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Massonia obermeyerae (Asparagaceae, Scilloideae), a new species from South Africa

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Abstract

As part of a taxonomic revision of the genus *Massonia*, a new species, *M. obermeyerae* is here described from South Africa. This species is at first sight similar to *M. depressa*, but it differs in the inflorescence and flower morphology, as well as its distribution. A complete morphological description of the new species and data on biology, habitat, and distribution are presented. Comments on typification of *Massonia grandiflora*, a name that has been misapplied to *M. obermeyerae*, are also presented, including the identification of a previously designated lectotype and a newly selected epitype.

Key words: Flora of Southern Africa, Hyacinthaceae, Massonieae, nomenclature, taxonomy, typification

Introduction

Subfamily Scilloideae tribe Hyacintheae is alternatively regarded as Hyacinthaceae subfam. Hyacinthoideae, a treatment that we favour here (cf. Martínez-Azorín *et al.* 2014a). Further information on subfamily Hyacinthoideae and generic circumscriptions can be found in Martínez-Azorín *et al.* (2013, 2014a, 2014b), Pinter *et al*. (2013) and Wetschnig *et al.* (2014).

The genus *Massonia* Houttuyn (1780: 424) was described to include a single species, *Massonia depressa* Houttuyn (1780: 424). The type of this species (Houttuyn 1780: Plate LXXXV), illustrates two flowers that shows the perigone fused for about the lower half forming a wide, funnel-shaped tube, and reflexed free portions of the perigone with a sigmoid curve at the base. The suberect filaments are connate at the base forming a ring above the perigone, the ovary is oblong, and the style is long, narrow and erect, and sharply differentiated from the ovary. For an overview on the generic circumscription of *Massonia* and the number of taxa accepted in this genus see Martínez-Azorín *et al.* (2014b).

Recent studies based on molecular data included *Whiteheadia* Harvey (1868: 396) in the synonymy of *Massonia* (Manning *et al.* 2004, 2011). This proposal was based on the paraphyly of *Whiteheadia* when comprising both *Whiteheadia bifolia* (Jacquin 1791: 215) Baker (1872: 226) and *W. etesionamibensis* Müller-Doblies & Müller-Doblies (1997: 82). We choose here to accept *Whiteheadia* as a monotypic, monophyletic genus to include only *W. bifolia*. A study is in preparation which will present a new alternative proposal for the taxonomy of *W. etesionamibensis* (M. Martínez-Azorín and collaborators, in preparation).

Massonia grandiflora Lindley (1826: t. 958) was described and illustrated (Fig. 1) "from a plant in Mr. Colvill's Nursery, which had been brought from the Cape of Good Hope by Mr. Synnet [Walter Synnot cf. Gunn & Codd 1981]". This species is characterized by the large, smooth leaves; large, ovate, acuminate bracts; flowers with a white, funnel-shaped tube and white, reflexed perigone segments; filaments erect, green, fused at the base to form a ring; and a spirally twisted style.

As explained by Obermeyer (1965), Mr. W. Synnot was a magistrate at Clanwilliam (Western Cape of South Africa), so the type locality of this species is likely to be somewhere in the vicinity of Clanwilliam (cf. Müller-

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Doblies & Müller-Doblies 1997). Jessop (1976) accepted *M. grandiflora*, but cited few collections, amongst them two collections from the Eastern Cape, one from Cranemere farm near Pearston (*Jenkins s.n.* sub PRE29302) and one from Graaff-Reinet (*Francis s.n.* GRA). Müller-Doblies & Müller-Doblies (1997) opted to include *M. grandiflora* under synonymy of *M. depressa* based on flower morphology, although they commented that "We are convinced that *M. depressa* comprises several taxa but these still deserve a good deal of research work".

FIGURE 1. Lectotype of *Massonia grandiflora*: Lindley (1826: t. 958).

Obermeyer (1965) illustrated a plant collected on Cranemere farm, and identified it as *Massonia grandiflora* (Fig. 2). The illustration "was executed from bulbs that flowered at the Botanical Research Institute in June, 1962. They had been collected in September, 1961, on the farm Cranemere in the Pearston district, Cape, by Mrs. Palmer and Mrs. E. Jenkins". Moreover, she commented that "after the heavy rains of that winter they were seen flowering there in their hundreds, looking most attractive, the leaves and flowers reflecting the light through their bulbous epidermal cells, a character soon lost in cultivation".

Evelyn 'Eve' Mary Palmer was a South African writer and botanist who published the book "The Plains of the Camdeboo" (Palmer 2011) [first ed. 1966]. She was married to the South African journalist and adventure novelist Geoffrey Jenkins, although she kept her maiden name "Palmer" as author name for her books. This agrees with the information given on a label of a herbarium specimen at PRE (PRE0049588-0) where a plant identified as *Massonia grandiflora* was collected by "Mrs. E. Jenkins (Palmer 2Ɨ)" from Cranemere farm on July 1962. This would explain why Obermeyer (1965) erroneously cited two different collectors for the plant from Cranemere farm, though they were the same person.

Eve Palmer, a member of the family that owns Cranemere farm, reported that after heavy autumn rains and a very mild winter, a *Massonia* species (called "Abraham's book" by the local people), often seen here and there in the veld of the farm, were growing in many thousands in the spring of 1961 (Palmer 2011). She also reported that she brought one potted plant to the botanists in Pretoria "who identified it as a *Massonia jasminiflora*, or possibly *Massonia grandiflora*". After cultivation of that plant in Pretoria, Palmer (2011) mentioned "I was revolted, but the botanists were not, for this potted monster was now showing characteristics not only of a *Massonia* but of another genus, *Whiteheadia*. Half a century ago a *Whiteheadia* from an unspecified locality had been described in the Eastern Cape; and the plant had never been seen since. Perhaps this was it, and the *Whiteheadia* had been no more than a cultivated *Massonia*." We are not aware of any formal description of a *Whiteheadia* species from the Eastern Cape.

