

Taxonomic studies in the Acanthaceae: *Peristrophe decorticans* — a new species

K. Balkwill* and F. Getliffe Norris

Department of Botany, University of the Witwatersrand, P.O. Wits, Johannesburg, 2050 Republic of South Africa and National Botanic Gardens, Kirstenbosch, Private Bag X7, Claremont, 7735 Republic of South Africa

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Examination of African material of *Peristrophe* Nees and of the literature pertinent to *Peristrophe* in Africa has shown that there is an unnamed species of *Peristrophe*. In this article, *P. decorticans* Balkwill is described and its differences from *P. paniculata* (Forssk.) Brummitt and *P. cernua* Nees are discussed.

Ondersoek van materiaal van *Peristrophe* Nees van Afrika en van literatuur met betrekking tot *Peristrophe* in Afrika het gewys dat daar 'n onbenaamde spesie van *Peristrophe* is. In hierdie artikel word *P. decorticans* Balkwill beskryf en verskille van *P. paniculata* (Forssk.) Brummitt en *P. cernua* Nees word bespreek.

Keywords: Acanthaceae, *Peristrophe*, taxonomy

*To whom correspondence should be addressed

Introduction

During our work on southern African Acanthaceae (e.g. Balkwill 1985; Balkwill *et al.* 1985; Balkwill *et al.* 1986), we have been referring to some southern African material as *Peristrophe kotschyana* Nees. We had based our application of the name on a specimen on the microfiche of de Candolle's herbarium (i.e. *Schimper 1095*). This specimen was cited by Nees (1847) and is similar to the southern African material to which we applied the name. Dr R. Brummitt of Kew has, however, kindly pointed out that there are two specimens at Kew that were collected by Kotschy and cited by Nees in his description of *P. kotschyana*. Dr Brummitt agreed that these specimens were types of *P. kotschyana*, but pointed out that they are conspecific with *Peristrophe paniculata* (Forssk.) Brummitt and do not agree with *Schimper 1095*, the specimen that we had seen on the microfiche. He has sent us photostat copies of the Kotschy specimens and we agree with his determinations. Clearly, our material is not *P. paniculata* and is apparently unnamed.

Description

Peristrophe decorticans Balkwill sp. nov.

Affinis *Peristrophe cernuae* Nees sed bracteis tertiariis strigosis (non dense glandulosis), labio in flore resupinato inferiore minore [(6,5–)7,5–9,2(–10,2) mm nec (7,2–)9,8–16,5(–22,3) mm longis] et lineis in nectar dirigentibus carente differt. *P. decorticans* simili *P. paniculatae* (Forssk.) Brummitt, sed habitu perenni (non annuo), cortice albo decorticante (non fusco laevi) et floribus majoribus [(14,7–)15,3–17,8(–19,0) mm nec (6,6–)10,1–12,4(–13,7) mm longis] differt.

TYPUS.— Transvaal: Louis Trichardt District, beside N1, at gate to Plaas Marius, north of Wyllespoort, *Balkwill 801* (J, holotypus; E, K, NU, PRE, isotypi).

P. kotschyana sensu Balkwill: 293 (1985); Balkwill *et al.*: 485 & 488 (1985); Balkwill *et al.*: 514–520 (1986), non Nees.

Evergreen suffruticose perennial up to 1 m high, with woody rootstock. *Bark* on old stems white; peeling,

