

PROGRESS REPORT ON PROJECT SUPPORTED BY PADDY PALLIN SCIENCE GRANT

Instructions to Project Leaders for Completing This Form

Progress reports are required to be submitted 12 months after the start of the project, and then at 18-24 months as a final report. Grants usually begin on the 15TH September in the year in which the grant was awarded. Payment of the second grant installment is contingent upon the receipt of this material. Updates are to be provided during the tenure of the grant, and at the time the final report is submitted. Payment of the final grant installment is contingent upon receipt of the final summary which is to summarize the outcomes of the project during the tenure of the grant.

1. PROJECT IDENTIFICATION

1.1 PROJECT

Identifying the underlying behavioural mechanisms that determine how personality influences interactions with wildlife trapping devices

1.2 ADMINISTERING ORGANISATION

The University of Sydney

1.3 PROJECT LEADER AND PARTICIPANTS

Project Leader: Kyla Johnstone

Participants: Professor Peter Banks & Associate Professor Clare McArthur

2. PROJECT DESCRIPTION & OBJECTIVES

2.1 100- Word Project Summary

Due to varied personality driven responses towards wildlife management devices exhibited by animals, any sampling based monitoring program contains some level of bias. Although we understand the potential for this bias, there is limited understanding of the behavioural mechanisms generating these effects. Consequently within any given population there are those animals that are caught repeatedly while others will only undertake a single interaction event or will actively avoid devices. In management programs this behaviorally driven bias can lead to unwanted outcomes including inaccurate sampling, translocation of individuals and populations with limited behavioural responses to their new environment and ineffective control efforts of pest populations.

This project will examine the consequences for populations when artificially selected for a single trait, by experimentally manipulating the population profiles of wild caught house mice (*Mus musculus*).

2.2 Summary of original objectives (150 words max)

In order to determine the effects of single trait populations population profiles of wild caught house mice (*Mus musculus*) will be experimentally manipulated, to explore the consequences of having a single behavioural trait dominating a population, by looking at the generational effects, it can be determined if self-correction of a population's behavioural profile can occur in the short term. As a well-known and common species with a high fecundancy rate, the house mouse is ideal to rapidly and repeatedly demonstrate the effects of single trait population over generations. The outcomes of which will have broad applications species wide.

3. PROJECT OVER DURATION OF FOUNDATION GRANT

3.1 Have there been any changes to the project? If yes give details

This could include changes to the research Project resulting from funding from the Foundation being at a lower level than requested. By indicating changes to the budget, aims and research plan in the Report, you are requesting approval from the Foundation for a revision of the Project. A 'satisfactory' assessment of the Report and the Project by the Paddy Pallin Grants Committee means that the revision has been approved.

No.

3.2 What were your research plans and objectives for the period covered by this report? (150 words max)(The answer to this question should be consistent with the original Application or the preceding Progress Report).

It was intended that by the end of the period covered by this report, all fieldwork components including; initial capture and behavioural testing of individuals in order to form the seed populations, as well as the experimental phase including final testing of offspring and re-testing of seed animals would be completed or near completion and data analysis and writing for publication would be in progress.

3.3 Did the research project proceed as planned? What have you achieved over this period? Outline the research findings to date (200 words max)

As this project encountered delays throughout the first phase (capturing seed population & testing for behavioural traits in order to create behaviorally driven populations), fieldwork for the second phase (testing effects of behavioural traits on populations) is still ongoing.

Progress to date:

- Completed Pilot study to test the effectiveness of behavioural tests;
- Capture and housing of 76 mice for behavioural testing with three repeats of two separate behavioural tests for each individual (7 days between repeats to reduce habituation);
- Results analysed using a Mixed Model analysis to separate individuals into groups based on high/low activity/exploration;
- Selection of 54 individuals to form eight populations with two treatments; three population of extremely active/explorative individuals, three with the least active/explorative and 2 control groups based on a random selection of remaining individuals;
- Removal of resident wild mice from enclosures, mowing of perimeter and lanes within yards to create matrix of exposed (high risk) and vegetated (low risk) habitats;
- Release of mice into yards;
- Conducted the first of two Giving up Density (GUD) trials, which run over three nights with eight feeding trays placed in high risk (n=4) and low risk (n=4) habitats and four cameras (2 high/2 low) monitor behavior within and between treatments;
- Conducted the first of two trapping session which run over three nights with nine traps spread evenly across each yard and cameras placed at traps in open habitats to monitor behavior under high levels of risk. Trapping allowed for the monitoring of the health of individuals and willingness to be re-trapped (both within and between treatments).

3.4 Have you experienced any difficulties that have affected the progress of the research project? If yes give details (150 words max)

To date, the only limiting factor has been the time required to complete the various stages. Initially, it took longer than expected to sourced enough wild house mice to begin the project and consequently, the initial target (n=81) was reduced to 74 captured individuals; a number that would still allow flexibility during the selection of mice based on exhibited behavioural traits.

Similarly, it took longer than expected to complete behavioural testing due to the extended trapping period, with three weeks required from the last captured individual to complete all behaviours.

Finally, in releasing individuals into mouse-proof enclosures, it was discovered that since their previous use, mice were still persisting within the enclosures and required removal. Following sixteen consecutive trapping days, it was determined that one yard would be unusable, with a strong population of mice still persisting after more than two weeks of trapping, reducing the initial number of control populations from three to two.

3.5 What are your research plans and objectives, including publication plans, for the coming year? (150 words max) *(Please note that in your next Report you should report progress against these plans and objectives)*

Following the completion of this project over the next two months, data and video analysis will continue into 2017, where after this research will be prepared for publication and presentations at conferences in 2017 and 2018.

Preliminary results will be presented at the Nov/Dec 2016 Ecological Society of Australia (ESA) conference in Fremantle.

4. ACADEMIC OUTPUTS

4.1 Publications and other academic outputs directly related to this project. *(Please list all publications and those manuscripts accepted for publication, for the period covered by this report)*

None to date, research still in progress, publications to be submitted at the conclusion of the project.

4.2 Evidence of scholarly impact and contribution. Is there evidence that this research project is having/has had and impact in the research field or the broader public domain? *Include examples of formal training (PhD /Masters) as well as other training.*

This project forms part of a PhD candidate's research and will published upon its completion.

If yes, give details *(For instance, standard citation data on articles published in ISI journals, citations to books, re-publication, translations, reviews, invited keynote addresses, other invitations, newspaper/media/expert commentary).*

4.3 End-user interaction and other project outcomes **If there are examples of the impact of this research Project not covered in item 4.2 above please provide details.** *For example, introduction or modification of standards/protocols within an industry sector, preparation of proposals for funding from other agencies as a result of outcomes from this project.*

5. ATTACHMENTS & OTHER MATERIAL

Please provide , as separate files, any figures, graphs, images and other material that cannot be included in this form. Please also provide updated material (text and images) that can be used to revise your project summary on the Foundation's web site. Please provide text in Microsoft Word format and images in JPEG format with a minimum size of 600 x 400 pixels. If this is the final project report, the web page summary must be updated to reflect the outcomes of the project. Is any material being forwarded as additional attachments ?