[Biomes, Diversity and Deforestation[[1]](#footnote-1) -Lesson map link [link at the bottom of the page too]](http://education.maps.arcgis.com/home/webmap/viewer.html?webmap=da0653f60ebe4ee296ad06937bbabf27)

*How significant is deforestation in Brazil?*

* Click on the lesson map link above to commence the lesson.
* Zoom in to view the state of Rodonia in Brazil.

Question

What evidence of deforestation can you see? [[ANSWER](#_[Distinct_patches_of)]

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* In the ‘details’ pane, under the ‘content’ tab, tick the checkboxes to turn on the 3 layers for Rodonia, Brazil. This shows aerial imagery for 2000, 2004 and 2008.

Question

Investigate the size of the cleared area. How has this changed from 2000 to 2008? [[ANSWER](#_SECOND_QUESTION_[Deforestation)]

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* You can use the ‘measure’ tool to determine the area of deforestation in Rodonia in square kilometers, by selecting the ‘sq Kilometers’ option in the dropdown box.
* Click on the ‘bookmarks’ icon and view the ‘Rodonia, Brazil’. Click the ‘note’ icon to open a window. Click the image to enlarge it. This shows hotspots of vegetation reduction in Rodonia from 2000 to 2008. The legend is available at the bottom of the window.

*What is the pattern of Global biome distribution?*

* Tick the checkbox to turn on the layer ‘biomes’. Then, open the legend. Investigate global biome distribution.

Question

Zoom in to view the general area of land clearing in Rodonia, Brazil. What biome does this region sit within? [[ANSWER](#_THIRD_QUESTION_[Tropical)]

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* Zoom out for a global view. Click on the area of light green tropical rainforest that you have just investigated in Brazil. This will highlight the global distribution of all tropical rainforests

Questions

Globally, where are tropical rainforests located? [[ANSWER](#_FOURTH_QUESTION_[South)]

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What does this suggest about the environmental conditions required to sustain tropical rainforests? Hint: Turn on the layer titled ‘geographic lines’ to assist your answer. [[ANSWER](#_FIFTH_QUESTION_[Tropical)]

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* Repeat this process to investigate the distribution, and environmental conditions required for deserts, temperate deciduous forests, tundra and boreal forests/taiga.

*What is a biodiversity hotspot, and where are they located?*

* In the ‘contents’ pane of the map, click the checkbox to turn on the layer ‘biodiversity hotspots.’ Turn off all other layers.

Questions

What is a biodiversity hotspot? [[ANSWER](#_SIXTH_QUESTION_[A)]

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How do regions become biodiversity hotspots? [[ANSWER](#_SEVENTH_QUESTION_[Loss)]

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There are currently 25 biodiversity hotspots. Investigate their global distribution.

Is there a pattern in biodiversity hotspot locations? Hint: Turn on the layers ‘geographic lines’ to assist your answer. [[ANSWER](#_EIGTH_QUESTION_[Located)]

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Given what we know about biome distribution, in what biome would you suggest biodiversity hotspots are most common? After you have made a guess, turn on the layer ‘biomes’ to check your answer. [[ANSWER](#_NINTH_QUESTION_.)]

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*Why are rainforest biomes so important?*

* Tropical rainforests have the highest biodiversity level of all global biomes.

What is biodiversity? [[ANSWER](#_TENTH_QUESTION_[Biodiversity)]

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* Turn on the ‘Biomes’ layer and turn off all other layers. Click on a region within the ‘tropical rainforest’ biome to highlight all tropical rainforests globally.

Question

We previously investigated the environmental conditions required to sustain tropical rainforest. Given these conditions, why would tropical rainforests have the highest level of biodiversity?

[[ANSWER](#_ELEVENTH_QUESTION_[Answers)]

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* Turn on the ‘map notes’ layer and zoom in to Rodonia, Brazil.

Given what you know about tropical rainforest biomes, what are the reasons for such high levels of deforestation in Rodonia? [[ANSWER](#_TWELFTH_QUESTION_[Rodonia)]

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ANSWERS

## FIRST QUESTION [Distinct patches of deforestation, in mostly linear patterns]

## SECOND QUESTION [Deforestation area has extended around the peripheries of the cleared area, most significantly in the North and North-East]

## THIRD QUESTION [Tropical rainforest]

## FOURTH QUESTION [South America, Gulf of Guinea and Eastern African coast, South-East Asia, North-Eastern Australia]

## FIFTH QUESTION [Tropical rainforests are equatorial, situated between the Tropic of Cancer and the Tropic of Capricorn]

## SIXTH QUESTION [A biogeographic region with a high level of biodiversity. To be classified as a ‘hotspot’, the area must have lost 70% or more of its original land area]

## SEVENTH QUESTION [Loss of 70% land area caused by growing population, and deforestation]

## EIGTH QUESTION [Located between 45°N and 45°S]

## NINTH QUESTION . [Answers will vary, but most commonly students hypothesis tropical rainforests, given the equatorial nature of distribution]

## TENTH QUESTION [Biodiversity is the total number of species living in a geographical area. More species are an indication of a healthier region]

## ELEVENTH QUESTION [Answers will vary. Some answers may include: equatorial environment means consistent warm temperatures year-round; high level of rainfall sustains more species; lower population density in most global areas of tropical rainforest]

## TWELFTH QUESTION [Rodonia has a high rate of deforestation because of the dense and diverse range of vegetation that exists in this biome]

1. http://education.maps.arcgis.com/home/webmap/viewer.html?webmap=da0653f60ebe4ee296ad06937bbabf27 [↑](#footnote-ref-1)