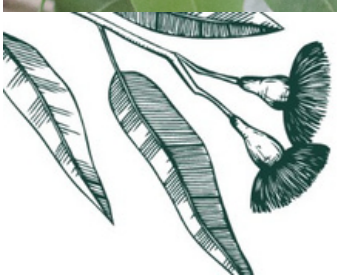
YEAR 7 - 12

# TEACHER PACK:
# KOALA BUSHLAND EDUCATION

## LESSON PLANS, ACTIVITIES, ASSESSMENTS & RESOURCES

**FOR SECONDARY SCHOOL EXCURSIONS TO A EUCALYPT FOREST NEAR YOU**



Queensland Government

# ACKNOWLEDGEMENTS

Prepared by: Southern Wildlife Operations - Koala operations, Department of Environment, Science and Innovation

Text and edits: Maggie Muurmans, Matthew Harding, Michael Worton and Monique MacLeod.
Images: Maggie Muurmans, Lily Topp, and Department of Environment, Science and Innovation



The Department of Environment, Science and Innovation acknowledges Aboriginal peoples and Torres Strait Islander peoples as the Traditional Owners and custodians of the land. We recognise their connection to land, sea and community, and pay our respects to Elders past and present.
The department is committed to respecting, protecting and promoting human rights, and our obligations under the Human Rights Act 2019.

# CONTENTS



# INTRODUCTION

Welcome to the Teacher Pack - Koala Bushland Education for secondary schools! Developed by the Department of Environment, Science and innovation, this comprehensive resource complements the delivery of actions as part of the South East QLD Koala Conservation Strategy 2020 to 2025. At its core, this strategy is dedicated to the overall goal of reversing the decline in koala populations across southeast Queensland and securing their long-term survival.

In an era where conservation efforts have become increasingly vital, empowering the next generation with knowledge and passion for wildlife is more important than ever. The teacher pack has been thoughtfully crafted to provide educators and teachers with invaluable lesson plans, activities, and resources, equipping them to lead students on enlightening excursions to the heart of forests where these iconic marsupials dwell.

Our hope is that through interactive and immersive educational experiences, young minds will be inspired to form a deeper connection with koalas and their natural habitats. By nurturing this connection, we aim to sow the seeds of compassion, responsibility, and stewardship in the hearts of our future custodians of the environment.

The Teacher Pack is a versatile and engaging tool that can be utilized by teachers and educators from diverse backgrounds and educational settings. Whether you are planning a field trip for your secondary school class, an environmental club, or even an educational outing for families with teens, this comprehensive resource caters to a wide range of youth audiences.

Join us on this educational journey to empower the youth of today to become the passionate and informed wildlife enthusiasts and conservationists of tomorrow. Together, we can foster a generation of young people who not only care deeply for koalas but also actively contribute to their protection and preservation.

Let's embark on this adventure to safeguard our furry friends and the magnificent forests they call home. The future of koalas, and the environment they inhabit, lies in the hands of these bright young minds. With these lesson plans and teacher guides, we aim to instil the values of conservation and sustainability, ensuring a better world for our cherished koalas and all living beings.

Are you ready to inspire a new generation of koala advocates? Let's dive into this enriching educational journey together.

## THREATENED SPECIES PROGRAM

Queensland's Threatened Species Program provides the framework for helping conserve Queensland's most vulnerable flora and fauna species.
It aims to deliver coordinated actions to identify, protect and recover threatened species across our terrestrial and aquatic environments and mitigate the threatening processes that impact them.

The program is designed to meet Queensland Government's responsibilities and obligations to manage and conserve threatened species including those under Queensland and Commonwealth legislation and international agreements.

The Threatented Species Progam is underpinned by 5 key focus areas that will guide Queensland Government implementation and actions:

- Legislation, policy and governance
- Planning and management
- Science and knowledge
- Connect and communicate
- Monitoring, evaluation, reporting and improvement framework

For more information about the Queensland Threatened Species Program visit the Queensland Threatened Species Program webpage.

## SOUTH EAST QUEENSLAND KOALA CONSERVATION STRATEGY

The Queensland Government's South East Queensland Koala Conservation Strategy 2020–2025 (the Strategy) outlines the actions that will be delivered to reverse the decline in koala populations across SEQ, and secure their long-term survival. The strategy was developed in close consultation with the Queensland Government-appointed Koala Advisory Council—which includes representatives from state and local government, community organisations, non-government organisations and industry—and responds to the key recommendations of the Koala Expert Panel.

The key focus areas in the strategy are:

- Habitat protection
- Habitat restoration
- Threat management
- Improved mapping, monitoring, research and reporting
- Community engagement
- Partnerships and strategic coordination

For further information on the strategy and reports visit the the Department of Environment, Science and Innovation's koala conservation webpage.

TEACHER GUIDE

# THE VALUE OF KOALAS (YEAR 7 - YEAR 12)

## Rationale/Learning goal

Activities have been developed to assist you in your visit with your students to a local koala bushland area (such as the Daisy Hill Conservation Park with the Daisy Hill koala centre), learn about the ecosystem services of this bushland and how koala conservation can add value to the people that live here or visit the area. Some prior knowledge is helpful but not essential. Check the DESI website for information on koalas.

## Remember!

Tread lightly - leave only footprints
Take all rubbish with you
Everything is protected. Please do not take sticks, rocks or any other natural materials outside the boundaries of the area.

## Starting point

You can start this activity anywhere with eucalypts/sclerophyll forest and an access path to the area . Nearby facilities such as toilets and parking would accommodate a safe and comfortable visit.

## Risk assessments

Make sure to conduct your own risk assessment for the area you intend to visit prior to the excursion day. For information on the facilities available and what to consider during your visit, see the QLD parks and forests website or your local council's webpage.

## Timing

Each module is developed to run approximately 60-90 minutes, each activity estimated to take 20-30 mins each. This does not include breaks.

## Equipment, preparation and assessment

All activities are designed to run as their own, individual activity which can be added on to your own activities or run in conjunction with the other modules in this pack. By completing Module 1 and Module 2, the information can be used to complete the proposal/report writing activity in Module 3. The latter can be used as an assessment piece. Curriculum links are provided for each year level. Feel free to print all worksheets for the students separately to hand out. You need clipboards and pencils for these activities. Some activities need a mobile device with internet access, but one per class (teacher's device) would suffice. As pre-excursion preparation, downloading of the QWildlife app and the tree ID guide are advised.

YEAR 7 & 8

# THE VALUE OF KOALAS

## KOALA BUSHLAND EDUCATION - MODULE 1

### Australian National Curriculum Links

YR7 Science:AC9S7U01, AC9S7I04, AC9S7I03, AC9S7I04
YR7 Geo: AC9HG7K05, AC9HG7S02
YR8 Science: AC9S8I01, AC9S8I04, AC9S8I05
YR8 Geo:AC9HG8K01, AC9HG8K02, AC9HG8S02

### Group size, time frame and location

Optimal group size: 2-3 students per group
Estimated time to complete module 1: 60 -90 minutes
Location: Along a pathway near a eucalypt open-forest or dry sclerophyll forest.
Assessment type: Primary & Secondary data collection

### Activity 1.1:Wildlife diversity

Use the length of the path as your transect line and determine the distance of the path you will assess. Walk the path slowly in one direction and record all fauna you observe on your left. Return on the same path and record all fauna you observe on the other side. Make sure to look up and down the trees for koalas or scat. (20-30 mins)

**Remember!**

Make sure to set a safe boundary for the activity and remind the students not to handle or collect live animals.
Stay on the path and don't access fragile habitat.

### Activity 1.2: Koala habitat

Is this a healthy koala habitat? Walk along the same path as in activity 1.1 and identify any eucalypt trees. Use the ID guide to list as many species as possible. How many species did you see? Are they koala food trees? (20-30 mins)

### Activity 1.3: Field sketch

Complete an aerial field sketch of the koala bushland location. Make sure to label your drawing. Also draw a profile of the koala bushland area including the layers of the sclerophyll forest (understorey, midstorey and overstorey). Estimate the height of the trees in your profile drawing (low trees, medium trees, tall trees). (20-30 mins)

### Activity 1.4: Koala presence

Are koalas present in this area? You may have observed them in activity 1.1, but if you haven't check the QWildlife app/website for this location to see if there are any sightings recorded here. Are they recent sightings? This can be completed as a pre/post-excursion activity if needed (10 mins)

**Hand out the worksheets and complete each activity in groups**

WORKSHEET

Name: Class:

## Activity 1.1.Wildife diversity

Use the length of the path as your transect line and determine the distance of the path you will assess. Walk the path slowly in one direction and record all fauna you observe on your left. Return on the same path and record all fauna you observe on the other side. Make sure to look up and down the trees for koalas or scat.

| Transect 1<br>Distance: mtrs | | Transect 2<br>Distance: mtrs | |
|---|---|---|---|
| **Species name** | **Count** | **Species name** | **Count** |
| | | | |

## Activity 1.2. Koala habitat

Is this a healthy koala habitat? Walk along the same path as in activity 1.1 and identify any eucalypt trees. Use the tree ID guide to list as many species as possible. How many species did you see? Are they koala food trees?

| Transect 1 | | Transect 2 | |
|---|---|---|---|
| **Species name** | **koala food tree? yes/no** | **Species name** | **koala food tree? yes/no** |
| | | | |
| **Most dominant species:** | | **Most dominant species:** | |

WORKSHEET

Name: Class:

## Activity 1.3. Field sketch

Complete an aerial field sketch of the koala bushland location. Make sure to *label* your drawing and indicate natural and man-made structures

**Aerial sketch**

Draw a profile of the koala bushland area and label the layers and key features of the sclerophyll forest (understorey, mid-storey and over-storey). Estimate the height of the trees in your profile drawing (low trees, medium trees, tall trees).