Obermeyer (1965) noted that her "*Massonia grandiflora*" somehow represented a link between *Massonia*

and *Whiteheadia*". Furthermore a letter is kept at GRA that was sent by Obermeyer to curator Mike Wells at GRA on 4th August 1962. It reads as follow: "Dear Mr. Wells, here is another instalment of my serial on "*Whiteheadia compacta*". [...] when I examined the wild plant collected recently by Mrs Jenkins [Eve Palmer] I discovered that the flowers were arranged in a capitulum. Apparently they develop a short rachis when cultivated. It appears to be a link between *Whiteheadia* and *Massonia*. The very short broad perianth-tube and broad triangular exposed ovary suggest *Whiteheadia* rather than *Massonia* but in appearance it looks more like the latter. [...] So, for the present I am calling this plant *Massonia grandiflora*. We will see what happens".

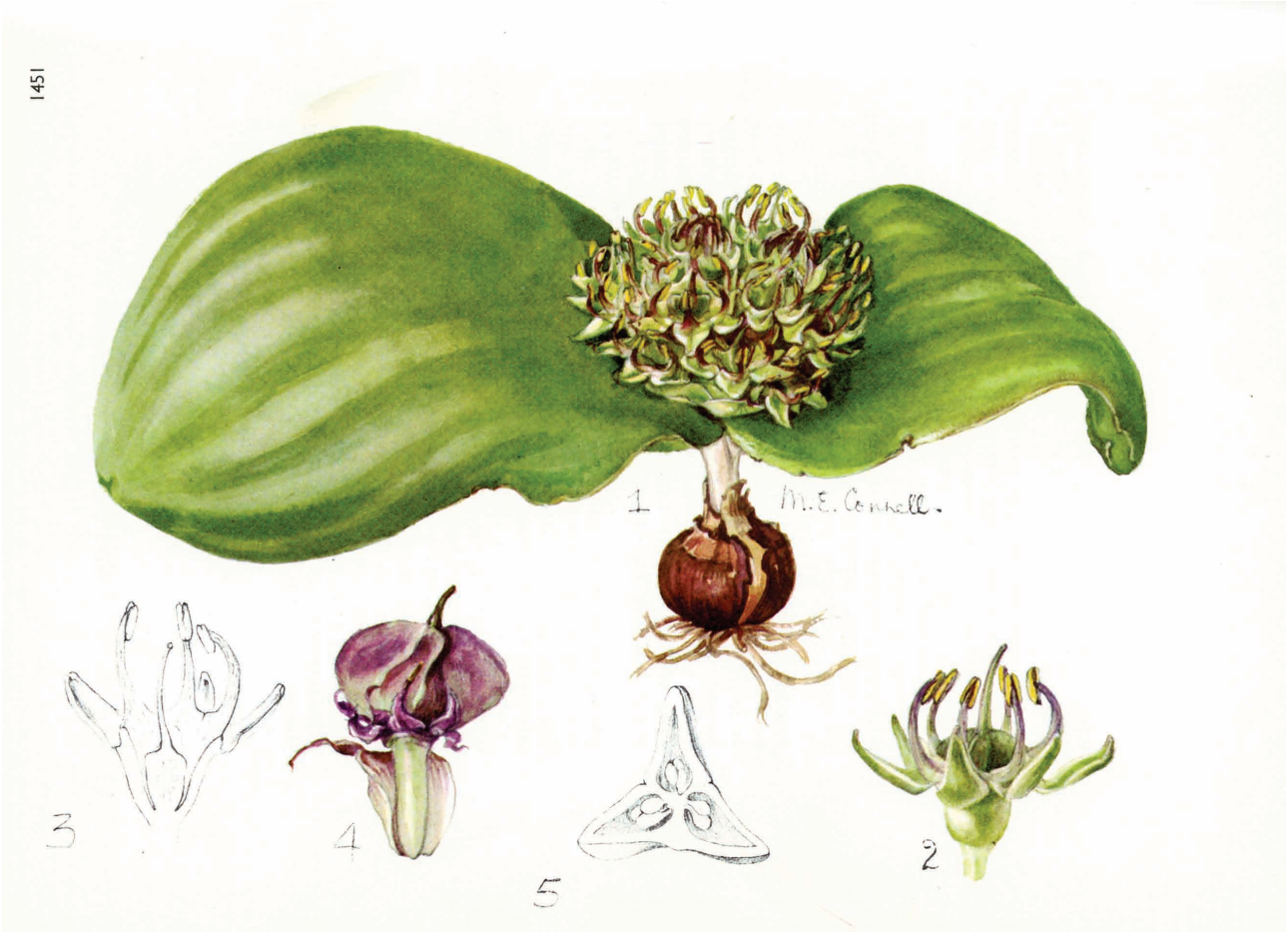

FIGURE 2. *Massonia obermeyerae* Mart.-Azorín, A.P.Dold, M.Pinter & Wetschnig illustrated in Obermeyer (1965: t. 1451) under the name *M. grandiflora* Lindl.

In summary, Obermeyer (1965) assigned the plant from Cranemere farm to *Whiteheadia* based on the slightly elongated peduncle of the inflorescence after anthesis, at least when cultivated, the very short broad perigone-tube and broad triangular exposed ovary. This agrees with a photograph of this plant mounted on a herbarium sheet at GRA where the label reads: "*Whiteheadia compacta* Oberm. n. sp. ined. Collected at farm Cranemere. Flowered at Division of Botany. July 1962. Legit E. Jenkins"; an annotation in pencil above the label by Michael John Wells reads "*Massonia grandiflora* Lindley M.J.W. 10/08/62". A duplicate of this photograph is also kept at NBG (nº 153632).

