



# BIODIVERSITY AND THE INTERCONNECTEDNESS OF LIFE WORKSHEET

In small groups, complete the work sheet, 'Biodiversity and the interconnectedness of Life', to learn more about how we classify and conserve our amazing biodiversity and explore ecosystems, their diversity and dynamics. We recommend staggered groups to minimise congestion if multiple classes. Read the exhibit signage as well as the worksheet to discover the answers. Worksheet sections/locations can be completed in any order. Come back to a question if you can't answer it right away as you might find it on a sign later. Note that not all answers are on the signs.

Please note that Years 9-12 still require teacher/parent supervision to ride the train.

## Conservation at Currumbin

**Currumbin Wildlife Sanctuary is passionate about conservation and preserving our wildlife for future generations to enjoy. The Sanctuary participates in 16 conservation projects to help save some of these amazing species from extinction. Learn more about our conservation projects and what YOU can do to help too! Consider committing to making a difference to at least ONE conservation project following your visit. YOU can make a difference!**

### Blinky Bill's Home Tree

**(Freshwater animals, nocturnal mammals and reptiles - map reference B14) -**

*What is a physiological adaptation? Internal and/or cellular features of an organism that enable them to survive in their environment (e.g. snakes produce poisonous venom to ward off predators and to capture prey).*

1.

**a) Evidence suggests that the earliest fish had gills. Find an animal that has gills but also uses something else to breath. This is a physiological adaptation.**

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**b) What kind of environment does this enable this fish to survive? What advantage does this adaptation give this animal?**

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*What is a structural adaptation? Physical features of an organism that enable them to survive in their environment (e.g. a penguin has blubber to protect itself from freezing temperatures).*

2.

*Flying Squirrels are native to North America. They are placental mammals belonging to the order rodentia. **Natural selection** has enabled them to adapt to leaping from treetops and foraging at night hence their gliding membranes and large eyes.*



a) Find a marsupial mammal belonging to the order diprotodontia that has the same structural and behavioural adaptations. These mammals are only distantly related yet have similar adaptations. List one structural and behavioural adaptation and explain what they use them for.

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b) Think of a human activity that directly impacts on this mammal and explain why.

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*What is a behavioural adaptation? Actions of an organism that enable them to survive in their environment (e.g. bears hibernate in winter to escape the cold temperatures and preserve energy).*

**3.**

*Did you know we don't have many Australian animals that truly 'hibernate' in Australia.*

*What is torpor? A physiological state that conserves energy by slowing down the heart and respiratory systems.*

*What is brumation? A state or condition of sluggishness, inactivity, or torpor exhibited by reptiles during winter or extended periods of low temperature.*

*Hibernation, torpor and brumation are examples of a physiological adaptation.*

a) Find one mammal that conserves its energy via 'torpor' during the cooler months. What advantage does this give this mammal?

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b) Think about and explain how climate change may affect animals that hibernate or migrate.

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**4.**

Did you know the genus for Cane Toad used to be *Bufo*. What is the new Genus for Cane Toad?

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**5.**

*Conservation Project #1 - Bilbies are a threatened species and Currumbin Wildlife Sanctuary is part of a National Bilby breeding program in collaboration with Save the Bilby Foundation. Currumbin Wildlife Sanctuary has had good success breeding Bilbies as part of this program and has been able to breed Bilby twins on multiple occasions.*

a) How many Bilbies are estimated to be remaining in Queensland?

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b) List the biggest threat to Bilby populations.

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Back at school, visit <https://savethebilbyfund.com/help-bilbies> to learn how you can help Bilbies.

6.

Did you know that many animals go by many common or local names but all animals have only one latin or scientific name. List another common name for Splendid Green Tree Frog *Litoria splendida*.

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**Forest Fringe Aviary (map reference I15) –**

7.

a) Find two bird species that belong to the same Genus and both feed on nectar. Explain the structural adaptation these birds have to remove the sweet nectar. Write both their common and scientific name.

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b) Think about and explain how nectar feeders increase plant biodiversity and play an important role in ecosystems and plant conservation.

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**Tasmanian Devil (map reference Q12) –**

8.

*Australia has a great diversity of marsupials. Some scientists say their short gestation or pregnancy period may be a reproductive strategy or physiological adaptation used to survive Australia's largely desert environment.*

a) How many joeys can Tasmanian Devils have? How many joeys will have the opportunity to secure a teat?

