

# Gippsland ADAPT

Practical application of climate  
change adaptation knowledge



Environment,  
Land, Water  
and Planning

# Don't forget:

## Mitigation

(To make something less severe, serious, or difficult)

- Sustainable transport
- Clean energy
- Energy efficiency

## Adaptation

(change to be able to handle new conditions)

- Updated farming systems
- New equipment



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Don't forget:

## What is a biome?

- ▶ A **biome** is an area of the planet that can be classified according to the plants and animals that live in it.
- ▶ Temperature, soil, and the amount of light and water help determine what life exists in a biome.
- ▶ Different from an ecosystem which is the interaction of living and non-living things in an environment. A biome can be made up of many ecosystems. For example, an aquatic biome can contain ecosystems such as coral reefs and kelp forests.
- ▶ Not all scientists classify biomes in the same way. Some use broad classifications and count as few as six biomes. These are **forest, grassland, freshwater, marine, desert, and tundra.**

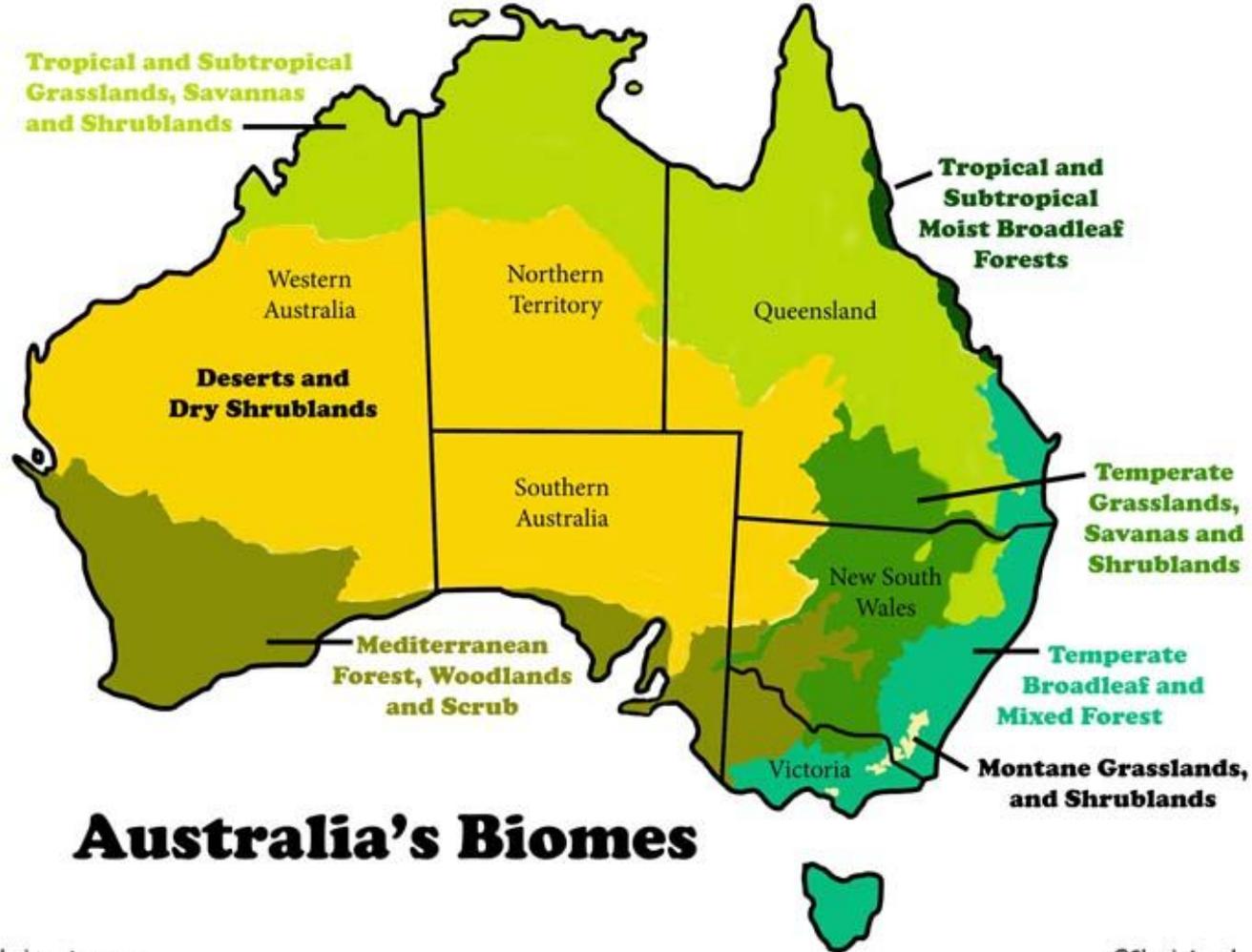


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National Geographic Society

# Australia's biomes

**Remember:** Scientists debate the names and types of biomes. You might see varying names and descriptions for biomes as you research this topic. We have chosen one set of names and descriptions to use, but there are several others.



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Different industries fit best in different biomes...

Cattle thrive in the tropical grasslands across northern Australia (as long as they have access to drinking water)

Tropical and Subtropical Grasslands, Savannas and Shrublands

Sugarcane crops need high rainfall and warm temperatures

Tropical and Subtropical Moist Broadleaf Forests

The cooler temperatures in inland NSW and VIC are perfect for vegetable crops and dairies

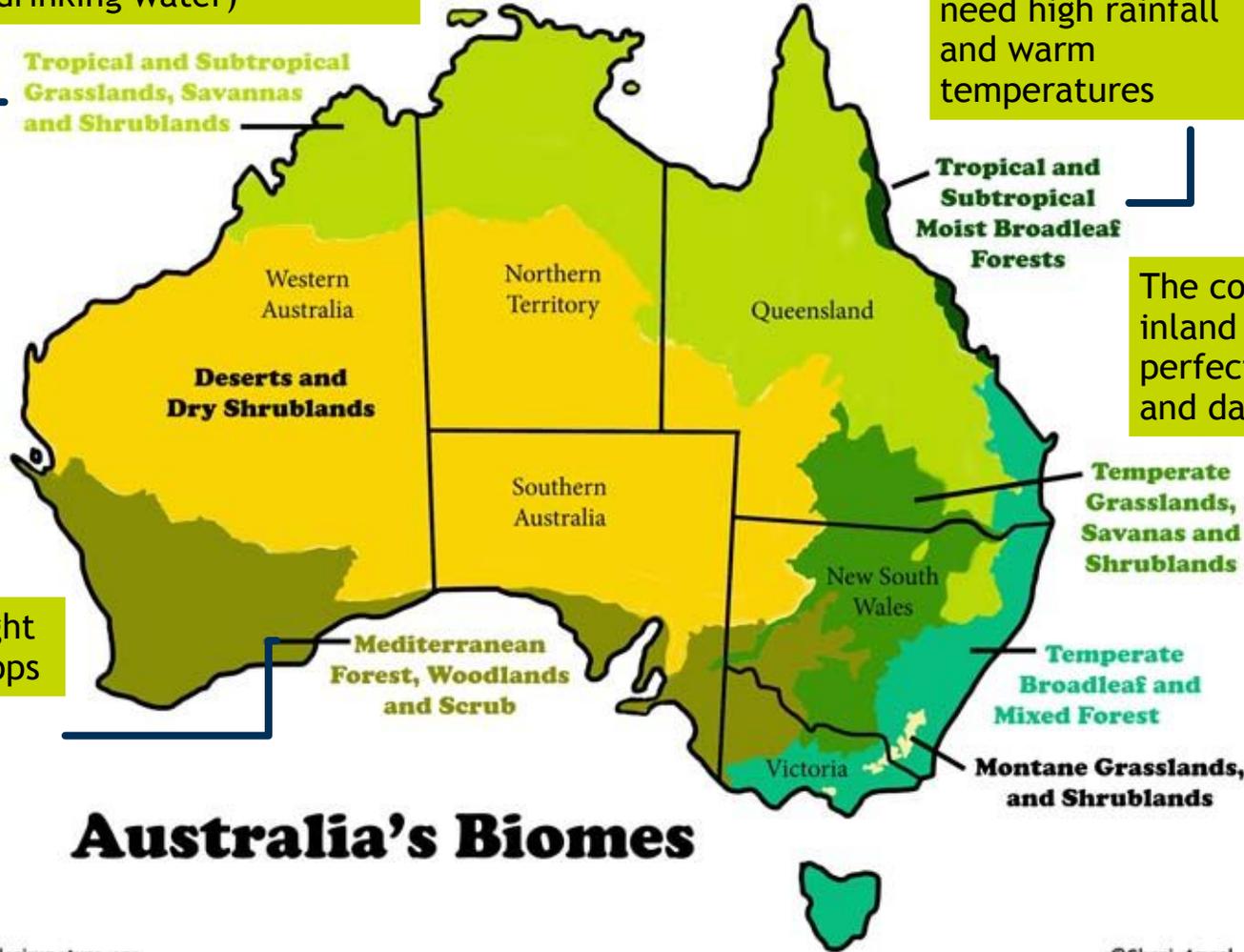
Temperate Grasslands, Savannas and Shrublands