However, the name *Whiteheadia compacta* was never published and Obermeyer (1965) finally treated the plant from Cranemere farm, with some obvious doubt as shown above, as *Massonia grandiflora*. Knippels (2011) published a photograph of a plant resembling the illustration presented by Obermeyer (1965) as a special form of *Massonia depressa*.

In the framework of a taxonomic revision of *Massonia* (Martínez-Azorín *et al.* 2013, 2014a, 2014b, Pinter *et al*. 2013, Wetschnig *et al.* 2012, 2014), the study of plants representing Obermeyer's (1965) concept of *Massonia grandiflora* Lindl. revealed an undescribed species with distinct morphological and biogeographical features from all other species of *Massonia*. We here describe the species as *M. obermeyerae* Mart.-Azorín, A.P.Dold, M.Pinter & Wetschnig.

Materials and methods

Detailed morphological studies of *Massonia obermeyerae*, *M. depressa* species complex and *Whiteheadia bifolia* from the Northern Cape, Western Cape and Eastern Cape provinces of South Africa, were undertaken on natural populations and cultivated specimens as elaborated upon in Martínez-Azorín *et al.* (2007, 2009). Herbarium specimens from the herbaria ABH, BOL, CGE, G, GZU, GRA, K, NBG, NU, PRE, S, TCD and Z (acronyms according to Thiers 2015) were studied. Orthography of geographical names and grid-number system follows Leistner & Morris (1976). Morphological measurements and illustrations of leaves and flowers were made on fresh and on herbarium material derived from wild plants. Author names of the cited taxa follow IPNI (2015).

Description of the new species

Massonia obermeyerae Mart.-Azorín, A.P.Dold, M.Pinter & Wetschnig ***spec. nova*** **(Figs. 3−6).**

Species notabilis combinatione unica characterum ab ceteris speciebus Massoniae differt inflorescentia subsessili, densa, subcapitata, pedunculo atque rachidi clavatis, leviter incrassatis demum parce elongatis; filamentis plerumque rubescentibus, superne versus stylum incurvatis, inferne triangulari-incrassatis, a basi in tubum brevem ca. 1−1.5 *mm supra perigonium connatis, et ad apicem leviter incrassatis distincte albicantibus; ovario a latere viso pentagonali, a vertice viso acutissime triquetri; stylo incrassato, sursum gradualiter desinente et ad apicem lateraliter flexo; capsula ante dehiscentiam cum carnosulo et crassiusculo longe persistente appendice coronata.*

Type:—SOUTH AFRICA. Eastern Cape, Graaff-Reinet (3224): Pearston, farm Cranemere (-DB), July 1962, *E. Jenkins* (= *E. Palmer* ♃) *s.n.* sub PRE29302 (holotype PRE barcode 0049588-0!, only the plant on the upper half of the sheet corresponding to material collected in the wild in July 1962).

Deciduous geophyte. Bulb ovoid to subglobose, tunicate, ca. 15−30 × 15−25 mm, inner tunics fleshy and white, outer tunics thin, hardened and brownish. Leaves 2, deciduous, opposite, spreading and appressed to the ground, synanthous, ovoid, ovate-lanceolate or suborbicular with obtuse apex, 6−15 × 4−8 cm, margins narrow, membranous, minutely denticulate; adaxial side glabrous, smooth, usually wrinkled, dark grey-green, usually with scattered oblong, longitudinally-disposed purple maculae, margin purple; abaxial side smooth, green. Inflorescence a subsessile, dense, subcapitate raceme, 10−30 × 30−50 mm, with 6−25 flowers, shortly extending above ground level at anthesis. Peduncle and axis of inflorescence clavate and slightly swollen, somewhat lengthening with age. Bracts ovate to suborbicular, 11−20 × 10−25 mm, membranous, green with a purple flush in the upper half and white below, glabrous, with minutely denticulate margins. Pedicels 5−12 mm long, lengthening in fruit up to 16 mm. Flowers with a wide funnel-shaped tube and cucullate free portions of tepals. Perigone white with flushes of green and purple; perigone-filaments tube 3−5 × 4−5 mm, not concealing the ovary; free perigone segments triangular-ovate, outer whorl overlapping the inner at base, 4−6 × 2−4 mm, straight at first, suberect to spreading at anthesis and slightly reflexing later, without a strong sigmoid curve at the base. Filaments white to rose with a purplish flush, 8−10 mm long, distinctly arcuate-incurved towards the style, swollen and triangular below, tapering up to the apex, but slightly thickening again near the anther junction with a distinct white zone, connate at the base for ca. 1−1.5 mm above the perigone and forming a distinct swollen ring; anthers ca. 2 mm long, oblong, yellow before dehiscence, turning blue-violet after dehiscence near connective, dorsifixed, with yellow pollen. Ovary greenish with a purplish tinge above, ca. 4 × 3 mm, pentagonal in lateral view, triangular with acute edges in apical view, clearly differentiated from the style. Style greenish with a purple tinge, thickened, gradually tapering to the apex and hooked or bent on one side at the tip, 6−8 mm long, ca. 1 mm wide at the base. Capsule green with a purple tinge, subpentagonal to obovate in lateral view, trigonous with sharp edges in apical view, 11−15 × 14−18 mm, dry capsule with large, truncate valves, which are disposed on slightly elongated pedicels, with a persistent, fleshy, thickened, long-lasting style. Seeds subglobose, apiculate, black, 1.5−1.8 × 1.3−1.5 mm, smooth or slightly rugose.

