

## **Unlocking biodiversity information for the orchid genus *Holothrix***

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FBIS150618119652**

Orchids are excellent bio-indicators of ecosystem health and are useful to monitor the effects of global climate change. However, their use as model systems is critically dependent on a solid taxonomy and accurate, up-to-date occurrence information. The orchid flora of South Africa is exceptionally rich for a largely temperate country, particularly with regard to the subfamily Orchidoideae, which makes up 74 % of the South African diversity, compared to only 19% worldwide. Moreover, 77% of the orchid taxa occurring in South Africa are endemic. Despite its long history, the genus *Holothrix* has never been comprehensively revised and as a result the circumscription and taxonomic status of several taxa is in doubt. The lack of good identification tools and a well-curated species occurrence dataset, compromises red data list assessments and thus appropriate conservation measures. Furthermore, it excludes this taxon from climate change monitoring, even though it would be well suited for this. In this project we propose to (i) digitize and image herbarium specimens from 10 major herbaria; (ii) undertake field work to collect material for DNA analysis; (iii) generate DNA barcodes; (iv) conduct a revision; (v) construct a morphological knowledge base; (vi) construct an electronic multi- access key; (vii) produce species pages; and (viii) make all this information freely accessible online. We believe that our actions will unlock this genus for environmental research, environmental impact practitioners, land planners, decision makers, red data lists assessors and conservation agencies.