



# New synonyms and a new name in Asteraceae: Senecioneae from the southern African winter rainfall region

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## ABSTRACT

A review of the genera *Othonna* and *Senecio* undertaken for the forthcoming *Greater Cape plants 2: Namaqualand-southern Namib and western Karoo* (Manning in prep.) led to a re-examination of the taxonomic status of several species. This was facilitated by the recent availability of high-resolution digital images on the Aluka website ([www.aluka.org](http://www.aluka.org)) of the Drège isotypes in the Paris Herbarium that formed the basis of many species described by De Candolle in his *Prodromus systematis naturalis regni vegetabilis*. These images made it possible to identify several names whose application had remained uncertain until now. Each case is briefly discussed, with citation of additional relevant herbarium specimens. The following species are reduced to synonymy: *O. incisa* Harv. is included in *O. rosea* Harv.; *O. spektakelensis* Compton and *O. zeyheri* Sond. ex Harv. are included in *O. retrorsa* DC.; *S. maydae* Merxm. is included in *S. albopunctatus* Bolus, which is now considered to include forms with radiate and discoid capitula; *S. cakilefolius* DC. is included in *O. arenarius* Thunb.; *S. pearsonii* Hutch. is included in *O. asperulus* DC.; *S. parvifolius* DC. is included in *S. carroensis* DC.; *S. eriobasis* DC. is included in *S. erosus* L.f.; and *S. lobelioides* DC. is included in *S. flavus* (Decne.) Sch.Bip. The name *S. panduratus* (Thunb.) Less. is identified as a synonym of *S. erosus* L.f. and plants that are currently known under this name should be called *S. robertiiifolius* DC. The confusion in the application of the names *O. perfoliata* (L.f.) Jacq. and *O. filicaulis* Jacq. is examined. *O. perfoliata* is lectotyped against a specimen in the Linnaean Herbarium (LINN) with radiate capitula. The name *O. filicaulis* correctly applies to a radiate species and is treated as a synonym of *O. perfoliata*. The vegetatively similar taxon with disciform capitula that is currently known as *O. filicaulis* should be known as *O. undulosa* (DC.) J.C.Manning & Goldblatt, comb. nov. The new name *O. daucifolia* J.C.Manning & Goldblatt is provided to replace the later homonym *O. abrotanifolia* (Harv.) Druce.

## INTRODUCTION

The South African species of *Othonna* L. and *Senecio* L. were last revised at a regional level by Harvey (1865). Since then, the summer rainfall species from KwaZulu-Natal have been studied intensively by Hilliard (1977) but many species in the southern African winter rainfall region remain poorly understood. The recent availability of high-resolution digital images of type material of many African taxa ([www.aluka.org](http://www.aluka.org)), especially the Paris isotype material of the Drège collections that formed the basis of a number of De Candolle's (1838) species, has made it possible to identify several taxa that were never seen by Harvey (1865) and whose identity has remained uncertain. During the preparation of a review of the tribe Senecioneae (Manning in prep.), various nomenclatural and taxonomic issues were encountered that can now be addressed. The application of some of these names and other taxonomic and nomenclatural issues arising during the study are dealt with here.

The digital images, or virtual herbaria, available online through Aluka and other sites such as the Herbarium of the Linnean Society of London ([www.linnean-online.org](http://www.linnean-online.org)) are often adequate for providing confirmation of the identity of names where the gross morphology of the taxa in question is diagnostic but they cannot replace microscopic examination of actual material for critical features. We have, therefore, avoided making any taxonomic inferences in instances where the identity of the digital image depends on examination of such micro-characters. In addition,

digital images have only been accepted as genuine type material where it is absolutely clear that this is the case from the collecting number and locality details on the sheets in question.

## OTHONNA

1. The shrublet with dissected leaves and radiate capitula from the southwestern Cape currently known as *Euryops abrotanifolius* (L.) DC. (1838) is based on *Othonna abrotanifolia* L. (1753). The same epithet was also used for *Doria abrotanifolia* Harv. (1865), a species with disciform capitula from Namaqualand, which was later transferred to *Othonna* as *O. abrotanifolia* (Harv.) Druce (1917). Although aware of the existence of Linnaeus' combination, Druce (1917) did not consider it an impediment to his transfer of the epithet and it escaped the notice of later authors, who continued to treat the species under this name (e.g. Welman 2006). However, the existence of Linnaeus' earlier name renders Druce's combination an illegitimate homonym (McNeil *et al.* 2006: Art. 53.1), and the Namaqualand species therefore requires a new name, which we provide here, alluding to the unusually finely dissected leaves.