Eponymy:—The specific epithet '*obermeyerae'* honours Anna Amelia Obermeyer (1907−2001), South African botanist who studied several genera of Hyacinthaceae in southern Africa contributing significantly to the knowledge of the family. Particularly, her detailed studies and comments on the morphology of the new *Massonia* from Cranemere farm are hereby acknowledged.

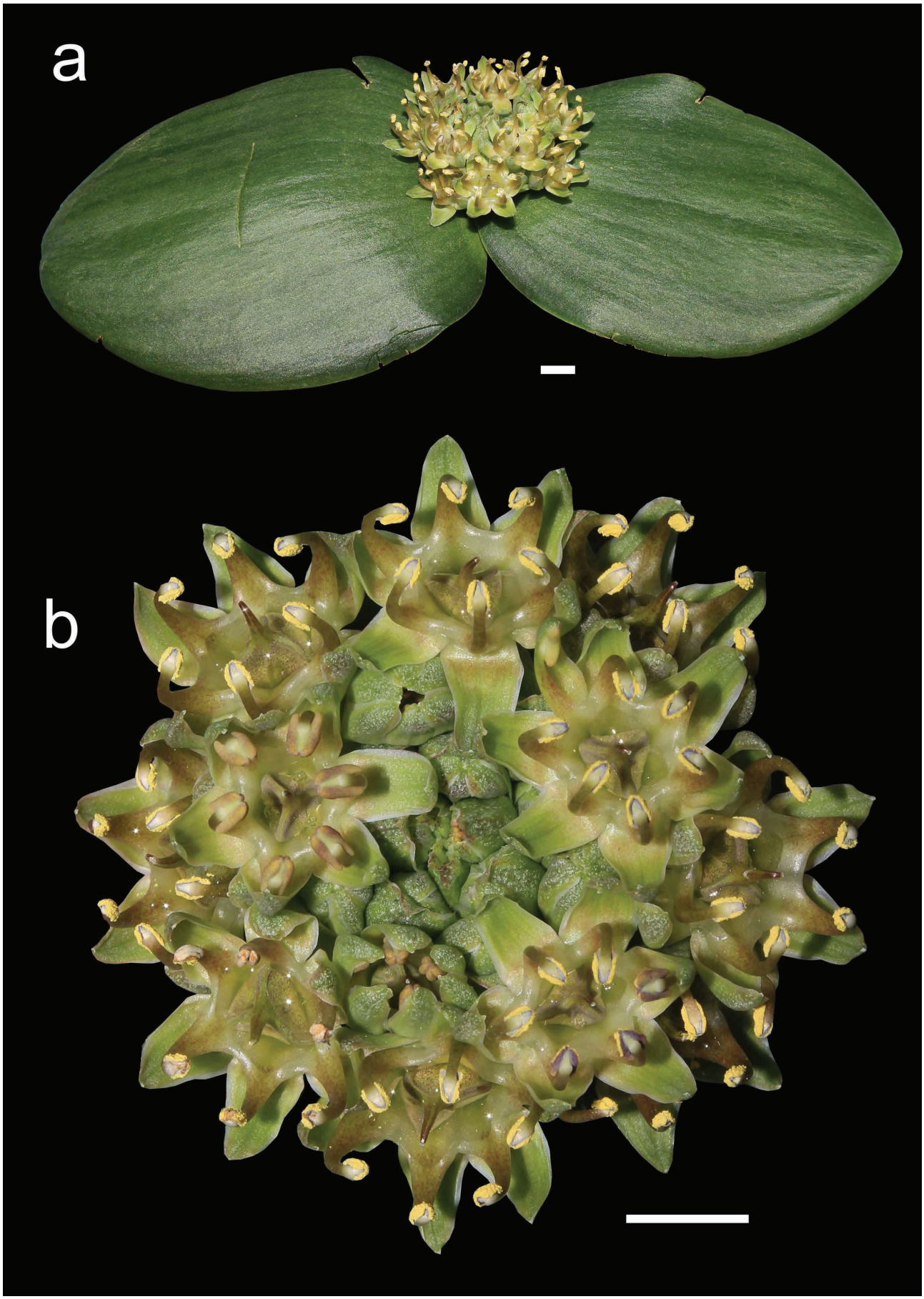

FIGURE 3. *Massonia obermeyerae* Mart.-Azorín, A.P.Dold, M.Pinter & Wetschnig from Darlington Dam (Lake Mentz), Eastern Cape, South Africa (corresponding to *D.M. Cumming 11862*). a. Plant in flower; b. Inflorescence in apical view. Scale bars 1 cm.

