

# ENVIRONMENTAL CHANGE *and* MANAGEMENT TEACHER RESOURCE

Stage 5: Geography

Outcomes: GE5-2, GE5-3, GE5-4, GE5-5, GE5-7, GE5-8

## DEFORESTATION *of* RAINFOREST *in* AUSTRALIA *and* SUMATRA



SUMATRAN TIGER by Rick Stevens

Taronga's local and international conservation projects provide the perfect resource for your Environmental Change and Management investigative study. These learning experiences help develop an understanding of the causes and consequences of human-induced environmental change in Australia and Sumatra that is challenging sustainability. Students will explore worldviews influencing approaches to environmental use and management and gain an understanding of the value of a biologically rich landscape. They will evaluate responses to deforestation, propose ways individuals can contribute to sustainability, and recognise that there are differing views on how sustainability can be achieved.

# SYLLABUS REFERENCE

## Investigative study



Select ONE type of environment in Australia as the context for a comparative study with at least ONE other country.

Students:

- investigate the biophysical processes essential to the functioning of the selected environment
  - explanation of how the biophysical processes operating in the environment maintain its functioning
- investigate the causes, extent and consequences of the environmental change (ACHGK073)
  - examination of the causes and extent of change to the environment in each country
  - analysis of the short and long-term consequences of the environmental change in each country
- investigate the management of the environmental change, for example: (ACHGK074, ACHGK075)
  - discussion of the factors influencing the management responses in each country e.g. worldviews, competing demands, technology, climate change
  - comparison and evaluation of the effectiveness of the management responses in achieving environmental sustainability
  - proposal of how individuals could contribute to achieving environmental sustainability for the environment in each country

# SUGGESTED ACTIVITIES

Pre or Post Zoo Visit

## RAINFORESTS - THE LUNGS *of* THE EARTH

1. Identify the ecosystem functions that rainforests provide
2. Categorise the identified functions into a table like below

Provisional	Regulating	Cultural	Supporting
(benefit to people that can be extracted from nature)	(benefits provided by ecosystem processes that moderate natural phenomena)	(benefit that contributes to the development and cultural advancement of people)	(underlying natural processes, such as photosynthesis)

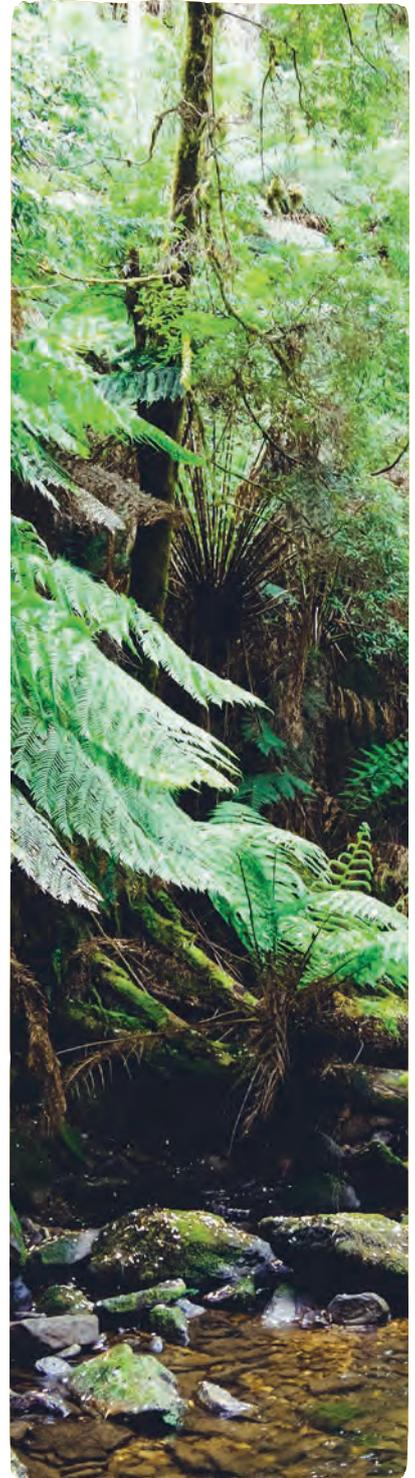
3. Highlight – the function that would be lost if the rainforest is cleared
4. Mark the distribution of rainforest on a blank map of Australia and Sumatra
5. Analyse how does deforestation affects biodiversity
6. Describe how deforestation impacts global warming

## CHANGE, CHANGE, EVERYWHERE - FOREST LOSS *in* AUSTRALIA *and* SUMATRA

Go to <https://globalforestwatch.org/map/> and use the search button on the left side of the page to look up the tree cover loss in both Indonesia and Australia between 2001 and 2020.

Answer the following questions:

1. Use the legend to describe the trend in forest loss in both countries over the past 20 years
2. Calculate the average loss per year in both countries
3. Compare the forestry sector of Australian or Indonesia and determine which contributes more to the GDP?
4. Compare the types of forest (primary, naturally regenerated and planted) in the two countries
5. Research the cause of the forest change in both countries
6. Highlight the impacts that forest loss is having on the local environment (in Sumatra and Australia) and the long term global impacts



RAINFOREST by Kate Stone Matheson via Unsplash



## THE LORAX

**“A thing of beauty is a joy forever,” and to lose it would be a shame.**

Read or View “The Lorax” (film or book). Discuss environmental/sustainability concepts evident in the film/book. Outline the different perspectives the characters hold towards the environment and how they change throughout the story.

