Edible insects of South Africa

Wild edible insects are important in the culture, nutrition and livelihood of many South African communities, especially in the warmer provinces. Over 70 species in seven orders have been reported, of which the most popular is the mopane worm. Edible insects are renewable ecological resources sensitive to environmental and climate change, pollution, pesticides, and overharvesting. A general trend of declining populations has been consistently reported. The sustainable use of wild edible insects has a positive impact on the stability of nutrition and household income of disadvantaged communities, and the protection of the ecosystems in which they occur. Genetic characterization is a prerequisite for managing the sustainable use of wild harvested resources. Currently, genetic data on South African wild edible insects, even at the elemental level of species barcodes is extremely scarce. The ultimate purpose of this project is to contribute to the sustainable exploitation of wild edible insects of nutritional, cultural and socio-economic importance in South Africa. Three main aims were identified: 1) To use an integrated approach based on DNA barcoding and morphological identification for compiling a catalogue of a wide range of edible insect species; 2) To elucidate the diversity and phylogenetic relationships among South African Saturniidae moths, a neglected taxonomic group that includes most of the edible species selected for this project; and 3) To assess the diversity and phylogeographic structure of *Gonimbrasia belina* (mopane worm), the most important edible insect in South Africa. The special focus on edible caterpillars, namely the popular mopane worm, will allow for the identification of biodiversity hotspots, and assist in the definition of sustainable harvesting levels and repopulation strategies. This will benefit species conservation, and the nutrition, food security and livelihoods of rural communities.