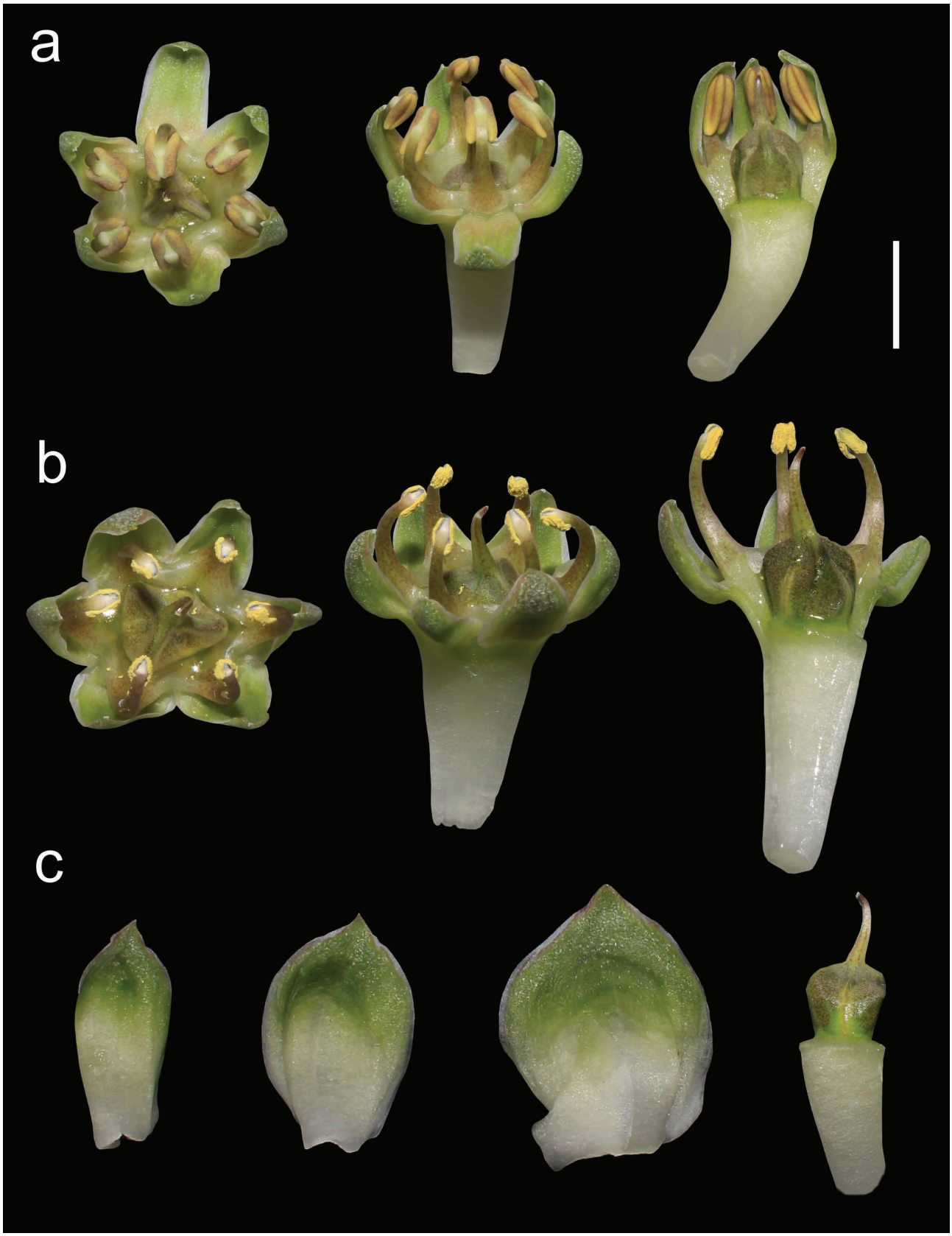

FIGURE 4. Buds, flowers and bracts of *Massonia obermeyerae* Mart.-Azorín, A.P.Dold, M.Pinter & Wetschnig from Darlington Dam (Lake Mentz), Eastern Cape, South Africa (corresponding to *D.M. Cumming 11862*). a. Flowers before anthesis; b. Flowers at anthesis; c. Bracts and gynoecium in lateral view. Scale bar: 1 cm.