30

20

10

5

0

**Profile sketch**

## Activity 1.4. Koala presence

Are koalas present in this area? You may have observed them in activity 1.1, but if you haven't check the QWildlife app/website for this location to see if there are any sightings recorded here. Are these recent sightings? Record your sighting if you saw a koala today.

| **Koalas were/weren't sighted in this area in the last 12 months (circle one)** | **When was the most recent sighting? (DD/MM/YYYY)** |
|---|---|
| | _____ |

YEAR 9 & 10

# THE VALUE OF KOALAS

## KOALA BUSHLAND EDUCATION - MODULE 1

### Australian National Curriculum Links

YR9 Science: AC9S9H01, AC9S9H04, AC9S9I02, AC9S9I03, AC9S9I04
YR9 Geo: AC9HG9K02, AC9HG9K04, AC9HG9K06, AC9HG9K07, AC9HG9S02
YR10 Science: AC9S10H01, AC9S10H03, AC9S10H04, AC9S10I02, AC9S10I04
YR10 Geo: AC9HG10K01, AC9HG10K04, AC9HG10K05, AC9HG10S02

### Group size, time frame and location

Optimal group size: 2-3 students per group
Estimated time to complete module 1: 60 - 90 minutes
Location: Along a pathway near a eucalypt open-forest or dry sclerophyll forest.
Assessment type: Primary & Secondary data collection

### Activity 1.1: Human Impact & Land use

Record your observations of land use activity for this location. Give each land use an impact rating between 1 and 10 regarding environmental impacts, where 1= minor environmental impact and 10= major environmental impact. Indicate whether these impacts would affect the local koala population. Take a photograph of the location you are assessing. (20 mins)

### Activity 1.2: Ecosystem values

Observe the various uses of the area and consider the value placed on the landscape by the local community and visitors to the area as well as its importance to flora and fauna. In the graphic organiser, record your observations. You may wish to add to this throughout the day. Refer to the glossary for explanation of the terms. (20 mins)

### Remember!

Make sure to set a safe boundary for the activity and remind the students not to handle or collect live animals. Stay on the path and don't access fragile habitat. Optional: add activity 1 & 2 from the Year 7 worksheets to include a biodiversity assessment.

### Activity 1.3: Field sketch

Complete an aerial field sketch of the koala bushland location. Make sure to label your drawing. Also draw a profile of the koala bushland area including the layers of the sclerophyll forest (understorey, midstorey and overstorey). Estimate the height of the trees in your profile drawing (low trees, medium trees, tall trees). (20-30 mins)

### Activity 1.4: Koala presence

Are koalas present in this area? You may have observed them in activity 1.1, but if you haven't check the QWildlife app/website for this location to see if there are any sightings recorded here. Are they recent sightings? This can be completed as a pre/post-excursion activity if needed (10 mins)

**Hand out the worksheets and complete each activity in groups**

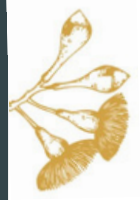
WORKSHEET

Name: Class:

## Activity 1.1.Human impact and Land use

Create a list of your observations of land use activity for this location. Give *each* land use an impact rating between 1 and 10, where 1= minor environmental impact and 10= major environmental impact. Indicate whether these impacts would affect the local koala population. Take a photograph of the location you are assessing. (20-30 mins)

| land use/activity | Impact on the environment. Rating 1 (minor) to 10 (major). Impact on koala population yes/no | |
|---|---|---|
| | Rating | Yes/No |
| | | |



## Activity 1.2. Ecosystem values

Observe the various uses of the area and consider the value placed on the landscape by the local community and visitors to the area as well as its importance to flora and fauna. In the graphic organiser below, record your observations. You may wish to add to this throughout the day. Refer to the glossary for explanations and examples of the terms.

**Cultural values**

**Other**

**Recreational values**

**Environmental values**

**Economic values**

WORKSHEET

Name: Class:

## Activity 1.3. Field sketch

Complete an aerial field sketch of the koala bushland location. Make sure to *label* your drawing and indicate natural and man-made structures.

**Aerial sketch**

Draw a profile of the koala bushland area and label the layers and key features of the sclerophyll forest (understorey, mid-storey and over-storey). Estimate the height of the trees in your profile drawing (low trees, medium trees, tall trees).

30

20

10

5

0

**Profile sketch**

## Activity 1.4. Koala presence

Are koalas present in this area? You may have observed them in activity 1, but if you haven't check the QWildlife app/website for this location to see if there are any sightings recorded here. Are they recent sightings? Record your sighting if you saw a koala today.

| **Koalas were/weren't sighted in this area in the last 12 months (circle one)** | **When was the most recent sighting? (DD/MM/YYYY)** |
|---|---|
| | _____ |

YEAR 11 & 12

# THE VALUE OF KOALAS

## KOALA BUSHLAND EDUCATION - MODULE 1

### Australian National Curriculum Links

Bio (Unit 1): ACSBL001, ACSBL003, ACSBL008, ACSBL009, ACSBL012, ACSBL014, ACSBL19, ACSBL028
SS E&ES (Unit 3): ACSES066, ACSES067, ACSES068, ACSES069, ACSES076,ACSES077, ACSES081
Geo (Unit 2): ACHGEO39, ACHGEO43, ACHGEO46, ACHGEO47, ACHGEO48, ACHGEO49, ACHGEO52
Geo (Unit 3):ACHGEO56, ACHGEO59, ACHGEO62, ACHGEO67, ACHGEO69, ACHGEO72, ACHGEO75, ACHGEO78, ACHGEO82, ACHGEO86

### Group size, time frame and location

Optimal group size: 2-3 students per group
Estimated time to complete module 1: 60 - 90 minutes
Location: Along a pathway near a eucalypt open-forest or dry sclerophyll forest.
Assessment type: Primary & Secondary data collection

### Activity 1.1: Koala presence

Are koalas present in this area? You may have observed them today, but if you haven't check the QWildlife app/website for this location to see if there are any sightings recorded here. Are they recent sightings? This can be completed as a pre/post-excursion activity if needed. What needs to be taken into account in management or development planning for the area if koalas are present? Discuss (10 mins)

### Remember!

Make sure to set a safe boundary for the activity and remind the students not to handle or collect live animals. Stay on the path and don't access fragile habitat. Optional: add activity 1, 2 and 3 from the Year 7 worksheets to include a biodiversity assessment.

### Activity 1.2: Environmental change and Sustainable Development Goals

Some of the 17 Sustainable Development Goals can be addressed in this location. Name one challenge for each SDG below that needs to be addressed in the community? E.g.: SDG 11 - Affordable housing for all. Would this impact on the resident koala population? How? Refer to the links and resources for explanation of the Sustainable Development Goals. (20 mins)

### Activity 1.3: Ecosystem services

Observe the various uses of the area and consider the different benefits the landscape provides to the different stakeholder groups in the region. In the graphic organiser indicate the ecosystem services for this location. After each group has completed this activity, discuss with the other groups and determine whether some benefits can be added to your table. Use this information to complete the rest of the table. (20 mins)

### Activity 1.4: SEQ Koala Conservation strategy

The South East Queensland Koala Conservation Strategy ensures that koala habitat is carefully managed. Indicate which action should have priority in this area and why. Your council may also have a local strategy in place. Check on their website if you would like to include this as well.