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*This reproductive strategy ensures 'survival of the fittest'! Only the fittest genes will survive and reproduce.*

*Conservation Project #2 – 90% of the Tasmanian Devil population has been wiped out by the Devil Facial Tumour Disease (DFTD) making it now listed as endangered. A decision was made to move Tasmanian Devils to approved wildlife institutions on mainland of Australia. Currumbin Wildlife Sanctuary has been involved in the captive breeding program since its inception, breeding Devils and contributing to the education process to help save this species from extinction in the wild.*

c) Summarise Devil Facial Tumour Disease.

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d) Does the host benefit from this disease?

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e) Is this symbiotic relationship an example of mutualism or parasitism?

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**Kangaroos - paddock** (map reference S13) -

9.

Find a vulnerable species of macropod (kangaroo and wallaby family) that Currumbin Wildlife Sanctuary has previously bred and released back into the wild. How can we help this macropod?

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*Conservation Project #3 – Threats include hunting, predation, habitat loss and competition with other species, all of which is contributing to loss of genetic diversity. Add to this is the pressure from introduced predators such as the fox as well as competition with feral goats, sheep and rabbits.*

**Lost Valley** (map reference V14) –

10.

*Conservation project #4 - This bird is now listed as secure however still considered a CWS conservation project. Major threats include the loss and fragmentation of available habitat, attacks by dogs, vehicle strikes, disease and natural catastrophic weather events. Currumbin Wildlife Sanctuary is endeavouring to have breeding success into the future.*

b) How does the cassowary play an important role in maintaining the diversity of the rainforest?

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c) Cyclones and habitat destruction are causes for cassowary displacement and decline. How do you think cassowaries affected when they move into urban areas? How do you think ecosystems affected when cassowaries decline? (no sign)

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d) Currumbin Wildlife Sanctuary is involved in conservation of four mammals in the Lost Valley exhibit. These mammals range from vulnerable to critically endangered. List all four mammals.

Conservation project #5 (critically endangered) – \_\_\_\_\_

Conservation project #6 (endangered) – \_\_\_\_\_

Conservation project #7 (vulnerable) – \_\_\_\_\_

Conservation project #8 (endangered) – \_\_\_\_\_

*Some of the species in the Lost Valley exhibit are affected by the exploitation such as the illegal pet trade and poaching. As a traveller, you can help by supporting ethical wildlife tourism and avoiding wildlife exploitation.' Street selfies' with exotic species are not okay. Do your research, particularly when visiting developing countries.*



**Wombats and Koalas (map reference R8 – Koalas and T8 – Wombat Den)**

**11.**

**a) Why is it important that Koalas are genetically diverse?**

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*Did you know Victorian Koalas vary from their southern cousins. They are darker in colour and almost double the weight to survive the cooler climate.*

*Conservation project #9 – Listed as vulnerable, the Koala is under threat from habitat destruction, dog attacks and vehicle strikes. Many Koala populations are thought to have disappeared or are in serious decline. The Koala is iconic and at Currumbin Wildlife Sanctuary we have had a healthy population of Koalas for many decades and we will continue to care for and highlight the need to conserve this amazing little Aussie icon.*

*Koalas live in YOUR backyard/local bushland reserve. YOU can help Koalas! Plant a tree, be a responsible pet owner (desex your pets, keep your cat indoors at all times and your dog contained at night), stick to the speed limits and keep an eye out at dawn and dusk. Consider supporting our Tree to Me program – <http://cwhf.org.au/get-involved/tree-to-me/>*

*Become a citizen scientist and assist City of Gold Coast with Koala conservation by reporting Koala sightings – [https://www.qchaveyoursay.com.au/koalas/survey\\_tools/reportakoala](https://www.qchaveyoursay.com.au/koalas/survey_tools/reportakoala)*

**Frog Conservation & Research Facility (map reference S5) –**

**12.**

**a) Which critically endangered frog species is Currumbin Wildlife Sanctuary looking to start breeding? Why is it critically endangered?**

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*Conservation project #10 – The Kroombit Tinkrfrog (*Taudactylus pleione*) is listed as critically endangered and is currently known from only 12 small patches of rainforest totalling 596 hectares at Kroombit Tops National Park, located south-west of Gladstone in South East Queensland. The 12 populations fall within an area of about 3000 hectares. Currumbin Wildlife Sanctuary staff have been ‘out in the field’ with Queensland Government representatives assessing habitat and locations for the Kroombit Tinkerfrog. This is such an exciting project because eggs and tadpoles have never been recorded in this species.*

**b) List at least two interesting breeding adaptations some frog species have developed.**

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c) What are the causes for frog decline in general?

1.

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2.

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3.

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4.

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5.

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e) What can YOU do to help?

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**Hospital** (map reference Q2) –

13.

How many native wildlife were admitted to Currumbin Wildlife Hospital last year?