***Othonna daucifolia* J.C.Manning & Goldblatt, nom. nov. pro *Othonna abrotanifolia* (Harv.) Druce: 638 (1917), non *Othonna abrotanifolia* L. (1753) [= *Euryops abrotanifolius* (L.) DC.], *Doria abrotanifolia* Harv.: 324 (1865).** Type: South Africa [Northern Cape], Springbokfontein [Springbok], without date, *Whitehead s.n.* TCD0003161 (TCD, holo.–Aluka image!, website accessed 20-03-09).

2. The application of the names currently used for the two species *Othonna filicaulis* Jacq. and *O. perfoliata* Jacq. (e.g. Goldblatt & Manning 2000) is highly confused

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(Table 1). These vegetatively similar, deciduous geophytes from the Western Cape are tuberous perennials producing slender, often scandent, annual stems bearing perfoliate or amplexicaul leaves and terminating in pedunculate capitula. Their remarkable vegetative similarity led Rowley (1994: 174) to treat both radiate and disciform plants in a single, variable species under the name *O. filicaulis*. He may be correct, but until the situation is fully investigated we continue to treat them as distinct.

*Othonna perfoliata* is distinguished from *O. filicaulis* by its generally fewer phyllaries (8–10 vs 10–12) and radiate marginal florets, although in some collections the rays are reduced and rather small. The marginal florets in *O. filicaulis*, in contrast, are filiform and rayless, with the truncate corolla less than half as long as the style. All fruiting material of *O. perfoliata* that we have seen has the mature pappus in the marginal florets 5–8 mm long and  $\pm$  as long as the cypselae or only slightly longer, whereas in *O. filicaulis* the pappus often elongates greatly, reaching 10–20 mm long, therefore 2–4 times as long as the cypselae at maturity. *O. filicaulis* as currently understood (e.g. Goldblatt & Manning 2000) is widespread in the southern African winter rainfall region, mainly on sandy, often coastal flats, from southern Namibia as far east as Uniondale, whereas *O. perfoliata* is essentially restricted to montane habitats in the southwestern Cape, where it occurs on rocky slopes between the Bokkeveld Mountains and Caledon (Goldblatt & Manning 2000).

The epithet *perfoliata* was first used in this context by Linnaeus f. (1782) in the combination *Cineraria perfoliata* L.f., based on material collected at the Cape of Good Hope by Thunberg. There are no sheets under this name in the Linnaean Herbarium at Stockholm (S) but the Herbarium of the Linnean Society (LINN) contains two sheets labelled as such, one of them a radiate plant (LINN1000.32) and the other one evidently disciform (LINN1000.33). The protologue, unfortunately, makes no mention of the condition of the capitula but the description of the leaves as ovate-cordate and of the peduncles as elongated, with a solitary capitulum [*foliis ovatis cordatis amplexicaulis, pedunculis unifloris elongatis*] matches the radiate-flowered specimen more closely than the disciform one, in which the leaves are lanceolate-undulate and the inflorescence sparsely branched. It is in the sense of a radiate taxon that Jacquin (1797) illustrated and described the species, citing *C. perfoliata* L.f. under the name *Othonna perfoliata*, which therefore constitutes the new combination *O. perfoliata* (L.f.) Jacq.

Thunberg, however, understood the taxon in the opposite way when he established the genus *Doria* Thunb. (1800a) for various Senecioneae with disciform capitula and transferred the name to that genus as *Doria perfoliata* (L.f.) Thunb. (1800b). This interpretation evidently

stems from the duplicate material in his possession, as the Thunberg Herbarium (UPS-THUNB) contains a single, disciform plant (UPS-THUNB19833) under the name *Doria perfoliata*. The name was subsequently used in this sense as applying to the disciform taxon by both De Candolle (1838) and Harvey (1865) (although the latter mistakenly attributed the basionym to Lamarck). As a result of this, De Candolle (1838) described the new species *O. amplexifolia* DC. for the conspicuously radiate taxon, based on material collected by Drège, citing Jacquin's illustration and interpretation of *O. perfoliata* in the protologue to his *O. amplexifolia*, but explicitly excluding the Linnaean basionym *Cineraria perfoliata* in keeping with his application of this name to the disciform taxon (as *Doria perfoliata* (L.f.) Thunb.). The name was subsequently transferred to *Othonna* as *O. perfoliata* (L.f.) Sch.Bip. (1844) but this combination is in any event preoccupied by *Othonna perfoliata* (L.f.) Jacq. (1797), making it a later homonym and thus illegitimate (McNeil *et al.* 2006: Art. 53).