**Hand out the worksheets and complete each activity in groups. One note files can be requested for immersive readers.**

WORKSHEET

Name: Class:

## Activity 1.1. Koala presence

Are koalas present in this area? You may have observed them yourself today, but if you haven't, check the QWildlife app/website for this location to see if there are any sightings recorded here. Are these recent sightings?

| **Koalas were/weren't sighted in this area in the last 12 months (circle one)** | **When was the most recent sighting? (DD/MM/YYYY)** |
|---|---|

What needs to be taken into account in the management or development planning IF koalas are present in this area? How can citizen science (like QWildlife) inform management? Provide your thoughts in bullet points below:

## Activity 1.2. Environmental Change and Sustainable Development Goals

Some of the 17 Sustainable Development Goals can be addressed in this location. Name one challenge for each SDG below that needs to be addressed in the community? E.g.: SDG 11 - Affordable housing for all. Would this impact on the resident koala population? How? Refer to the links and resources for explanation of the Sustainable Development Goals.

| SDG # | Challenge to be addressed | Impact to koala populations? Yes/No | Describe potential impact, if any |
|---|---|---|---|
| 15 LIFE ON LAND | | | |
| 8 DECENT WORK AND ECONOMIC GROWTH | | | |
| 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE | | | |
| 11 SUSTAINABLE CITIES AND COMMUNITIES | | | |
| 13 CLIMATE ACTION | | | |

WORKSHEET

Name: Class:

## Activity 1.3. Ecosystem Services

Observe the various uses of the area and consider the benefits the landscape provides to the different stakeholder groups in the region. In the graphic organiser indicate **examples** of the benefits/services for this location for each stakeholder group. After each group has completed this activity, discuss with the entire class and determine whether other benefits can be added to your own table. Are some of the benefits the same for all stakeholder groups? Use this information to complete the rest of the table. Refer to the glossary for more explanation of ecosystem services.

| Provisioning (Goods produced or provided by the ecosystem) e.g. food, fresh water, etc. | Regulating (Benefits obtained from regulation of ecosystem processes) e.g. climate, disease or flood regulation | Cultural (Non-material benefits from ecosystems) e.g.: spiritual, recreational, educational |
|---|---|---|
| | | |

## Activity 1.4. South East Queensland Koala Conservation Strategy

The South East Queensland Koala Conservation Strategy ensures that koala habitat is carefully managed and coordinated. Discuss in your group which action should have priority in this area and why. Your council may also have a local strategy in place. Check on their website if you would like to include this as well. Refer to the resources for an enlarged version of the infographic.


Full strategy available at: https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/conservation/seq-koala-strategy

**The priority action for this area should be:**

**Because:**

PRIORITY

Teacher guide

# Threats and Challenges in Koala Conservation (Year 7 - 12)

Activities have been developed to assist you in your visit with your students to a local koala bushland area, learn about and identify the threats and challenges in koala conservation, conduct a risk assessment and re-frame koala conservation from a range of stakeholder viewpoints.

## Remember!

Tread lightly - leave only footprints
Take all rubbish with you and stay on the trail!
Everything is protected. Please do not take sticks, rocks or any other natural materials outside the boundaries of the park.

## Starting point

You can start this activity anywhere in an area with eucalypts/sclerophyll forest and an access path. Nearby facilities such as toilets and parking would accommodate a safe and comfortable visit.

## Risk assessments

Make sure to conduct your own risk assessment for the area you intend to visit prior to the excursion day. For infrormation on the facilitities available and what to consider during your visit, see the QLD parks and forests website or your local council's webpage.

## Timing

Each module is developed to run approximately 60-90 minutes, each activity estimated to take 20-30 mins each. This does not include breaks.

## Equipment, preparations assessment

All activities are designed to run as their own, individual activity which can be added on to your own activities or run in conjunction with the other modules in this pack. By completing Module 1 and Module 2, the information can be used to complete the proposal/report writing activity in Module 3. The latter can be used as an assessment piece. Curriculum links are provided for each year level. Feel free to print all worksheets for the students separately to hand out. You need clipboards and pencils for these activities. Some activities need a mobile device with internet access, but one per class (teacher's device) would suffice. As pre-excursion preparation, downloading of the QWildlife app and the tree ID guide are advised.

Year 7 & 8

# Threats & Challenges in Koala Conservation

## Koala Bushland Education - Module 2

### Australian National Curriculum Links

YR7 Science:AC9S7U02, AC9S7I02, AC9S7I05, AC9S7H01, AC9S7H02, AC9S7H03, AC9S7H04
YR7 Geo: AC9HG7K05, AC9HG7K06, AC9HG7S02, AC9HG7S05, AC9HG7S06
YR8 Science: AC9S8H01, AC9S8H02, AC9S8H03, AC9S8H04
YR8 Geo:AC9HG8K04, AC9HG8K05, AC9HG8K06, AC9HG8S02, AC9HG8S03, AC9HG8S04, AC9HG8S05,AC9HG8S06

### Group size, time frame and location

Optimal group size: 2-3 students per group
Estimated time to complete module 2: 60 - 90 minutes
Location: In a eucalypt open-forest or dry sclerophyll forest area
Assessment type: Primary & Secondary data collection

### Activity 2.1: SWOT analysis

From a koala conservation perspective, what are the strengths and weaknesses of this area? This could include aspects such as habitat condition, food availability, disturbances and natural (e.g. invasive species) and human impacts (e.g. visitation, specific recreational activities). Also, think about the opportunities to improve koala conservation in the area. What are some of the future threats to the area you can think of? Complete the Strengths, Weaknesses, Opportunities and Threats table

### Remember!

Make sure to set a safe boundary for the activity and remind the students not to handle or collect live animals.
Stay on the path and don't access fragile habitat.

### Activity 2.2: Risk Matrix

A risk matrix/risk assessement is a helpful management tool to assess the probability and likelihood of threats/risks in an area and their severity. This tool can be applied in an area of koala habitat to either increase or implement protective measures or management strategies. Who would you need to consult in order to assess the threats/risk to koalas in this area? For more information on threats specific to koalas, check out this site.

### Activity 2.3: Re-framing

When considering the range of stakeholders in the area, can you brainstorm how they may value the area? Would there be anything they would like changed here? In the table one example has been provided to help you along the way. To improve the data, you can allow some students to ask anyone visiting the area for their thoughts. Add these conversations to the table.

**Activities can be conducted in pairs or individually. One Note files can be requested to accommodate immersive readers.**

WORKSHEET

Name: Class:

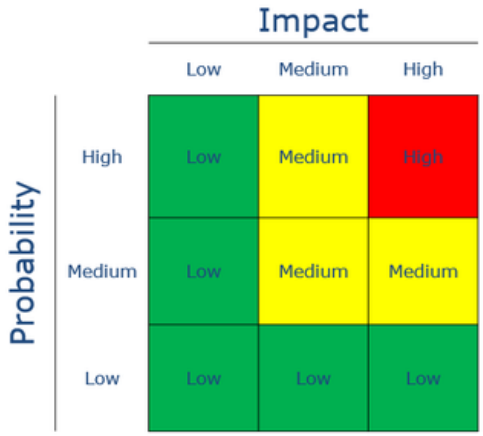
## Activity 2.1. SWOT analysis (strengths, weaknesses, opportunities and threats)

From a koala conservation perspective, what are the strengths and weaknesses of this area? This could include aspects such as habitat condition, food availability, disturbances and natural (e.g. invasive species) and human impacts (e.g. visitation, specific recreational activities, road strikes, dogs). Also, think about the opportunities to improve koala conservation in the area and what are some of the future threats to the area you can think of? Complete the Strengths, Weaknesses, Opportunities and Threats table.

| Strengths | Weaknesses |
|---|---|
| Opportunities | Threats |

## Activity 2.2. Risk matrix

A risk matrix/risk assessment is a helpful management tool to assess the probability and likelihood of threats/risks in an area and their severity. This tool can be applied in an area of koala habitat to either increase or implement protective measures or management strategies. Who would you need to consult in order to assess the threats/risk to koalas in this area? For more information on specific threats to koalas, check here.




List the governmental/non governmental organisations/groups to consult. Are there specialist groups for this area you would like to include?

WORKSHEET

Name: Class:

Are you able to identify the threats in this area to the survival of healthy koala populations and/or their habitat? Which threats may pose a higher impact than others? Are any of these threats mentioned in the SEQ Koala Conservation Strategy?

| Threat | Probability | Impact |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |

## Activity 2.2. Re-framing

When considering the range of stakeholder groups in the area, consider how they may value/use the area? Would there be anything they might like changed? In the table an example has been provided to help you along the way.

| Stakeholder | How they value the area | Changes required to enhance their experience |
|---|---|---|
| Mountain bike riders | Trail riding & improving MTB skills | Better access to the area & well-maintained paths |
| | | |
| | | |
| | | |
| | | |

Year 9 & 10

# Threats & Challenges in Koala Conservation

## Koala Bushland Education - Module 2

### Australian National Curriculum Links

YR9 Science: AC9SU03, AC9S9I01, AC9S9I05, AC9S9I06
YR9 Geo: AC9HG9K02, AC9HG9K06, AC9HG9K07, AC9HG9S03, AC9HG9S05
YR10 Science: AC9S10H03, AC9S10H04, AC9S10I04
YR10 Geo: AC9HG10K01, AC9HG10K04, AC9HG10S03, AC9HG10S05

### Group size, time frame and location

Optimal group size: 2-3 students per group
Estimated time to complete module 2: 60 - 90 minutes
Location: In a eucalypt open-forest or dry sclerophyll forest area
Assessment type: Primary & Secondary data collection

### Activity 2.1: Challenges for people, place and planet

In module 1 we identified the range of ecosystem values and services the area provides to our economy, our people and our environment. In this activity, we will identify the challenges to these services and consider the likelihood and severity for these challenges to take place. Would any of these challenges affect the koala populations and their habitat as well? Would this be immediate or over time?

