



Charles Sturt
University

Foundation Trust

Balanced Bites:

Black-Footed Tree Rat Nutrition and Conservation

Research Project – **Black-Footed Tree Rat Health and Welfare in Captivity.**

Rural and regional communities embody a spirit of resilience, resourcefulness and innovation that sustains our economy, culture and heritage. With your support today, we will unleash this spirit for the benefit of all.

Charles Sturt University – Case for Support

Advancement Office
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Introduction

The black-footed tree-rat (BFTR; *Mesembriomys gouldii*) is a vulnerable native species inhabiting tropical woodlands and open forests in far north Western Australia, Queensland, Northern Territory, and Melville Island. Their distribution is patchy, and they are now considered rare in the Kimberley and Queensland. BFTRs are nocturnal and solitary, consuming native fruits and seeds, with occasional intake of grass, invertebrates, and flowers.



Currently, BFTRs are not commonly held in captivity, but there is a population at Territory Wildlife Park in Darwin. This park also cares for BFTRs that have been displaced, injured, or orphaned due to roadkill. In captivity, BFTRs are prone to developing diabetes, highlighting the need to understand their nutritional requirements and preferences to optimize their health and prevent diabetes.

This research project, led by Charles Sturt University's **Dr Hayley Stannard**, will investigate the nutrition of BFTRs in captivity to develop nutritional guidelines for the species.

This project will help to prolong BFTR life, improving overall health and potentially aiding reproduction success.

Balanced Bites: Black-Footed Tree Rat Nutrition and Conservation Overview



Balanced Bites: Black-Footed Tree Rat Nutrition and Conservation aims to investigate the nutrition of BFTRs in captivity to develop nutritional guidelines for the species. Optimising health is crucial for maintaining captive populations, which can serve as source populations for future translocations and reintroductions, aiding in species conservation efforts.

Understanding nutrient selection will enable us to optimize diet formulations based on the physiological needs of BFTRs. This knowledge is essential, as it will help prevent the occurrence of diabetes and other health issues in captive populations, ensuring their well-being and sustainability.

The study will employ digestibility and nutritional geometry studies to determine the most suitable diet. Digestibility studies will use methods previously applied to native rodent studies, while nutritional geometry will test whether BFTRs mix their diet from multiple foods to achieve a specific dietary macronutrient ratio, as observed in other species.

This project is fostering a new collaboration with Territory Wildlife Park, where all data collection will occur. Extensive connections have been established with external organizations, including Taronga Zoo, Wombat Protection Society of Australia, The Wombat Foundation, and Alice Springs Desert Park. This new collaboration is expected to expand into further research on native rodents and dasyurids.



Project Outcomes

Our project is designed to achieve the following outcomes:



Development of Nutritional Guidelines: Establish comprehensive dietary guidelines for BFTRs in captivity, tailored to their specific nutritional needs to prevent diabetes and other health issues.



Enhanced Health and Longevity: Improve the overall health and lifespan of BFTRs in captivity by providing optimised diets, leading to better reproductive success and more robust captive populations.



Conservation Support: Strengthen captive populations that can serve as source populations for future translocations and reintroductions, aiding in the conservation of this vulnerable species.



Scientific Contributions: Publish research findings in peer-reviewed journals such as the Journal of Mammalogy, Integrative Zoology, and Conservation Biology, contributing valuable knowledge to the scientific community.



Practical Applications: Provide practical dietary recommendations to zoological and wildlife parks, ensuring the well-being and sustainability of BFTR populations in captivity.



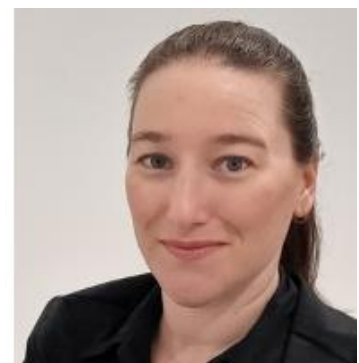
Educational Impact: Raise awareness about the nutritional needs and conservation of BFTRs through educational outreach and engagement with the public and conservation stakeholders.

Project Investment

The total investment required for this project is: **\$20,000**. This includes laboratory work and testing, field work and travel.

Dr Hayley Stannard

Dr Stannard is an animal physiologist with expertise in mammalian biology and physiology, and specific expertise in marsupials. Dr Stannard completed her PhD in 2012 on optimising nutrition and health in carnivorous (dasyurid) marsupials. Dr Stannard was a Postdoctoral Research Associate at the University of Sydney 2015 – 2018, on an ARC Linkage with Taronga Zoo. Her research has uncovered new knowledge of the nutrition and welfare of iconic Australian wildlife (eg Tasmanian Devils) as well as lesser-known species (eg Kultarrs and Red-Tailed Phascogales). Dr Stannard joined Charles Sturt University in 2019 and currently holds the position of Senior Lecturer. Dr Stannard continues her teaching and research in the field of comparative animal anatomy and physiology.





For the public good

Charles Sturt University has a proud heritage and an ethos of nurturing students to become holistic, far-sighted citizens who help their communities grow and flourish. The name of the University honours the noted explorer, soldier and public servant Charles Sturt. In the tradition of exploration, learning, inquiry and discovery as embodied in the life and work of Charles Sturt, the University has as our motto -for the public good.

Scholarships and financial support play an important role by supporting the aspirations of our students and our communities for participation in higher education and to give them the ability to achieve their educational and research goals.





About Charles Sturt University

A combination of state-of-the-art facilities, innovative use of technology and teaching expertise has resulted in an outstanding graduate employment rate. Charles Sturt thrives by challenging traditional approaches to education through the use of flexible learning systems, which are constantly being developed to improve course delivery. This strategy has put Charles Sturt University at the forefront of communication technology, a position that allows students from isolated regions to access quality resources and education.

Charles Sturt takes pride in regional and rural Australia. The University has a network of campuses in Albury-Wodonga, Bathurst, Dubbo, Wagga Wagga, Orange and Port Macquarie along with smaller specialist campuses throughout Australia. Charles Sturt works together with industry to offer every student a great start to their career. The knowledge and industry experience that students gain at Charles Sturt through its close collaboration with business and the professions is keenly sought by employers – a fact reflected in our high graduate employment rate.

The Charles Sturt University Foundation Trust (CSUFT)

The Charles Sturt University Foundation Trust is a non-profit entity sitting within Charles Sturt University. The Trust has endorsement as an Income Tax Exempt Charity and carries Deductible Gift Recipient status. All donations above \$2.00 to the Charles Sturt University Foundation Trust are tax deductible.

The Charles Sturt University Foundation Trust has been providing support for the University and its students since 1984.

