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| WORKING PROJECT TITLE | Provenance and pathways of invasive populations of Common Garden Lizards |
| CORE TEAM MEMBER | John Measey |
| ACADEMIC LEVEL OF THE PROJECT | MSc |
| PROJECT BACKGROUND | Invasive species are a global problem which impact severely on biodiversity, cost governments an estimated $1.4 trillion annually, and impact on the lives of individuals and communities the world over. The importance of studying invasive species is widely recognised as being of practical economic importance, and this is currently increasing in an era of rapid globalisation and global change. Indeed, an increase in trade is expected to have a proportionate increase in accidental introductions, and species which have already proved themselves to be proficient hitch-hikers and subsequent invaders are expected to be successful in an ever increasing number of locations.<br><br>One conundrum in invasion biology is whether invasions represent distinct lineages or populations which are adept at invading, or whether traits shared across groups of species can be used to predict invasive success. Widespread species could have one particular population which succeeds at many invasions, or many such populations which invade multiple areas.<br><br>The Common Garden Lizard, *Calotes versicolor*, has a wide native distribution from mainland Iran in the West, through the Indian peninsula, Myanmar to Hong Kong. If it were one species, it would be the world's most widely distributed lizard. However, it is widely acknowledged that there are multiple species that are currently ascribed to this patronym (Gowande et al 2016). Given that the introduced populations cover 3 continents (and at least 12 countries), it seems likely that these invasions may have different provenances and may even relate to |


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| | different species within the *C. versicolor* species complex. Alternatively, all invasions may derive from one part of the native range with an effective pathway.<br><br>Through sequencing of the mtDNA of this native and introduced populations of this species, this project aims to (i) determine the provenance of invasive populations of *C. versicolor* and (ii) determine the most likely pathways that lead to invasions. Additionally, given that the invasive status of this species at some of the locations is in question, we aim (iii) to confirm whether some populations are indeed invasive. |
| FURTHER READING | Gowande, G., Mishra, A. and Mirza, Z.A., 2016. Neotype designation for *Calotes versicolor* Daudin, 1802 (Sauria: Agamidae) with notes on its systematics. Zootaxa, 4126(2), pp.271-279.<br><br>Huang, Y., Guo, X., Ho, S.Y., Shi, H., Li, J., Li, J., Cai, B. and Wang, Y., 2013. Diversification and demography of the oriental garden lizard (*Calotes versicolor*) on Hainan Island and the adjacent mainland. PloS one, 8(6), p.e64754. |
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