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Check out the wonderful work of the Currumbin Wildlife Hospital! Consider supporting us –

<http://cwhf.org.au/get-involved/school-fundraising/>

<http://cwhf.org.au/pavers/>

*The Hospital has grown to be one of the busiest wildlife hospitals in the world, admitting over 10,000 animals a year – a service that is provided free of charge to the community.*

**Glossy Black Cockatoo** (map reference R9) –

14.

Why is the Glossy Black Cockatoo listed as vulnerable?

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*Conservation project #12 – Currumbin Wildlife Sanctuary breeds this species regularly and helps contribute to saving this species through education and our involvement in community days.*

*YOU can get involved in these community days! Become a citizen scientist and submit your sightings –*

[http://glossyblack.org.au/Submit\\_sightings.html](http://glossyblack.org.au/Submit_sightings.html)



15.

Draw a food web for any animal at Currumbin Wildlife Sanctuary. Clue - Check the diet on the exhibit signage!  
Identify producers and consumers, including introduced species, where appropriate.

List abiotic factors play a role in your food web.

List human impacts that may affect your food web.

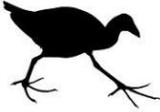
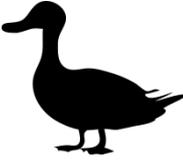


16.

**Wild Water Bird Watching (Near any water body - Please do not enter water or cross train tracks to observe birds)**

Use the following dichotomous key to identify wild water bird biodiversity at Currumbin Wildlife Sanctuary. Take note of features specific to different water bird groups/classifications -

1. Identify body size and shape

SMALL	<p>1. Native water hen (note - long legs &amp; toes)</p> 	<p>2. Duck</p> 
<p>3. Rail</p> 	<p>4. Grebe</p> 	<p>5. Gull</p> 
		<p>6. Stilt</p> 

**SMALL WATER BIRDS ID -****1. Native water hen**

- a) Underparts, wings deep blue to purple black with **bill and frontal shield brick-red** = **Purple Swamphen**  
*Porphyrio porphyrio*
- b) Body slate-grey, wings and rump brown with **bill, frontal shield red with tip yellow** = **Dusky Moorhen**  
*Gallinula tenebrosa*
- c) Head black; body dark slate grey with **bill, frontal shield white** = **Eurasian Coot** *Fulica atra*

**2. Duck**

- a) Crown blackish with **two black face stripes**, body dark brown, upperwing has purplish-green speculum = **Pacific Black Duck** *Anas superciliosa*
- b) Crown black, upperparts brownish black edged with chestnut, **bill black** = **Wandering Whistling Duck**  
*Dendrocygna arcuata*
- c) Crown pale brown, face and foreneck whitish-buff, upperparts brown, feathers of upper back edged yellow, **long buff flank plumes on wings, bill pink** = **Plumed Whistling Duck** *Dendrocygna eytoni*
- d) **Male - green head and white neck ring**, white underparts, female - mottled and streaked dusky brown = **Mallard** *Anas platyrynchos*
- e) **Male - Rich dark brown, bill black with blue bar near tip, eye white, female - Paler than male, eye brown** = **Maned (Wood) Duck** *Chenonetta jubata*

**3. Rail**

Front of eyebrow white, chestnut eye-stripe and nap, throat grey, underparts, cap, wings brown, blackish feathers edged with white spots, **upper chest to underparts black with white bars** = **Buff-banded Rail**  
*Gallirallus philippensis*

**4. Grebe**

Head and neck black, bare skin forms pale yellow face spot, richly coloured chestnut strip extends back on to side of neck, back dark down, underparts silver grey = **Australasian Grebe** *Tachybaptus novaehollandiae*

**5. Gull**

Body white soft parts red, mantle grey, upperwings, inner primaries grey, outer wing region from carpal white with black sub-terminal band through primaries with white-tips and three white spots = **Silver Gull**  
*Larus novaehollandiae*

**6. Stilt**

White, black nape patch and back wings, long fine black bill, long coral-pink legs  
**Black-winged Stilt** *Himantopus himantopus*



**MEDIUM**

1. Darter



2. Cormorant  
(note - hooked beak)



3. Heron or Egret



4. Ibis  
(note - curved beak)



5. Spoonbill





## MEDIUM WATER BIRDS ID -

## 1. Darter

Long pointed bill, **snake-shaped neck** = **Darter *Anhinga melanogaster***

## 2. Cormorant

a) Long dark horn bill, orange facial and throat skin, **side of neck and belly white, black upperparts** = **Pied Cormorant *Phalacrocorax varius***

b) Small version of Pied Cormorant, **no bare throat skin** = **Little Pied Cormorant *Phalacrocorax melanoleucos***

c) **All black with yellow facial skin and throat pouch** = **Great Black Cormorant *Phalacrocorax carbo***

d) **Small all black, glossy green back** = **Little Black Cormorant *Phalacrocorax sulcirostris***

