

Register of names and types in Poaceae: a computerized index for southern Africa

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ABSTRACT

For each name based on or applied to southern African grasses the following data is recorded: name, author, place and date of publication, basionym, cross-reference to other genera, and type specimens. The data is entered into a computer file for sorting in the following ways: by name alphabetically, by place of publication, by genus or by collector of the type specimen. The lists thus produced are directly useful for taxonomic study, and will also be the basis for efforts by staff of the Botanical Research Institute, Pretoria, to acquire copies of all original descriptions and photographs of all type specimens. The methods for compiling the Register worked out for Poaceae can be applied to registers of names in other plant families.

RÉSUMÉ

LISTE DES NOMS ET DES TYPES DE POACÉES: UN INDEX INFORMATISÉ POUR L'AFRIQUE AUSTRALE

Pour chaque nom de graminée d'Afrique australe qu'il soit basé ou non sur du matériel de cette région les données suivantes sont enregistrées: nom, auteur, référence bibliographique, basionyme, synonymie et spécimens types. Les données sont entrées dans un fichier d'ordinateur pour le triage de la façon suivante: par ordre alphabétique des noms par référence bibliographique, par genre ou par récolteur du spécimen type. Les listes ainsi produites sont directement utiles pour l'étude taxonomique et elles serviront aussi de base au personnel de l'Institut de Recherche Botanique de Pretoria pour tenter d'obtenir les descriptions originales et les photographies de tous les spécimens types. Les méthodes de compilation élaborées pour les Poacées peuvent être appliquées à d'autres familles.

INTRODUCTION

Why a Register?

The most tedious part of taxonomic work is listing the names that must be evaluated in a taxon, finding the original descriptions and borrowing the type specimens for examination. If copies of original descriptions and photographs of type specimens for all names based on or applied to southern African taxa were present in the Botanical Research Institute, the progress of the Flora of Southern Africa would be more rapid because the waiting time for obtaining these from overseas would be eliminated.

Why computerize?

The register of names has been computerized rather than maintained on a card file, because it can be sorted in various ways and printed by machine, depending on the purpose for which the data is required. The major disadvantage of the computer is the practical difficulty of exact data input, but it is outweighed by the ease with which the same data can be correctly printed again and again in various combinations once it has been correctly entered. Thus the proofreading and correcting of the data file, although seemingly an unending task at the time the data is entered, are not repeated afterwards no matter how many times and in what combinations the data is sorted and printed.

METHOD

Names were found by searching *Flora Capensis*, *Index Kewensis*, Chase & Niles (1962) *Index to Grass Species*, *AETFAT Index*, *Kew Record*, and older floristic and monographic studies. For each name the following data was recorded on encoding forms and entered in a data file on the Department of Agriculture and Fisheries Burroughs 7100 computer:

Name and author

Place and date of publication

Basionym

Cross-reference to other genera

Type specimens

Each entry occupies six lines in the data file, with two lines provided for type specimens, as shown in Fig. 1. If there are more than two syntypes for a name, the first four lines are repeated with the additional types.

Programs have been written to sort the entries in four ways, each of which has a different application.

1. Sorted by name alphabetically. In its entirety, this provides an alphabetical list of all southern African grass names, which is used to locate names missing from the Register by checking additional references against the existing Register.

2. Sorted by reference alphabetically and by page number. This list will be the basis for locating and obtaining original descriptions for all names. With the names listed by the references in which they were first described, it will be a straightforward matter to extract all descriptions needed from each reference. Once the original descriptions are

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AFRACHNERIA ECKLONII (NEES) ADAMSUN
 JL. S. AFR. BOT. 005:0053 (1939)
 ERIACHNE ECKLONII NEES, FL. AFR. AUSTR. 6273 (1841)
 PENTASCHISTIS
 ECKLON CAPE - TULRAGH
 DREGE 1660 KLEIN DRAGENSTEIN AD FLUMEN BERGRIVIER ALT 400'

FIG. 1.—A complete entry in the Register. Line 1 = name and author; Line 2 = place of publication; Line 3 = basionym; Line 4 = cross-reference to other genera; Lines 5 & 6 = type specimens.

available, it will then be possible to determine the type specimen for each name, and to add this information to each entry in the Register, if it was not known at the time the entry was first made.

3. Sorted by genus. All the names that are applicable to a particular genus are listed alphabetically, whether the genus appears as part of the name, in the basionym, or as a cross-reference to other genera. This is most useful to monographers because it gives direct access to all the names that apply to any genus.

4. Sorted by collector. Once all type specimens are entered in the Register, it will be useful to list the specimens of each collector that are known to be types. These specimens can be sought in different herbaria, and photographed for the use of taxonomists at the Botanical Research Institute.

RESULTS AND DISCUSSION

About 4 200 names have been recorded for the Poaceae, which has about 850 indigenous species in southern Africa. Most of these names have been found, encoded and entered in the computer by technical assistants, thus saving the time of professional staff. Furthermore, by finding the names for the entire family at one time, much of the repetition of looking through the same reference volumes for each of the 210 genera separately has been avoided.

The copying of all original descriptions and locating and the photographing the type specimens still lie in the future. However, the Register has already proved its worth to the progress of the Flora of Southern Africa in studies of the tribes Meliceae and Ehrharteae. It was possible to find all the names pertinent to the genera in these tribes immediately through the Register, and because of the cross-referencing system, it has been possible to examine relevant names which may not have been found in an ordinary straightforward literature search for each genus. When working in a genus, the printout of names can be cut up and each name pasted to a file card, thus making with ease and accuracy the index to names referred to by Leenhouts (1968) as a necessary tool for monographic work.

Because the Register of names for Poaceae is a forerunner for similar registers in other families, it is worthwhile to record the problems encountered in

its development. The first of these is that the Register was begun a number of years ago as a file card system, contributed to by various individuals. It was therefore not possible to determine what original sources had been searched, and a great deal of the early work had to be repeated in order to ensure completeness. The second problem was that all the original cards had to be re-encoded in a format suitable for transfer to the computer. These two problems hopefully will not trouble future extensions of the Register to other families, because the format will be planned from the beginning. The third problem, the necessity for continuity of staff to do the encoding, entering and checking of data, is more serious. The required accuracy cannot be maintained when there is rapid turnover of inexperienced personnel.

ACKNOWLEDGEMENTS

Drs B. de Winter and P. J. Vorster have been associated with the Register from its beginning as a card index. Dr H. F. Glen wrote the computer programs for sorting the entries. Numerous individuals at the Botanical Research Institute have assisted in encoding and entering the data, especially Mrs C. Fourie and Mrs N van der Westhuizen.

CAVEAT

The author begs to inform reviewers and readers that this paper is written in her native language. Therefore the word *data* appears as a collective noun that is singular in number. A change to plural is expected*, and will be (barely) tolerated. However, it seems incredibly awkward.

REFERENCES

- CHASE, A. & NILES, C. D., 1962. *Index to grass species*. Boston: Hall.
 LEENHOUTS, P. W., 1968. *A guide to the practice of herbarium taxonomy*. Utrecht: International Bureau for Plant Taxonomy and Nomenclature.

*In deference to the author's particularly strong feelings about *data* being a singular collective noun, the Editor has not made the necessary corrections.