

# Biomes

Biomes are large regions of the world with distinctive climate, wildlife and vegetation. They are divided by terrestrial (land) or aquatic biomes.

## Terrestrial biomes:

Categorized by latitude, altitude, temperature, rain, soil type, sun exposure, winds and how close to water they are found.

	<b>Fauna and flora</b>	<b>Climate</b>	<b>Soil</b>	<b>Other facts</b>
<b>Tropical forest</b>	50-80 % of plant and animal species on Earth.  High biodiversity	Average temp 20-34°C  Receives rain all year long	Soil is rich in nutrients because optimum weather conditions allow for quick plant/animal decomposition	Important in regulation of climate because exchanges O <sub>2</sub> and CO <sub>2</sub>  Produces more than 20% of the world's O <sub>2</sub>  In danger due to farming, logging
<b>Boreal forest</b>	Diverse wildlife  Conifers and forest floor covered with moss and lichen  Green forest	Long, cold winters and warm short summers	Acidic, nutrient poor soil because of moss and lichen on forest floor  Poor decomposition of plants and animals  Vegetation still thrives because of 18 hours/day sunlight in the summer	More than 1/4 of all forests in world  Over logging  Sensitive to fire insects and disease  Has many lakes and marches

<p><b>Temperate forest</b></p>	<p>Many mammals</p> <p>Mix of coniferous and deciduous trees</p> <p>Multi-colored forest</p>	<p>Average temperature between 8-10°C</p> <p>High precipitation throughout the year</p>	<p>Soil is very rich in nutrients because of good decomposition of leaves</p>	<p>At risk due to human activity (farming) and new developments</p> <p>Many towns and cities were once temperate forests</p>
<p><b>Grasslands and shrublands</b></p>	<p>Grazing animals and their predators</p> <p>Lots of grass, but very little trees</p> <p>Enough moisture to avoid being a desert, but not enough to sustain trees</p>	<p>Depends on region of the world and type</p>	<p>Nutrients and water deep in the soil are absorbed by extensive plant root systems</p> <p>Grass is able to survive drought and fire</p>	<p>Three types</p> <p>Temperate grasslands: warm summers and cold winters</p> <p>Savannas: hot all year long</p> <p>Derived grasslands: was grassland, but has been converted to farmland</p>
<p><b>Arctic tundra</b></p>	<p>Migratory birds in the summer to reproduce and feed, caribou</p> <p>Polar bears, arctic fox and caribou live there year round</p> <p>Has limited grass, bushes, moss and lichen</p>	<p>Long cold winters</p> <p>Average summer temperature is only 10°C</p> <p>In winter can be as cold as -50°C</p>	<p>Thin top layer of soil (1 m) thaws in summer only... deeper other soil is permanently frozen (aka permafrost)</p>	<p>The arctic is warming up twice as fast as the global average which may lead to devastating consequences in the near future</p>
<p><b>Deserts</b></p>	<p>Only a few animal and plant species that are highly adapted to the dry climate</p>	<p>Can be hot or cold deserts</p> <p>Total annual precipitation less than 25 cm</p>	<p>Soil is nutrient poor</p>	<p>Hot deserts experience drastic temperature changes due to absence of clouds and humidity</p>

<b>Alpine</b>	Animal and plant species vary depending on altitude  As altitude increases, life and temperature decreases	For every 100 meters in altitude gain, the temperature drops by 0.6°C	Nutrients in soil become scarce with increasing altitude  Ground remains frozen for more than half the year	Defined by altitude  Divided into 5 zones depending on altitude
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### Aquatic biomes:

Cover 75% of earth's surface. Categorized by salinity, water clarity, temperature, strength of current, O<sub>2</sub> and CO<sub>2</sub> present in the water, sun exposure, nutrients and water depth.

### Freshwater biomes: 2.5% of aquatic biomes. Less than 0.05% salt content

	<b>Fauna and flora</b>	<b>Other facts</b>
<b>Lakes</b>	Limited species of microorganisms, plankton, fish, amphibians, reptiles, birds and aquatic plants	Lakes are surrounded by land, fed by springs or precipitation  Shore vegetation acts like a filter, provides habitat and attracts species  Threatened by farming, industrialization and urbanization
<b>Rivers</b>	Animals and plants that are adapted to current and high levels of O <sub>2</sub>	Water quality at risk due to farming(phosphorus)  Current flows rapidly in one direction
<b>Wetlands</b>	Home to many species depending on type of wetland  Plants grow in well saturated soil  They act as sponges that absorb rainwater and reduce the risk of flooding	<b>Marshes:</b> stagnant water and no trees  <b>Swamps:</b> stagnant or slow moving water with trees or shrubs  <b>Peat bogs:</b> Poorly drained soil covered in moss

**Marine biomes:** 97.5% of aquatic biomes. More than 3% salt content. Temperature will vary due to location and depth. Deeper the water the colder and darker it becomes

	<b>Fauna and flora</b>	<b>Other facts</b>
<b>Estuaries</b>	<p>Plants and animals adapted to both fresh and salt water</p> <p>Water is very turbid (not clear) due to sediment</p> <p>Very rich in nutrients and home to many species</p>	<p>Where a river opens into the sea.</p> <p>St-Lawrence Estuary is known for whale watching</p> <p>Salt content will vary between 0.05% and 3%</p>
<b>Oceans</b>	<p>Largest ecosystem</p> <p>Plants and animals vary according to depth of water (sunlight, food sources)</p>	<p>Deeper it is the darker and colder it gets</p> <p>Oceans at risk due to human activities (fishing, transport, oil industry)</p> <p>Benthos: organisms living on sea bed</p>
<b>Coral reefs</b>	<p>High biodiversity: up to 2 million plant and animal species</p> <p>Usually in warm waters</p>	<p>Corals skeleton made up of <math>\text{CaCO}_3</math> and feed on plankton and algae</p> <p>Some may up to 200 million years old</p> <p>Pollution, overfishing and global warming puts them at risk</p> <p>When diving, you are asked not to touch the corals because too much touching will eventually kill them.</p>