



# ECOSYSTEM ECOLOGY

## WITH DR LAUREL LYNCH

### Talking *points*

#### KNOWLEDGE

1. What is an osteophage?
2. Name 3 species of scavenger that can be found in Tasmania.

#### COMPREHENSION

3. Why are nutrients from a carcass spread further in habitats where there are lots of Tasmanian devils?
4. How did Laurel collect data on the number, type and behaviour of the scavengers at each site?

#### APPLICATION

5. Laurel and her team also collected data on how easily different species of scavenger were able to detect their staked carcasses. How might they have done this?
6. How could you change Laurel's experiment to investigate how climatic conditions, such as temperature and weather, affect scavenger behaviour?

#### ANALYSIS

7. The Tasmanian tiger went extinct in 1936. Before this, they were the island's top predators, mainly feeding on flightless birds. How might their extinction have affected the Tasmanian devils and their ecosystem?
8. Many populations of Tasmanian devils are threatened by DFTD. How might an ecosystem change if its population of devils was to go extinct?

#### SYNTHESIS

9. How could you alter Laurel's experiment to test how nutrient cycling might be affected if an animal was to die near a stream or river?

#### EVALUATION

10. Ecosystems require balance to remain healthy. If a species goes extinct or, on the other hand, if one species becomes particularly dominant, the ecosystem is at risk of collapsing. Do you believe that humans are living in balance with our ecosystems? Why, or why not?
11. How effective do you think restoring balance to our planet's ecosystems would be in dealing with global problems such as climate change, food poverty and the spread of infectious diseases?

Visit Laurel's Futurum webpage to listen to a podcast about her work as an ecosystem ecologist: [www.futurumcareers.com/a-meal-with-the-devil](http://www.futurumcareers.com/a-meal-with-the-devil)

### Activity

#### Attitudes towards scavengers

Due to their preference for eating dead animals, scavengers are often seen as being cowardly, greedy, dirty and parasitic. Often portrayed as villains, like the hyenas and vultures in *The Lion King*, scavengers suffer from some very bad publicity.

This might not seem like a big deal, but the way humans think about animals can have real impacts on their survival. For example, African vulture populations have declined by 90% over the last 30 years, and deliberate poisoning has played a large part in this.

In reality, scavengers have many positive impacts on ecosystems. Not only do they recycle nutrients, but they also limit the spread of diseases, combat invasive species and remove decaying matter.

Public information campaigns can be useful for changing how people feel about scavengers. Choose a species of scavenger and design a poster to help change how the public feel about it. Use a mixture of facts and figures, persuasive language and interesting graphics to make it clear that your species is a useful part of the ecosystem.

### More resources

- Laurel's research group investigates a wide range of ecosystem ecology topics: [laurellynch9.wixsite.com/website](http://laurellynch9.wixsite.com/website)
- The University of Idaho offers outreach programmes and events for people of all ages: [www.uidaho.edu/outreach](http://www.uidaho.edu/outreach)
- Learn more about Tasmanian devils from the Australian Museum: [www.australian.museum/learn/animals/mammals/tasmanian-devil](http://www.australian.museum/learn/animals/mammals/tasmanian-devil)
- While DFTD is devastating devil populations, it is also driving the evolution of the species: [www.the-scientist.com/news-opinion/deadly-facial-tumors-spur-tasmanian-devil-evolution-study-68899](http://www.the-scientist.com/news-opinion/deadly-facial-tumors-spur-tasmanian-devil-evolution-study-68899)
- This informative article from the Nature Education Knowledge Project explains the ecology of carrion decomposition (accompanied by some gruesome images of decomposition in action!): [www.nature.com/scitable/knowledge/library/the-ecology-of-carrion-decomposition-84118259](http://www.nature.com/scitable/knowledge/library/the-ecology-of-carrion-decomposition-84118259)