Warm, dry weather is right for high-quality grain crops

Mediterranean Forest, Woodlands and Scrub

Temperate Broadleaf and Mixed Forest

Montane Grasslands, and Shrublands



## Australia's Biomes

[www.exploringnature.org](http://www.exploringnature.org)

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- ▶ Farmers need to understand the biome they are working in
- ▶ This is being made harder as biomes are changing and the climate is becoming less predictable due to climate change
- ▶ Watch the below video in which Peter Mailer explains why he doesn't know how much longer he will be able to be a farmer:
  - ▶ <https://youtu.be/-Hf9dwSF5Sc>
  - ▶ Stop at 2 mins 30 seconds

- ▶ After watching the video about farmer Peter Mailer, discuss the following points with your class:
  - ▶ What has changed for Peter?
  - ▶ Why is climate change making things harder for Peter?
  - ▶ What could he do to lessen the impact of climate change?

Highlight the **key features** of each biome on your worksheet as we work through them



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# Sclerophyll forests

- ▶ Wet sclerophyll forest is characterised by very tall eucalypt trees (and their close relatives) which form the upper canopy layer. The trunks of these trees tend to be straighter than those of other eucalypts, and their leafy parts are often concentrated in the top third of the tree.
- ▶ There are two types of Sclerophyll forests - wet and dry
- ▶ The understorey of wet sclerophyll forest can contain shrubs and small trees (often with rainforest species). Dry sclerophyll may be grassy with scattered shrubs.
- ▶ Wet sclerophyll forests are associated with high, reliable rainfall averaging 1500 mm and 2000 mm per year with at least 50 mm in the driest season.
- ▶ Dry sclerophyll forests have an average rainfall between 500 mm and 2000 mm



Dry shrub/grass sclerophyll forest near Awaba (Newcastle area), NSW (M. Fagg)

# Rainforests

- ▶ Dense forests rich in biodiversity, found typically in tropical areas with consistently heavy rainfall.
- ▶ The average annual rainfall in the Daintree rainforest is approximately 2000mm per year. Some areas have even recorded up to 9000mm in a single year.
- ▶ The wet seasons is between December and March. Over 60% of the rain falls during this wet season.
- ▶ Average temperatures throughout the year range between 26 and 33 degrees Celsius



Australian Rainforest Conservation Society (ARCS)

# Grasslands

- ▶ Areas that are continuously dominated and covered by various grass species. This is usually the result of the perfect amount of precipitation that allows root plants like grasses to grow and thrive while still not being enough for larger plants like trees to dominate the area.
- ▶ There are several distinct types of grasslands in Australia in areas with completely different weather patterns, average rainfall and temperatures.



