

BUSH FOOD

YEAR	WESTERN AUSTRALIAN CURRICULUM CONNECTIONS		
Pre-primary	Humanities and Social Sciences The reasons some places are special to people and how they can be looked after, including Aboriginal and Torres Strait Islander Peoples' places of significance (ACHASSK017)(ACHASSK016)	Humanities and Social Sciences How the stories of families and the past can be communicated and passed down from generation to generation (e.g. photographs, artefacts, books, oral histories, digital media, museums) and how the stories may differ, depending on who is telling them (ACHASSK013)	
Year 1	Humanities and Social Sciences Living things live in different places where their needs are met (ACSSU211)		
Year 2	Humanities and Social Sciences The history of a significant person, building, site or part of the natural environment in the local community and what it reveals about the past (ACHASSK044)	Humanities and Social Sciences The ways in which Aboriginal and Torres Strait Islander Peoples maintain connections to their Country/Place (ACHASSK049)	
Year 3	Science Living things can be grouped on the basis of observable features and can be distinguished from non-living things (ACSSU044)		
Year 4	Humanities and Social Sciences Aboriginal and Torres Strait Islander Peoples' ways of living were adapted to available resources and their connection to Country/Place has influenced their views on the sustainable use of these resources, before and after colonisation (ACHASSK089)	Humanities and Social Sciences The diversity and longevity of Australia's first peoples and the ways they are connected to Country/Place (e.g. land, sea, waterways, skies) and their pre-contact ways of life (ACHASSK083)	Science Living things depend on each other and the environment to survive (ACSSU073)
Year 5	Humanities and Social Sciences The patterns of colonial development and settlement (e.g. geographical features, climate, water resources, transport, discovery of gold) and how this impacted upon the environment (e.g. introduced species) and the daily lives of the different inhabitants (e.g. convicts, free settlers, Aboriginal and Torres Strait Islander Peoples) (ACHASSK107)		
Year 6	Science The growth and survival of living things are affected by physical conditions of their environment (ACSSU094)		
Year 7	Science Classification helps organise the diverse group of organisms (ACSSU111)		
Year 8	Humanities and Social Sciences The spiritual, cultural and aesthetic value of landscapes and landforms for people, including Aboriginal and Torres Strait Islander Peoples (ACHGK049)		
Year 9	Humanities and Social Sciences The perceptions people have of place, and how this influences their connections to different places (ACHGK065)		

Introduction

Before European colonisation, the Yamaji region was abundant with plants and animals. Aboriginal people had developed and refined their knowledge and skills in sourcing food in a sustainable manner over tens of thousands of years. Aboriginal people knew the best time of the year to pick fruits, gather seeds and roots, and hunt particular animals. They were able to identify hundreds of plants and animals, knowing which ones were edible and which were poisonous. They used every part of the plant or animal – for eating, medicine or other purposes – and collected resources responsibly to ensure that there would be enough for the next season.

Today, many Aboriginal people use this knowledge to hunt, fish and collect native plants sustainably. Hunting and gathering food is a way for Aboriginal people to supplement their diet, and continues to be an activity that is enjoyed as a family and where food is shared among the community.

Activity 1

Students watch and discuss a video about bush food.

PREPARATION

- Video player.

LESSON

Lower Primary

Upper Primary

Lower Secondary

Watch *Warlgu Country*.

<https://www.youtube.com/watch?v=VzINqpxMU2E&feature=youtu.be>

Before watching:

- What does 'native' mean when we talk about plants and animals?
- How many native plants and animals can you list?
- Have you heard of a quandong or warlgu before? What do you think it might be?

Upper Primary

Lower Secondary

During:

- Practise your note taking skills: Fold a piece of paper (reuse or recycled) into six segments. In each segment record keywords, questions or ideas.

Lower Primary

After watching:

- What is one interesting fact that you found out about warlgu?
- Why do you think warlgu is special to the people in the video?
- When Aboriginal people go out to pick warlgu fruit they always leave some. Why is this?

Upper Primary

Lower Secondary

After watching:

- How did Leroy, Donna and Elvie learn about warlgu?
- Why is warlgu special to them?
- Julie explains that warlgu steals from other trees. Can you find out what 'hemi-parasitic' means?

- Can you think of an example in the video that shows how everything in the environment is connected?
- When Aboriginal people go out to pick warlgu they always leave some. Why is this?

Learning the lingo

'Warlgu' is the name of the tree and the fruit. It has many names in different Aboriginal languages as it was eaten by different Aboriginal groups across Australia. The name 'quandong' was derived from the name given by the Wiradhuri people (an Aboriginal group from New South Wales). Can you practise saying quandong in different local Aboriginal languages?

