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Conference Abstract

The South African National Plant Checklist: Maintaining the taxonomic backbone for a megadiverse country

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Abstract

Updated country and regional plant checklists for southern Africa have been available for several decades. These form the backbone of foundational and applied biodiversity-related processes, e.g., herbarium specimen curation, conservation assessments, and biodiversity policy and planning activities. A plant taxonomic backbone for South Africa has been maintained electronically since the 1970s; originally in the custom-built National Herbarium, Pretoria Computerised Information System (PRECIS) database; and currently in the Botanical Database of Southern Africa (BODATSA), using Botanical Research & Herbarium Management System (BRAHMS) software. The BODATSA species table contains ca. 129,000 names of fungi, algae, mosses, lycophytes and ferns, conifers, and flowering plants.

Taxonomic backbone data is continuously expanded, updated, and improved following strict policies and standards in an attempt to keep it up-to-date and current. The South African National Plant Checklist (SANPC) Policy stipulates that a single classification is followed for taxonomic groups at the family level and above. Thus a classification system was chosen for each plant group represented in the backbone. For genera and below, the

latest published evidence-based classification is followed. Where there are opposing classifications for a group based on similar data, the SANPC Committee decides which classification is most suitable from a southern African perspective. Researchers can also make an appeal to the Committee not to follow the latest publication, if it is controversial.

Updating primarily involves keeping track of literature references and the taxon additions, synonymies, and other taxonomic and nomenclatural changes they represent. Attributes affected by such changes are adjusted in the taxon module of BODATSA.

Currently the taxonomic backbone for indigenous and naturalised mosses, liverworts, hornworts, ferns and lycophytes, conifers, and flowering plants is actively maintained and updated. Fungal names are not curated in BODATSA, as the Mycology Unit of the Agricultural Research Council (ARC) of South Africa maintains a taxonomic backbone for fungi. In future, all fungal names will be migrated to a separate instance of BRAHMS, and links to the ARC database will be established to update the fungal backbone. Previously algae were not included in BODATSA or the SANPC, but algal names are now being added to the backbone. Only names of green and red algae will be added initially.

Maintenance of the names for indigenous taxa in southern Africa was always prioritised in the taxonomic backbone. Recently, the scope was expanded to also focus more on our naturalised flora. For these taxa, expansion involved tagging some existing names as naturalised or invasive and adding others. Thus far this dataset has been managed differently, and we realize that to some extent, this will need to continue going forward since information here are more about presence or absence, and confirmation of naturalised status.

BODATSA also houses 1.37 million specimen records for more than 2 million specimens housed in the three herbaria of the South African National Biodiversity Institute (SANBI): Compton Herbarium (NBG & SAM), Cape Town; KwaZulu-Natal Herbarium (NH), Durban; and National Herbarium (PRE), Pretoria. Determinations of specimen records are directly linked to names in the taxonomic backbone. Any changes in the backbone thus filter down to the specimen records and should ideally also be reflected in the physical herbarium collections.

Checklists for South Africa and the Flora of southern African region were initially published in hardcopy, with some later made available in pdf format. An official yearly release of the SANPC (currently containing just under 40,000 names for indigenous and naturalised mosses, liverworts, hornworts, lycophytes and ferns, conifers, and flowering plants occurring in South Africa) is now made available online as a downloadable spreadsheet, together with other checklist-related documents. This part of the backbone is also accessible in the searchable online platform, Plants of southern Africa (POSA). In line with global initiatives to mobilise plant biodiversity data, this platform provides specimen record data as well, and will soon link descriptive data from the e-Flora of South Africa project to the backbone (once the National Biodiversity Information System website upgrade is finalised). The SANPC connects with several international initiatives and is utilised to

update the taxonomic backbones of, amongst others, the World Flora Online (WFO) Project (including the WFO Plant List) and the African Plants Database.

This contribution will briefly outline the history of compiling, updating, and disseminating the taxonomic backbone of southern African plants. It will provide information on current data management processes and procedures. Challenges relating to updating the taxonomic backbone, will be highlighted and discussed.

Keywords

conifer, curation, fern, flowering plant, hornwort, indigenous, liverwort, lycophyte, moss, names, naturalised, nomenclature, synonymy, taxonomy, update

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