

## **Discovery and identification of new, potential keystone pollinator species: Nemestrinid flies of the summer rainfall region in South Africa**

Biodiversity is often defined by the number of species in an area, and conservation efforts use this as a basis for their policies. However, there is growing awareness that species should not be considered in isolation, but as part of ecological networks in which they influence other species. In an age of climate change-induced alterations to species distributions, it is therefore important to focus particularly on species which directly influence a large number of other species in ecological networks. Pollinators are keystone species, which directly determine the survival of plant species which rely on them for reproduction. Southern Africa is particularly rich in a variety of ecologically important pollinator species, including charismatic long-tongued flies of the Nemestrinidae. A single fly species may engage in mutualistic interactions with dozens of plant species which solely rely on this fly. However, the taxonomy of nemestrinid flies has not been updated since the first half of the 19th century. Recent field expeditions in the summer rainfall region of South Africa have revealed that as much as 60% of morphospecies among caught specimens do not fit any species description. The aim of this project is to sample flies across biomes in the summer rainfall region of South Africa during targeted field trips, and use these collections for species discovery and identification. Standard DNA barcoding regions will be used to identify genotypic clusters and use these in combination with analyses of fly morphology to describe new species, and to work towards an interactive identification key that can be used by scientists and conservation practitioners alike. This project therefore contributes to a better understanding of a group of ecologically important species, which may also benefit conservation of plant species which rely on them, especially in the light of global climate change and urbanisation.