# Eucalypt woodland

- ▶ Ecosystems which contain widely spaced trees, the crowns of which do not touch.
- ▶ In temperate Australia, woodlands are mainly dominated by Eucalyptus species. Temperate woodlands occur predominantly in regions with a mean annual rainfall of between 250-800mm, forming a transitional zone between the higher rainfall forested margins of the continent and the shrub and grasslands of the arid interior.



River red gum (*Eucalyptus camaldulensis*) forest, Murray River, New South Wales  
Claire Howell



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# Deserts

- ▶ Australian deserts are so vast it's hard to speak generally about rainfall and temperatures across the whole biome
- ▶ The most simplistic definition used for a desert is an area where mean (average) annual rainfall is **less than 250 millimetres**.
- ▶ Most areas have average January maximum temperature exceeding 35C, with some desert areas exceeding 40C. The temperature of 50C has been recorded officially three times.
- ▶ As in most deserts, the dry air and clear skies lead to large ranges in temperature between day and night, **with ranges of 15°C being typical and 20°C not unusual**.



Australian Geographic

# Montane

- ▶ A zone of relatively moist cool upland slopes below timberline dominated by large trees.
- ▶ Montane areas are undulating tablelands varying in altitude from 600 to 1500 m, and receiving between 500 and 750 mm of rainfall annually.
- ▶ Temperatures fluctuate between -7C and 30C throughout the year



Department of the Environment

Use the instructions  
on your worksheet to  
complete **Activity 1**



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# What **biome** is your school in?

You have:

- ▶ Average yearly rainfall
- ▶ Greatest average temperature
- ▶ Lowest average temperature

Use these figures to determine the biome based on the descriptions on page 1 of your worksheet.

Think about what you see around you and describe:

- ▶ The types of plants that grow well in the area
- ▶ The types of native animals you have seen



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# Go through the process again and complete Activity 2:

- ▶ Brewarrina, NSW 2839
- ▶ Use CliMate to find out:
  - ▶ Average yearly rainfall
  - ▶ Greatest average temperature
  - ▶ Lowest average temperature
  - ▶ Biome
- ▶ You might also need to use the internet to find out:
  - ▶ The types of plants that grow well in the area
  - ▶ The types of native animals that live there

## And lastly, **Activity 3:**

- ▶ Tully, Queensland 4854
- ▶ Use CliMate to find out:
  - ▶ Average yearly rainfall
  - ▶ Greatest average temperature
  - ▶ Lowest average temperature
  - ▶ Biome
- ▶ You might also need to use the internet to find out:
  - ▶ The types of plants that grow well in the area
  - ▶ The types of native animals that live there

# Share **your** answers



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Choose one of the three locations you have researched and read the **corresponding** article:

- ▶ School: <https://www.abc.net.au/news/2019-07-19/gippsland-goes-through-green-drought/11322364>
- ▶ Brewarrina: <https://thenewdaily.com.au/news/state/vic/2019/12/30/east-gippsland-bushfire-emergencies/>
- ▶ Tully: <https://www.abc.net.au/news/rural/2018-03-09/crops-disappear-under-north-queensland-flooding/9532542>



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# Find a climate change adaptation that could **help** farmers in the region featured in your article

- ▶ Complete the questions on your worksheet using your chosen adaptation
- ▶ Give a 1 minute pitch to the class using the answers you wrote down (pitch tips on the next slide)

# How to present a good 1 minute pitch

In a pitch you want to sell your idea to the audience in a quick and interesting way.

- ▶ Be energetic and excited
- ▶ Introduce your problem (be clear about why it's an issue and what impacts the problem causes)
- ▶ Sell your solution (What is it? How does it work? What will it cost? Who can use it? Why would anyone want to use it?)
- ▶ Here is an explainer if you need some inspiration:
  - ▶ <https://www.youtube.com/watch?v=w28idSfNBNc>

If you've worked through the three Gippsland ADAPT lessons, you've now completed the course on climate adaptation in the agricultural industry...

**Congratulations, you are now more climate aware!**

Your planet thanks you for learning about ways that you can make a difference to the future



Image source: Vecteezy.com



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