



# Exam Specification Links

## AQA Entry Level

- Unit 6 – Ecosystems: 14.4.9 – The effects of deforestation

## AQA GCSE A

- Living World: Tropical Rainforest is removed for a range of reasons. This has economic, social, political and environmental repercussions

## AQA AS/A Level

- Ecosystems: Change and Challenge: Human Activity and its impact
- Ecosystems: Change and Challenge: Development issues in the tropical equatorial rainforest to include aspects of biodiversity and the potential for sustainability
- Ecosystems: Change and Challenge: The relationships between human activity, biodiversity and sustainability

## Edexcel Entry Level

- Use a case study to show how people are affecting an ecosystem

## Edexcel GCSE A

- Unit 1: 7.2.b.iii – The effects of resource extraction from tropical rainforests and their management

## AS/A Level

Unit 13 biodiversity



# Summary

- The aim of this resource is to encourage students to think about the threats to threatened species and their habitats, in particular the golden-headed lion tamarin. Students will also need to think about the different viewpoints people may have on issues surrounding these threats.
- This resource can be used in different ways:-
  1. Students could conduct independent research to fill in the blank worksheets about the golden-headed lion tamarin. They can then use the information they have found along with the information sheet on the Atlantic Forest to help them answer the exam style questions.
  2. Alternatively, instead of asking students to do their own research you may choose to provide students with a completed fact file on the golden-headed lion tamarin for them to use to answer the questions.
- A role-play activity is also provided with the aim of students empathising with different groups of people who may have different viewpoints on how the rainforest is used. Character cards are provided, as is a table for after in which students can summarise different viewpoints.
- The aim of this is not only to encourage students to think about how people threaten wildlife and the different viewpoints surrounding this but to also allow students to practice using resources to answer questions. The completed fact files on golden-headed lion tamarins could also be given to pupils if they struggle to find enough information to answer the questions independently.
- A summary table of some of the social, economic, environmental and political impacts/issues related to putting a stop to deforestation is also provided, which you may choose to share or not share with your students depending on ability. This may help some with answering question 6.

# Golden-headed lion tamarin

**Task:** Research the golden-headed lion tamarin and try to complete this information sheet



## Facts

**Conservation Status:**

**Habitat:**

**Distribution:**

**Diet:**

**Social Structure:**

## Threats



## Conservation Efforts

## Golden-headed lion tamarin – Fact File



### Facts

**Conservation Status:** Endangered

**Habitat:** Tropical Rainforest – including primary and secondary forest and shade-cocoa plantations

**Distribution:** Atlantic Forest – Eastern Brazil (See map below)

**Diet:** Mostly fruits, some flowers and nectar, some small animals – eg. spiders, lizards, frogs, snails

**Group size:** Average of 5 tamarins

**Territory size:** 0.36km<sup>2</sup> – 1.2km<sup>2</sup>

### Threats

- Habitat Destruction – just 2-5% of their original habitats remains – timber, charcoal, cattle, plantations including mono-agriculture, urban development
- Natural predators – eg. hawks, eagles, snakes, ocelots
- Pet Trade
- Low price of cocoa along with fungal epidemics triggering cocoa-plantation owners to convert their land to cattle pastures / monoculture agriculture. This is bad for golden-headed lion tamarins since a large proportion of their remaining habitat takes the form of cocoa plantations



### Conservation Efforts

- Captive breeding
- Educating people on protecting their habitat – the Atlantic Forest
- Habitat regeneration – in particular creating 'green corridors' to rejoin fragmented areas of forest
- Monitoring of wild populations

# Atlantic Forest - Information



## Different stakeholder opinions on the Atlantic Forest

### Facts

**Location:** Eastern Brazil mostly, but also some of Paraguay, Argentina and Uruguay

**Biodiversity:** High, including: 260+ mammals, 1,000 birds, 750+ reptiles and amphibians, 23,000 plants

**Tribes:** The Tupi and the Guarani

### Change over time

**Original size:** 1.23 million km<sup>2</sup>

**Size today:** 99km<sup>2</sup> – Less than 7% of the original forest remains

**Deforestation:** Between 2000 and 2008 – 2,777km<sup>2</sup> of forest deforested, averaging a rate of 347km<sup>2</sup>/year

**Fragmentation:** About 80% of the forest today is fragmented into patches of less 0.5km<sup>2</sup>

**Tupi Tribe:** Deforestation to make way for activities such as cattle ranching is pushing us out of our homes

**Logger:** I am not trained for other work and need this work to provide for my family

**Environmentalists:** Deforestation is adding to global warming since trees provide stores of carbon which are released into the atmosphere once the trees are cut down

**Brazilian Government:** Activities in the Atlantic Forest including cattle ranching, mono-agriculture, charcoal production and timber harvesting contribute to 80% of Brazil's GDP

**Cattle Farmer:** I have no choice. I need the money I make from farming cattle to buy food for my family

**Tupi Tribe:** Our traditional farming methods don't harm the rainforest – we have been living this way for hundreds of years

