10.1: The Physical Landscape of Oceania

Learning Objectives

- Identify the key geographic features of Australia, the Pacific, and the polar regions
- Describe the biodiversity found in Australia and the Pacific
- Explain the patterns of human settlement in Oceania
- Analyze how climate change is impacting the geography of Oceania

Oceania is a realm like no other. Nowhere else in the world can one find some of the unique wildlife that is found in this realm, and no other region is as isolated. Oceania is the only world region not connected by land to another region. This is a region of the world at a crossroads where the effects of global changes in climate and pollution could have profound effects. The region of Oceania includes Australia, the realms of the Pacific Islands, and the polar regions of the Arctic and the Antarctic. While some regions share a distinct cultural or colonial history and others share a common physical landscape, the region of Oceania is connected more by its isolation than by a shared physiography or human experience.

Australia dominates the region in terms of size, economics, and population. The country has the unique designation of being both a sovereign state and a continent. Often, Australia and New Zealand are considered a single region (Figure \(\PageIndex{1}\)), but while the two countries share cultural and historical similarities, their physical landscapes are quite different. Australia lies in the middle of its own tectonic plate making it relatively geologically stable. Australia has no active volcanoes and has had only a small number of large earthquakes. Its tectonic position also limits its relief and much of the continent is relatively flat. An exception to this is the Great Dividing Range which runs along the coast of Eastern Australia. This series of mountain ranges affects Australia’s climate by providing orographic rainfall along the coast and divides the core population center of Australia from the rest of the continent.
The other key geographic feature of Australia is its vast interior known as the **Outback** (Figure \(\PageIndex{2}\)). This remote area of extensive grassland pastures supports one of the world’s largest sheep and cattle industries. However, the ecosystem of the Outback is quite fragile. With limited precipitation and vegetation, overgrazing puts the region at risk for desertification. In addition, although this region was the center of population for Australia’s indigenous groups, ranching in the Outback has created issues of land ownership.

One of the most well-known features of Australia’s geography lies just off coast: the **Great Barrier Reef**. This massive underwater reef is the world’s largest coral structure and stretches over 2,300 kilometers (1,400 miles). However, warming ocean temperatures and pollution have been a significant environmental threat to the Great Barrier Reef in recent years.

Unlike its geologically stable neighbor, New Zealand is situated at the intersection of the Pacific Plate and the Australian Plate (Figure \(\PageIndex{3}\)). Its two large, mountainous islands and numerous small islands are prone to both earthquakes and volcanoes. New Zealand is younger than Australia geologically and has a far more varied topography. On New Zealand’s North Island alone, you could spend the morning surfing on a sandy beach, the afternoon picnicking in the rolling green hills where the fictional city of Hobbiton was filmed, and the evening skiing on an active volcano,
Mount Ruapehu. New Zealand’s South Island is home to a number of stunning fiords, more commonly found in Scandinavia where they are spelled fjord.

![Map of Tectonic Plates of Oceania](https://socialsci.libretexts.org/Bookshelves/Geography_(Human)/Book%3A_World_Regional_Geography_(Finlayson)/10%3A...%3AWorld_Regional_Geography_(Finlayson)/10%3A07%2FPlate_Tectonics_of_Oceania)

Figure (PageIndex{3}): Map of the Tectonic Plates of Oceania (United States Geological Survey, Public Domain)

The islands of the Pacific to the north and east of Australia and New Zealand are divided into three regions (Figure (PageIndex{4})). New Zealand is part of the islands of **Polynesia**, from the prefix “poly” meaning “many.” Polynesia is a large, triangular region stretching from New Zealand to Easter Island to the Hawaiian and Midway Islands. West of Polynesia and to the northeast of Australia are the islands of **Melanesia**, including New Guinea, the Solomon Islands, and Fiji. Europeans called the region “Melanesia” from the Greek prefix melan- meaning “black,” referring to the darker skin they believed characterized the people of this realm. North of Melanesia are the tiny islands of **Micronesia**, from the prefix “micro” meaning “small.” There are over 2,000 islands in Micronesia.