Young stems with stiff eglandular hairs on ridges. *Leaves* ovate, narrowly ovate or elliptic, acute, acuminate or occasionally minutely apiculate, attenuate, (11–)19–37 (–59) × (2,5–)5–9(–14) mm, herbaceous, slightly scabrid, with multicellular eglandular hairs and cystoliths above, with cystoliths and sometimes with soft, multicellular eglandular hairs below; petiole (1–)1,4–3,4 (–6,5) mm. *Inflorescence* of 2–3 umbellately arranged monochasial cymes (inflorescence units), sometimes compounded; inflorescence axis (1–)2–15(–49) mm long; longest peduncle of inflorescence units (1–)5–15 (–38) mm long. *Bracts*: primary bracts leaflike; secondary bracts narrowly ovate (2–)3,7–5,5(–9) × (0,3–)0,4–0,7(–1,2) mm; with eglandular trichomes; tertiary bracts narrowly ovate, acuminate, unequal, larger (7,5–)9,3–12,9(–17) × (0,6–)0,9–1,3(–1,5) mm, strigose on margins, veins and surface. *Calyx* tube c. 1 mm long; lobes narrowly ovate, c. 5,5 mm long, outer surface glabrous, inner surface with closely appressed glandular and eglandular trichomes, margins membranous and ciliate with glandular (more common at base of lobes) and eglandular trichomes. *Corolla* bilabiate, resupinate; tube (5–)7,2–8,4(–11) mm, with straight and curved eglandular trichomes; lip in lower position widely ovate, (6,5–)7,5–9,2(–10,2) × (2,8–)3,3–5,1(–5,8) mm; lip in upper position narrowly elliptic, (7–)7,7–9,7(–10,2) × (1,7–)1,9–2,6(–3,8) mm; flowers light purple, with purple honey-guides on white background on lip in upper position. *Stamens*: filaments with some curved eglandular trichomes near the base, and some short-stalked glandular trichomes, white; anther thecae superposed, touching, red-purple. *Disc* cupular, upper edge entire with two short stubby erose awns. *Gynoecium*: stigma shortly bilobed; style exerted, glabrous or very sparsely pilose; ovary narrowly ellipsoid, glabrous, occasionally sparsely hairy. *Fruit* a short-stalked clavate capsule, usually glabrous, occasionally hairy, (8–)8,5–10,5(–11,5) × (1,1–)1,9–2,4(–3) mm, placentae inelastic. *Seeds* lenticular, (1,5–)1,7–2,4 × (1,4–)1,5–2,1 mm, rough and tuberculate.

