting Urban Climate Change Resilience Understandings – Learning from Australian Indigenous Cultures in Biophilia Smart Resilience' e-Proceedings of the 55th International Federation of Landscape Architects World Congress 2018, 18-21 July 2018, Marina Bay, Singapore, pp. 402-417, <http://www.ifla2018.com/e-proceedings> (*refereed*)
- Dearnaley, J., Jones, D.S., 2018, 'Re-Planting the Seeds of Indigenous Science in Australia: Directions in Australian Ethnobotany and Traditional Knowledge', in the Proceedings of the Joint Conference of the Society for Economic Botany and the Society of Ethnobiology, Madison, Wisconsin, USA. 3-7 June, 2018 <http://www.econbot.org/index.php?module=content&type=user&func=view&pid=104>
- Dearnaley, J., & Jones, D.S., 2017, 'What lay beneath', *Remaking Cities – the 2018 Urban History Planning History Conference – 31/1/2018 – 2/2/2018*, Final paper submitted 19/1/18. Presented 1/2/18. (*refereed*)
- Dearnaley, J., & Jones, D.S., 2015, 'Indigenous Sustainable Land Management Practices', in the Proceedings of the 21st International Sustainable Development Research Society Conference Tipping Point: Vulnerability and Adaptive Capacity, Deakin University, Geelong, 10-12 July 2015 <http://www.isdrs2015.sites.exordo.com/page/7/home/> ISBN 978-0-7300-0021-1 (*refereed*)
- Dearnaley, J., 2015, 'Librarian became expert in indigenous culture' 5 April 2015 The Age Online (*Non Refereed*) <http://www.theage.com.au/victoria/librarian-became-expert-in-indigenous-culture-20150405-1mex7x.html>
- Dearnaley, J., 2015, 'Librarian became expert in indigenous culture' 6 April 2015 (*Non Refereed*) The Age (hardcopy newspaper)
- Dearnaley, J., 2015, 'Librarian became expert in indigenous culture' 5 April 2015 The Sydney Morning Herald Online (*Non Refereed*) <http://m.smh.com.au/victoria/librarian-became-expert-in-indigenous-culture-20150405-1mex7x.html>
- Dearnaley, J., 2015, 'Louis Lane, 1919-2015' 12 April 2016, Newcastle Herald (*Non Refereed*) <http://www.theherald.com.au/story/3005890/obituary-louis-lane-1919-2015/>
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10.19 Appendix: Risks & admonition

Ensuring the ethical approach to research and writing this thesis is essential as well as conforming to the *Guidelines for Ethical Research in Australian Indigenous Studies* 2012, with focus on Principle 4 & 11 which states the following:

*Principle 4 states that the rights in the Traditional Knowledge and traditional cultural expressions of Indigenous Peoples must be respected, protected and maintained. The application for this is that researchers should 'be aware of current laws and standards, both internationally and in Australia that relate to specific areas of research (for example, biology, genetics, ethnobotany)'.*⁴¹²

*Principle 11 states that Indigenous People involved in research, or who may be affected by research, should benefit from, and not be disadvantaged by, the research project. Research in Indigenous studies should benefit Indigenous Peoples at a local level, and more generally. Consideration of 'benefits to Indigenous communities such as support for the archiving of materials relating to intangible cultural heritage, including (but not limited to) field notes and recordings that document language, cultural practices and ethnobotanical knowledge. Ensure that, if such benefits are provided, appropriate measures are in place to protect secrecy and confidentiality of materials'.*⁴¹³

One of the key outcomes from these observations and guidelines is to ensure that the proposed thesis provides context to the ethnobotanical matter that was synthesised from the work of Louis Lane as well as acknowledge appropriately to her sources and those of the Wadawurrung People. It is not intended that neither this document nor the proposed thesis cause any offence. This thesis has been researched and documented in an ethical manner and has been conscious of restricted or sensitive data and has adopted the approach identified in Section 1.5 of Secret or Sacred or other Sensitive Material in the Museum Australia guidelines from 2005.⁴¹⁴

It is important to note that some of the plants listed in this document and in the proposed thesis are harmful if ingested and toxic to the touch. The Indigenous Peoples were learned in the traditional ways of preparing or using such plants. It is recommended that these plants are not experimented with unless under appropriate supervision.

10.20 Appendix: Full plant list and their uses

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11 End Notes

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