Language	Word(s) for quandong
Wajarri	Warlgu
Badimaya	Gurdalu, marun, maruny
Nhanda	Wagudu
Malgana	Walgu

Neighbouring language groups often use the same name for animals and plants. For example, 'yalibirri' is the name for emu in Wajarri, Badimaya and Malgana. Language dictionaries provide useful knowledge about the foods that different Aboriginal groups ate in the past and continue to eat today.

Losing language

There were more than 250 Aboriginal languages in Australia prior to European colonisation. Today only 120 languages are still spoken and many of these are in danger of being lost or forgotten. In the past, governments did not allow Aboriginal people to speak in their language or teach it to their children. Today there are organisations that are trying to record and revive Aboriginal languages.

Activity 2

Students learn about a range of bush foods from the Yamaji region.

PREPARATION

- Display Yamaji bush foods on page 22.

Lower Primary

- Have a look at the bush foods display.
- Do you recognise any of these foods? Have you tried any?

Aboriginal people have been eating these native foods for thousands of years.

- Can you practise learning the common and Aboriginal names of some of these bush foods? If there are no Aboriginal names listed for your area read 'Losing language' above to find out why.
- Play a memory game. Take turns describing the plant or animal to your partner and see if they can guess what it is.

PREPARATION

- Collect books on bush foods from your school or local library.
- Check the 'Additional resources' section at the end of this topic for online resources.
- Contact a member of your local Aboriginal community to share their knowledge of bush foods with students, and consider holding an excursion on Country. Read the section on 'Engaging Aboriginal community members' on page 6 in 'About this resource' for helpful information.

LESSON

- Have a look at the bush foods display.
- Do you recognise any foods? Have you tried any of these foods?
- How can these foods be categorised?

Research task: Choose a few foods from the list below. Find out about Aboriginal use, distribution, habitat, diet (animals), and identify any potential threats. Look at the bush food resources section on page 27 for help with your research. Use technology such as a PowerPoint to present your knowledge.

Bush carrot	Tailor	Red-eyed wattle	Bowgada bush
Red grevillea flowers	Whiting	Berry saltbush	Bush tomato
Mullet	Bobtail	Chenille honey-myrtle	Mulga pod seeds
Flathead	Damper – using flour made from plant seeds	Coast sword-sedge	Turtle (freshwater and marine)
Pink snapper	Coast roly-poly	Knotted club rush	Samphire

YAMAJI BUSH FOODS

Warning: Many plants and animals are poisonous. It is important that a plant is correctly identified before eating. Some plants require special treatment before they can be safely eaten.

In Western Australia, native plants and animals are protected by law. You need permission and permits before you can pick fruit, or remove native plants and animals. This is one way that the government is working to protect native plants and animals from over-exploitation. For more information, visit the Department of Biodiversity, Conservation and Attractions website:

<https://www.dbca.wa.gov.au/>

YAMAJI BUSH FOODS - PLANTS

Common name	Quandong
Scientific name	<i>Santalum acuminatum</i>
Yamaji names	warlgu (Wajarri), waguda (Nhanda), marun (Badimaya), walgu (Malgana)



Image courtesy of Donna Ronan



Image courtesy of Donna Ronan



- The quandong fruit appears in spring.
- It is red or yellow when ripe.
- It is about the size of a 20-cent piece.
- The flesh of the fruit can be eaten fresh, dried or stewed.
- The fruit has a tangy, sweet flavour and is high in vitamin C.
- The stewed fruit can be turned into jam, savoury sauces, and filling for a pie.
- The kernel inside the nut can be eaten raw or roasted.
- Traditionally, the kernel was ground to make flour, which was used to make damper.
- The kernel can also be cooked on the coals, and then ground and mixed with water or animal fat to treat sores or inflammation.



Image courtesy of Donna Ronan

YAMAJI BUSH FOODS - PLANTS

Common name	Bush pear/banana/cogla
Scientific name	<i>Marsdenia australis</i>
Yamaji names	gagurla (Wajarri), gagurla (Badimaya), muneju (Malgana)



- The bush pear grows as a climber or a small to medium shrub.
- The fruit is best eaten when it's young and still a little soft.
- The fruit tastes like garden peas.
- The fruit is white inside and its seeds can be seen when the fruit is overripe.
- The seeds, leaves and flowers of this plant can also be eaten raw.