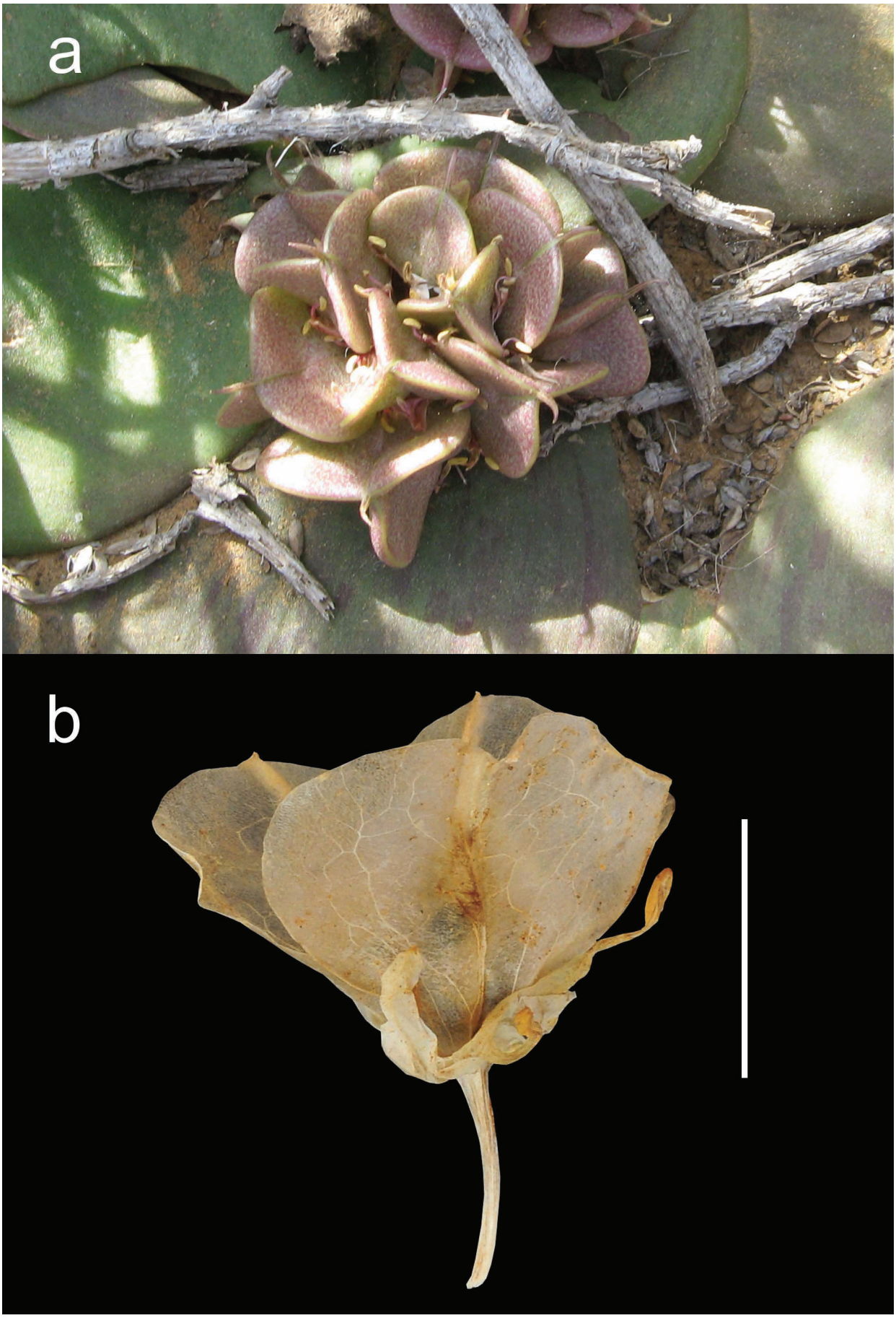

FIGURE 5. *Massonia obermeyerae* Mart.-Azorín, A.P.Dold, M.Pinter & Wetschnig from the wild at Klipplaat. a. Fruiting plant on 17 September 2011 (Photo D.M. Cumming); b. dehiscent capsule in lateral view on 13 November 2014. Scale bar 1 cm.

Biology:—Leaves of *Massonia obermeyerae* are present from May to July in wild populations, plants flower from July to September, and capsules develop from September to October. Flowers produce copious nectar and an intense agarose-like or yeasty scent. In the Klipplaat population, plants of *M. obermeyerae* grow beneath and on the south-facing edges of karoo bushes and also along dry stream beds, where additional moisture is available. The shallow, sour-smelling flower of *Whiteheadia bifolia*, also borne close to the ground, has been postulated to be pollinated by terrestrial rodents (Manning *et al.* 2002) and now confirmed by Wester *et al.* (2009) and Wester (2011). Similarly, Johnson *et al.* (2001) confirmed this pollination strategy in *Massonia depressa*. The smell and flower morphology of *M. obermeyerae* also points to pollination by terrestrial rodents, though this has not yet been confirmed. Should this be the case, *M. obermeyerae* could represent one of the few *Massonia* species pollinated by rodents in eastern South Africa. The dry infructescences of *M. obermeyerae* bear dehiscent capsules with large open truncate apical lobes, probably to allow for wind dispersal like a tumbleweed. Evidence of this was observed in the Klipplaat population where complete infructescences were caught amongst nearby bushes and stones. This strategy is probably also present in the *M. depressa* aggregate of species, which show similar capsules.

FIGURE 6. Seed morphology of Massonia *obermeyerae* Mart.-Azorín, A.P.Dold, M.Pinter & Wetschnig collected from the wild at Klipplaat. a. Seed, lateral view; b. Seed, raphal view; c. Seed, longitudinal section; d. Seed, transversal section. Scale bars: 0.5 mm.

Distribution:—The new species is known to us from four main areas in South Africa. In the Northern Cape, it occurs in the surroundings of Kimberley. In the Eastern Cape it grows in the Graaff Reinet, Pearston (Cranemere farm), Klipplaat-Steytlerville and Darlington Dam (previously called Lake Mentz) areas. In the Western Cape *M. obermeyerae* is known from two regions, one in the Gamkaberg Nature Reserve of the Little Karoo, south of Calitzdorp, and the other near Hermanus (Fig. 7). It is worth mentioning that the collection by Stayner from "Hermanus coast line" was identified by W.F. Barker as *Whiteheadia* sp. nov. and a different later annotation in pencil reads "*Massonia grandiflora* Lindl. (not matched at B.H.)", and question marks are placed before and after the locality of the plant, expressing doubt about the cited locality.

Habitat:—*Massonia obermeyerae* mostly grows in karroid habitats of between 200 and 700 m in elevation and

with ca. 250 mm of mean annual precipitation, although the population from Kimberley reaches 1200 m elevation and the one from Hermanus occurs along the coastline. Mean annual rainfall in the latter two areas can reach ca. 500 mm. The population from Kimberley grows in the Savanna Biome, Kimberly Thornveld (SVk4), with summer and autumn rainfall averaging 300−500 mm per annum and very dry winters with frequent frosts. The populations from Graaff Reinet, Pearston and Klipplaat occur in the Nama-Karoo Biome, Eastern Lower Karoo (NKl2) and the one from Darlington Dam in the Albany Thicket Biome, Sundays Noorsveld (AT5). Rainfall in these localities mainly occurs in late summer and early autumn, with a main peak in March. Mean annual precipitation ranges from ca. 150−350 mm with the mean around 256 mm. The population near Steytlerville grows in the Succulent Karoo Biome, Willowmore Gwarrieveld (SKv12). This area shows a bimodal (autumn/spring) rainfall pattern with a slight optimum in March and again from October to November, with an overall mean annual precipitation of 250 mm. The population from south of Calitzdorp is located in the Albany Thicket Biome, Gamka Thicket (AT2) sensu Mucina & Rutherford (2006), the driest of the thicket types, with a non-seasonal rainfall pattern between 102−545 mm, with a mean annual precipitation of 267 mm. Frost is fairly common in this region. The population from Hermanus grows in the Fynbos Biome, Overberg Dune Strandveld (FS7) with mostly winter rainfall with 400−600 mm of mean annual precipitation (Mucina & Rutherford 2006).

