

# Year 9 Geography inquiry at Adelaide Zoo

## Biomes & food security

Students investigate interconnections between tropical deforestation, threatened species, food production and consumption; analysing environmental, economic and social factors. The inquiry emphasises practical actions people can take to make a positive impact for conservation.

### Your day at the Zoo

- Students arrive at Adelaide Zoo after 9.30am
- Teachers confirm attendance numbers at the education window at the front gate and collect the invoice to be paid at a later date.
- Students meet at the Kakadu room in the Education Centre for a 1 hour presentation plus Q&A with a focus on important conservation themes, community impacts, revegetation and rehabilitation of landscapes for threatened species.
- Students explore key exhibits related to South East Asia and threatened species of Indonesia.

Cost: \$2 per student + Zoo Entry

Regular Zoo entry \$12 / student

Equity price: Category 1 to 4 schools \$8 / student

Free adult entry with your class

### Key inquiry questions

- What are the causes and consequences of tropical rainforest deforestation in Sumatra Indonesia?
- What are the future implications of continued deforestation?
- How do food choices by Australian consumers impact tropical rainforests in Indonesia, and what actions are people taking to manage these impacts?



For bookings and enquiries call  
Zoo Learning on

**08 8230 1258**

[www.zoossa.com.au/zoo-learning/](http://www.zoossa.com.au/zoo-learning/)



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# Year 9 Geography Inquiry: Biomes and food security

## Key inquiry questions – Australian Curriculum

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## Year 9 Geography Achievement standards – Assessment Criteria

- Students use initial research to *identify* geographically significant questions to frame an inquiry.
- Students *predict* how rainforests in Indonesia will change over time and *identify* the possible implications in the future.
- Students *analyse* and *explain* how food choices in Australia and other places influence people, and change places and environments in Indonesian rainforests.
- Students *analyse* alternative strategies to ongoing deforestation in Indonesia using environmental, social and economic criteria.
- They *evaluate* a range of primary and secondary sources to *select* and collect relevant and reliable geographical information and data.
- They *record* and *represent* multi-variable data in a range of appropriate digital and non-digital forms, including a range of maps that comply with cartographic conventions.
- They use a range of methods and digital technologies to *interpret* and *analyse* maps, data and other information to propose explanations for patterns, trends, relationships and anomalies across time and space, and to *predict* outcomes.
- Students *synthesise* data and information to *draw* reasoned conclusions.
- They present findings, arguments and explanations using relevant geographical terminology and digital representations in a range of appropriate communication forms.
- Students propose action in response to a geographical challenge, taking account of environmental, economic and social factors, and *predict* the outcomes and consequences of their proposal.

## Knowledge and understanding – Content

- Distribution and characteristics of tropical rainforests with their distinctive climates, soils, vegetation and productivity (ACHGK060)
- Use systems thinking to analyse how human alteration of rainforests to produce food impact on the environment (ACHGK061)
- Analyse the environmental, economic and technological factors that influence palm oil production in Indonesia and other plant based oils across the world. (ACHGK062)
- What challenges is Palm Oil production creating; including water and ecological degradation, competing land uses and climate change (ACHGK063)
- The capacity of the world's environments to sustainably feed the projected future global population (ACHGK064)



## Year 9 Geography Inquiry: Engagement

### Option 1:

- Read the story below to your class and allow them to investigate the discussion questions below via secondary sources in the library or internet.

### Option 2:

- Investigate an organisation of your choice (Zoos SA, Wildlife Asia, Animals Asia, Wildlife Asia, The Orangutan Project etc) and discover what actions they are taking to protect tropical ecosystems and save the animals that live there.

### Option 3:

- Research Bukit Tigapuluh National Park – Habitat protection  
[https://en.wikipedia.org/wiki/Bukit\\_Tigapuluh\\_National\\_Park](https://en.wikipedia.org/wiki/Bukit_Tigapuluh_National_Park)

### Making new forests in North Sumatra

In Indonesia, the biggest threat to forests is deforestation for oil palm plantations. These plantations strip the earth of one of the most biodiverse regions in the world to facilitate oil production for many countries all over the world. A lot of these plantations are illegally established on forest land and fortunately, in small region of North Sumatra, the department of national parks decided that this is not acceptable.

In 2008, 500ha of oil palm plantations that were illegally established on forest land were removed for new forest to replace it and to become important habitat for critically endangered species such as the Sumatran tiger, rhino, elephant and orangutan. These plantations were ripped out of the ground with the fruit still in a productive state, with the farmers not being able to harvest them first. Once the area was clear, the local community got together and built a nursery where all the men, woman and children of the local village got together and started growing plants made from cuttings of various plant species from the primary forest. Some plants were grown from seeds and some small plants were taken from the forest and potted so they would grow big and strong under the community's care.

Every day, the community watered and grew and potted and seeded the plants in the nursery until they were ready to plant where the oil palm trees once lay. Over the following years, the plants grew and grew to become trees and shrubs and vines just like the plants in the forest that it once was. Now, in 2016, less than 10 years later, the trees are tall and strong enough for orangutans to nest in, the shrubs are thick enough for elephants to shelter amongst, the canopy is thick enough to hide the rhinos from danger and the forest is diverse enough to house the tiger and all its prey.

Now the forests are thriving with a wide range of species that have a brand new habitat and the community is still working together to patrol the forest to make sure that poachers and other oil palm farmers don't try to destroy the new forest. It is now that the people and the forest live in harmony, giving hope to all the species that thought their homes would be lost forever.

Written by Jessie Panazzolo

### Discussion and research questions

- Why is it important that the community helped to create the new forest?
- What are the benefits to the ecosystem if the oil palm plantations were restored to forest?
- What would happen to species such as the elephant, tiger, rhino and orangutan if their habitat continued to disappear?
- What are the economic and social benefits of habitat restoration



## Year 9 Geography Inquiry: The process

### The big idea: Observing, questioning and planning

Engage students in this inquiry by connecting them to real conservation themes and actions. Visit threatened animal species from Indonesia and start to make connections between what we eat, and environmental and social impacts across the world.

- Book an excursion to Adelaide Zoo to develop geographically significant questions and plan an inquiry about the impact of Australian food choices on tropical biomes.
- Attend a presentation plus Q&A session with a Zoos SA Conservation Educator based on threatened species of Indonesia. The focus of this session is to introduce key themes relating to tropical biomes in Indonesia, palm oil, choices we make and examples of three different threatened species; Sumatran Orangutans, Sun Bears and Sumatran Tigers.
- Using the key inquiry questions students generate questions that they want to investigate.

### Investigate questions such as;

- Why is Palm Oil such a popular crop in Indonesia?
- Who benefits from the way that palm oil is grown and sold around the world?
- Who is impacted from the way palm oil is grown and sold?
- Why are rainforests so important to the world?
- How are Australian consumers impacting Indonesian rainforests?
- What animals are directly impacted by Indonesian rainforest destruction?
- What actions are being taken to address rainforest destruction and its consequences?
- Why is it important to have forest patrols in protected forests?
- Don't forget... there are many other important questions that you may want to ask...

### Extension

There are many actions people can take that make a positive difference to the conservation of tropical biomes. What are some of these actions? Think about...

- Food choices that we make every day
- Supporting organisations that make a real difference for the conservation of ecosystems, animals and communities
- Political pressure that we can apply to improve food labelling
- Political pressure that we can apply to make direct contributions to conservation efforts
- Advocating for change in our local community

