

BIOL6051 research project briefs for 2019-20 entry
Edited to reflect available projects, following April interviews

Indicative costs are provided as 3 cost bands (actual costs may vary, depending on choices made by the student, however the 3 bands provide guidance based on the research project experience of the programme team):

A = £1,700.00

B = £2,600.00

C = £4,200.00

Assessing holistic grazing as an effective management strategy in African savannahs

Location: Kenya, Cost band: C



The challenge of conserving wildlife within a functioning grassland ecosystem, while maintaining economic and cultural security for local community grazers, is a global problem. In Kenya, holistic grazing management, a method developed by Alan Savory for these complex systems, has been widely employed within wildlife conservancies with the aim of achieving a sustainable and balanced grazing system. Understanding the baseline response of botanical communities to herbivory under these regimes will begin to indicate how effective introduced plans have been to meet broader conservation aims. Using a suite of field techniques to gather experimental data on the grazing impact, the candidate will need to be able to be solution-conscious, able to adapt to challenging situations in the field and often working in small groups. The study forms part of a broader piece of research which will model the ecological response of global grasslands to human pressure.

Examining ecosystem resilience by determining the functional response of below-ground invertebrates to a grazing pressure gradient

Location: UK; Cost band: A



Among complex grassland systems in the UK, conservation grazing is adopted as a solution to maintaining and enhancing local biodiversity. Grazing can be employed at varying densities, having differing impacts on wildlife communities and the subsequent recovery of the ecosystem. The role that invertebrates play in maintaining ecosystem functioning in response to grazing pressure is important because of the diverse functions they have for ecosystem productivity. In unimproved grasslands increased abundance and diversity of insect communities supports the concept that these systems are resilient to environmental change, but grazing may become detrimental if not managed at the right level. This study explores the functional diversity of below-ground invertebrates in response to human pressure. The study forms part of a broader piece of research which will model the ecological response of global grasslands to human pressure.

Do personality traits of captive reptiles translate into valuable attributes for reintroduced individuals?

Location: UK; Cost band: A



Expanding on our research exploring the personality traits of our captive sand lizard *Lacerta agilis* population, there is a need to understand how these personality traits, through behavioural profiles, translate for reintroduced individuals released to our receptor sites. Without concurrent evaluation, captive breeding may unintentionally be selecting traits that are ill-suited for wild reintroductions. The research continues the post-release monitoring of this rare lizard at our heathland site of Eelmoor Marsh SSSI, and will support the selection protocol of juvenile lizards for wider release under the Sand Lizard Reintroduction Strategy. Do captive populations adapt to their *ex situ* environment and do these traits translate for reintroduced animals post-release? Further questions around the longevity of these behavioural traits and plasticity of these animals could also be developed.

Identifying candidate species for reintroductions using habitat approaches

Location: UK; Cost band: A



Candidate species for reintroduction are often selected on an arbitrary basis, or using historical records for a particular site. This project aims to evaluate the efficacy of different approaches for identifying candidate species for reintroduction using comparable methods, particularly in light of climate-change predictions. This predominantly desk-based project will utilise some existing data sets, but will require additional data collection. The results of this project will enhance the field of reintroduction biology and help guide future reintroduction efforts.

Effectiveness of post-release monitoring strategies for *Partula* snails

Location: UK; Cost band: A



Many species of Polynesian tree snail (*Partula* spp.) are extinct in the wild, and reintroductions to French Polynesia have taken place over a number of years. However, the post-release monitoring of such a cryptic species remains one of the major challenges in evaluating the success of reintroduction efforts. This project will utilise the planned 'release' of Polynesian tree snails into the 'Energy for Life' tropical house at Marwell Zoo, and will evaluate the efficacy of different post-release monitoring approaches. The project will involve the handling of snails and will require substantial periods of data collection in both a laboratory environment and the tropical house. The results of this project will inform future reintroductions of *Partula* snails, in particular, the post-release monitoring and evaluation of reintroduction success.

Evolution of behaviour in captive *Partula* snails

Location: UK; Cost band: A



Polynesian tree snails (*Partula* spp.) are highly threatened in the wild, and are maintained in a captive breeding programme. Some species have now been reintroduced to French Polynesia with more releases planned for the future. It is therefore important, that these captive populations retain key behaviours that will enable them to survive in the wild. This project aims to evaluate the behaviour of captive tree snails in a laboratory setting, providing us with key insights into the evolution of behaviour in captivity and the possible impacts on reintroduction success.

Regional metapopulation management strategies for aridland herbivores in Northern Africa in relation to predicted climate change

Location: UK; Cost band: A



Populations of aridland herbivores, in particular antelope, gazelle and ostrich populations, in Northern Africa are fragmented across a human dominated landscape. These isolated populations are not individually sustainable, and may even be unsustainable when viewed as a metapopulation within an individual country. This desk-based project aims to evaluate the efficacy of regional metapopulation management strategies for large herbivores in Northern Africa under varying climate change and socio-economic scenarios. The results of this will guide future conservation strategies and action within the region.

The impact of protected area management on aridland habitat and biodiversity in Tunisia

Location: Tunisia; Cost band: B



Tunisian protected areas have undergone substantial habitat restoration to prepare them for the reintroduction of aridland herbivores. These reintroduction efforts have been completed and we are now in an extensive post-release monitoring phase. This includes large-scale habitat evaluation to assess the impact of reintroductions on aridland biodiversity. This project will evaluate the habitats inside and outside of protected areas in Tunisia and will require substantial fieldwork to collect data in an aridland environment, as well as utilising data from previous surveys. The results of this research will enable us to draw conclusions on the wider impact of aridland herbivore reintroductions and will inform future reintroduction and habitat restoration efforts.