At the time that he figured the radiate taxon under the name *Othonna perfoliata*, Jacquin (1797) described a second, similar taxon under the name *O. filicaulis* Jacq. This species was distinguished from *O. perfoliata* by the narrower, lanceolate-undulate leaves and by the smaller, linear rays. The ligulate condition of the marginal florets is clearly described and is also illustrated in a detail of a marginal floret but the rays are not evident in the drawing of the whole plant, which thus appears to be disciform. Both De Candolle (1838) and Harvey (1865) treated the species as circumscribed by Jacquin although neither knew it from actual material. The name later became associated with the disciform species, presumably because Jacquin's painting of the whole plant appeared to represent a disciform individual, and it is this application that is current (e.g. Goldblatt & Manning 2000). This transfer in the application of the name *O. filicaulis* to the disciform taxon appears to date to the *Flora of the Cape Peninsula* (Adamson & Salter 1950), in which the name *O. filicaulis* is explicitly applied to the disciform species with filiform, truncate marginal corollas 'previously misidentified as *O. perfoliata*' (Adamson & Salter 1950: 820). In any event, the protologue of *O. filicaulis* makes it quite clear that the name is properly applied to a radiate plant.

Examination of available herbarium specimens of *Othonna perfoliata* shows that the species exhibits a wide range of leaf shapes, ranging from suborbicular and plane (typical *O. perfoliata*) to lanceolate and undulate (typical *O. filicaulis*). The ray florets also vary from well-developed and oblong to smaller and narrow. We therefore conclude that *O. filicaulis* is conspecific with *O. perfoliata* and place the name in synonymy under it.

TABLE 1.—Application of epithets in *Othonna filicaulis-perfoliata* group

Epithet	Application					
	Linnaeus f. (1782)	Jacquin (1797)	Thunberg (1800)	De Candolle (1838)	Harvey (1865)	Adamson & Salter (1950) <i>et seq.</i>
<i>perfoliata</i> (1782)	not stated	radiate	disciform	disciform	disciform	radiate
<i>filicaulis</i> (1797)		radiate	—	radiate	radiate	disciform
<i>amplexifolia</i> (1838)				radiate	radiate	—
<i>undulosa</i> (1838)				disciform	disciform	—

This leaves the disciform species, currently identified as *Othonna filicaulis*, without a name. *Doria undulosa* DC. (1838) was described for a collection with straggling stems bearing cordate-lanceolate, undulate leaves and disciform capitula with short, truncate marginal corollas that was gathered in the Hex River Mountains by Drège. The species was imperfectly known to Harvey (1865) but our examination of the isotype material at Paris convinces us that it falls within the range of variation of the taxon that is currently incorrectly called *O. filicaulis*. The name *D. undulosa* is therefore available for the disciform taxon and the new combination required in *Othonna* is made here.

***Othonna perfoliata* (L.f.) Jacq.**, *Plantarum rariorum horti caesarei schoenbrunnensis* 2: 61, t. 240 (1797). *Cineraria perfoliata* L.f.: 375 (1782 '1781'). *Doria perfoliata* (L.f.) Thunb.: 155 (1800b). *Othonna perfoliata* (L.f.) Sch.Bip.: 769 (1844), illegit. superfl. name. Type: South Africa, without locality or date, *Thunberg s.n.* (LINN1000.32, lecto., here designated—Linnean image!, website accessed 20-03-09).

*O. filicaulis* Jacq.: 62, t. 241 (1797), not of Adamson & Salter (1950) and later authors [= *Othonna undulosa* (DC.) J.C.Manning & Goldblatt], syn. nov. Type: illustration in Jacq.: t. 241 (1797), lecto., here designated: original material unknown.

*O. amplexifolia* DC.: 480 (1838), syn. nov. Type: South Africa, [Western Cape], Paarl, [31 August 1827], *Drège* [6063] (G-DC, holo.—microfiche!; K, P—Aluka images!, website accessed 20-03-09).

#### Representative additional specimens examined

NORTHERN CAPE.—3119 (Calvinia): Oorlogskloof Nature Reserve, (—AC), 6 June 1995, *Pretorius* 245 (NBG).

