

Collembola diversity of South Africa

Healthy, resilient soil is essential for food security. Similarly, soil biodiversity is vital for soil ecosystem functions and services such as litter decomposition, nutrient cycling and various aboveground systems. Despite the significant contribution of soil fauna to above-belowground diversity and ecosystem functioning, the soil fauna is especially poorly understood for South Africa. This project will make a contribution to securing a biodiversity inventory of an unexplored, ecologically important group of soil invertebrates, the Collembola (springtails), using a combination of molecular and morphological systematics. Our specific aims are to: 1) Discover and describe new species, and digitise all records, 2) generate new barcoding sequences, and 3) create an identification key for Collembola of South Africa and an online 'virtual museum'. During this project, not only will baseline data be obtained on the biology and systematics of this important group of soil organisms, but also further develop scarce skills such as the taxonomic identification and descriptions of new species. Our workshop and online identification keys will be a great medium to disseminate knowledge immediately, while publications in peer-reviewed journals will contribute to the wider field of soil ecology. This project will align with several national strategies: by enhancing the taxonomic knowledge of Collembola and highlighting the importance of soil biodiversity as a vital component of soil, this group can be included in further decision-making policies addressing soil conservation and sustainability.