### Remember!

Make sure to set a safe boundary for the activity and remind the students not to handle or collect live animals. Stay on the path and don't access fragile habitat.

### Activity 2.2: Climate risks

Before your visit, find some information about the causes and effects of climate change and introduce this to the students before they work on this activity. Some useful resources can be found here.
Can you indicate which climate risks could impact koalas and their habitat in this area?

### Activity 2.3: Stakeholder map

When considering the range of stakeholders in the area, can you brainstorm how they may be affected by the challenges you have identified in activity 2.1? Provide this information in the table. We have given one example to help you along the way. To improve the data, you can allow some students to ask anyone visiting the area for their thoughts. Add these conversations to the table.

**Activities can be conducted in pairs or individually. One note files can be requested for immersive readers.**

WORKSHEET

Name: Class:

## Activity 2.1. Challenges for people, place and planet

In module 1 we identified the range of ecosystem values and services the area provides to our economy, our people and our environment. In this activity, we will identify the challenges to these services. Write a few examples of challenges/threats to cultural, recreational, economic and environmental services for this area. E.g. bushfires, development, access restrictions, dogs off leash etc.

**Challenges/Threats to cultural services or values**

**Challenges/Threats to recreational services or values**

**Challenges/Threats to economic services or values**

Dogs off leash

**Challenges/Threats to environmental services or values**

**Immediate risk**

**Risk in the short term**

**Risk in the long term**

**Low risk**

**Medium risk**

**High risk**

**Koalas/koala habitat at risk**

**No immediate risk to koalas/koala habitat**

Would any of the above challenges affect the koala populations or their habitat as well? Would this be immediate or over time? What is the severity of this challenge? Create 3 connecting lines between the terms that apply to this challenge. An example has been provided

WORKSHEET

Name: Class:

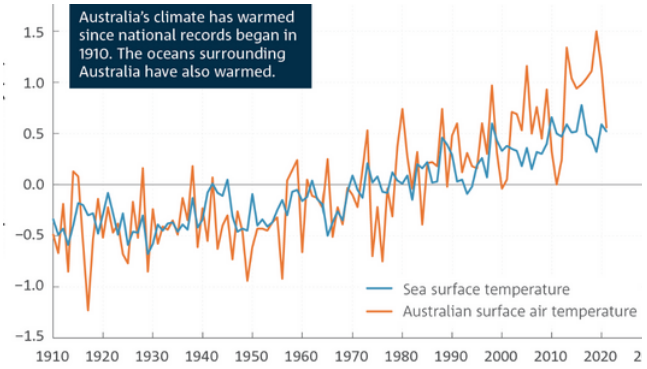
## Activity 2.2. Climate risks

There are a number of climate change risks associated to koalas, their habitat and the conservation efforts. Discuss how each factor can impact the species and if you see any evidence in the area of any such impact. Are there any historic fire or flood events recorded for this area?

**How can periods of drought affect koalas and/or their habitat:**

**Is there any recent evidence of drought in the area? yes/no**

**Are there any historic drought events in the area? yes/no**




Retrieved from: http://www.bom.gov.au/state-of-the-climate/

**How can bush fires affect koalas and/or their habitat:**

**Is there any recent evidence of bushfire in the area? yes/no**

**Are there any historic bushfire events in the area? yes/no**

**How can floods affect koalas and/or their habitat:**

**Is there any recent evidence of flooding in the area? yes/no**

**Are there any historic flooding events in the area? yes/no**

## Activity 2.2. Stakeholder mapping

When considering the range of stakeholders in the area, can you brainstorm how they may be linked to the challenges you have identified in activity 2.1? One challenge may be linked to a number of stakeholders. Provide this information in the stakeholder map. We have given one example to help you along the way. To improve the data, you can ask anyone visiting the area for their thoughts. Add these conversations to the map. Stakeholder mapping will help to find effective solutions to address the challenges through community engagement or other strategies and who to get involved.

**Pet owners**

Dogs off leash

Year 11 & 12

# Threats & Challenges in Koala Conservation

## Koala Bushland Education - Module 2

### Australian National Curriculum Links

Bio (Unit 1): ACSBL008, ACSBL009, ACSBL012, ACSBL028
SS E&ES (Unit 3): ACSES058, ACSES067, ACSES069, ACSES070, ACSES081
Geo (Unit 2):ACHGEO38, ACHGEO40, ACHGEO43, ACHGEO46, ACHGEO47, ACHGEO48, ACHGEO49, ACHGEO52
Geo (Unit 3):ACHGEO61, ACHGEO62, ACHGEO64, ACHGEO71, ACHGEO73, ACHGEO75, ACHGEO78, ACHGEO79, ACHGEO80, ACHGEO82

### Group size, time frame and location

Optimal group size: 2-3 students per group
Estimated time to complete module 2: 60 - 90 minutes
Location: In a eucalypt open-forest or dry sclerophyll forest area
Assessment type: Primary & Secondary data collection

### Activity 2.1: Sustainable places

In module 1 we identified the sustainable development goals that could be addressed in this area. Tackling some of these SDG's may have an impact on koalas and their habitat. Choose the SDG's in activity 1.2 that have a significant impact on koala populations or their habitat. Describe some ideas/solutions that address these SDG's whilst avoid or minimally impact on koalas or their habitat.

### Remember!

Make sure to set a safe boundary for the activity and remind the students not to handle or collect live animals. Stay on the path and don't access fragile habitat.

### Activity 2.2: Global issues & local impact

Impacts of a changing climate globally can cause issues at a local level. Koalas are on the list of threatened species in Queensland, along with many other species in the State. Can you think of particular climate change factors that could accelerate the loss of biodiversity in this area? How could you measure the changes in this location? How could you measure the loss of biodiversity in this location? Describe your methods.

### Activity 2.3: Stakeholders & actors

Before conservation action can be undertaken, identification of local stakeholders and actors is important. Stakeholders are groups or organisations that have a strong interest or connection to the area, actors are groups or organisations that are actively involved in the conservation and management of the area. Is there any evidence of stakeholder and actor groups in the area? Do they work together? How is their relationship? Complete the stakeholder & actor map.

**Activities can be conducted in pairs or individually. One note files can be requested for immersive readers.**

WORKSHEET

Name: Class:

## Activity 2.1. Sustainable places

In module 1 we identified the challenges that need to be address for the community. Tackling some of these SDG's may have an impact on koalas and their habitat. Choose the SDG's in activity 1.2 that have a significant impact on koala populations or their habitat. Describe some ideas/solutions that address these SDG's whilst avoid or minimally impact on koalas or their habitat. For example, how can you address SDG 11 - Creating affording housing without affecting koala habitat in this area?

| SDG # | How can this be addressed at this location without affecting koala populations and/or their habitat? |
|---|---|
| | |
| | |
| | |

## Activity 2.2. Global issues & Local impact

Impacts of a changing climate globally can cause issues a local level. Koalas are on the list of endangered species in Queensland, along with many other species in the State. Can you think of particular climate change factors that could accelerate the loss of biodiversity in this area? How could you measure the changes in this location? How could you measure the loss of biodiversity in this location? Describe your methods.

| Climate change factor that could accelerate the rate of biodiversity loss | How the impact of this factor can be measured/methodology in this location |
|---|---|
| | |
| | |
| | |