WESTERN CAPE.—3118 (Vanrhynsdorp): Matsikamma, (—DB), 12 July 1974, *Thompson* 2054 (NBG). 3219 (Wuppertal): Cedarberg, Gonnafontein, (—CB), 23 May 2000, *Pond* 77 (NBG). 3319 (Worcester): Rawsonville, (—CA), 28 July 1962, *Walters* 659 (NBG); Voetpadsberg, (—DA), 8 June 1985, *Van Wyk* 2373 (NBG). 3419 (Caledon): Panorama, (—CB), 4 July 1976, *Neethling s.n.* (NBG).

***Othonna undulosa* (DC.) J.C.Manning & Goldblatt**, comb. nov. *Doria undulosa* DC.: 472 (1838). Type: South Africa, [Western Cape], Hexriviersberg, [Hex River Mountains, 3 June 1820], *Drège* [289] (G-DC, holo.—microfiche!; P—Aluka image!, website accessed 20-03-09).

*O. filicaulis* sensu auct., non Jacq. [= *O. perfoliata* (L.f.) Jacq.].

#### Representative additional specimens examined

NORTHERN CAPE.—2917 (Springbok): bottom of Wildepaardehoek Pass, (—DC), 24 August 1976, *Van Jaarsveld* 1399 (NBG). 3018 (Kamiesberg): Studer's Pass, (—AC), 30 August 1975, *Oliver* 5952 (NBG).

WESTERN CAPE.—3218 (Velddrif): Rocher Pan Reserve, (—CB), 25 July 1981, *Le Roux & Van Rooyen* 6 (NBG). 3319 (Worcester): Karoo Garden veld, (—CB), *Perry* 165 (NBG). 3420 (Bredasdorp): Zoetendalsvlei Vallei turnoff from Bredasdorp—Agulhas road, (—CA), 6 July 1995, *Paterson-Jones* 433 (NBG).

3. *Othonna lingua* L.f. (1782) was based on a collection made by Thunberg at the Cape of Good Hope. The name of the taxon has been incorrectly rendered as *O. lingua* (Less.) Sch.Bip. (1844) based on the name *Doria lingua* Less. (1832) but reference to Lessing (1832: 89) reveals that he did not in fact publish this name. It first appears as *D. lingua* in De Candolle (1838: 471), where it is mistakenly attributed to Lessing as being based on the basionym *Othonna lingua* Jacq. What Lessing (1832) actu-

ally published was the combination *Doria digitata* (L.) Less., based on *Othonna digitata* L., for a similar taxon with toothed leaves, followed by a list of names that he regarded as conspecific with it. Among them was *Othonna lingua* sensu Jacquin (1797). Jacquin (1797) was in any event also not the author of the name since he cited the *Systema vegetabilium* of 1784 (edition 14, Murray 1784), which in turn refers the name to Linnaeus fil. (1782). This is in fact the first appearance of the name, which is thus correctly attributed to Linnaeus f. as *O. lingua* L.f.

There is no material under the name *Othonna lingua* in either LINN or S but there is a specimen under this name in the Thunberg herbarium (UPS-THUNB20882), which therefore represents the type. This specimen was cited by Harvey (1865: 342) under *O. tuberosa* Thunb. (itself an illegitimate, superfluous name for *O. bulbosa* L.), who followed De Candolle (1838: 471) in retaining the name [*Doria lingua* (Jacq.) Less.] as applied to a quite different taxon with disciform capitula. We have examined the specimen of *Doria lingua* in the Thunberg herbarium and find no reason to disagree with Harvey (1865) that it represents *O. bulbosa* L. The name *O. lingua* L.f. should therefore be treated as a synonym of *O. bulbosa* L. and we make the necessary nomenclatural correction below.

The incorrect application of the name *Othonna lingua* by De Candolle (1838) and Harvey (1865) arose from an initial misunderstanding by Jacquin (1797), whose illustration and description apply to an erect-stemmed, tuberous geophyte with petiolate radical leaves, lanceolate cauline leaves, and disciform capitula.