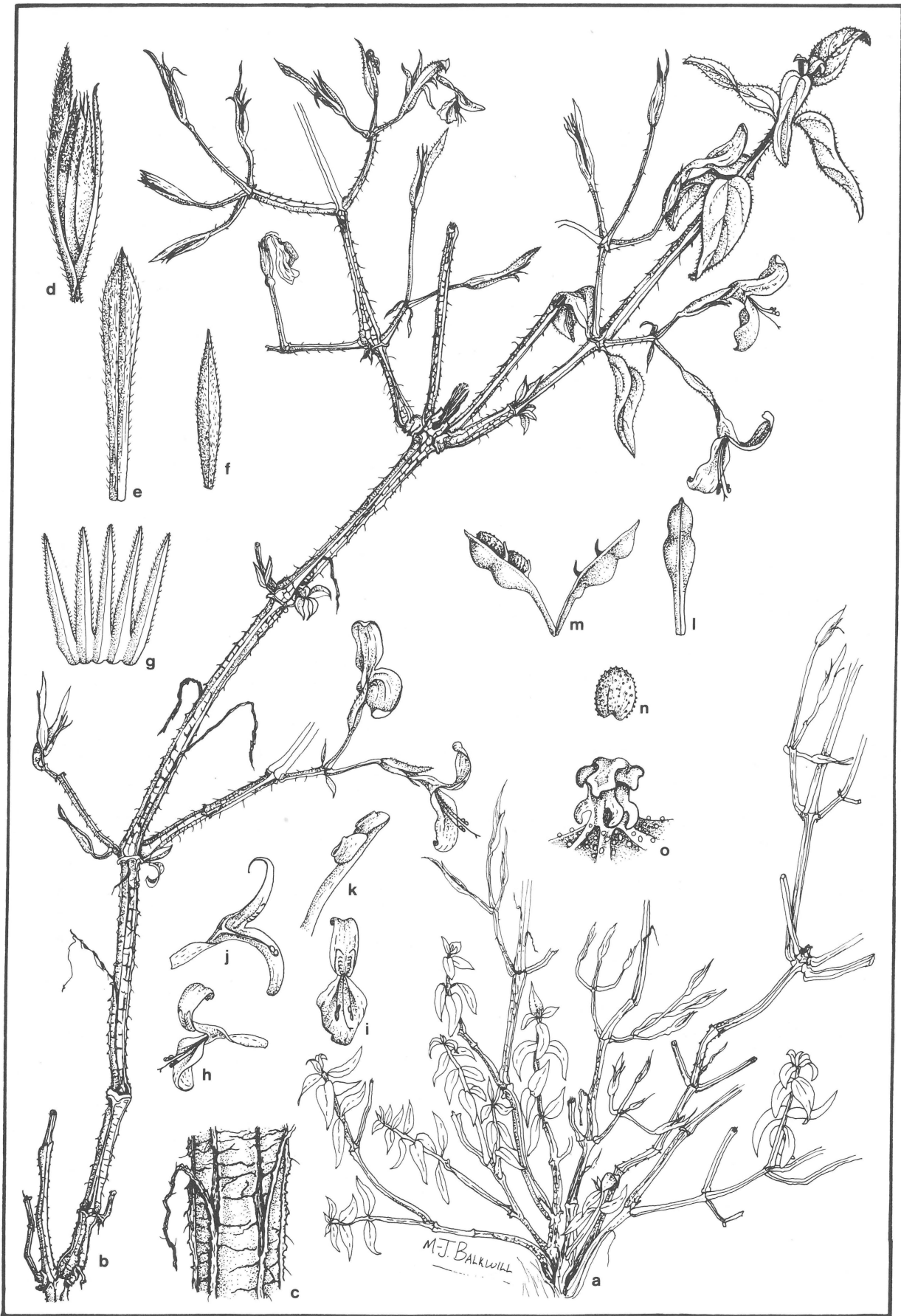


Figure 1 *Peristrophe decorticans* (a) habit ($\times 0,22$); (b) flowering branch ($\times 0,87$); (c) peeling bark on older stem ($\times 5,2$); (d) inflorescence unit ($\times 5,2$); (e) larger tertiary bract ($\times 5,2$); (f) smaller tertiary bract ($\times 5,2$); (g) calyx ($\times 5,2$); (h) flower, side view ($\times 1,7$); (i) flower, front view ($\times 1,7$); (j) longitudinal section through flower ($\times 1,7$); (k) anther ($\times 7$); (l) capsule ($\times 2,6$); (m) dehiscent capsule ($\times 2,6$); (n) seed ($\times 4,3$) and (o) tubercle on seed ($\times 260$); (a-c, h-k & o) *Balkwill 760* and (d-g & l-n) *Balkwill 801*.

Discussion

In southern Africa, *P. decorticans* (Figures 1 & 2) has been confused with *P. paniculata*, but can be distinguished by its larger flowers (14,7–15,3–17,8(–19) mm as compared with (6,6–)10,1–12,4(–13,7) mm, by its perennial (not annual) habit, including a woody stem base and root system (Figure 3) and by its white peeling (not black) bark (Figure 1c). *P. decorticans* may be distinguished from *P. transvaalensis* (C.B. Clarke) Balkwill by its narrower tertiary bracts and its green leaves, which lack the grey-green indumentum of eglandular trichomes on the leaves of *P. transvaalensis* and from *P. cliffordii* Balkwill and *P. gillilandiorum* Balkwill by the lack of a dense vestiture of eglandular trichomes between the ridges on the stems. The closest relative to *P. decorticans* is *P. cernua* Nees; their tertiary bracts, stem vestiture and inflorescences are very similar. *P. decorticans* has strigose tertiary bracts, while *P. cernua* has densely glandular tertiary bracts. *P. cernua* shows clinal variation in the sizes of the tertiary bracts and flowers so that *P. cernua* from Natal can easily be separated by the size of its tertiary bracts and flowers, which are considerably larger than those of *P. decorticans*. The sizes of the tertiary bracts and flowers of *P. decorticans* are very similar to those of *P. cernua* in the Cape Province and here, *P. decorticans* can best be separated from *P. cernua* on the basis of the distribution of honey-guides and the indumentum of the young stems. *P. cernua* has honey-guides under the filaments