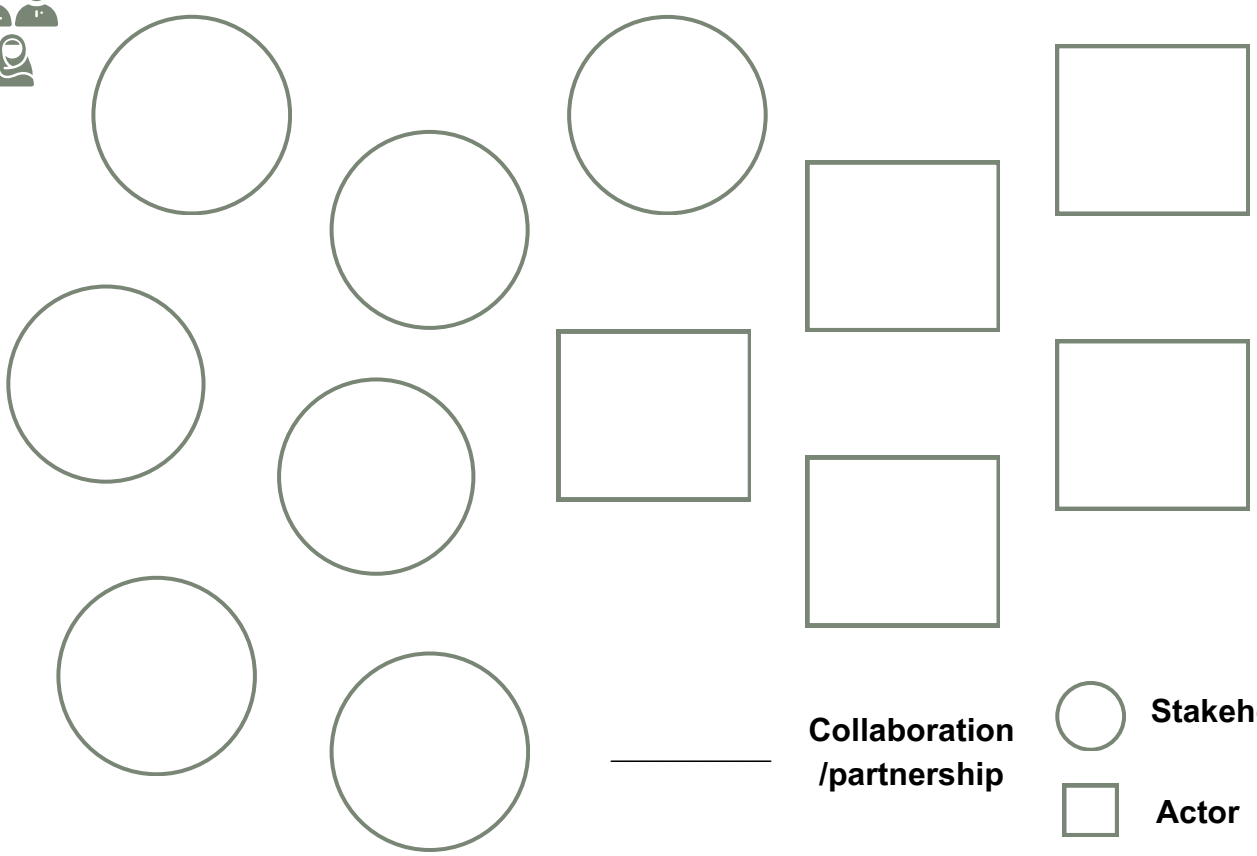
WORKSHEET

Name: Class:

| Loss of biodiversity or indicator species impact by climate change | How the rate of decline or impact can be measured in this location/ methodology |
|---|---|
| | |
| | |
| | |

## Activity 2.2. Stakeholder mapping

Before conservation action can be undertaken, identification of local stakeholders and actors is important. Stakeholders are groups or organisations that have a strong interest or connection to the area. Actors are groups or organisations that are actively involved in the conservation and management of the area. Is there any evidence of stakeholder and actor groups in the area? Do they work together? How is their relationship? Complete the stakeholder & actor map below:



**Collaboration /partnership**

**Stakeholder**

**Actor**

Teacher guide

# Koala Conservation in Action (Year 7 - 12)

Activities have been developed to assist you in your visit with your students to a local koala bushland area, how society can respond to conservation challenges and which actions are suitable for the study area. This is the final assessment piece and builds on the data collected through module 1 and 2.

## Remember!

Tread lightly - leave only footprints
Take all rubbish with you and stay on the trail!
Everything is protected. Please do not take sticks, rocks or any other natural materials outside the boundaries of the park.

## Starting point

You can start this activity anywhere in an area with eucalypts/sclerophyll forest and an access path. Nearby facilities such as toilets and parking would accommodate a safe and comfortable visit.

## Risk assessments

Make sure to conduct your own risk assessment for the area you intend to visit prior to the excursion day. For information on the facilities available and what to consider during your visit, see the QLD parks and forests website or your local council's webpage.

## Timing

This module is developed where the field component/data collection (part 1) will run approximately 60 minutes, with each activity estimated to take 20-30 mins each. This does not include breaks. The assessment piece (part 2) needs to be completed in class/at home.

## Equipment, preparations assessment

This module provides final activities to build on the data collected in module 1 and 2. It is divided into 2 parts. Part 1 will have final data collection and activities incorporated to inform part 3: a report or proposal as the final and major assessment piece to be completed in class/at home. Refer to this link to the marking rubric that can be used for this assessment piece. Curriculum links are provided for each year level. Feel free to print all worksheets for the students separately to hand out. You need clipboards and pencils for these activities.

Year 7 & 8

# Koala Conservation in Action

## Koala Bushland Education - Module 3

### Australian National Curriculum Links

YR7 Science:AC9SI05, AC9SH01, AC9S7H03, AC9S7H04, AC9S7H06, AC9S7H07, AC9S7H08
YR7 Geo: AC9HG7K06, AC9HG7S02, AC9HG7S04, AC9HG7S05, AC9HG7S07
YR8 Science: AC9S8I06, AC9S8I07, AC9S8I08
YR8 Geo:AC9HG8K04, AC9HG8K06, AC9HG8K09, AC9HG8S02, AC9HG8S04, AC9HG8S05, AC9HG8S06

### Group size, time frame and location

Optimal group size: 2-3 students per group
Estimated time to complete module 3: 40 minutes (part 1 only)
Location: In a eucalypt open-forest or dry sclerophyll forest area or in class
Assessment type: Primary & Secondary data collection, Field report

### Activity 3.1: Conservation actions

In module 1 and 2, you have identified a range of challenges, threats and risks for the area. Can you list conservation actions to address these challenges, weaknesses or threats to the area? Which have priority? The SEQ Koala Conservation Strategy or local council strategy can provide some guidance on potential conservation actions for this area. Which could be suitable here?

### Remember!

Make sure to set a safe boundary for the activity and remind the students not to handle or collect live animals.
Stay on the path and don't access fragile habitat.

### Activity 3.2: Changing mindsets

Implementing conservation actions can be challenging in communities where people differ in opinions and ideas. Their views on the use and importance of the area as well as their understanding of the importance of koalas and their habitat can be different to yours or each others. You identified stakeholders in activity 2.2. Can you suggest effective ways of community engagement or education for each stakeholder group? What would you like them to do?

### Activity 3.3: Development proposal

Imagine you are the decision maker for the management of the area. You are provided with two proposals for the area. Which proposal would you approve and which would you decline? Discuss in your group and provide logical and reasoned arguments for your choice. Are there any conditions you would impose upon approval?

**Activities can be conducted in pairs or individually. One Note files can be requested to accommodate immersive readers.**

WORKSHEET

Name: Class:

## Activity 3.1. Conservation actions

In module 1 and 2, you have identified a range of challenges, threats and risks for the area. Can you list conservation actions to address these challenges, weaknesses or threats to the area? Which have priority? The SEQ Koala Conservation Strategy or local council strategy can provide some guidance on potential conservation actions for this area. Which could be suitable here?

| Priority # | Suggested Actions for the area to aid Koala Conservation efforts |
|---|---|
| | |
| | |
| | |
| | |

## Activity 3.2. Changing mindsets

You identified stakeholders in activity 2.2. Can you suggest effective ways of community engagement or education activities for each stakeholder group to aid koala conservation efforts? What would you like them to do?

| Stakeholder | Suggested Actions for this group to actively aid koala conservation efforts |
|---|---|
| | |
| | |
| | |
| | |

WORKSHEET

Name: Class:

## Activity 3.3. Development proposal

Imagine you are a decision maker and responsible for the management of the area. You are provided with two proposals. Which proposal would you approve and which would you decline? Would you decline or approve both? Discuss in your group and provide logical and reasoned arguments for your choice. Are there any conditions or restrictions you would impose upon approval? Continue this activity at home or back in class and find on-line evidence and information to support your decision. Use the data collected on your field trip for your argument. Don't forget to consult the QWildlife maps to look up the zoning of the area concerning koalas.

**PROPOSAL 1**

**Mountain Bike Trail Proposal**

The local mountain bike group has proposed to increase the number of paths available for use in the area. Currently, only few trails are available and they are all graded as easy levels. To create more challenging trails that would be suitable for hosting competitions, a local mountain bike group, with its 250 members, proposes to add a network of trails at medium or hard level. In addition, they propose better facilities at the start of the trails for bike maintenance, toilets and car parking.