Common name	Wild grape
Scientific name	There are many types of wild grapes, such as the <i>Nitraria billardierei</i> (red) and the <i>Clematicissus angustissima</i> (yellow/green).
Yamaji names	Munggulba (Nhanda)



- This fruit can be picked from the vine.
- The fruit can be eaten fresh or dried (making it handy for long trips).
- This plant also produces a hard root vegetable, which must be cooked for a long period.
- The leaves and shoots can be steamed and eaten.

YAMAJI BUSH FOODS - PLANTS

Common name	Edible gum (sap)
Scientific name	Many different plants contain edible gums. One common edible gum is taken from the curara (<i>Acacia tetragonophylla</i>) tree.
Yamaji names	bimba (Wajarri), bimba (Badimaya), imba (Nhanda), bimba (Malgana)

- The sap is collected and eaten directly from the tree.
- The sap is considered a bush lolly.
- Traditionally, the sap was also used as a glue.



Common name	Pigface
Scientific name	<i>Carpobortus virescens</i>
Yamaji names	langa (Wajarri)



Image courtesy of Donna Ronan



Image courtesy of Donna Ronan

- Pigface is a ground creeping plant.
- The fruit is eaten raw or dried.
- The juice found in the leaves can be used for aches, burns and bites.
- The crushed leaves can be infused in water and used to treat many digestive issues.

Common name	Bush potato/sweet potato
Scientific name	There are many types of bush potato. A common bush potato is the weir vine (<i>Ipomoea calobra</i>).
Yamaji names	ajuga/agurda (Nhanda), gulyu (Wajarri), gulyu (Badimaya)



- This root vegetable can be eaten raw, cooked or roasted.
- The root is usually found about 1.5 metres below the ground.
- Bush potatoes can be as large as a basketball.
- All small potatoes and roots were carefully replanted for future harvests.

YAMAJI BUSH FOODS – ANIMALS

Common name	Goanna (gould's monitor)
Scientific name	<i>Varanus gouldii</i>
Yamaji names	guwiyarl (Wajarri), bangara (Badimaya), barnka (Malgana)



Image courtesy of Sue Norton

- Goannas can be difficult and dangerous to catch.
- They can often be found in their burrows.
- The goanna must be cleaned by removing its intestines before cooking.
- Goannas can be cooked on top of the campfire or in the ashes.
- Goanna oil can be used as a medicine to treat many skin ailments.

Common name	Echidna
Scientific name	<i>Tachyglossus aculeatus</i>
Yamaji names	Gunduwa (Wajarri), citkada (Nhanda), gunduwa (Badimaya), biligurdu (Malgana)

- Echidnas can be caught by hand.
- They can be cooked whole in ashes.
- The spikes fall out when cooked.
- Many Yamaji people consider echidnas to be a delicacy.



Image courtesy of Lee Anne Carter

Common name	Black bream
Scientific name	<i>Acanthopagrus butcheri</i>
Yamaji names	Puudhardi (Nhanda)



Image courtesy of Colin Johnson

Image courtesy of Colin Johnson

Bream can be found in shallow coastal waters, river mouths and estuaries. Meat from animals like the western grey kangaroo are used as bait to catch bream. Traditionally, bream was caught in stone fish traps or nets made from native plants. Bream, like many fish, are cooked in hot coals. They are sometimes wrapped in wet bark or leaves, which flavours the fish.

YAMAJI BUSH FOODS – ANIMALS

Common name	Emu
Scientific name	<i>Dromaius novaehollandiae</i>
Yamaji names	yalibirri (Wajarri), yalibirri (Badimaya), garlaya (Malgana), yalibirri (Malgana)

- One way the emu is cooked is by digging a deep trench and laying the emu in it and then covering it with sand to make sure it cooks evenly. To make sure the emu is cooked all the way through, hot stones are placed in the stomach cavity.
- Aboriginal people look to the night sky as an indicator of when emus will lay their eggs. The appearance of white hairy caterpillars also indicates that emus are mating and the eggs will soon be laid.
- Emu eggs are collected and used in baking. Emu oil can be used as a substitute for butter.
- Emu eggs are also carved for art.
- Emu oil can be used for many ailments. For example, it can be mixed with hot water and drunk to treat colds, and as a rub for colds, aches and pains.



Common name	Witchetty grub
Scientific name	<i>Endoxyla leucomochla</i>
Yamaji names	Bardi (Wajarri), bardi (Badimaya)



Image courtesy of Donna Ronan



Image courtesy of Donna Ronan

- Witchetty grubs are often found in many trees including the curara (*Acacia tetragonophylla*), elegant wattle (*Acacia victoriae*) and the wanderrrie wattle (*Acacia kempeana*).
- They are extracted from inside the root of the tree.
- Witchetty grubs can be eaten raw or cooked.

