

# Biomes of North America

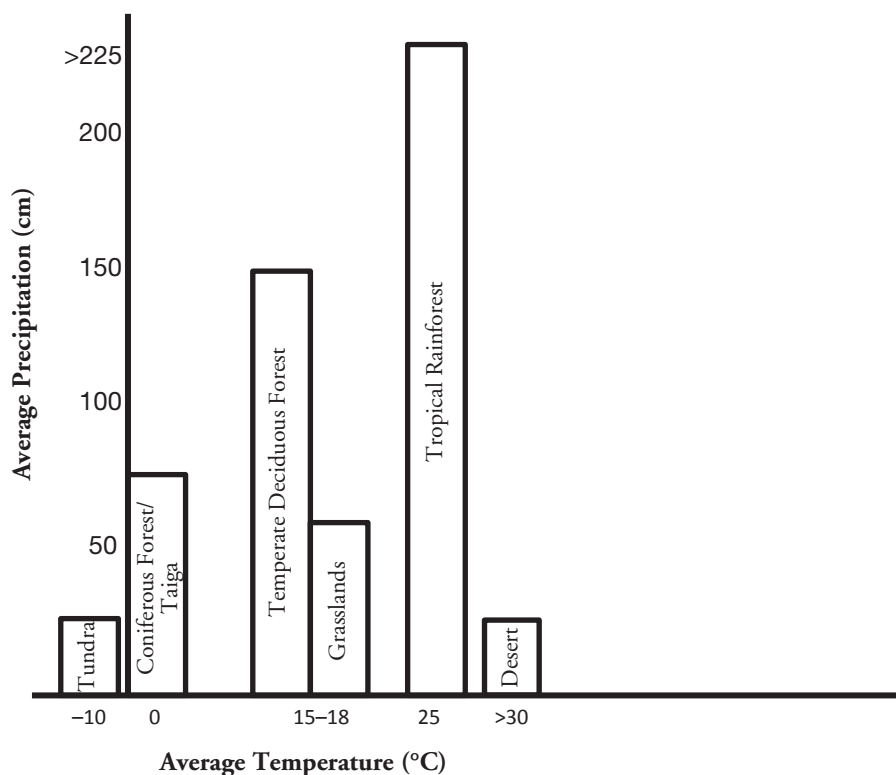
How do temperature and precipitation affect the distribution of plants and animals?

## Why?

Have you ever wondered why no polar bears are in California, or cacti in Alaska? The amount of precipitation and the temperature varies tremendously across North America, resulting in well-defined community boundaries or **biomes** that are suitable for some populations but not for others.

## Model 1 – Biomes of North America

### Average Precipitation and Temperature

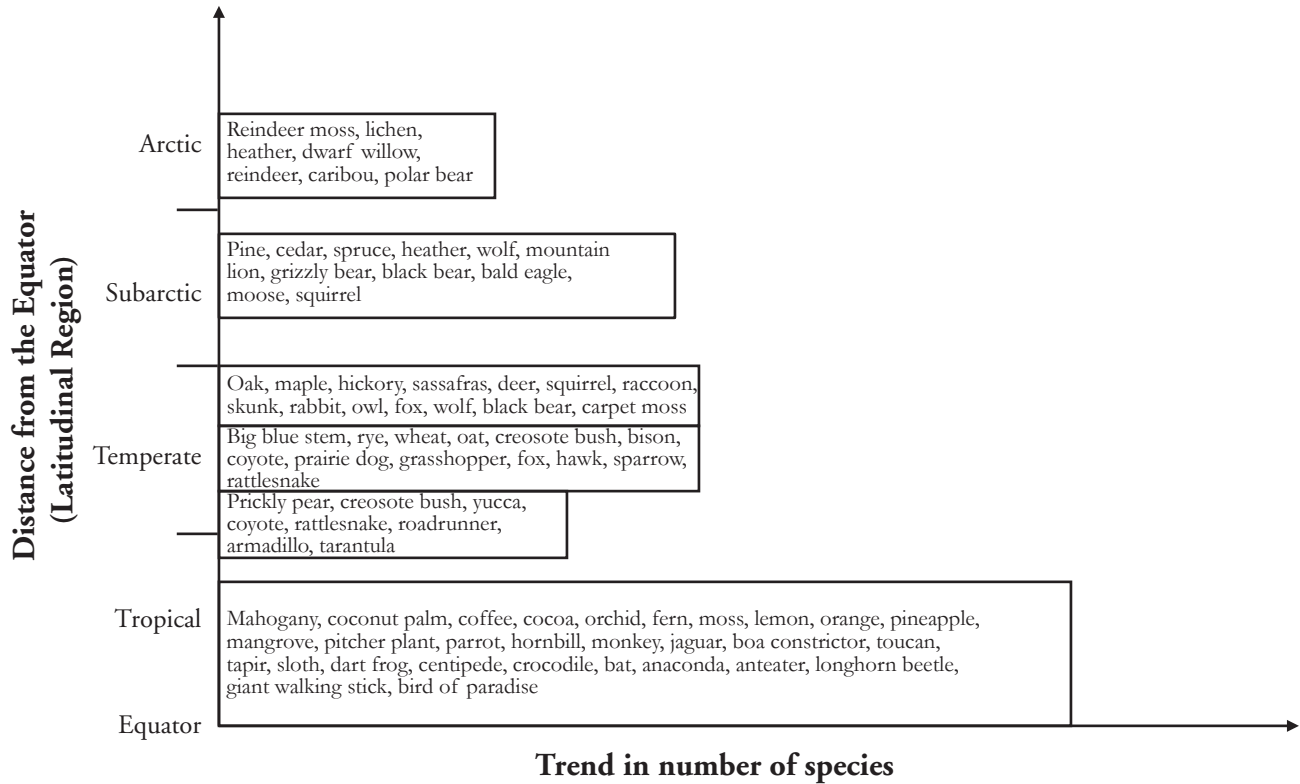


1. According to Model 1, which two biomes have the same amount of rainfall?
2. Which biome in Model 1 has the most rainfall?
3. Which biome has the highest average temperature?
4. Which two biomes have nearly the same average temperature?