**PROPOSAL 2**

**Housing Development Proposal**

The growing population in the area and limit in the availability of affordable housing has prompted a proposal from a developer to build a housing estate in the area. This will provide a place to live for 250 people. These will be homes that are within or below the average income of Australian families and will create a sense of place and community. In addition to the housing development, access roads to and from the area are also included in the proposal.

**Answer the following questions using a decision making matrix:**

I/We reject/approve proposal 1.
Why (based on a decision making matrix)?

I/We reject/approve proposal 2.
Why (based on a decision making matrix)?

WORKSHEET

Name: Class:

## Activity 3.3 (cont.) Decision making matrix

PROPOSAL 1

| Negative ... What If ? | Positive ... What If ? |
|---|---|
| | |

PROPOSAL 2

| Negative ... What If ? | Positive ... What If ? |
|---|---|
| | |

Year 9 & 10

# Koala Conservation in Action

## Koala Bushland Education - Module 3

### Australian National Curriculum Links

YR9 Science: AC9S9I06, AC9S9I07, AC9S9I08
YR9 Geo: AC9HG9K02, AC9HG9K06, AC9HG9K08, AC9HG9S03, AC9HG9S04, AC9HG9S05, AC9HG9S06
YR10 Science: AC9S10I04, AC9S10I05, AC9S10I07, AC9S10I08
YR10 Geo: AC9HG10K01, AC9HG10K04, AC9HG10S02, AC9HG10S03, AC9HG10S05, AC9HG10S06

### Group size, time frame and location

Optimal group size: 2-3 students per group
Estimated time to complete module 3: 40 minutes (part 1 only)
Location: In a eucalypt open-forest or dry sclerophyll forest area or in class
Assessment type: Primary & Secondary data collection, Field report

### Activity 3.1: Conservation actions

In module 1 and 2, you have identified a range of land use activities, threats and challenges for the area and how they each impact the environment or koala populations.
Can you list conservation actions to address these challenges? Which have priority? The SEQ Koala Conservation Strategy or local council strategy can provide some guidance on potential conservation actions for this area. Which could be suitable here?

### Remember!

Make sure to set a safe boundary for the activity and remind the students not to handle or collect live animals.
Stay on the path and don't access fragile habitat.

### Activity 3.2: Changing mindsets

Implementing conservation actions can be challenging in communities where people differ in opinions and ideas. Their views on the use and importance of the area as well as their understanding of the importance of koalas and their habitat can be different to yours or each others. You identified stakeholders in activity 2.2. Can you suggest effective ways of community engagement or education for each stakeholder group? What would you like them to do?

### Activity 3.3: Field report

Write a field report of 1000-1200 words which uses the data and observations collected during your excursion and the current conditions of the koala bushland. The report includes a proposal for the Department of Environment, Science and Innovation to address ONE of the challenges you have identified. Include a description of the area, the ecosystem services it provides and the stakeholders involved. Can your proposal align with any of the SEQ Koala Conservation Strategy or local council strategy components?

**Activities can be conducted in pairs or individually. One Note files can be requested to accommodate immersive readers.**

WORKSHEET

Name: Class:

## Activity 3.1. Conservation measures

In module 1 and 2, you have identified a range of challenges, threats and risks for the area. Can you list some measures to address the environmental and climate challenges you indicated? Will results be immediate? The SEQ Koala Conservation Strategy or local council strategy can provide some guidance on potential conservation actions for this area. Which could be suitable here?

| Mitigation measures | Results (immediate, before 10 years, longer than 10 years) |
|---|---|
| | |
| | |
| | |
| | |

## Activity 3.2. Changing mindsets

You identified stakeholders in activity 2.2. Can you suggest specific actions/restrictions for each stakeholder group to aid koala conservation efforts? What would you like them to do?

| Stakeholder | Suggested Actions for this group to actively aid koala conservation efforts |
|---|---|
| | |
| | |
| | |
| | |

WORKSHEET

Name: Class:

**Activity 3.3. Field report**

Write a field report of 1000-1200 words which uses the data and observations collected during your excursion and the current conditions of the koala bushland. The report includes a proposal for the Department of Environment, Science and Innovation to address ONE of the threats you have identified. Include a description of the area, the ecosystem services it provides and the stakeholders involved. Can your proposal align with any of the SEQ Koala Conservation Strategy or local council strategy components?

| 1000-1200 words | Structure of your report |
|---|---|
| **Title Page** | Provide your name, subject and title of your report, date submitted and your teacher's name |
| **Table of Contents** | Tabulate your headings and sub-headings and use page numbers. Do not forget to number the pages throughout your report |
| **List of Figures and Tables** | Tabulate these with their relevant page numbers |
| **Introduction and Description of the location** | Introduce the location to the reader. Explain briefly the aims/objectives of the field trip and the report. Comment on the current health and condition of the area. |
| **Methodology** | Outline very briefly what data collection techniques were used in the field. Include a statement about any problems, issues or limitations experienced in the process. |
| **Threat management and Stakeholder involvement** | Describe the threat you wish to include in your proposal and introduce the stakeholders involved and affected. |
| **Proposal for actions and methodology** | Propose koala conservation actions and how you will implement these, with a focus on the identified stakeholder |
| **Conclusion** | Complete the report and provide your thoughts about the future of the area |
| **References** | Include a list of books, electronic media and primary data collecting that you consulted in preparing this report. |

Year 11 & 12

# Koala Conservation in Action

## Koala Bushland Education - Module 3

### Australian National Curriculum Links

Bio (Unit 1): ACSBL007, ACSBL028
SS E&ES (Unit 3): ACSES063, ACSES066, ACSES068, ACSES081
Geo (Unit 2): ACHGEO38, ACHGEO43, ACHGEO46, ACHGEO47
Geo (Unit 3):ACHGEO61, ACHGEO64, ACHGEO67, ACHGEO72, ACHGEO83, ACHGEO84, ACHGEO85

### Group size, time frame and location

Optimal group size: 2-3 students per group
Estimated time to complete module 3: 40 minutes (part 1 only)
Location: In a eucalypt open-forest or dry sclerophyll forest area or in class
Assessment type: Primary & Secondary data collection, Field report

### Activity 3.1: Conservation support

In module 1 and 2, you have identified a range of challenges for the area and how they each impact the environment or koalas and how they connect to the sustainable development goals. Considering the range of stakeholders you have identified, can you indicate who would be likely to support/not support your ideas in activity 2.1 (addressing the SDG's without affecting koala populations) or other conservation actions you suggest?

### Remember!

Make sure to set a safe boundary for the activity and remind the students not to handle or collect live animals. Stay on the path and don't access fragile habitat.

### Activity 3.2: Changing mindsets and providing incentives

For stakeholders that are likely to be unsupportive of your conservation measures, can you think of ways to get their support or create incentives to come on board?

### Activity 3.3: Stakeholder engagement

After your visit to the area, you would like to propose some conservation actions in the area to improve the conservation of the area, the koalas and their habitat. Use the data collected in the field to create a proposal to the Department of Environment, Science and Innovation which has a particular focus on one of the stakeholder groups in your field report. Create an engagement plan for this group to increase their support for the conservation of the area.

**Activities can be conducted in pairs or individually. One Note files can be requested to accommodate immersive readers.**

WORKSHEET

Name: Class:

## Activity 3.1. Conservation support

In module 1 and 2, you have identified a range of challenges for the area and how they each impact the environment or koalas and how they connect to the sustainable development goals. Considering the range of stakeholders you have identified, can you indicate who would be likely to support/not support your ideas in activity 2.1 (addressing the SDG's without affecting koala populations) or other conservation measures you can suggest?

| Stakeholder group (see activity 2.2) | Conservation measures | Likely to be supportive/not supportive |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

## Activity 3.2. Changing minds and providing incentives

For stakeholders that are likely to be unsupportive of your conservation measures, can you think of ways to get their support or create incentives to come on board?

| Stakeholder | How to get support or change minds |
|---|---|
| | |
| | |
| | |
| | |

WORKSHEET

Name: Class:

## Activity 3.3. Stakeholder engagement

After your visit to the area, you would like to propose some conservation actions in the area to increase the conservation of the area, the koalas and their habitat. Use the data collected in the field to create a proposal to the Department of Environment, Science and Innovation, which has a particular focus on one of the stakeholder groups in your field report. Create an engagement plan for this group to increase their support for an increase of the conservation of the area. Can this plan align with the SEQ Koala Conservation Strategy?

| | Components of a stakeholder engagment plan |
|---|---|
| **Stakeholder** | Which stakeholder group is the focus of your engagement plan? Which support is needed? |
| **Level of engagement** | What is the level of engagement you are proposing? For the different levels of engagement, visit the IAP2 platform online. |
| **Stakeholder engagement activities** | Suggest at least 3 engagement activities for this stakeholder group to increase their support in the proposed conservation actions. |
| **Intensity and regularity of activities** | How often and how long will you deliver the engagement activities? Why did you choose this timeframe? |
| **Facilitation** | Where and how will you facilitate the engagement activities? |
| **Target** | What behaviour or attitude change are your aiming for? What would you like the stakeholders to do? Are you expecting full support or only partial? |