Common name	Red kangaroo
Scientific name	<i>Macropus rufus</i>
Yamaji names	marlu (Wajarri), yawarda (Nhanda), marlu (Badimaya), marlu (Malgana), yawarda (Malgana)

- One way to cook kangaroo is to dig a deep hole, fill the kangaroo's stomach with hot rocks (using a stick to sew the stomach back up), lay the kangaroo in the hole, and cover it with sand and ashes. The kangaroo will take 2-3 hours to cook this way. Placing hot rocks in the stomach will make it cook evenly.
- The kangaroo tail is considered a delicacy and was traditionally only eaten by Elders.
- Kangaroo skin was used as a coat or a blanket, as the underside of the fur was wind- and waterproof.
- The skin was made into a bag that was used to transport water, and it kept the water cool for several days.
- The fat from the kangaroo was used to waterproof canoes and other objects.
- Kangaroo tendons could be used as rope.



Image courtesy of Lyn Terrey

YAMAJI BUSH FOODS – ANIMALS

Common name	Shellfish
Scientific name	Collective term
Yamaji names	thalha (Nhanda) - oyster, wilyara (Malgana) - pearl shell

- A range of shellfish such as oysters, pearl shells (abalone), cockles and mussels are gathered by the Yamaji people.
- Traditionally, gathering shellfish was the role of women and children.
- The Malgana people gather pearl shells (abalone), which contain both meat and pearls.



Oyster - image courtesy of Donna Ronan

Bush food resources

- The Northern Agricultural Catchments Council free app: *Coastal Plants*.
- Bush food book: Estelle Leyland (2002) *Wajarri Wisdom*. Yamaji Language Centre.
- Bush food book: Dora Dann (2003) *Waranygu Bayalgu Digging for Food*. Yamaji Language Centre.
- Bush medicine book: Horsefall & Hansen (2016) *Noongar Bush Medicine*, University of Western Australia.
- Website: *Florabase* (Western Australian Flora).
<https://florabase.dpaw.wa.gov.au/>
- Website: Perth Zoo.
<https://perthzoo.wa.gov.au/>
- Website: *The original fresh food people: Aboriginal bush meats*.
<https://www.welcometocountry.org/the-original-fresh-food-people-aboriginal-bush-meats/>
- Website: *Atlas of Living Australia*.
<https://www.ala.org.au/>
- Book: *Malgana Wangganyina – Talking Malgana* (2003) Yamaji Language Centre.
- Book: *Badimaya Guwaga – Talking Badimaya* (2014) Bundiyarra – Irra wanga Language Centre.
- Book: *Badimaya Dictionary – An Aboriginal language of Western Australia* (2014) Irra Wangga Language Centre & Yamaji Languages Aboriginal Corporation.
- Book: *Nhanda Wangganhaa – Talking Nhanda* (1998) Yamaji Language Centre.

Activity 3

Lower primary students familiarise themselves with native and introduced animals through a game.
Upper primary and secondary students identify native trees in the schoolyard.

Problematic pests

Australia's isolation, as an island, has made it home to many unique plants, animals and environments found nowhere else in the world. These species have evolved over many thousands of years to thrive in the stable Australian environment but are not adapted to the threat posed by rapid changes.

One of these changes is the introduction of plants and animals from elsewhere. For example, cats, foxes, rabbits and weeds threaten our native animals and plants. These have even caused the extinction of some native species. If we remove unwanted and harmful pests, and protect our native animals and plants, we can help make sure they will always be here.

Lower Primary

PREPARATION

- Outside area required.

LESSON

Play *Predators and Prey* – a variation on the game 'octopus'.

Line up students and give each one the name of a native animal such as **black cockatoo**, **malleefowl** and **turtle**, which are all endangered. Give three students the names of three introduced animals such as **fox**, **rabbit** and **cat**.

Tell students that the foxes must run or walk, rabbits must hop, and cats must pounce (or jump) to catch their prey. When you call the name of each native animal they must try to pass the predators. If a native animal (prey) is caught, they're out – they must stand still and can only use their arms to tag. Explain to students that foxes, rabbits and cats threaten the lives of native animals and plants.

Protect our plants and animals

The Northern Agricultural Region (which extends from Guilderton in the south to Kalbarri in the north) is home to approximately 7,620 native plants and animals. About 500 of these native plants and animals are endemic, which means they only exist in this region. This makes conservation a very important issue for everyone living and working in the region. It is important that we identify these endemic plants and animals so that we can protect them.

Upper Primary

PREPARATION

- Find out about the native plants in your school.
- Talk to your school gardener.