Linnaeus f. (1782) did not mention the condition of the marginal florets in the protologue of *Othonna lingua* but neither did he mention the florets in any but one of the remaining 14 species enumerated by him in *Othonna*. Since all of these are in fact radiate, this is strong circumstantial evidence that he had a radiate taxon in mind when describing *O. lingua*. There is also no indication as to whether the epithet refers to the shape of the leaves or to the presence of rays but the description of the leaves as ovate-lanceolate and semi-amplexicaul suggests that it more probably alludes to the latter. In any event, the Thunberg collection, which is evidently the type, fixes the application of the name. We accordingly place *O. lingua* in synonymy under *O. bulbosa*.

***Othonna bulbosa* L.**, *Species plantarum*: 1309 (1753). Type: illustration in Breyn: t. 66 (1674–1678).

*O. lingua* L.f.: 387 (1782 '1781'), syn. nov.; Jacq.: 60 (1797), name only, excl. description and figure; Thunb.: 718 (1823); Sch.Bip.: 769 (1844) [as '(Less.) Sch.Bip.']. *Doria lingua* (L.f.) DC.: 471 (1838). Type: South Africa, without precise locality, UPS-THUNB20882 (UPS-THUNB, presumed holo.—microfiche!).

*O. bulbosa* Thunb.: 720 (1823), illegit. superfl. name. Type: as for *O. bulbosa* L.

4. *Othonna lingua* is a species with radiate capitula and is, according to our interpretation of the type, conspecific with *O. bulbosa* (see discussion above). It is, therefore, necessary to consider the identity of the disciform species to which this name has been applied in many herbaria. The collections under this name represent a tuberous geophyte with disciform capitula and ± erect, annual stems bearing variously oblanceolate to ovate leaves, the

lowermost leaves  $\pm$  tapering to the base and  $\pm$  truncate or sessile, and the upper leaves mostly auriculate.

We have examined herbarium material filed under the name *O. lingua* and are able to distinguish two sets of populations. One represents a western, coastal species occurring from Namaqualand to the Olifants River, mostly with fleshy, oblanceolate leaves with conspicuously revolute margins, capitula in which the phyllaries are connate in the basal third, and disc cypselae with short, caducous pappus bristles 1–3 mm long. A second series of plants with  $\pm$  plane leaves occurs inland, from the Cedarberg eastwards to Port Elizabeth, and is distinguished by the phyllaries connate for  $\pm$  half their length or more, and most strikingly by the disc cypselae entirely lacking a pappus (very rarely with one or two short bristles on the outer disc florets in some collections from the Little Karoo).

Only two species of *Othonna* are known in which the disc florets lack a pappus and both were described by De Candolle (1838). *O. gymnodiscus* (DC.) Sch.Bip. was based on a plant collected by Ecklon near Port Elizabeth, and *O. semicalva* (DC.) Sch.Bip. on a collection made by Drège in the Olifant's River Valley. The two taxa were distinguished primarily by differences in leaf shape (respectively oblong-ovate and auriculate vs linear-lanceolate and sessile). Both taxa were known to De Candolle (1838) from the type specimens only. Collections made since then have filled in the distribution between the type localities and also suggest that the purported differences between them in leaf shape and size of capitula are not significant. Leaves in herbarium material range from narrowly lanceolate to obovate, with the leaf base narrowed or  $\pm$  auriculate, and the phyllaries vary from 6–10 mm long, sometimes even on the same plant depending on their stage of development. Our examination of type material of both names leads us to conclude that they represent forms of a single species, for which we choose the name *O. gymnodiscus* as being most appropriate. The name *O. semicalva* is accordingly reduced to synonymy.

The second series of populations from the west coast with pappus bristles present in the disc florets appears to represent an undescribed species but further study is required to assess this.

***Othonna gymnodiscus* (DC.) Sch.Bip.**, Compositae Kraussiana: 769 (1844). *Doria gymnodiscus* DC.: 473 (1838). Type: South Africa, [Eastern Cape], near Port Elizabeth, without date, *Ecklon & Zeyher* (G-DC, holo.–microfiche!; S–digital image!).

*O. semicalva* (DC.) Sch.Bip.: 769 (1844), syn. nov. *Doria semicalva* DC.: 473 (1838). Type: South Africa, [Western Cape], Langevalley ad Olifantsrivier, [Rhinosterfontein, 15 July 1830], *Drège* [2878] (G-DC, holo.–microfiche!; P–Aluka image!, website accessed 20-03-09).

*O. lingua* sensu Goldblatt & Manning (2000), non L.f. [= *O. bulbosa* L.].