## 3. Heron or egret

a) Bill dark brown, **face to just behind eye white**, upperparts and wings grey = **White-faced Heron *Ardea novaehollandiae***

b) Breeding - **Bill yellow or pinkish yellow, long loose rusty brown plumes on head, 46-54cm**; Non-breeding - **Rounded forehead and prominent feathers under lower mandible distinguish from other egrets** = **Cattle Egret *Ardea ibis***

c) Breeding - **Bill usually black, 90-103cm**; Non-breeding - Bill usually yellow, facial skin yellow, plumes few or absent, **slender build distinguish from other egrets** = **Great Egret *Ardea alba***

d) Breeding - **Bill black, facial skin yellow to orange, 56-65cm**; Non-breeding - Plumes few or absent = **Little Egret *Ardea garzetta***

e) Breeding - **Bill orange or red, facial skin green, 56-70cm**; Non-breeding - Face yellow, little or few plumes = **Intermediate Egret *Ardea intermedia***

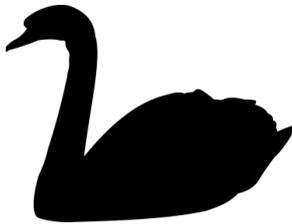
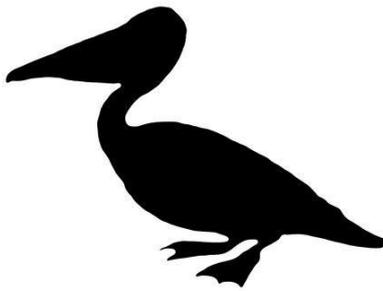
## 4. Ibis

a) Black bill and naked skin on head, upper neck, body and wings white = **Australian White Ibis or Sacred Ibis *Threskionis aethiopica***

## 5. Spoonbill

a) Bill **distinctive black**, black skin on head to just behind eye, all white = **Royal Spoonbill *Platalea regia***



<p><b>LARGE</b></p>	<p>6. Goose</p> 	<p>7. Swan</p> 
		<p>8. Pelican</p> 

**LARGE WATER BIRDS ID -**

**1. Goose**

Head black with distinct knob in older birds, neck to upper breast black; mantle upperwing coverts, rump and belly white = **Maggie Goose *Anserana semipalmata***

**2. Swan**

All black with long slender neck and white tipped wings, bill orange and dark red = **Black Swan *Cygnus atratus***

**3. Pelican**

Black and white, long pink bill and distensible throat pouch = **Australian Pelican *Pelecanus conspicillatus***

*Conservation project #13 – Eastern Bristlebird (top secret back of house area!)*

*Conservation project #14 – Coxen's Figparrot (map reference R4 – Rainforest Avairy)*

*Conservation project #15 and # 16 – Regent Honeyeater and Orange-bellied Parrot (map reference Q6 – Conservation Avairies)*

***Be a Conservation Champion! YOU can make a difference.***



# BIODIVERSITY AND THE INTERCONNECTEDNESS OF LIFE – ANSWERS

In small groups, complete the work sheet, 'Biodiversity and the interconnectedness of Life', to learn more about how we classify and conserve our amazing biodiversity and explore ecosystems, their diversity and dynamics. We recommend staggered groups to minimise congestion if multiple classes. Read the exhibit signage as well as the worksheet to discover the answers. Worksheet sections/locations can be completed in any order. Come back to a question if you can't answer it right away as you might find it on a sign later. Note that not all answers are on the signs.

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## Blinky Bill's Home Tree

**(Freshwater animals, nocturnal mammals and reptiles - map reference B14) -**

*What is a physiological adaptation? Internal and/or cellular features of an organism that enable them to survive in their environment (e.g. snakes produce poisonous venom to ward off predators and to capture prey).*

1.

**a) Evidence suggests that the earliest fish had gills. Find an animal that has gills but also uses something else to breath. This is a physiological adaptation.**

**Australian Lungfish**

**b) What kind of environment does this enable this fish to survive? What advantage does this adaptation give this animal?**

**Stagnant ponds. This physiological adaptation allows this fish to survive in ponds with low oxygen.**

*What is a structural adaptation? Physical features of an organism that enable them to survive in their environment (e.g. a penguin has blubber to protect itself from freezing temperatures).*

2.

