Joshua Comrade Buru

Queensland University of Technology (QUT)

joshuacomrade.buru@hdr.qut.edu.au

Joshua C Buru is in the final year of his PhD program at the Queensland University of Technology (QUT). Joshua conducts his research under the supervision of Dr Tanya Scharaschkin and Dr Jennifer Firn (both from QUT), Dr Kunjithapatham Dhileepan and Dr Olusegun Osunkoya from Biosecurity Qld, Department of Agriculture, Forestry and Fisheries (DAFF). Joshua's research is on an environmental weed *Dolichandra unguis-cati*, commonly known as cat's claw creeper. Cat's claw creeper smothers over tree canopies and its biomass can accumulate to the point where it collapses tree canopy systems. Where there is no standing vegetation, this weed creates thick mats on forest floors which choking out low lying vegetation and hindering recruitment of any new seedlings. This growth pattern of cat's claw creeper may result in loss of biodiversity. To complicate the situation further, this weed occurs in two forms that are morphologically and phenologically different in Australia. These forms are informally called long pod and short pod based on their average fruit (pod) length at maturity. While the short pod is widely distributed in Qld and NSW, the long pod is only found in a few localities in south east Qld and the cause for this difference in prevalence is not known. Joshua's research project involves measuring functional traits of these two forms under different resource conditions (water, light and nutrient levels). The second aspect of Joshua's research focuses on testing the efficacy of biocontrol agents on the two forms grown under the different resource conditions explained above.

The outcome of Joshua's research will bridge the knowledge gaps that currently exist on the differences and similarities of the two varieties of cat's claw creeper in Australia. Consequently, this will enhance more efficient control and management of this noxious species. Preliminary results from Joshua's research have shown significantly different germination rates between the two forms. One of the forms, the short pod exhibits a significantly higher frequency of polyembryony than the long pod. Polyembryony is the emergence of multiple seedlings from a single seed during germination.

Joshua hails from Botswana in the southern part of Africa, and is currently on study leave from his job as a conservation biologist. His job back home entails development and implementation of biological control programs against invasive species in all the wetlands of Botswana.

Joshua is a member of the Weed Society of Queensland and the Australasian Systematic Botany Society (ASBS). Joshua presented his preliminary results at the ASBS Conference in December 2013 in Sydney where he was awarded the Bob Anderson Student Award. He also presented some of his results at the 19th Australasian Weeds Conference in Hobart in September 2014 and at the International Student Conference on Conservation Science in January 2015 in Brisbane.

Joshua will use the CAWS Student Travel Award to attend and give an oral presentation at the 13th International Conference on the Ecology and Management of Alien Plant Invasions which will be on the 20-24th September 2015 in Hawaii (USA). He believes that the conference will be a grand opportunity to receive feedback on his research and also create networks for future research collaborations.

Joshua conducting glasshouse experiments on potted plants at the Eco-Sciences Precinct, DAFF.

Infestation of cat's claw creeper (long pod form) in Brisbane