#### Selected additional specimens examined

WESTERN CAPE.—3218 (Clanwilliam): Pakhuis Pass, (–BB), 7 July 1984, *Taylor 10985* (NBG). 3219 (Wuppertal): Swartrugens, Knolfontein Farm, (–DC), 7 August 2007, *Jardine & Jardine 699* (NBG). 3318 (Cape Town): Malmesbury, Katzenberg, (–DA), 26 June 1976, *Andrag & Boucher 5* (NBG); McGregor, Farm Vrolikheid, (–DD), 1971 without month, *Jooste 88* (NBG). 3319 (Worcester): Rawsonville, (–CA), 28 July 1962, *Walters 652* (NBG); Karoo Garden,

(–CB), 12 July 1948, *Compton 20525* (NBG); Karoo Garden, (–CB), 30 June 1958, *Willems 47* (NBG); Karoo Garden, (–CB), 18 August 1976, *Bayer 184* (NBG); Worcester Veld Reserve, (–CB), 13 August 1986, *Midgley & Bosenberg 50* (NBG). 3321 (Ladismith): Calitzdorp, Sandberg, (–DA), 24 July 1953, *Compton 24101* (NBG). 3322 (Oudtshoorn): Robinson Pass, (–CC), 30 July 1947, *Compton 19620* (NBG).

5. Only three species of *Othonna* are known with purple or magenta rays, all of them tuberous geophytes from Namaqualand. They are distinguished essentially by the shape of the leaves, specifically the degree of lobing. At the time that Harvey (1865) established *O. incisa* Harv. and *O. rosea* Harv. as species distinct from *O. cakilefolia* DC., he knew all three taxa from just a single collection each. With further collecting it appears that *O. incisa* and *O. rosea* represent extreme forms that grade into one another. Plants from the Richtersveld southwards to Springbok have leaves that are entire, sparsely denticulate or dentate (typical *O. rosea*), whereas those from the Kamiesberg southwards to Nuwerus have sharply pinnatifid leaves (typical *O. incisa*). The difference in lobing appears to be one of degree and not of kind. The phyllaries in *O. rosea* were described by Harvey (1865) as 'semiconcrete' and those of *O. incisa* as 'connate'. In the material of *O. rosea* that we have examined, the phyllaries range from basally connate to joined up to halfway, and a similar variation is evident in the material of *O. incisa* (*Hall 4932*), in which the degree of fusion ranges from one quarter to two thirds of the length of the phyllaries. Although the cypselae of *O. rosea* were described as glabrous, this observation was based on immature fruits, and in such cases the hairs are usually not readily seen. More recent collections of plants with entire leaves (e.g. *Hall 575* NBG) develop pubescent achenes. In our opinion, *O. rosea* and *O. incisa* represent extreme forms of a single species and should be treated as one. The name *O. rosea* is chosen as being the more descriptive.

Collections of *Othonna cakilefolia* that we have examined have leaves very deeply dissected into narrow,  $\pm$  obtuse lobes, thus differing significantly from the lacerate-pinnatifid forms of *O. rosea*, which always have distinctly apiculate lobes.

***Othonna rosea* Harv.** in Harv. & Sond., Flora capensis 3: 341 (1865). Type: South Africa, [Northern Cape, Springbok], Modderfontein, without date, *Whitehead s.n.* (TCD, holo.–Aluka image!, website accessed 20-03-09).

*O. incisa* Harv.: 341 (1865), syn. nov. *Othonna cakilefolia* var. *latifolia* DC.: 482 (1838). Type: South Africa, [Western Cape, Nuwerus], between Uitkomst and Geelbeksraal, without date [August 1830], *Drège* (*Doc. 95.2*) (G-DC, holo.–microfiche!; P–Aluka image!, website accessed 25-11-09).