*Flying Squirrels are native to North America. They are placental mammals belonging to the order rodentia. **Natural selection** has enabled them to adapt to leaping from treetops and foraging at night hence their gliding membranes and large eyes.*

**a) Find a marsupial mammal belonging to the order diprotodontia that has the same structural and behavioural adaptations. These mammals are only distantly related yet have similar adaptations. List one structural and behavioural adaptation and explain what they use them for.**



Squirrel Glider. Gliding membrane – leaping from treetops and large eyes as they are nocturnal – foraging at night.

**b) Think of a human activity that directly impacts on this mammal and explain why.**

Deforestation. Squirrel Gliders nest in tree hollows so loss of old growth forests results in habitat loss.

*What is a behavioural adaptation? Actions of an organism that enable them to survive in their environment (e.g. bears hibernate in winter to escape the cold temperatures and preserve energy).*

**3.**

*Did you know we don't have many Australian animals that truly 'hibernate' in Australia.*

*What is torpor? A physiological state that conserves energy by slowing down the heart and respiratory systems.*

*What is brumation? A state or condition of sluggishness, inactivity, or torpor exhibited by reptiles during winter or extended periods of low temperature.*

*Hibernation, torpor and brumation are examples of a physiological adaptation.*

**a) Find one mammal that conserves its energy via 'torpor' during the cooler months. What advantage does this give this mammal?**

Squirrel Glider, Yellow-bellied Glider, Feathertail Glider, Long-nosed Potoroo – Decreased physiological activity enables the animal to survive during the cooler seasons when food availability is reduced.

**b) Think about and explain how climate change may affect animals that hibernate or migrate.**

Climate change can alter the length of climatic seasons, which affects resource availability (food, shelter, etc.) and the amount of time animals have to prepare for subsequent seasons and life stages.

**4.**

**Did you know the genus for Cane Toad used to be *Bufo*. What is the new Genus for Cane Toad?**

*Rhinella*

**5.**

*Conservation Project #1 - Bilbies are a threatened species and Currumbin Wildlife Sanctuary is part of a National Bilby breeding program in collaboration with Save the Bilby Foundation. Currumbin Wildlife Sanctuary has had good success breeding Bilbies as part of this program and has been able to breed Bilby twins on multiple occasions.*

**a) How many Bilbies are estimated to be remaining in Queensland?**

400-1600 Bilbies

**b) List the biggest threat to Bilby populations.**

Feral predators, particularly feral cats and foxes.

Back at school, visit <https://savethebilbyfund.com/help-bilbies> to learn how you can help Bilbies.



6.

Did you know that many animals go by many common or local names but all animals have only one latin or scientific name. List another common name for Splendid Green Tree Frog *Litoria splendida*.

Magnificent Green Tree Frog

Forest Fringe Aviary (map reference I15) –

7.

a) Find two bird species that belong to the same Genus and both feed on nectar. Explain the structural adaptation these birds have to remove the sweet nectar. Write both their common and scientific name.

Rainbow Lorikeet *Trichoglossus moluccanus* and Scaly-breasted Lorikeet *Trichoglossus chlorolepidotus* – Tongue with hair-like structures.

b) Think about and explain how nectar feeders increase plant biodiversity and play an important role in ecosystems and plant conservation.

Plants benefit from animals feeding upon their nectar and pollen because they assist with fertilisation of plants when it sticks to their feathers and they move from plant to plant.

Tasmanian Devil (map reference Q12) –

8.

Australia has a great diversity of marsupials. Some scientists say their short gestation or pregnancy period may be a reproductive strategy or physiological adaptation used to survive Australia's largely desert environment.

a) How many joeys can Tasmanian Devils have? How many joeys will have the opportunity to secure a teat?

As many as 40 joeys. Only four joeys will have the opportunity to secure a teat.

This reproductive strategy ensures 'survival of the fittest'! Only the fittest genes will survive and reproduce.

Conservation Project #2 – 90% of the Tasmanian Devil population has been wiped out by the Devil Facial Tumour Disease (DFTD) making it now listed as endangered. A decision was made to move Tasmanian Devils to approved wildlife institutions on mainland of Australia. Currumbin Wildlife Sanctuary has been involved in the captive breeding program since its inception, breeding Devils and contributing to the education process to help save this species from extinction in the wild.

c) Summarise Devil Facial Tumour Disease.

An unusual parasitic cancer that spreads from animal to animal through biting. Due to lack of genetic diversity, the disease is not rejected by its host but develops into large visible facial tumours.

d) Does the host benefit from this disease?

No

e) Is this symbiosis an example of mutualism or parasitism?

Parasitism



**Kangaroos - paddock (map reference S13) -**

9.

