



Science Rocks
Career Expo 2020
ONLINE
STUDY GUIDE



conservation
wildlife ecology
threatened fauna (animals)

Great Southern Science Council Pro Files series – connecting science professionals and our community

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Pro File video interview Watch the Pro File video

Science Rocks On Location: Tim Button - Wildlife ecology, sea lions

to learn more about this STEM professional, why they chose to work in this field and their pathway to it, their typical work day, favourite part of the job, common myths about their field, and more.



Once widespread across south western Australia, **Dibblers** are now only known from a couple mainland sites and several island populations. Weighing only 135g they are often prey for cats and foxes, and benefit from predator control through *Western Shield*.

Once presumed extinct, **Gilbert's Potoroo** was rediscovered in 1994 at Two Peoples Bay Nature Reserve. An intense baiting regime under the Western Shield program has helped to minimise the pressures from introduced predators and support the work being done to recover the species.



Cats (L) are difficult to control as they prefer live prey. Development of cat-specific 1080 bait Eradicat® allows more targeted broadscale control when live prey is scarce and cats are most likely to consume baits. **Fox (R)** are the primary target of the Western Shield 1080 baiting program because they are hugely detrimental to native species. *Western Shield* program started in 1996 and has been pivotal in reducing fox impact and allowing recovery of native fauna species.

EXTENSION MATERIAL – science professionals answered these questions to extend your interest and study in their topic area

FREQUENTLY ASKED QUESTIONS in this topic/job	FAQ 1 Do the 1080 fox and cat baits pose a risk to our wildlife?	No, 1080 occurs in huge quantities in the Australian landscape in native <i>Gastolobium</i> plant species, and scientists have studied native wildlife to fully understand their natural tolerance to the poison. However, dogs are very susceptible to the poison which is why they are not allowed in areas that are baited.
	FAQ 2 Is your work just playing around with cuddly animals?	Whilst I do get to capture, measure and release lots of very cute native fauna species, working in Wildlife Ecology is far more diverse than this. It also includes a lot of time spent looking at introduced and natural predators, assessing habitat, travelling to a wide variety of locations including islands and rarely visited parts of Western Australia and working in all manner of weather conditions with all manner of people and species.
	FAQ 3 How do I get a job like yours?	Completing a graduate degree or diploma in environmental science is a good start. Doing some volunteer work with Department of Biodiversity, Conservation and Attractions (DBCA) is a great way to gain some valuable experience and exposure to the type of work we do and social networking for job, research and study opportunities.
YOUR TURN	What question could you ask this person?	
LEARN MORE	Tim recommends Wildlife Research and <i>Landscape</i> magazine to learn more about threatened wildlife of WA's south coast and Australia.	Wildlife Research and Landscape Magazine https://www.publish.csiro.au/wr https://shop.dbca.wa.gov.au/collections/landscape
	Tim says this website has excellent resources about this topic:	https://www.dpaw.wa.gov.au/plants-and-animals/animals
DO MORE	A citizen science or interactive project that community can be involved in to learn more about this topic	Western Shield Camera Watch. https://www.zooniverse.org/projects/birgus2/western-shield-camera-watch https://www.dpaw.wa.gov.au/news/item/2511-western-shield-camera-watch-harnessing-citizen-science

<p>INNOVATE One, Two, Three...solved!</p>	<p>One Big Problem we are trying to understand in this topic area Two innovative ways we are already trying to solve the problem Three ideas for the problem solving wishlist that anyone could help develop</p>	<p>1 How do we minimise the impact of introduced predators on our native fauna species? 2.1 By monitoring our fauna species in both baited and unbaited (paired) sites we can observe the impact and recovery of species as a result of baiting. 2.2 By attaching radio transmitters to introduced predators we can measure their bait uptake and use the data to better target predators such as cats when they are most likely to consume the baits. 3 1080 baiting and trapping is a resource intensive method of controlling introduced predators. Development of other less intensive methods such as genetic pest management, immunocontraception or virology methods similar to rabbit calicivirus could be more beneficial requiring less resources.</p>
<p>YOUR TURN</p>	<p>Using your new insights for this topic and its issues, please add another idea for the Problem Solving Wishlist. Then think of a research question to test possible solutions. <i>eg Idea: research definitions and examples of genetic pest management and immunocontraception, which someone studying applied animal physiology might do. Can you brainstorm another way to reduce cats and fox populations in Australia?</i></p>	

<p># CURRICULUM LINKS #</p>	<p>#exploring interactions between organisms such as predator/prey, parasites, competitors, pollinators and disease#</p> <p>Tim's work in the <i>Western Shield</i> program involves understanding native fauna ecology and reducing their threats including researching introduced predators such as cats and foxes, and their negative impacts on native animals. In the <i>Western Shield</i> program, feral cats are photographed by researchers and motion-detector trail cameras, and trapped, measured and fitted with radio-tracking collars to better understand their behaviour and their relationships with their prey animals.</p> <p>Can you find information about feral cat territorial behaviour and prey preferences that provide clues about how and when to remove cats from vulnerable landscapes, and how and when to try to bait with Eradicat® baits? What other information do researchers need to manage feral animals in Australia?</p>
<p>FAMOUS WILDLIFE ECOLOGISTS</p>	<p>Do some research to learn more about a famous wildlife ecologist, for example Tim Flannery (mammals).</p> <p>What are they famous for?</p> <p>How has their work changed how we view native fauna in Australia?</p>
<p>KNOWLEDGE + IMAGINATION What would it be like?</p>	<p>Design a landscape in Australia where native animals no longer have the threat of introduced predators. What should you leave in? What would you keep out? How would you ensure no introduced predators could get back in?</p> <p>HINT: research Project Eden in Shark Bay, Western Australia or the use of islands for native wildlife translocation</p>
<p>OUR PATCH THE EXTRAORDINARY FLORAL DIVERSITY OF THE AUSTRALIA'S SOUTHWEST</p>	<p>Southwestern Australia is known as a global biodiversity hotspot because of its immense range of unique animals, plants and habitats, and the alarmingly rapid rate of species extinction.</p> <p>List the features that allow a region to be designated a global biodiversity hotspot, then list three other global biodiversity hotspots and the reasons they are losing species. What do these areas have in common with southwestern Australia? What are the big differences?</p>