Lectotypification of *Kniphofia pauciflora* Baker (Asphodelaceae: Asphodeloideae)

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Scan this QR code with your smart phone or mobile device to read online. **Background:** Problems amongst the syntypes and duplicates were noted for the critically endangered *Kniphofia pauciflora* Baker.

Objective: To resolve the typification of *K. pauciflora*.

Method: Literature and specimens (including type material) were examined from relevant herbaria.

Results: Lectotypification was necessary in this case. The lectotype designated was *Wood 1096* (K) from 'Natal, Claremont flat' [KwaZulu-Natal, Clairmont flat]. This was undertaken to specify a single type specimen and to clarify the status of the duplicates. Also included is an account of the last remaining population of *K. pauciflora* at the Clairwood Racecourse, Durban, South Africa.

Conclusion: The lectotype was designated as Wood 1096 (K).

Introduction

The earliest herbarium collection of *Kniphofia pauciflora* Baker that we have been able to locate is that made by Johann Wahlberg in 1841 in KwaZulu-Natal Province (previously Natal), South Africa and recorded as occurring between 'Port Natal and Pieter. Mauritzburg' (*Wahlberg s.n.*). The species was next collected by John Sanderson on 10 September 1858 in 'Port Natal, Clairmont flat' (*Sanderson 49*) and again in 1860 without a precise locality in 'Natal' (*Sanderson 416*). In October 1883, John Medley Wood made a collection in Clairmont (*Wood 1096*). Based on the specimens collected in 1860 (*Sanderson 416*) and 1883 (*Wood 1096*), Baker (1885) named and described the species. Wood made a further collection in 1892, again in Clairmont (*Wood 4662*). In August of the following year, Friedrich Schlechter collected the species near Clairmont, spelt as 'Claremont' on his label (*Schlechter 3160*). Using Schlechter's specimen, Baker (1904) described the new species *Kniphofia pedicellata* Baker. Berger (1908), subsequently reduced *K. pedicellata* to a synonym of *K. pauciflora*.

The two collections (*Sanderson 416* and *Wood 1096*) cited by Baker (1885, 1896) were treated by Codd (1968, 2005) as syntypes. The *Wahlberg s.n.* and *Sanderson 49* specimens were overlooked by Baker (1885, 1896) and Berger (1908). The *Wahlberg s.n.* specimen was determined by Codd in August 1961 and included in the citation of specimens in his treatment of *Kniphofia* Moench (Codd 1968).

As part of our current taxonomic research on *Kniphofia* species in southern Africa that are under threat and requiring conservation, we traced earlier known localities for species from herbarium records. For *K. pauciflora*, minor problems amongst the syntypes and duplicates were noted and it was found to be the only member of the genus not previously typified. We found it necessary to lectotypify the species to specify a single specimen and to clarify the status of the duplicates. In this note, we also provide an account of the last remaining population of *K. pauciflora* at the Clairwood Racecourse, Durban, South Africa.

Research method and design

A thorough review of the literature pertaining to this species was conducted (see 'Introduction' as well as 'Results and discussion'). Herbarium material, either actual specimens or images, were examined for the type and include collections housed in the Natural History Museum, London (BM), Bolus Herbarium, University of Cape Town, Cape Town (BOL), Royal Botanic Garden Edinburgh, Edinburgh (E), Royal Botanic Gardens, Kew (K), KwaZulu-Natal Herbarium, South African National Biodiversity Institute, Durban (NH), National Herbarium, South African National Biodiversity Institute, Pretoria (PRE), Swedish Museum of Natural History, Stockholm (S), South African Museum Herbarium, South African National Biodiversity Institute, Cape Town (SAM), Trinity College, Dublin (TCD) and Universität Zürich, Zürich (Z) (herbarium acronyms follow Holmgren, Holmgren and Barnett [1990]).

Results and discussion

Lectotypification of Kniphofia pauciflora

The specimen Sanderson 416, at K, has two intact open flowers and an undehisced capsule, whilst the duplicate at TCD has two intact old flowers. This distorts the characteristic inflorescence in K. pauciflora and does not match the description. Furthermore, the Sanderson specimen lacks a precise locality; information that is useful for determining Kniphofia species in KwaZulu-Natal. Wood 1096 (K) is the most appropriate specimen for a type of the species as it best matches the description. There are two specimens on the sheet with full inflorescences clearly representative of the species. Specimens with the same collector number are also held at NH and BOL but show discrepancies in the collecting dates on their labels. The Kew Herbarium received the specimen from John Medley Wood in April 1881 and this is written on the specimen sheet as well as in the record of plant determinations sent from the Director of K to NH. In the Herbarium Catalogue (Numbers 1-1944) at NH (Figure 1a), Wood 1096 is recorded as collected in October with no year and is amongst entries collected during 1880, starting with Wood number 790 and ending with 1187 for that year. The label on the NH specimen in Wood's handwriting indicates the collection date as October 1883 (Figure 1b). The collection date on the BOL specimen label is November 1886, again in Wood's handwriting (Figure 1c). It is inferred that Wood 1096 was collected in 1880 and received by K in 1881. Presumably the specimens collected in October 1883 (NH) and November 1886 (BOL) were collected during return visits to the same population and therefore allocated the collector number of the year 1880.