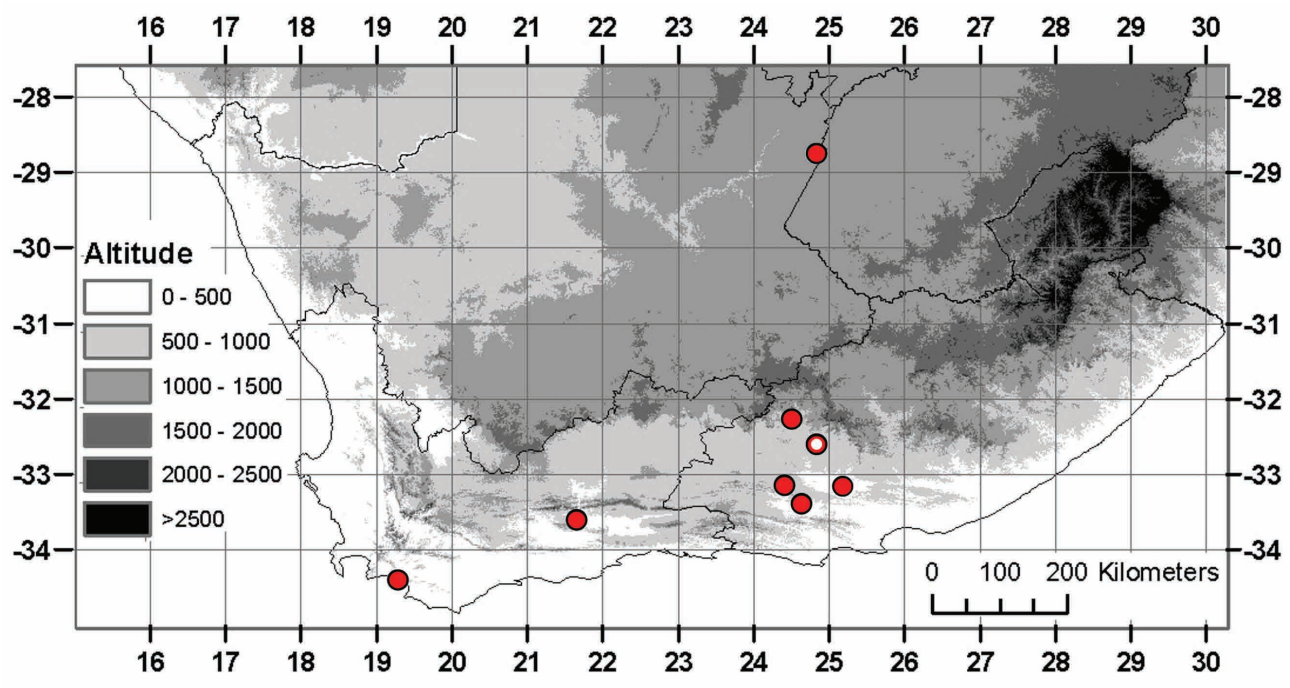

FIGURE 7. Known distribution of *Massonia obermeyerae* Mart.-Azorín, A.P.Dold, M.Pinter & Wetschnig in South Africa. Type locality indicated by symbol with white centre.

Taxonomic relationships:—Obermeyer (1965) suggested that the plants from Cranemere farm could constitute the link between *Massonia* and *Whiteheadia* on the basis of the very short broad perigone-tube, the broad triangular exposed ovary, and the rachis of the inflorescence slightly elongating when cultivated. We independently reached the same conclusion and we add further characters shared between *Massonia obermeyerae* and *Whiteheadia bifolia*. Flowers of both taxa show strongly incurved filaments, which are thickened and tapering to the tip, although they are again swollen in the region of the white and spongy anther connective (as also indicated in a sketch of the plant from Cranemere farm made by Obermeyer and kept at GRA). Furthermore, the fleshy unripe capsules in both taxa bear a persistent, thickened, hooked, long-lasting style, whilst in most *Massonia* species the style is soon senescent although it usually also persists on top. The hypothesis that *M. obermeyerae* constitutes a link between *Massonia* and *Whiteheadia* agrees with our preliminary phylogenetic studies (not shown), in which *M. obermeyerae* is early branching and sister to other *Massonia* species, suggesting that a common ancestor of this species gave rise to the genus *Massonia*. Our studies also place several samples of *W. bifolia* as a monophyletic clade sister to the clade comprising *M. obermeyerae* plus the remaining *Massonia* species. *Massonia obermeyerae* also resembles taxa of the *M. depressa* species complex (cf. Jessop 1976, van der Merwe 2002, Knippels 2011), based on the similar flower structure with wide open perigone-tube, from which *M. obermeyerae* differs by characters shared with *W. bifolia*, such

as the incurved filaments being white and slightly swollen at the tip, or the fleshy, thick, long-lasting style on top of the capsule. Moreover, *Massonia depressa* is mainly restricted to Namaqualand and the Western Cape province, whereas the distribution of *M. obermeyerae* is centred in the Eastern Cape province, with disjunct populations in the Western Cape near Calitzdorp and Hermanus and a further disjunct population near Kimberley in the Northern Cape. The new species was identified as *M. grandiflora* by Obermeyer (1965) though apparently with some doubt based on her own comments, as detailed above. In any case, *M. grandiflora* was synonymised with *M. depressa* by van der Merwe (2002) and Müller-Doblies & Müller-Doblies (1997) and therefore it differs from *M. obermeyerae* by the same characters as *M. depressa*. The *M. depressa* species complex still needs a careful revision to evaluate its taxonomic boundaries.

