

**Overview** – Students investigate the classification of the south-west of Western Australia as a 'Biodiversity Hotspot'. The role that Perth Zoo plays in biodiversity conservation is discussed and students consider some current problem and decision making scenarios that apply to saving Western Australian species.

**Lesson Logistics** – Students take part in a formal presentation which includes live animal encounters and biological artefacts. This session takes place in one of our indoor education experience areas.

Groups are encouraged to use our Student Activity Sheets during their *Brilliant Biodiversity* session to complete the relevant problem solving questions. Additional questions are also designed to be answered through investigation by visiting specific Zoo exhibits.

**Duration** – 60 minutes

**Conservation Message** – Conservation of biodiversity is essential to the survival of life on earth. Perth Zoo plays an important role through its 'Research, Rehabilitation, Rear and Breed for Release' programs but each of us individually and collectively can also contribute to saving wildlife.



Western Swamp Tortoise *Pseudemydura umbrina*

## WACE Links

### **Biological Science (General)**

#### **Unit 4: Ecosystems and Eco-issues**

##### Science Understanding

Threats to biodiversity include:

- loss, fragmentation and degradation of habitat
- the spread of invasive species
- unsustainable use of the natural resources
- climate change
- inappropriate fire regimes
- changes to the aquatic environment and water flows.

##### Science as a Human Endeavour

The southwest of Western Australia has been identified as a biodiversity hotspot with a high degree of niche specialisation.

Significant threats to migratory species, such as birds, sharks, mammals and turtles due to climate change, habitat degradation and over-harvesting, affect ecosystems worldwide.



## WACE Links

### **Biological Science (ATAR)**

#### **Unit 1: Ecosystems and Biodiversity**

##### Science Understanding

Human activities that can affect biodiversity and can impact on the magnitude, duration and speed of ecosystem change include examples of:

- habitat destruction, fragmentation or degradation
- the introduction of invasive species
- the unsustainable use of natural resources
- the impact of pollutants, including biomagnification
- climate change.

Conservation strategies used to maintain biodiversity are:

- genetic strategies, including gene/seed banks and captive breeding programs
- environmental strategies, including revegetation and control of introduced species
- management strategies, including protected areas and restricted commercial and recreational access.

##### Science as a Human Endeavour

Keystone species theory has informed many conservation strategies. However there are differing views about the effectiveness of single-species conservation in maintaining complex ecosystem dynamics.

Australia's Biodiversity Conservation Strategy 2010-2030 presents a long-term view of the future and the actions that need to be implemented to conserve biodiversity.

International agreements about biodiversity encourage international cooperation in the protection of unique locations, including:

- biodiversity hotspots, for example, south-west WA.

## Before Your Zoo Visit

The *Captivating Conservation* experience can be used as an introduction to Unit 1 & 4 or as consolidation of learning. If there is an opportunity to investigate Biodiversity prior to your visit, please consider introducing your students to the following topics:

**Threatening Processes** – Consider what the main threats to animals in Australia are and which animals are at the greatest risk of extinction?

**Endangered Species** – What are the different IUCN levels of endangered species and which Western Australia species are threatened?

**Adaptations** – Special structures, behaviours and body functions that enable species to survive in their environment.

Be sure to visit the Perth Zoo website for the most up to date student activities to support your education experience. Follow the link to <https://perthzoo.wa.gov.au/schools/years-11-12>. Feel free to photocopy these for your visit to the Zoo.

## After Your Zoo Visit

Student Activity Sheets for this experience are designed to be completed either during your visit or back at school. If intending to complete activities back at school, encourage students to use their research notes made at the Zoo or by accessing the Zoo's website.