on the lip in the lower position that are not present in *P. decorticans* (Table 1). *P. decorticans* has stiff eglandular trichomes on the angles of the young stems, which are absent or very sparse in *P. cernua*.

P. decorticans occurs in Botswana and in the Transvaal (Figure 4), while *P. cernua* occurs in valley bushveld on the east coast of southern Africa, between the Umfolozi River and Humansdorp (Figure 4). The escarpment on the eastern edge of the southern African plateau is an altitudinally high area that, because of the associated cool conditions, is a barrier to the distribution of species with tropical affinities. This barrier has separated *P. decorticans* and *P. cernua* geographically and thus allowed speciation to occur. The annual species, *P. paniculata*, is widespread in tropical Africa and occurs from Namibia in the south west, through the arid corridor (Balinsky 1962) to Ethiopia in the north east (Figure 4). *P. paniculata* also occurs in south-eastern Asia. There are several specimens from Africa (including Schimper 1095) that represent other perennial species of *Peristrophe* Nees that are closely related to *P. decorticans*. These species seem to be isolated in moist islands in the arid corridor and the relationships of *P. decorticans* and *P. cernua* to these species require careful investigation.

Specimens examined

—2125 (Lothekane): Near Musu Village, South of Makadikadi Pans (–BB), Allen X408 (PRE).



Figure 2 *Peristrophe decorticans* showing primary bracts (leaves) and inflorescences, Balkwill 732 ($\times 1,2$).