Additional specimens and material studied (paratypes):—SOUTH AFRICA. Northern Cape, Kimberley (2824): Kimberley, September 1912, *Moran s.n.* (GRA!); Eastern Cape, Graaff-Reinet (3224): Graaff Reinet, August 1917, *Francis s.n.* (GRA!); Eastern Cape, Graaff-Reinet (3224): Pearston, farm Cranemere (-DB), collected 1961, flow. Div. of Bot. July 1962, Prinshof P7133, *E. Jenkins PRE29302* (PRE barcode 0049588-0!); Eastern Cape, Graaff-Reinet (3224): Pearston dist., farm Cranemere (-DB), collected 1961, August 1963, painted by Mrs. Stutterheim, *E. Jenkins PRE29302* (PRE barcode 0049589-0!); Eastern Cape, Steytlerville (3324): Klipplaat (-AB), 300 m south of cemetery in karroid veld along dry stream bed just off gravel road to Camphorspoort, elevation 613 m, 17 September 2011 in fruit, *D. Cumming s.n.* (photo!); *ibidem*, 5 August 2014 in flower, *A.P. Dold 140021* (GRA!); *ibidem*, 12 November 2014 in fruit, *A.P. Dold 140024* (GRA!); Eastern Cape, Steytlerville (3324): Teasdale farm, ca. 6.7 km south east of Klipplaat (-AB), 12 November 2014 in fruit, *A.P. Dold 140023* (GRA!); Eastern Cape, Steytlerville (3324): Monteaux Farm, 17.8 km east of Steytlerville on road to Cockscomb–Uitenhage (-BC) [not SE of Middleton, as given on iSpot], elevation 384 m, 33.43003ºS, 24.51642ºE, 13 August 2011 in flower and fruit, *N. van Berkel s.n.* (Photo!, iSpot: http://www.ispot.org.za/node/131878); *ibidem*, 11 June 2014 vegetative, *A.P. Dold* (photo!); Eastern Cape, Somerset East (3325): Darlington Dam (Lake Mentz), roadside reserve on R400 (-AA), *D.M. Cumming 11862* http://www.zelenelisty.cz/clanky/werbar---cibuloviny/massonia-depressa-v-ponekud-antidepresnim-provedeni.html (photo!); Western Cape, Ladismith (3321): Gamkaberg Nature Reserve, south of Calitzdorp (-DA), 33.6354ºS 21.6522ºE, elevation 287 m, 20 August 2014 in flower, *C. Ralston s.n.* (photo!, iSpot: http://www.ispot.org.za/node/282025); Western Cape, just outside Calitzdorp, 27 September 2006 in fruit, *M. Heigan s.n.* (photo!, https://www.flickr.com/photos/97303475@N00/2138602137); Western Cape, Caledon (3419): Hermanus coastline (-AC or -AD), 23 July 1965 in flower, *F. Stayner s.n.* (NBG81957!); Unknown locality, *P. Knippels s.n.* (photo! http://www.bloembol.info/nieuws_2010_n.html).

Comments on typification of *Massonia grandiflora*

Massonia grandiflora Lindley (1826: t. 958). Lectotype (designated by Jessop 1976: 413 as "type"):—[icon in] Lindley (1826: t. 958), "*Massonia grandiflora*" (Fig. 1). Epitype (designated here):—SOUTH AFRICA. Herb. J. Lindley, s.d., *s. coll. s.n.* (CGE00078, digital image!).

A herbarium specimen at Cambridge University (CGE00078) includes the handwritten annotation "*Massonia grandiflora*" and a printed label shows the following information: "Cambridge Botan. Museum, Herbar. J. Lindley Ph.D. Purchased in 1866". Two further printed labels exist on the cited specimen. The first one reads "HOLOTYPE: *Massonia grandiflora* Lindl., Bot. Reg. 12: 958 (1826)." The second one includes "*Massonia grandiflora* Lindl. Holo. Det./Confirmavit J.P. Jessop 2/8/1972". Furthermore, the cited herbarium voucher shows an inflorescence and one large leaf that fit the dimensions of the plant illustrated by Lindley (1826) as *Massonia grandiflora*, but it lacks any collection data and any explicit indication such as 'type' or 'sp. nov.'. Although Lindley explicitly stated that the drawing in the protologue was made "from a plant in Mr. Colvill's Nursery, which had been brought from the interior of the Cape of Good Hope by Mr. Synnet", we however cannot be absolutely certain that it was the only individual studied prior to the species description and it is the one in the cited voucher. These data demonstrate that the voucher CGE00078 represents original material seen by Lindley and hence two elements suitable for typification exist, namely the collection CGE00078 and the illustration in Lindley (1826: t. 958).

Jessop (1976), who according to the above cited labels had indeed seen the sheet CGE00078 in 1972, selected the illustration in Lindley (1826: t. 958) as "Type" of *Massonia grandiflora*, but he did not mention the herbarium sheet CGE00078. Müller-Doblies & Müller-Doblies (1997) followed Jessop (1976), referring to Lindley's illustration as "Iconotypus". As no evidence exists that the exemplar used for the drawing is exactly that in CGE00078 and even the only specimen used for the species description, the "type" designated by Jessop (1976) on the illustration in Lindley (1826) has to be considered as lectotype of *M. grandiflora* (Art. 9.9, ICN, McNeill *et al.* 2012; see also McNeill 2014).

To avoid confusion on the application of that name, we here select the sheet CGE00078 as epitype (Art. 9.8, ICN), in support of the previously designated lectotype, where some distinctive characters are either missing or not detailed enough to ensure unequivocal identification.

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