**Find a vulnerable species of macropod (kangaroo and wallaby family) that Currumbin Wildlife Sanctuary has previously bred and released back into the wild. How can we help this macropod?**

**Brush-tailed Rock Wallaby - Control introduced species and habitat protection.**

*Conservation Project #3 – Threats include hunting, predation, habitat loss and competition with other species, all of which is contributing to loss of genetic diversity. Add to this is the pressure from introduced predators such as the fox as well as competition with feral goats, sheep and rabbits.*

**Lost Valley (map reference V14) –**

10.

*Conservation project #4 - This bird is now listed as secure however still a conservation project. Major threats include the loss and fragmentation of available habitat, attacks by dogs, vehicle strikes, disease and natural catastrophic weather events. Currumbin Wildlife Sanctuary is endeavouring to have breeding success into the future.*

**b) How does the cassowary play an important role in maintaining the diversity of the rainforest?**

**Cassowaries have been recorded eating over 238 species. They assist seed producing plants because they assist with dispersing seeds when seeds are passed through their faeces.**

**c) Cyclones and habitat destruction are causes for cassowary displacement and decline. How do you think cassowaries affected when they move into urban areas? How do you think ecosystems affected when cassowaries decline? (no sign)**

**Cassowaries will come into conflict with cars and dogs as they move into urban area. Seed dispersal and, therefore, food for other animals will decrease.**

**d) Currumbin Wildlife Sanctuary is involved in conservation of four mammals in the Lost Valley exhibit. These mammals range from vulnerable to critically endangered. List all four mammals.**

**Conservation project #5 (critically endangered) – Cotton-top Tamarin**

**Conservation project #6 (endangered) – Ring-tailed Lemur**

**Conservation project #7 (vulnerable) – Red Panda**

**Conservation project #8 (endangered) – Goodfellow's Tree Kangaroo**

*Some of the species in the Lost Valley exhibit are affected by the exploitation such as the illegal pet trade and poaching. As a traveller, you can help by supporting ethical wildlife tourism and avoiding wildlife exploitation. 'Street selfies' with exotic species are not okay. Do your research, particularly when visiting developing countries.*

**Wombats and Koalas (map reference R8 – Koalas and T8 – Wombat Den)**

11.

**a) Why is it important that Koalas are genetically diverse?**

**To reduce the side effects of inbreeding. Inbreeding can cause Koalas to carry undesired genetic traits and they may also become susceptible to diseases.**



*Did you know Victorian Koalas vary from their southern cousins. They are darker in colour and almost double the weight to survive the cooler climate.*

*Conservation project #9 – Listed as vulnerable, the Koala is under threat from habitat destruction, dog attacks and vehicle strikes. Many Koala populations are thought to have disappeared or are in serious decline. The Koala is iconic and at Currumbin Wildlife Sanctuary we have had a healthy population of Koalas for many decades and we will continue to care for and highlight the need to conserve this amazing little Aussie icon.*

*Koalas live in YOUR backyard/local bushland reserve. YOU can help Koalas! Plant a tree, be a responsible pet owner (desex your pets, keep your cat indoors at all times and your dog contained at night), stick to the speed limits and keep an eye out at dawn and dusk. Consider supporting our Tree to Me program – <http://cwhf.org.au/get-involved/tree-to-me/>*

*Become a citizen scientist and assist City of Gold Coast with Koala conservation by reporting Koala sightings – [https://www.gchaveyoursay.com.au/koalas/survey\\_tools/reportakoala](https://www.gchaveyoursay.com.au/koalas/survey_tools/reportakoala)*

**Frog Conservation & Research Facility (map reference S5) –**

**12.**

**a) Which critically endangered frog species is Currumbin Wildlife Sanctuary looking to start breeding? Why is it critically endangered?**

**Kroombit Tinkerfrog. Threats include climate change, chytrid fungus, cattle grazing (trampling and faeces in water), predation and trampling by pigs, fire and invasive weeds.**

*Conservation project #10 – The Kroombit Tinkerfrog (Taudactylus pleione) is listed as critically endangered and is currently known from only 12 small patches of rainforest totalling 596 hectares at Kroombit Tops National Park, located south-west of Gladstone in South East Queensland. The 12 populations fall within an area of about 3000 hectares. Currumbin Wildlife Sanctuary staff have been ‘out in the field’ with Queensland Government representatives assessing habitat and locations for the Kroombit Tinkerfrog. This is such an exciting project because eggs and tadpoles have never been recorded in this species.*

**b) List at least two interesting breeding adaptations some frog species have developed.**

**Pouched Frog – Male has pouch to raise tadpoles to frog, Tusked Frog – male has tusks to fight other males for territory, Holy Cross Toad – Male excretes sticky secretion to secure a female when mating, Gastric brooding frogs (now extinct) – Female swallowed her fertilised eggs to incubate her young.**