**Foreign mining company:** We provide Brazil with investment in return to mine. We also invest money into creating roads and other infrastructure

**Environmentalists:** Deforestation is destroying the habitat of many rare species

# Rainforest Role Play

**Use the different stakeholder viewpoints on rainforest use to do this activity**

- For this activity you will need to split into 6 groups. Each group will take on the role of a different character and will be given a role card summarising that character.
- You will have 5 minutes to discuss your character's views on the rainforest in your group before sharing your views with the other groups. This may take on a debate-type format. You should consider the questions below when discussing and presenting your view on how the rainforest should be used:-



# Rainforest Role Play - Notes

## Different viewpoints on how the rainforest should be used

The table below can be used to record notes on the different viewpoints – this would be best completed after the character debate so you are fully involved in the discussion and don't miss anything! Can you think of positives and negatives of each viewpoint?

Group of people	View on how the rainforest should be used/whether they think future deforestation should be banned	Positives of viewpoint 😊	Negatives of viewpoint ☹️
Environmentalists			
Loggers			
Cattle Farmers			
Local Tribes			
Foreign Mining Companies			
National Government			



## **Tupi Tribe**

- You have lived in the rainforest for thousands of years
- You farm some land, but only grow enough food to sustain your family using traditional, sustainable methods such as shifting cultivation
- You don't want to be forced out of the forest by big logging companies, cattle ranches, etc

## **Logger**

- You cut down trees for money
- You have no training in other areas and so you are limited to what jobs you can do
- You are poor and rely on the money you earn to feed your family
- You sometimes cut down lots of trees by not being careful when all you are after is an individual mahogany tree (which is worth more money)

## **Environmentalist**

- You want to conserve wildlife and thus the habitat it lives in
- You are particularly worried about many rare species that live in the rainforest, such as the Golden headed lion tamarin
- You are concerned about global warming and deforestation adding to this

## **Brazilian Government**

- You are in debt to different countries across the World
- You have many poor people living in your country
- You are aware that activities such as cattle ranching, mono-agriculture, charcoal production and timber harvesting in the Atlantic Forest contribute to 80% of Brazil's GDP
- Companies who come from other countries to use the rainforest pay to do so and often build new infrastructure
- You need to encourage people to move back to the rainforest areas as too many people are living in your cities

## **Cattle Farmer**

- You work for a large foreign company
- You use to be very poor, but this job pays better and has improved your living conditions
- You are not trained in other work so have very little other job options
- More forest may need clearing over time due to over-grazing to provide new areas for cattle to graze

## **Foreign mining company**

- You pay the government in order to mine the rainforest
- You pay better wages than other low-skilled jobs -although you still take most the profit back to your country's headquarters
- You mine precious resources such as diamonds and oil
- You have put money into building roads and housing for your workers

## Exam Style Questions

You will need to use the information sheets on golden-headed lion tamarins and their habitat to help you answer these questions

1. Identify **one** way human activity can threaten animals living in tropical rainforest environments (1)
2. 'The golden-headed lion tamarins greatest threat is from predators such as ocelots and eagles' – Do you agree or disagree with this statement? **Explain** your answer (3)
3. **Explain** why the conversion of cocoa plantations to mono-agriculture or cattle pasture is bad news for golden-headed lion tamarins? (2)
4. 'Tropical Rainforests environments should be protected at any cost' – Write a response explaining whether you agree or disagree with this statement (6)
5. **Evaluate** the advantages and disadvantages of putting a complete stop to deforestation in the Atlantic forest.  
Consider:
  - Local impacts
  - Global impacts (10)

## Advantages and disadvantages of putting a stop to the deforestation of Tropical Rainforests

### Local Impacts/Issues

#### Environmental

- Local wildlife, including many threatened species, will not lose any more habitat and are therefore more likely to survive.

#### Social

- Indigenous tribes who have lived in harmony with the forest for hundreds of years may be unable to continue their traditional lives by cutting down occasional trees to sustain their traditional lifestyle – likely to upset these tribes .

#### Economic

- May put local cattle farmers out of business.
- Local loggers will lose their jobs
- May have a knock-on effect on other industries in the area if loggers and cattle farmers lose their jobs and can no longer put money into other economic sectors, e.g. Shops, bars, etc.

#### Political

- Difficult to enforce and monitor a complete ban on deforestation.
- Due to rapid growth of urban areas Brazilian government is trying to persuade more people to move back towards the rainforest, however these people will need jobs and allowing deforestation to continue provides jobs.

### Global Impacts/Issues

#### Environmental

- Will help slow down global warming as trees will be left standing, storing carbon rather than releasing it into the atmosphere.

#### Economic

- Foreign companies, for example mining companies, will no longer invest in countries such as Brazil as they will no longer be able to exploit untouched areas of rainforest in order to obtain resources.
- The global access to timber would greatly reduce, putting the price of timber and timber products up
- May increase the potential for ecotourism if rainforests are preserved for tourists to see.