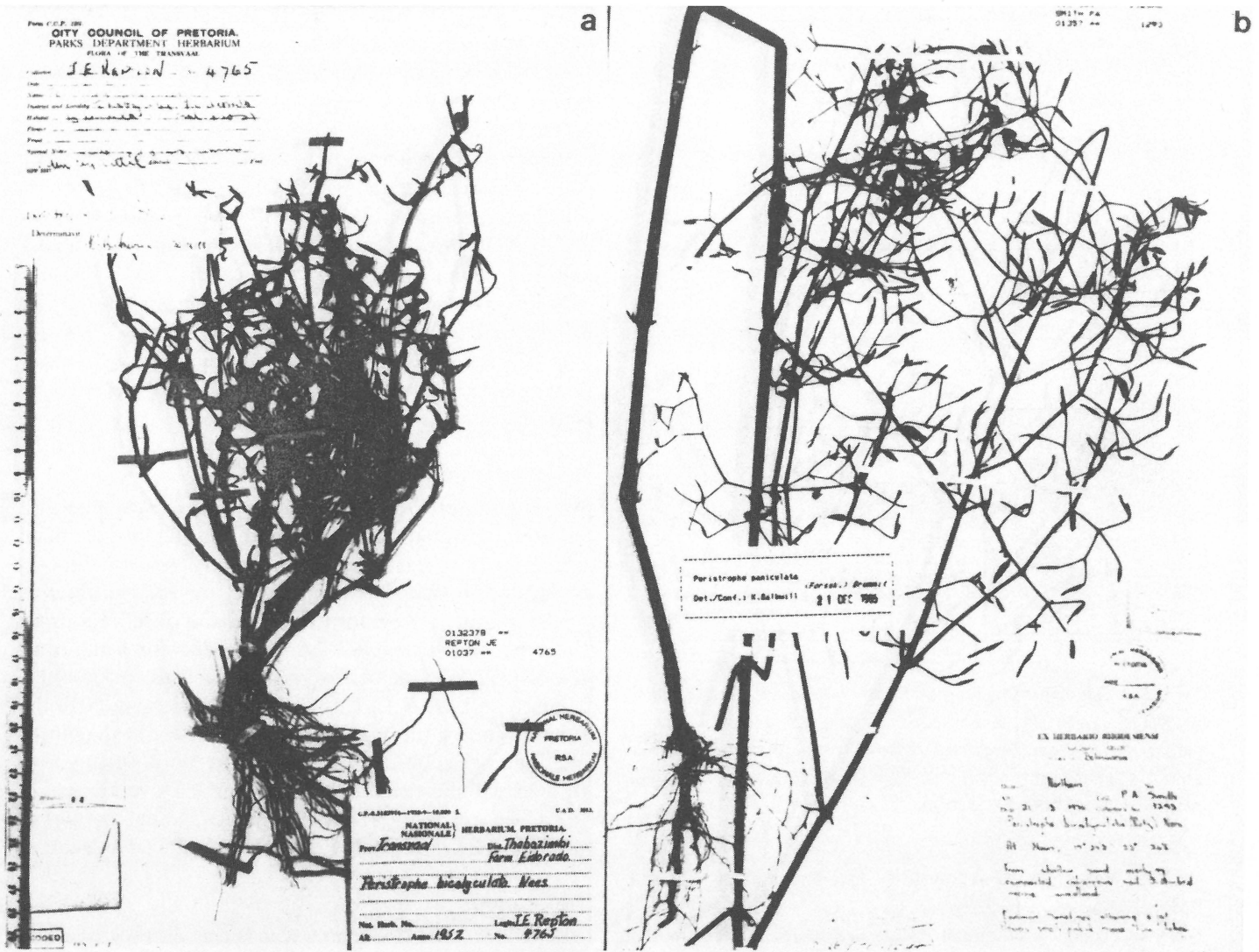


Figure 3 Photograph of a specimen of *Peristrophe decorticans* and a specimen of *P. paniculata* to show the habit of the two species. (a) *P. decorticans* with fibrous root system, Repton 4765 and (b) *P. paniculata* with a tap root system, Smith 1293; a ruler is included to indicate scale.

Table 1 Comparison of features of *Peristrophe paniculata*, *P. decorticans* and *P. cernua*

	<i>P. paniculata</i>	<i>P. decorticans</i>	<i>P. cernua</i>
Habit	Annual	Perennial	Perennial
Bases of stems	Herbaceous	Woody	Woody
Bark	Black, not peeling	White, peeling	Green or white, usually not peeling
Indumentum on tertiary bracts	Glandular-pubescent or glabrous	Strigose	Densely glandular
Lengths of corolla (mm):			
total (lips and tube)	(6,6-)10,1-12,4(-13,7)	(14,7-)15,3-17,8(-19,0)	(13,2-)16,8-25,0(-33,0)
lip in lower position	3,5-7,2(-7,3)	(6,5-)7,5-9,2(-10,2)	(7,2-)9,8-16,5(-22,3)
Presence of honey-guides:			
on lip in upper position	Present	Present	Prominent
on lip in lower position	Absent	Absent	Present
Indumentum on capsule	Pubescent	Usually glabrous, occasionally pubescent	Glandular-pubescent or glabrous
Distribution	Arid corridor	South east of arid corridor	Eastern coast and valley bushveld