**c) What are the causes for frog decline in general?**

1. Habitat loss and degradation
2. Introduced feral animals
3. Global warming
4. Pollution
5. Chytrid fungus

**e) What can YOU do to help?**

**Preserve and create frog friendly habitat, be a responsible pet owner, don't pollute by putting chemical down drains etc and minimise spread of the fatal chytrid fungus.**



**Hospital (map reference Q2) –**

**13.**

**How many native wildlife were admitted to Currumbin Wildlife Hospital last year?**

9500

**Check out the wonderful work of the Currumbin Wildlife Hospital! Consider supporting us –**

<http://cwhf.org.au/get-involved/school-fundraising/>

<http://cwhf.org.au/pavers/>

*The Hospital has grown to be one of the busiest wildlife hospitals in the world, admitting over 10,000 animals a year – a service that is provided free of charge to the community.*

**Glossy Black Cockatoo (map reference R9) –**

**14.**

**Why is the Glossy Black Cockatoo listed as vulnerable?**

Loss of casuarina food trees and old growth trees/nesting hollows.

*Conservation project #12 – Currumbin Wildlife Sanctuary breeds this species regularly and helps contribute to saving this species through education and our involvement in community days.*

*YOU can get involved in these community days! Become a citizen scientist and submit your sightings –*

[http://glossyblack.org.au/Submit\\_sightings.html](http://glossyblack.org.au/Submit_sightings.html)



15.

Draw a food web for any animal at Currumbin Wildlife Sanctuary. Clue - Check the diet on the exhibit signage!  
Identify producers and consumers, including introduced species, where appropriate.

Examples -

- Dingo (map reference U7 & T4)  
*Producers - Plant, grass, gum tree*  
*Consumers - **Dingo**, bird, lizard, insect, Koala, wombat, **rodent**, **rabbit***
- Flying Foxes (S11)  
*Producers - Fruiting and flowering trees*  
*Consumers - Flying Fox, owl, python, lorikeet*
- Bilbies (B13)  
*Producers - Plant*  
*Consumers - Bilby, lizard, python, Wedge-tailed Eagle, **dingo**, **European Fox**, **cat**, **cattle***

List abiotic factors play a role in your food web.

Light, temperature, wind patterns, rocks, soil, pH, pressure.

List human impacts that may affect your food web.

- *Dingo - Hunter/farmer*
- *Flying Foxes - Humans, netting entanglement, power lines/electrocution, habitat loss*
- *Bilbies - Introduced species, burrow destruction by cattle trampling*

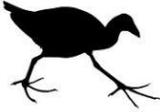
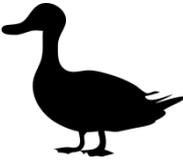


16.

**Wild Water Bird Watching (Near any water body - Please do not enter water or cross train tracks to observe birds)**

Use the following dichotomous key to identify wild water bird biodiversity at Currumbin Wildlife Sanctuary. Take note of features specific to different water bird groups/classifications -

2. Identify body size and shape

SMALL	7. Native water hen (note - long legs & toes) 	8. Duck 
9. Rail 	10. Grebe 	11. Gull 
		12. Stilt 



**SMALL WATER BIRDS -**

**7. Native water hen**

- d) Underparts, wings deep blue to purple black with **bill and frontal shield brick-red** = **Purple Swamphen**  
*Porphyrio porphyrio*
- e) Body slate-grey, wings and rump brown with **bill, frontal shield red with tip yellow** = **Dusky Moorhen**  
*Gallinula tenebrosa*
- f) Head black; body dark slate grey with **bill, frontal shield white** = **Eurasian Coot** *Fulica atra*

**8. Duck**

- f) Crown blackish with **two black face stripes**, body dark brown, upperwing has purplish-green speculum = **Pacific Black Duck** *Anas superciliosa*
- g) Crown black, upperparts brownish black edged with chestnut, **bill black** = **Wandering Whistling Duck**  
*Dendrocygna arcuata*
- h) Crown pale brown, face and foreneck whitish-buff, upperparts brown, feathers of upper back edged yellow, **long buff flank plumes on wings, bill pink** = **Plumed Whistling Duck** *Dendrocygna eytoni*
- i) **Male - green head and white neck ring**, white underparts, female - mottled and streaked dusky brown = **Mallard** *Anas platyhynchos*
- j) **Male - Rich dark brown, bill black with blue bar near tip, eye white, female - Paler than male, eye brown** = **Maned (Wood) Duck** *Chenonetta jubata*