LESSON

- Do you have native plants at your school? Help identify these plants to ensure they stay protected.

Identifying native plants can be difficult. To identify one you must look at where the plant is (location and habitat) as well as its size, leaves, flowers and fruit. Keep in mind that the leaves, flowers or fruit may not be seen all year round.

To help you identify native plants:

- Take a photo or sketch plants in your schoolyard and then use the 'Tools for identifying plants' below to help you work out if it is native.

- There are also lots of people who can help. These include: Aboriginal members of your community, your school gardener, and people who work as landscapers, in gardening stores, nurseries, environmental organisations, Regional Herbarium groups, the Parks and Wildlife Service, or just people with a green thumb.
- Once you have identified a few plants, pair up with students from another class and take them on a walking tour of your school to show them which plants are native. Explain the importance of protecting native plants on your journey.

GOING FURTHER

Return to your native plants each season. Take a new photo or sketch, and record notes about the changes you've noticed.

Lower Secondary

PREPARATION

- Find out about the native plants in your school.
- Talk to your school gardener.
- Give students a map of the school grounds.

LESSON

See Upper Primary activity

Identify native plants in your school. Map the locations of these plants and if possible record the common name, Aboriginal name (for your area), and scientific name of these plants. Can't find the Aboriginal name in your language dictionary? Read 'Losing language' on page 20 to find out why. Can you learn the names of surrounding Aboriginal groups?

Challenge: Can you find a way to tag these plants so that others know that they need to be protected?

GOING FURTHER

No native plants in your school or want to plant more?

Have a look at the guides below to work out the best plants for your area:

- Northern Agricultural Catchments Council's *Trees and Shrubs for the Midlands and Northern Wheatbelt* guide:
<https://www.nacc.com.au/wp-content/uploads/2015/11/Trees-Shrubs-for-the-Midlands-and-Northern-Wheatbelt-2nd-edition.pdf>
- *Coastal Native Garden Guide* (includes inland guide):
<https://www.nacc.com.au/project/coastal-native-garden-guides/>
- Northern Agricultural Catchments Council's *Coastal Plants* app
<https://www.nacc.com.au/publications/#sc-tabs-15250766919371525148106777>

Experience bush foods in your classroom. While kangaroo and lemon myrtle can be found in your local supermarket, other native foods such as the quandong can only be purchased online:

- Website: Outback Pride
<http://www.outbackpride.com.au/>
- Website: Bush Food Shop
<http://www.bushfoodshop.com.au/>

Go out on Country with a member of your local Aboriginal community and learn more about bush foods.

REFLECT

- Review your KWL chart. What did you learn? What do you want to know more about? How might you find out?

Tools for identifying plants

- The Northern Agricultural Catchment Council's *Coastal Plants* app lists many local native plants.
<https://www.nacc.com.au/publications/#sc-tabs-1525148106777>
- *Florabase* is a catalogue of all Western Australian flora and includes information and photos for identification.
<https://florabase.dpaw.wa.gov.au/search/advanced>
- *Atlas of Living Australia* allows users to search and upload images based on regions.
<https://www.ala.org.au/>
- *Bowerbird* is a website where you can share your own sightings with images, videos or audio files and get help identifying unknown Australian species.
<http://www.bowerbird.org.au/>
- *Flora of Australia online* includes a database of Australian flora.
<http://www.environment.gov.au/biodiversity/abrs/online-resources/flora/main/index.html>
- The Western Australian Museum website includes an online identification resource.
<https://naturemap.dpaw.wa.gov.au/Login.aspx?ReturnUrl=%2fdefault.aspx>

ADDITIONAL RESOURCES

- Video: *Bring back some home for mum*. Wajarri Elder, Dora Dann, is presented with bush foods from Wajarri Country.
<https://vimeo.com/173591715>
- Video: Commercial production of native foods.
<https://www.youtube.com/watch?v=poA99DAPrZA&feature=youtu.be>
- Video: Chef Kylie Kwong cooks with native food.
<http://www.abc.net.au/btn/story/s3527750.htm>
- Video: Growing and using native plants.
<http://education.abc.net.au/home#!/media/2343020/recognising-the-potential-of-native-vegetables>
- Video: Bush food trip in Queensland.
<http://education.abc.net.au/home#!/media/2100778/keeping-aboriginal-culture-alive>
- Video: Aboriginal rangers in Sydney explore the many uses of native plants.
<http://education.abc.net.au/home#!/media/30780/the-many-uses-of-indigenous-plants>
- Video: *Barndi Warany - Good Feed, Camp fire cooking*.
<https://vimeo.com/104466521>