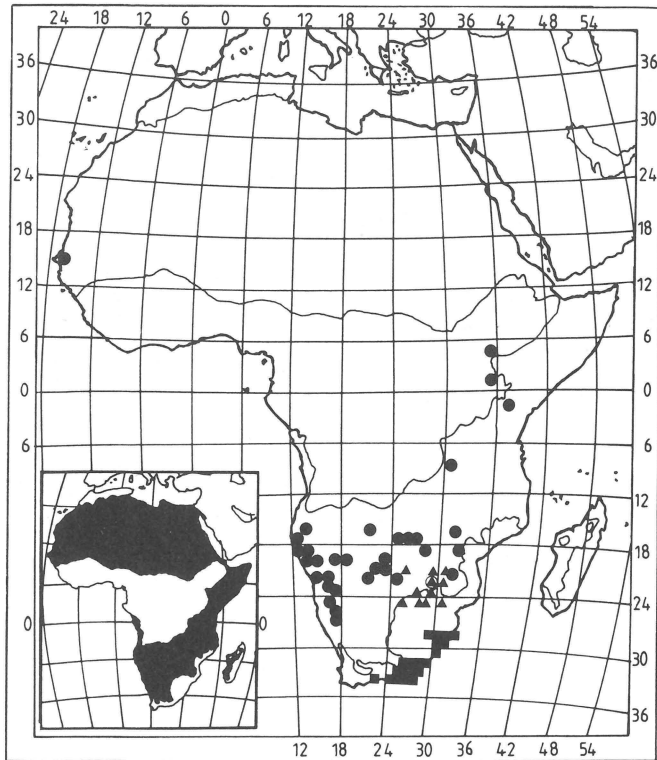


Figure 4 Distribution map of *Peristrophe paniculata* (circles) in Africa, and *P. decorticans* (triangles) and *P. cernua* (squares) in southern Africa, drawn from information available on herbarium specimens. The shaded area on the small map (inset) is the arid corridor.

- 2129 (West Nicholson): Gwanda, Dye River Bridge, *Davies 2342* (PRE).
 —2131 (Triangle): Nuanetsi River, *Breijer 16068* (PRE).
 —2229 (Waterpoort): Zoutpansberg, on banks of Galumpies River, Farm Little Muck 26, (–BC), *Codd 4330* (PRE); Langjan Nature Reserve, Brak River (–CC), *Huntley 1855* (PRE); *ibidem*, *Zwanziger 273* (PRE); On the farm Davenham (–DD), *Balkwill 800* (J, NU); At junction of N1 with road to Andover (–DD), *Balkwill 802* (E, J); Wyllies Poort, Hill and Valley (–DD), *Smuts 2074* (PRE).
 —2230 (Messina): Chipise (–CA), *Lam & Meeuse 4947* (PRE).
 —2328 (Baltimore): Magoebasnek, 85 km north west of Potgietersrus, Farm Skrikfontein (–DA), *Maguire 1461* (BOL, NBG).
 —2329 (Pietersburg): Near Mara (–AB), *Schlieben & Strey 8282* (PRE, SRGH); Mara Research Station, beside streams and rivers (–AB), *Mara Research Station 555* (PRE).
 —2425 (Gaberone): 6,5 km W. of Letlhakeng in Letlhakeng

Valley (–AA), *De Winter 7313* (PRE); Marico, Lekkerlach (–DD), *Louw 752* (PRE, PU).

—2427 (Thabazimbi): Thabazimbi, Farm Eldorado (–CB), *Repton 4765* (PRE).

—2428 (Nylstroom): Potgietersrus, about 0,8 km on road to Roedtan, Farm Doornpoort (–BD), *Meeuse 9457* (COI, PRE); Zandrivier, Farm BadenBaden (–CA), *Breijer 21609* (PRE); Naboomspruit, Mosdene (–DA), *Galpin M597 & M277* (PRE); Near Crecy, on Naboomspruit road, Tweekoppies Station (–DB), *Balkwill 760* (E, J, K, NU, PRE) & *802* (J); *ibidem*, *Meeuse 9444* (PRE); Tuinplaats–Groblersdal road, *Meeuse 9505 & 9505a* (PRE).

—2430 (Pilgrim's Rest): Wolkberg, Mohlapietse Wilderness Area, beside Mohlapietse River (–AA), *Balkwill 732* (E, J, NU).

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