

From: Alison Cree
To: Suzanne Ellison
Subject: update on tuatara and lizard research (Cree lab, OU)

Tena koe Suzanne

I would like to take the opportunity to update you on research activities and plans for the future by members of my research group working with reptiles at the University of Otago. I will do this briefly here, but would also like to offer to meet in person on any of these topics if that would be of interest to your runaka.

Tuatara

Anne Besson has now completed her PhD research addressing the thermal suitability of Orokonui and other Otago sites for potential reintroduction of tuatara. I previously sent you a pdf of her thesis abstract. I now have a copy of the complete thesis for Ngai Tahu; I have been advised that I should forward it to the Ngai Tahu Consultation Committee (NTCC) here at OU and it should eventually make its way to you. I also have a copy of a report that Anne wrote for Ngati Koata last year (a condition of our permit). Although the information on soil temperatures is now somewhat out of date I would be happy to give you this copy in person or by post so that you know what was sent to Ngati Koata. I will also forward to the NTCC a copy of an MSc thesis by Jolene Oldman that explored aspects of sex identification in the juveniles raised by Anne.

Additional monitoring of soil temperatures at Orokonui and Long Beach was carried out last summer by Cathy Nottingham, our summer student. Importantly, Cathy's records showed that there were sites at both Orokonui and Long Beach that were warmer than Anne has previously measured, and warm enough to be in the male-determining range for egg incubation. These results are being prepared for publication in conjunction with Anne's earlier work. They increase our confidence that Orokonui is an appropriate site to consider for reintroduction of tuatara.

As you know, the 15 juvenile tuatara previously housed at OU for Anne's work were shifted to an outdoor enclosure at Orokonui in March. Their primary care and monitoring is now the responsibility of Orokonui staff, although I remain involved as an adviser. I hope to supervise a new student from next year to help assess the performance of these juveniles (e.g. growth, activity) in relation to the thermal conditions at Orokonui. A formal proposal will be submitted in due course to Orokonui staff, the NTCC, yourselves and Ngati Koata. In the meantime, I would be happy to meet with you, Barbara and Orokonui staff if and when appropriate to help advance the translocation proposal that is currently under consideration by DOC and Ngati Koata.

Common geckos (mokopapa)

Our laboratory research on effects of basking regime during pregnancy on sex determination and offspring quality is nearing the end of the practical phase. We will continue to analyse the results of this study over the coming summer. I will continue to maintain a laboratory colony of adults in which we are now getting some breeding. I anticipate developing further student projects on these and wild populations in inland Otago, on topics such as thermal effects of basking postures during pregnancy on temperatures for embryos, on geographic variation in life history and impacts of climate change, and on analysis of hormones in urine and faeces as a tool for assessing pregnancy status. Depending on the involvement of potential collaborators, we might also propose some work on genetic aspects of sex determination in New Zealand geckos.

Jewelled geckos (mokokakariki)

I am involved as a co-supervisor of Carey Knox's MSc work examining distribution and abundance of jewelled geckos on the Otago Peninsula. This work is addressing the question of whether grazing regime has a relationship with rodent abundance that might be harmful to geckos. This project might potentially develop into new student projects on jewelled geckos aimed at assisting conservation, although we have no formal plans at present.

McCann's skinks (mokomoko)

Our group's research on McCann's skinks as a surrogate for the endangered grand and Otago skinks is led by Dr Kelly Hare (postdoctoral fellow). Kelly is two years into her three-year FRST-funded postdoc. Her work to date has identified the effects of basking regimes on pregnancy success and on offspring sex and performance. She has also identified safe and effective procedures for mite removal, techniques that are now being used on the endangered skinks. This coming summer Kelly will continue to assessing the performance of captive-raised juveniles from different rearing regimes on performance in field enclosures. In addition to this work, Kelly proposes a small collaboration with an Australian colleague, Professor Michael Thompson from the University of Sydney, to characterise the placenta of McCann's skinks. Very few lizards in the world have a complex placenta, but a close relative of McCann's skink (the common skink) does. This research would require collection of a small number of pregnant females to harvest eggs and young and would provide valuable information on the evolution of live-birth in vertebrates. A formal permit application will be made.

I hope this overview of our recent activities and some plans for the future is helpful. Please let me know if you would like to meet in person to discuss any aspects or to offer suggestions. If you know of local students who would be interested in these research areas, I'd be very happy to discuss possibilities with them.

Naku noa, na

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