The available evidence suggests that of the three specimens numbered *Wood 1096*, only the K specimen collected in 1880 constitutes original material and is therefore available for lectotypification. The NH and BOL collections must be regarded as topotypes, without nomenclatural standing.

Kniphofia pauciflora *Baker* in Journal of Botany, London 23: 280 (1885); Baker: 65, t.10 (1892a); Baker: t.7269 (1892b); Baker: 279 (1896); Mallett: 101, t.43 (1906); Berger: 41 (1908); Codd: 438 (1968); Codd: t.1995 (1989); Codd: 31 (2005). Type: South Africa, KwaZulu-Natal: 'Natal, Claremont flat', Wood 1096 (K—image!, lecto. designated here) (Figure 2, barcode/ id K000256208).

K. pedicellata Baker: 998 (1904). Type: South Africa, KwaZulu-Natal: 'Clairmont', Schlechter 3160 (Z—image!, holo.).

Distribution and habitat

Kniphofia pauciflora is a South African endemic, restricted to KwaZulu-Natal Province. It is currently known from a single locality in Durban, namely the inner field of the track in the Clairwood Racecourse. Prior to 1956, *K. pauciflora* was known to have a wider distribution within the Durban area but populations were reduced through urban development. Codd (1968) makes reference to J.W. Reyburn's observation

of the Pinetown (Mariannhill) area as being drained and the population could no longer be found.

Ecology

The species grows at 24 m.a.s.l. in seasonally waterlogged grassland, in full sun (Figure 3a). The soil is dark-coloured and sandy.

Conservation status

The status of *K. pauciflora* is 'Critically Endangered' according to Raimondo *et al.* (2009). The species was

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Source: Reproduced with permission from Bolus Herbarium (BOL) and South African National Biodiversity Institute, KwaZulu-Natal Herbarium (NH)

FIGURE 1: *Kniphofia* data depicting, (a) photograph of KwaZulu-Natal Herbarium Catalogue showing entry for 1096 in Wood's handwriting, (b) label data on KwaZulu-Natal Herbarium specimen and (c) label data on Bolus Herbarium specimen.

previously thought to be extinct (Hilton-Taylor 1996; Scott-Shaw 1999). In September 2012, 21 clumps of plants were recorded at Clairwood Racecourse, with an average of six inflorescences per clump (Figure 3b). The population was successful in its habitat as a result of the interest shown by Gold Circle, the former owners of the racecourse, and conservation efforts by the lead author since 1968. The present owners of the racecourse are Capital Property Fund. The habitat (and species) is now threatened by a proposed logistics and distribution park to support the development of a dug-out port at the former Durban International Airport (South Durban Basin). This confirms its status as 'Critically Endangered'.

Other material examined

SOUTH AFRICA, **KwaZulu-Natal:** Port Natal [Durban], Claremont flat, 10 Sept. 1858, Sanderson 49 (TCD); Clairmont, Oct. 1880, Wood 1096 (K); Clairmont flat, Oct. 1883, Wood 1096 (NH); on Clairmont flat, Nov. 1886, Wood 1096 (BOL); Clairmont, near Durban, 22 Sept. 1892, Wood 4662 (BOL, E, NH, SAM, Z); near Claremont, Aug. 1893, Schlechter 3160 (Z, two sheets); Clairmont, 12 Sept. 1898, Wood 7293 (PRE); Clairmont, 30 Sept. 1899, Wood 7639 (BM); Clairmont, 25 Sept. 1907, Wood 10495 (NH, Z); Clairwood Racecourse, 07 Sept. 1968, Baijnath 593 (UDW); Clairwood Racecourse, ex. cult., May 1985, Baijnath s.n. PRE58798 (PRE); near



Source: Reproduced with the consent of the Board of Trustees, Royal Botanic Gardens, Kew **FIGURE 2**: Image of lectotype of *Kniphofia pauciflora* (*Wood 1096*).

Durban, Jan. 1914, Indian Collector s.n. NH15971/2 (NH, two sheets); Port Natal and Pieter. Mauritzburg [Durban and Pietermaritzburg], 1841, Wahlberg s.n. (S); Pinetown District, Mariannhill, Oct. 1951, Reyburn s.n. NH40464 (NH); Pinetown District, Mariannhill, Nov. 1954, Reyburn s.n. NH42151, PRE 37002 (NH, PRE); Pinetown, ex cult., 12 Nov. 1956, Reyburn s.n. PRE 37003 (PRE); without precise locality, 1860, Sanderson 416 (K, TCD).

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The Curators of BM, BOL, E, K, NH, PRE, S, SAM, TCD and Z are thanked for providing images of *K. pauciflora* specimens.



Source: Photographs by H. Baijnath

FIGURE 3: *Kniphofia pauciflora* as seen growing within the inner field of the track in the Clairwood Racecourse, Durban, South Africa, (a) habitat and (b) clumps.

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Competing interests

The authors declare that they have no financial or personal relationships that may have inappropriately influenced them in writing this article.

Authors' contributions

H.B. (University of KwaZulu-Natal) was responsible for data collection. Both H.B. and S.R. (University of KwaZulu-Natal) contributed to the manuscript preparation.

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