**9. Rail**

Front of eyebrow white, chestnut eye-stripe and nap, throat grey, underparts, cap, wings brown, blackish feathers edged with white spots, **upper chest to underparts black with white bars** = **Buff-banded Rail**  
*Gallirallus philippensis*

**10. Grebe**

Head and neck black, bare skin forms pale yellow face spot, richly coloured chestnut strip extends back on to side of neck, back dark down, underparts silver grey = **Australasian Grebe** *Tachybaptus novaehollandiae*

**11. Gull**

Body white soft parts red, mantle grey, upperwings, inner primaries grey, outer wing region from carpal white with black sub-terminal band through primaries with white-tips and three white spots = **Silver Gull**  
*Larus novaehollandiae*

**12. Stilt**

White, black nape patch and back wings, long fine black bill, long coral-pink legs  
**Black-winged Stilt** *Himantopus himantopus*



**MEDIUM**

**9. Darter**



**10. Cormorant**  
(note - hooked beak)



**11. Heron or Egret**



**12. Ibis**  
(note - curved beak)



**13. Spoonbill**





## MEDIUM WATER BIRDS -

## 6. Darter

Long pointed bill, **snake-shaped neck** = **Darter *Anhinga melanogaster***

## 7. Cormorant

e) Long dark horn bill, orange facial and throat skin, **side of neck and belly white, black upperparts** = **Pied Cormorant *Phalacrocorax varius***

f) Small version of Pied Cormorant, **no bare throat skin** = **Little Pied Cormorant *Phalacrocorax melanoleucos***

g) **All black with yellow facial skin and throat pouch** = **Great Black Cormorant *Phalacrocorax carbo***

h) **Small all black, glossy green back** = **Little Black Cormorant *Phalacrocorax sulcirostris***

## 8. Heron or egret

f) Bill dark brown, **face to just behind eye white**, upperparts and wings grey = **White-faced Heron *Ardea novaehollandiae***

g) Breeding - **Bill yellow or pinkish yellow, long loose rusty brown plumes on head, 46-54cm**; Non-breeding - **Rounded forehead and prominent feathers under lower mandible distinguish from other egrets** = **Cattle Egret *Ardea ibis***

h) Breeding - **Bill usually black, 90-103cm**; Non-breeding - Bill usually yellow, facial skin yellow, plumes few or absent, **slender build distinguish from other egrets** = **Great Egret *Ardea alba***

i) Breeding - **Bill black, facial skin yellow to orange, 56-65cm**; Non-breeding - Plumes few or absent = **Little Egret *Ardea garzetta***

j) Breeding - **Bill orange or red, facial skin green, 56-70cm**; Non-breeding - Face yellow, little or few plumes = **Intermediate Egret *Ardea intermedia***

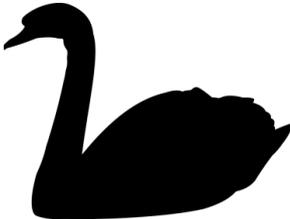
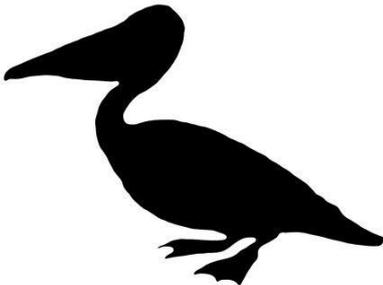
## 9. Ibis

b) Black bill and naked skin on head, upper neck, body and wings white = **Australian White Ibis or Sacred Ibis *Threskionis aethiopica***

## 10. Spoonbill

b) Bill **distinctive black**, black skin on head to just behind eye, all white = **Royal Spoonbill *Platalea regia***



<p><b>LARGE</b></p>	<p><b>14. Goose</b></p> 	<p><b>15. Swan</b></p> 
		<p><b>16. Pelican</b></p> 

**LARGE WATER BIRDS -**

**4. Goose**

Head black with distinct knob in older birds, neck to upper breast black; mantle upperwing coverts, rump and belly white = **Magpie Goose *Anserana semipalmata***

**5. Swan**

All black with long slender neck and white tipped wings, bill orange and dark red = **Black Swan *Cygnus atratus***

**6. Pelican**

Black and white, long pink bill and distensible throat pouch = **Australian Pelican *Pelecanus conspicillatus***

*Conservation project #13 – Eastern Bristlebird (top secret back of house area!)*

*Conservation project #14 – Coxen's Fig Parrot (map reference R4 – Rainforest Avairy)*

*Conservation project #15 and # 16 – Regent Honeyeater and Orange-bellied Parrot (map reference Q6 – Conservation Avairies)*

***Be a Conservation Champion! YOU can make a difference!***