![Map of Australia and the Pacific](https://socialsci.libretexts.org/Bookshelves/Geography_(Human)/Book%3A_World_Regional_Geography_(Finlayson)/10%3A...%3AWorld_Regional_Geography_(Finlayson)/10%3A07%2FPlate_Tectonics_of_Oceania)

Figure (PageIndex{4}): Map of Australia and the Pacific (Map by User:Kahuroa, Wikimedia Commons, Public Domain)

The islands of the Pacific can be divided into two groups based on their physical characteristics. The **high islands** like Hawaii are volcanic, meaning they were formed from volcanoes, and thus have a relatively high relief. This high relief and volcanic soils enables the high islands to have fertile soil and ample rainfall, which in turn supports a diverse agricultural system and relatively large populations.

In contrast, the **low islands** of the Pacific are comprised mostly of coral and, as their name implies, are generally low in elevation. Most of the islands in the Pacific, particularly in Micronesia, are low islands. These islands may only rise a few feet above the water and their dry, sandy soil makes farming difficult. Fresh water is often in short supply in the low
islands. As a result, these islands typically have much smaller populations. The relatively large coral island that comprises the country of Niue, for example, rises to a maximum 60 meters (less than 200 feet). The low elevation of these islands make them vulnerable to natural disasters, such as tropical cyclones, and to changes in sea elevation due to rising global temperatures. In the country of Tuvalu, an island chain located between Hawaii and Australia, the highest point is a mere 4.6 meters (15 feet) above sea level and the island has sustained severe damage from cyclones during its history.

A number of low islands of in the Pacific form atolls, ring-shaped chains of coral islands surrounding a central lagoon (Figure \(\PageIndex{5}\)). Typically, the lagoon is actually a volcanic crater which has eroded beneath the water. Most of the world’s atolls are found in the Pacific Ocean and their land areas are generally quite small.

![Satellite Photo of the Atafu Atoll in Tokelau](https://socialsci.libretexts.org/Bookshelves/Geography_(Human)/Book%3A_World_Regional_Geography_(Finlayson)/10%3A...

Figure \(\PageIndex{5}\): Satellite Photo of the Atafu Atoll in Tokelau (NASA Johnson Space Center, Public Domain)

In general, the islands of the Pacific have warm, tropical climates with little seasonal extremes in temperature. Some islands experience seasonal, primarily orographic rainfall. These relatively warm temperatures help support tourism throughout the region. Throughout New Zealand and the core area of Australia, east of the Great Dividing Range, is primarily a maritime climate. This climate zone features cool summers and winters with few extremes in temperature or in rainfall.

Also included in Oceania are the earth’s polar regions. In the North Pole is the Arctic Ocean, the world’s smallest and shallowest ocean. Although it may appear to look like a landmass covered in snow on many globes, there is no landmass below the North Pole. The ocean is covered by a sheet of sea ice throughout the year and the entire body of water is almost completely ice-covered in winter. In the South Pole is Earth’s southernmost continent, Antarctica. This continent is around twice the size of Australia and is almost entirely covered with ice. It is not home to a permanent human settlement.

**Outback:**

a remote area of extensive grassland pastures in central Australia

**Great Barrier Reef:**

a massive underwater coral reef off the coast of northeastern Australia
**Polynesia:**

a large, triangular region of Pacific islands stretching from New Zealand to Easter Island to the Hawaiian and Midway Islands

**Melanesia:**

a region of islands to the northeast of Australia that include Papua New Guinea and Fiji

**Micronesia:**

a region of very small islands north of Melanesia and east of Polynesia

**High islands:**

islands that were formed from volcanoes and have relatively high relief

**Low islands:**

islands that were formed mostly from coral and have relatively low elevations

**Atolls:**

a ring-shaped chain of coral islands surrounding a central lagoon

**Maritime climate:**

a climate zone that features cool summers and cool winters with few extremes in temperature or in rainfall