## PALM OIL INVESTIGATION

Questions:

1. Why is Palm oil such a popular crop?
2. Explore Which Everyday Products Contain Palm Oil and list 5 products that you use regularly.
3. Who benefits from the way that palm oil is grown and sold around the world?
4. Who is impacted by the way palm oil is grown and sold?
5. How do Australian consumers impact Indonesian rainforests?
6. What animals are directly impacted by Indonesian rainforest destruction?
7. What actions are being taken to address Sumatran rainforest destruction and its consequences?
8. What is RSPO Certified Sustainable Palm Oil?
9. RSPO Certified Sustainable Palm Oil is grown and certified against eight RSPO principles and criteria. These stringent sustainability criteria relate to social, environmental and economic good practice. Look up the eight RSPO principles and criteria and list them.
10. Some organisations promote the boycotting of palm oil while Taronga supports the use of RSPO Certified Sustainable Palm Oil. Compare the two and determine which has the greatest impact on environmental sustainability.

# SUGGESTED ACTIVITIES

Pre or Post Zoo Visit

## DIFFERENT PERSPECTIVES INFLUENCING ENVIRONMENTAL MANAGEMENT

Different groups of people use the land for different purposes and often have differing views regarding land management and practices.

**Activity** - divide your class into groups. Allocate a different stakeholder to each group from the list below. Have students debate the issues from the perspective of their assigned stakeholder.



### Scenario One: Deforestation in Sumatra -

There is a proposal to clear a section of old growth rainforest and replaced it with a palm oil plantation. People with different perspectives may include:

- Farmers
- Local residents
- Indigenous community members
- Palm oil companies
- Environment advocates
- Tourists
- Tourism operators
- Government

### Scenario Two: Deforestation in Australia -

There is a proposal to clear a section of old growth rainforest in the Daintree to build a 5-star resort. People with different perspectives may include:

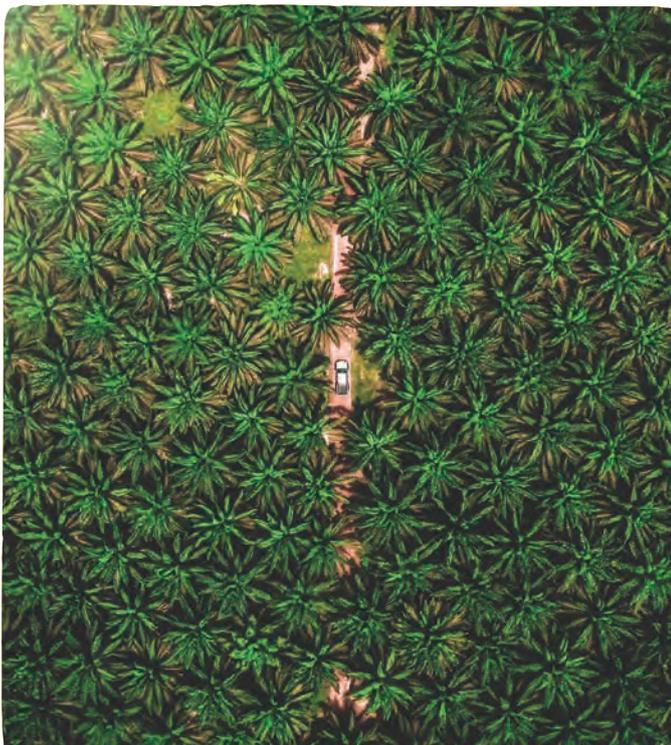
- Local residents
- Indigenous community members
- Local eco resort owner
- Business owner of the proposed resort
- Environment advocates
- Tourists
- Government

Areas to be addressed by each group include:

- how they use the native land
- their feelings about the native forest
- what changes they have observed in Sumatra/Australia
- what has been the response to this environmental change so far, and at a variety of scales, including worldviews
- the impact they will have on the environment
- the impact they will have on the local community
- what strategies they suggest for future sustainable interactions between the people and the rainforest

Top: SPOT-TAILED QUOLL by Joshua Cunningham

Left: AERIAL VIEW OF PALM OIL TREES by Nazarizal Mohammad via Unsplash



# ENVIRONMENTAL CHANGE *and* MANAGEMENT STUDENT ZOO WORKSHEET



**RAISE  
YOUR  
PALM**

## DEFORESTATION *of* RAINFOREST *in* AUSTRALIA *and* SUMATRA

Workshop (with a Taronga Educator)

1. From the list in the workshop, list the three areas that you are most concerned about:

---

---

---

2. Complete the table below

Country	Causes of deforestation	Consequences of deforestation
Australia		
Sumatra		

3. What is RSPO Certified Sustainable Palm Oil?

---

---

---

---

4. For the shown palm oil alternatives (circle one):

- Which requires the most pesticides to produce (palm, soy or rapeseed)?
- Which requires the most fertiliser to produce (palm, soy or rapeseed)?
- Which requires the most energy to produce (palm, soy or rapeseed)?



# ENVIRONMENTAL CHANGE *and* MANAGEMENT STUDENT ZOO WORKSHEET



**RAISE  
YOUR  
PALM**

## DEFORESTATION *of* RAINFOREST *in* AUSTRALIA *and* SUMATRA

### Tiger Trek (Self-guided)

Immerse yourself in the Tiger Trek exhibit.

Explore the actions that you can take to help protect local and Asian species.

1. In the space below, draw emojis to show how you are feeling as you move through the exhibit.

Plane	Streets of Sumatra	National Park	Seeing the Tigers	Supermarket

2. What characteristics of a tropical rainforest biome are represented in the exhibit?  
(topography, climate, vegetation, fauna etc)

---

---

---

---

3. Describe any technology that is used to track and identify Sumatran Tigers.

---

---

---

4. In the supermarket, list two companies that got a three star rating and two companies that got a four star rating.

---

---

---

---