# GLOSSARY

| | |
|---|---|
| **Scat** | Droppings |
| **Understorey** | The understorey is typically grassy with a sparse shrub layer (below 10 metres). There can be variation in the species composition and structure of the understorey, which may relate to the local climate, soil type and management history of the site.  Understorey shrubs tend to be hard-leaved and relatively fire tolerant (i.e. can re-sprout after fire, or have hard-coated or hard-capsuled seeds that can survive fire). |
| **Mid-storey** | The layer of vegetation in a forest that consists of those trees whose height is between the smallest and tallest trees (between 10 and 30 metres) |
| **Over-storey** | The layer of vegetation in a forest that consists of those trees whose height is between the smallest and tallest trees (above 30 metres) |
| **Dry Sclerophyll Forest** | Open-forest is a vegetation type with moderately tall trees and a reasonably open canopy that lets in some light. The ground layer can be grassy or shrubby.<br>Forests tend to be named after their dominant canopy trees, so eucalypts are the most common canopy trees in eucalypt open-forests or dry sclerophyll forests. |
| **Land use** | The purpose for which an area of land is being used, such as residential, agricultural, recreational, commercial, retail or industry |
| **Environmental impact** | Any impact or effect (positive or negative) that an activity has on an environmental system, environmental quality, or natural resources. |
| **Ecosystem/Environmental value** | An economic process which assigns a value (either monetary, biophysical or other) to an ecosystem and/or its ecosystem services |
| **Cultural value** | The non-material benefits people obtain from ecosystems. They include aesthetic inspiration, cultural identity, sense of home, and spiritual experience related to the natural environment |
| **Ecosystem services** | The benefits people obtain from ecosystems.These include provisioning services such as food and water; regulating services such as flood and disease control; cultural services such as spiritual, recreational, and cultural benefits; and supporting services such as nutrient cycling that maintain the conditions for life on Earth. |

# GLOSSARY

| | |
|---|---|
| **Risk Matrix** | A matrix that is used to define the level of (potential) risk |
| **Provisioning services** | The products obtained from ecosystems, including, for example, genetic resources, food and fiber, and fresh water. |
| **Recreational value** | The natural environment's contributions to the range of leisure and recreational opportunities and experiences enjoyed by human societies |
| **Regulating services** | The benefits obtained from the regulation of ecosystem processes, including, for example, the regulation of climate, water, and some human diseases. |
| **Cultural services** | The non-material benefits people obtain from ecosystems through spiritual enrichment, cognitive development, reflection, recreation, and aesthetic experience, including, e.g., knowledge systems, social relations, and aesthetic values. |
| **Economic value** | The total economic value that is generated from an ecosystem as a result of both use of ecosystem services and non-sue values (such as regulating services) |
| **Re-Framing** | A process of reconceptualising a problem by seeing it from a different perspective |
| **Stakeholder** | Stakeholders are groups or organisations that have a strong interest or connection to the area. They don't necessarily have to be located near the area but derive benefits from the area |
| **Actor** | Actors are individuals, groups or organisations that are actively involved in the conservation and management of the area. They have a strong interest in the area. |
| **Stakeholder map** | The process of identifying, diagramming, and prioritising stakeholders by analysing their influence and interest in the area |
| **Mitigation measures** | To prevent, reduce or control adverse environmental impacts |
| **SWOT analysis** | A method for identifying and analysing internal strengths, weaknesses, and external opportunities and threats that shape current and future management and help develop strategic goals |

# RESOURCES AND LINKS

| | |
|---|---|
| **Climate Change** | https://www.dcceew.gov.au/climate-change |
| **Department of Environment, Science and Innovation website: koala facts** | https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas |
| **Eucalypt tree identification guide** | https://www.moretonbay.qld.gov.au/files/assets/public/v/1/services/environment/gumtree-identification-booklet.pdf<br><br>https://apps.lucidcentral.org/euclid/text/intro/index.html |
| **Eucalypt forest description** | https://www.anbg.gov.au/photo/vegetation/eucalypt-low-open-forests.html<br><br>https://www.anbg.gov.au/photo/vegetation/eucalypt-open-forests.html<br><br>https://www.anbg.gov.au/photo/vegetation/eucalypt-tall-open-forests.html |
| **IAP2 - Peak body for Engagement** | https://iap2.org.au/ |
| **SEQ Koala Conservation Strategy** | https://environment.des.qld.gov.au/__data/assets/pdf_file/0017/211733/seq-koala-conservation-strategy-2020-2025-community-summary.pdf |
| **Sustainable development goals** | https://sdgs.un.org/goals |
| **Threatened Species List** | https://app.powerbi.com/view?r=eyJrIjoiY2I3ZThmODMtNDhhNS00ZGJjLTgxZTAtZjc2ODQwMzM0Yzk2IiwidCI6ImQxNmRlNTMwLTk0ZTctNDE1OC1iN2UyLTZlZTIyMGFmNjI4ZCJ9 |
| **QLD Parks & Forest Website** | https://parks.des.qld.gov.au/ |
| **QWildlife App** | https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/report-sightings |


**Full strategy available at: https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/conservation/seq-koala-strategy**

Queensland Government

## RESOURCES AND LINKS

# Report koala sightings

## Download QWildlife app

Download on the App Store

GET IT ON Google Play

Queensland Government

# ACHIEVEMENT STANDARDS: SCIENCE

The Australian Curriculum V9 includes achievement standards for foundation years to Year 10, which describe the depth of understanding and the sophistication of knowledge and skill expected of students at the end of each year level. The activities in this teacher pack link to specific curriculum content and learning areas. They relate to the Australian Curriculum's science and humanities and social sciences (HASS). The specific learning content descriptions are included in each module for each year level. The achievement standards relevant to this teacher pack per year level are included below:

**Year 7**

By the end of Year 7 students explain how biological diversity is ordered and organised. They represent flows of matter and energy in ecosystems and predict the effects of environmental changes. Students identify the factors that can influence development of and lead to changes in scientific knowledge. They explain how scientific responses are developed and can impact society. They explain the role of science communication in shaping viewpoints, policies and regulations.

Students plan and conduct safe, reproducible investigations to test relationships and aspects of scientific models. They identify potential ethical issues and intercultural considerations required for field locations or use of secondary data. They use equipment to generate and record data with precision. They select and construct appropriate representations to organise data and information. They process data and information and analyse it to describe patterns, trends and relationships. They identify possible sources of error in methods and identify unanswered questions in conclusions and claims. They identify evidence to support their conclusions and construct arguments to support or dispute claims. They select and use language and text features appropriately for their purpose and audience when communicating their ideas and findings.

**Year 8**

Students analyse how different factors influence development of and lead to changes in scientific knowledge. They analyse the key considerations that inform scientific responses and how these responses impact society. They analyse the importance of science communication in shaping viewpoints, policies and regulations.

Students plan and conduct safe, reproducible investigations to test relationships and explore models. They describe potential ethical issues and intercultural considerations needed for specific field locations or use of secondary data. They select and use equipment to generate and record data with precision. They select and construct appropriate representations to organise and process data and information. They analyse data and information to describe patterns, trends and relationships and identify anomalies. They identify assumptions and sources of error in methods and analyse conclusions and claims with reference to conflicting evidence and unanswered questions. They construct evidence-based arguments to support conclusions and evaluate claims. They select and use language and text features appropriately for their purpose when communicating their ideas, findings and arguments to specific audiences.

**Year 9**

Students explain how interactions within and between Earth's spheres affect the carbon cycle. They analyse energy conservation in simple systems and apply wave and particle models to describe energy transfer. They explain observable chemical processes in terms of changes in atomic structure, atomic rearrangement and mass. Students explain the role of publication and peer review in the development of scientific knowledge and explain the relationship between science, technologies and engineering. They analyse the different ways in which science and society are interconnected.

Students plan and conduct safe, reproducible investigations to test or identify relationships and models. They describe how they have addressed any ethical and intercultural considerations when generating or using primary and secondary data. They select and use equipment to generate and record replicable data with precision. They select and construct appropriate representations to organise, process and summarise data and information. They analyse and connect data and information to identify and explain patterns, trends, relationships and anomalies. They analyse the impact of assumptions and sources of error in methods and evaluate the validity of conclusions and claims. They construct logical arguments based on evidence to support conclusions and evaluate claims. They select and use content, language and text features effectively to achieve their purpose when communicating their ideas, findings and arguments to specific audiences.

# ACHIEVEMENT STANDARDS: SCIENCE

**Year 10**

Students describe trends in patterns of global climate change and identify causal factors. Students analyse the key factors that influence interactions between science and society.

