UQ Summer or Winter Research Project Description

Project title:	**How to best save endangered species: optimizing conservation investments between expanding nature reserves versus better managing them.**
Hours of engagement & delivery mode	For the Winter program, students will be engaged for 4 weeks only. Hours of engagement is ~30 hrs per week and must fall within the official program dates. The project is at the St Lucia campus, but hybrid or remote working is possible.
Description:	This project aims to investigate optimal management to save endangered species. New targets have been proposed by international bodies suggesting that we will need to expand the nature reserve network to at least 30 percent of the earths surface. But if we have limited environmental budgets, do we need more protected area? Or should we be better managing them. This project involves using mathematics to answer this question.
Expected learning outcomes and deliverables:	Students will learn some of the following skills - Mathematical problem formulation - Applied Optimisation - Applied Dynamical Systems and Simulation - Data curation and analysis - Drawing scientific conclusions from the output of mathematical models - Scientific writing, literature reviews, and referencing *Students will be expected to write a summary report of their project and produce well commented code that can be re-run that ideally may form a basis of a publication that they would be a co-author of given adequate progress on the project.*
Suitable for:	*This project is open to applications from students with a background in mathematics, or applied mathematics, or statistics, or computer science, or those in environmental science, with a strong quantitative background, at a 3rd – 4th year level. Students should have taken at least one of the following courses (MATH3070, or MATH2003, or MATH3101, or MATH3202, or MATH3104). Ideally the student should have some background in R or MATLAB (at least at the level of being able to write for-loops and define their own functions)*
Primary Supervisor:	Matthew H Holden
Further info:	Please contact m.holden1@uq.edu.au for information to see if you are suitable for the project.