5. Refer to Model 1.
  - a. Name the three different types of forests shown in Model 1.
  - b. What is another name for the coniferous forest?
  
6. Refer to Model 1.
  - a. What characteristic differentiates the tundra and the desert?
  - b. Why might the tundra also be known as the “frozen desert”?
  
7. Consider the biomes in Model 1 with moderate temperatures.
  - a. What characteristic differentiates the grasslands and temperate deciduous forests?
  - b. What would be the most likely reason for the grasslands having grasses rather than trees as their dominant plant species?
  
8. Describe the relationship between temperature, rainfall, and the type of forest.



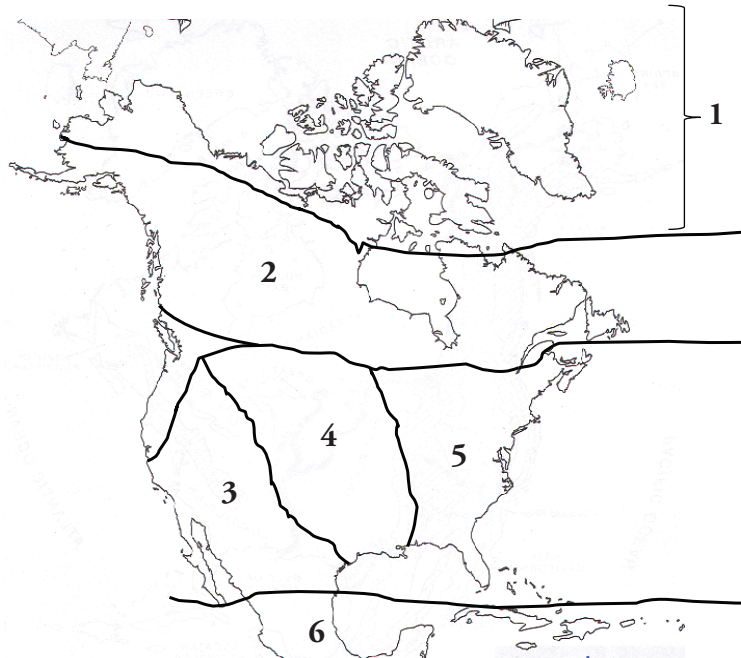
## Model 2 – Plant and Animal Species in North American Biomes



9. The six bars in Model 2 represent the six North American biomes introduced in Model 1, and include a list of some plants and animals typically found in each biome.
- What information is represented by the x-axis in Model 2?
  - What information is represented by the y-axis in Model 2?
  - How might the y-axis information in Model 2 be related to one of the data axes in Model 1?



10. Identify each of the six biomes found in North America on the map below. Average rainfall data is given to help you choose between biomes in the same latitudinal region.



Zone	Rainfall (cm)
1	25
2	75
3	25
4	60
5	150
6	>225

- |    |    |    |
|----|----|----|
| 1. | 3. | 5. |
| 2. | 4. | 6. |

11. Use information from Model 1 and the map in Question 10 to label the six biomes in the chart in Model 2.

12. Refer to Model 2.

- Which latitudinal region contains the fewest number of species?
- List the biome(s) found in this latitudinal region.
- Which latitudinal region contains the largest number of species?
- List the biome(s) found in this latitudinal region.



13. **Biodiversity** is a term used to describe the variety of plant and animal species in a given biome. An ecosystem or biome that supports a large variety of species is very biodiverse.
- What biome in North America has the highest biodiversity?
  - What characteristics of this biome enable it to support such a high level of biodiversity?
  - What biome in North America has the lowest biodiversity?
  - What characteristics of this biome make it difficult for a high level of biodiversity to develop?
14. What is the general trend of the biodiversity in biomes as the latitude moves from the arctic region towards the equator?



## Extension Questions

15. The grasslands biome is considered to be the “bread basket” of our country because it is a hub of agricultural activities, particularly grain farming (wheat, corn, rye, oats, etc.). Much of the U.S. animal farming and meat production also occurs here, since the animals are often grain-fed. Recent climate change models suggest that as the planet warms, rainfall in this region will drop and temperatures will rise. Use the information from this activity to answer the following questions.
- What characteristics of the grasslands biome make it a critical source of food for the U.S. and other countries?
  - If rainfall in the grasslands biome does decrease as the climate change model suggests, to what type of biome would the grasslands biome convert?
  - Assume that the climate change model accurately predicts the change to this biome over the next 50 years. What results would this have on our country’s ability to support its people?
16. One of today’s most serious environmental problems is the dramatic loss of the tropical rainforest through deforestation. Explain, using the information from this activity and outside sources, how deforestation is resulting in devastating consequences for our environment.