Students plan and conduct safe, valid and reproducible investigations to test relationships or develop explanatory models. They explain how they have addressed any ethical and intercultural considerations when generating or using primary and secondary data. They select equipment and use it efficiently to generate and record appropriate sample sizes and replicable data with precision. They select and construct effective representations to organise, process and summarise data and information. They analyse and connect a variety of data and information to identify and explain patterns, trends, relationships and anomalies. They evaluate the validity and reproducibility of methods, and the validity of conclusions and claims. They construct logical arguments based on analysis of a variety of evidence to support conclusions and evaluate claims. They select and use content, language and text features effectively to achieve their purpose when communicating their ideas, findings and arguments to diverse audiences.

**Senior Secondary (Year 11/12)**

**Biology (Unit 1 Biodiversity and the interconnectedness of life )**: In this unit, students investigate and describe a number of diverse ecosystems, exploring the range of biotic and abiotic components to understand the dynamics, diversity and underlying unity of these systems.

Through the investigation of appropriate contexts, students explore how international collaboration, evidence from multiple disciplines and the use of ICT and other technologies have contributed to the study and conservation of national, regional and global biodiversity. They investigate how scientific knowledge is used to offer valid explanations and reliable predictions, and the ways in which scientific knowledge interacts with social, economic, cultural and ethical factors. Fieldwork is an important part of this unit, providing valuable opportunities for students to work together to collect first-hand data and to experience local ecosystem interactions. In order to understand the interconnectedness of organisms, the physical environment and human activity, students analyse and interpret data collected through investigation of a local environment and from sources relating to other Australian, regional and global environments.

**Earth & Environmental Sciences (Unit 3: Living on Earth; extracting, using and managing earth's resources ):**Earth resources are required to sustain life and provide infrastructure for living (for example, food, shelter, medicines, transport, and communication), driving ongoing demand for biotic, mineral and energy resources. In this unit, students explore renewable and non-renewable resources and analyse the effects that resource extraction, use and consumption and associated waste removal have on Earth systems and human communities. Students learn about ecosystem services and how natural and human-mediated changes of the biosphere, hydrosphere, atmosphere and geosphere, including the pedosphere, influence resource availability and sustainable management. Through the investigation of appropriate contexts, students explore the ways in which models and theories related to resource extraction, use and management have developed over time and through interactions with social, economic, cultural and ethical considerations. They investigate the ways in which science contributes to contemporary debate regarding local, regional and international resource use, evaluation of risk and action for sustainability, and recognise the limitations of science in providing definitive answers in different contexts.

# ACHIEVEMENT STANDARDS: HASS

The Australian Curriculum V9 includes achievement standards for foundation years to Year 10, which describe the depth of understanding and the sophistication of knowledge and skill expected of students at the end of each year level. The activities in this teacher pack link to specific curriculum content and learning areas. They relate to the Australian Curriculum's science and humanities and social sciences (HASS). The specific learning content descriptions are included in each module for each year level. The achievement standards relevant to this teacher pack per year level are included below:

**Year 7**

By the end of Year 7, students describe how the characteristics of places are perceived and valued differently by people. They describe the importance of environments to people. They describe the features of a distribution. They explain the interconnections between people and places and environments, and describe how these interconnections change places or environments. Students describe a response or strategy to address a geographical phenomenon or challenge.

Students develop questions about a geographical phenomenon or challenge. They collect, organise and represent relevant data and information, using primary research methods and secondary research materials. They identify similarities and differences, and describe patterns in data and information. They draw conclusions about the impact of the geographical phenomenon or challenge on people, places and environments. They develop a strategy for action. Students use geographical knowledge, concepts, terms and relevant findings from sources to create descriptions, explanations and responses.

**Year 8**

By the end of Year 8, students explain how the interactions of people and environmental processes impact on the characteristics of places. They explain how the characteristics of places are perceived and valued differently by people. They describe the effects of human activity or hazards on environments. They explain the features of a distribution and identify implications. They explain the interconnections between people and places and environments. They explain how these interconnections change places or environments. Students explain responses or strategies to address a geographical phenomenon or challenge, referring to environmental, economic or social factors.

Students develop relevant questions about a geographical phenomenon or challenge. They collect, organise and represent relevant and reliable data and information using primary research methods and secondary research materials. They interpret and analyse data and information to explain patterns and trends and infer relationships. They draw reasoned conclusions about the impact of the geographical phenomenon or challenge. They decide on appropriate strategies for action and explain potential impacts. Students use geographical knowledge, methods, concepts, terms and reference findings from sources to create descriptions, explanations and responses.

**Year 9**

By the end of Year 9, students explain how peoples' activities or environmental processes change the characteristics of places. They explain the effects of human activity on environments, and the effects of environments on human activity. They explain the features of biomes' distribution and identify implications for environments. They analyse the interconnections between people and places and environments. They identify and explain how these interconnections influence people, and change places and environments. Students analyse strategies to address a geographical phenomenon or challenge using environmental, social or economic criteria.

Students develop a range of questions about a geographical phenomenon or challenge. They collect, represent and compare relevant and reliable geographical data and information by using a range of primary research methods and secondary research materials in a range of formats. They interpret and analyse data and information to explain patterns and trends and infer relationships. They draw evidence-based conclusions about the impact of the geographical phenomenon or challenge. They develop and evaluate strategies, predict impacts and make a recommendation. Students use geographical knowledge, concepts, terms and digital tools as appropriate to develop descriptions, explanations and responses that acknowledge research findings.

# ACHIEVEMENT STANDARDS: HASS

**Year 10**

By the end of Year 10, students explain how the interactions of people and environmental processes at different scales change the characteristics of places. They explain the effects of human activity on environments, and the effect of environments on human activity, over time. They evaluate the implications of a distribution. They evaluate the extent of interconnections occurring between people and places and environments. They analyse changes that result from these interconnections and their consequences. Students evaluate strategies to address a geographical phenomenon or challenge, using environmental, social and economic criteria.

Students develop a range of relevant questions about a geographical phenomenon or challenge. They collect, represent and compare relevant and reliable geographical data and information by using a range of primary research methods and secondary research materials, using appropriate formats. They interpret and analyse data and information to make generalisations and predictions, explain significant patterns and trends, and infer relationships. They draw evidence-based conclusions, based on relevant data and information, about the impact of the geographical phenomenon or challenge. They develop and evaluate strategies using criteria, recommend a strategy and explain the predicted impacts. Students use geographical knowledge, concepts, terms and digital tools as appropriate to develop descriptions, explanations and responses that synthesise research findings.

**Geography (Unit 2: Sustainable Places):** This unit examines the economic, social and environmental sustainability of places. While all places are subject to changes produced by economic, demographic, social, political and environmental processes, the outcomes of these processes vary depending on local responses and adaptations.

At a global scale, the process of urbanisation is not only affecting the rate of world population growth and human wellbeing, it has created a range of challenges for both urban and rural places. How people respond to these challenges, individually and collectively, will determine the sustainability and liveability of places into the future.

The interconnected challenges faced in places, including population growth and decline, employment, economic restructuring, transport infrastructure needs, housing, demands for improved health and education services, and other matters related to liveability, are a particular focus of this unit.

Students examine how governments, planners, communities, interest groups and individuals try to address these challenges to ensure that places are sustainable. They also investigate the ways that geographical knowledge and skills can be applied to identify and address these challenges.

**Senior Secondary Year 11/12**

**Geography (Unit 3: Land Cover Transformations):**This unit focuses on the changing biophysical cover of the earth's surface, its impact on global climate and biodiversity, and the creation of anthropogenic biomes. In doing so, it examines the processes causing change in the earth's land cover. These processes may include: deforestation, the expansion and intensification of agriculture, rangeland modification, land and soil degradation, irrigation, land drainage, land reclamation, urban expansion and mining.

This unit includes an overview of land cover change and two depth studies: one focusing on the interrelationship between land cover and either global climate change or biodiversity loss, and one focusing on a program designed to address land cover change. These processes have altered local and regional climates and hydrology, damaged ecosystem services, contributed to the loss of biodiversity, and altered soils. The scale at which these processes now occur is so extensive that there no longer exist any truly 'natural' environments. All environments are, to a greater or lesser extent, modified by human activity. This focus on anthropogenic biomes differentiates Geography from Earth and Environmental Science. The processes of land cover transformation have also changed the global climate through their interaction with atmospheric processes, and climate change is, in turn, producing further transformations in land cover.

The scale of study for this unit, unless specified, can range from local to global, as appropriate. There is, for example, the requirement that students investigate the impacts of land cover change on local and regional environments; a local land cover change initiative designed to address the issue of climate change of biodiversity loss; and the evaluation of program to address land cover change