#### Additional specimens examined

NORTHERN CAPE.—2817 (Vioolsdrif): hills east of Perdewater, (–CA), 11 July 1997, *Bruyns 7268* (NBG). 2917 (Springbok): Harrasberg, (–AD), 16 July 1995, *Bruyns 6344* (BOL); Anenous Pass, (–BA), 30 May 1954, *Hall 910* (NBG); west of Bulletrap on road to Waalheuwel, (–BC), 12 May 2005, *Harrower 1500* (NBG); 5 miles [8 km], north of Grootmis, (–CA), 20 August 1952, *Hall 575* (NBG); Komaggas, (–CD), 5 July 1991, *Bruyns 4614* (BOL); Spektakel Pass, (–DB), 15 May 2003, *Manning 2923* (NBG); 10 km west of foot of Spektakel Pass, (–DA), 4 July 1987, *Bruyns 2705* (NBG); Messelpad, (–DC), 23 July 1948, *R.H. Compton 20672* (NBG); Kourkammaberg, (–DC), 11 July 1987, *Bruyns 3876* (BOL). 3017 (Hondekliipbaai): Riethuis, (–AB), 11 July 1989, *Bruyns 3860* (BOL). 3018 (Kamiesberg): west slopes of Rusbospoort on Farm Damsland, (–AC), 23 April 1982, *Hall 4932* (NBG); Andriesskloof, (–CB), 24 August 1991, *Bruyns 4750* (BOL); Knersvlakte, Bruinberg, (–DC), 10 September 1992, *Bruyns 5322* (BOL).

6. *Othonna retrorsa* DC. is an easily recognizable, cushion-forming perennial with a many-headed caudex producing rosettes of very distinctive, leathery, reticulate-veined leaves. These are oblanceolate with cartilaginous margins bearing few to many pale, patent or retrorse denticles. The leaves are persistent at the base and their dried remains accumulate around the short stems, gradually decaying into a fibrous mass. One or more, sparsely branched flowering stems are produced from each rosette. The species was described by De Candolle (1838) from material collected in the Kamiesberg by Drège. Plants from further north, around Springbok, were later treated by Compton (1953) as the separate species *O. spektakelensis*. Differences between the two taxa are slight and are centred on the relatively broader leaves and more northerly distribution of *O. spektakelensis*. Other listed differences include the average number of phyllaries and ray florets but these are inconsistent even within the type material. The taxon was subsequently treated as merely a variety of *O. retrorsa* (Rowley 1990). A collection with smaller, narrower leaves made by Drège at an unlocalized site in Namaqualand was described as var. *linearifolia* DC. (1838). Material matching the description has subsequently been collected from Ezelskop near Liefontein in the Kamiesberg (*Le Roux & Ramsey 760* NBG) and from near Kamieskroon (*Hall s.n. NBG462/52* NBG). These plants were growing in cracks in exposed granite sheets, which is consistent with their more compact and dwarf habit. This habitat struck Compton (1953) as significantly different from that of *O. retrorsa*, which he knew from rocky slopes in somewhat deeper soils, but subsequent collections of typical *O. retrorsa* have been made from bare rock cracks and sandy depressions on granite (*Oliver 5965* NBG) and the variation in growth form is evidently purely ecological. The salient differences between the three varieties are given in Rowley (1994). Additional collections (*Le Roux 3391* NBG) of *O. retrorsa* from Ezelsfontein, the type locality of *O. spektakelensis*, have the relatively narrow leaves of the type variety and there seems to be nothing to be gained by continuing to distinguish varieties in the species. Indeed, cultivated plants of var. *retrorsa* and var. *spektakelensis* illustrated by Rowley (1994: 192) are vegetatively indistinguishable.

Another similar species, *Othonna zeyheri* Sond. ex Harv., was based on *Zeyher 996* collected near Kliprand at the southeastern end of the Kamiesberg. The status of this taxon in relation to *O. retrorsa* was questioned by Harvey himself (1865), and Rowley (1994) later tentatively included it in *O. retrorsa* var. *spektakelensis*. Compton (1953), however, was convinced that it was a good species, equating it with Hall's collection from near Kamieskroon mentioned above. Examination of the ample isotype material shows that this taxon matches typical *O. retrorsa* and cannot be retained at any level.

***Othonna retrorsa* DC.**, Prodr. Compositae 6: 479 (1838). Type: South Africa, [Northern Cape], Kasparskloof, 19 August 1839, *Drège 2726* (G-DC, holo.–microfiche!; P–Aluka image!, website accessed 25-11-09).

*O. retrorsa* var. *linearifolia* DC.: 479 (1838), syn. nov. Type: South Africa, Namaqualand without precise locality, *Drège* (G-DC, holo.–microfiche!).

*O. zeyheri* Sond. ex Harv.: 339 (1865), syn. nov. Type: South Africa, [Western Cape, Kliprand], between Lieslap and Hofkraal, 1846 without month, *Zeyher 996* (S, holo.; BOL!, BM–Aluka image!, website accessed 25-11-09, P, SAM!).

*O. spektakelensis* Compton: 118 (1953), syn. nov. *O. retrorsa* var. *spektakelensis* (Compton) G.D.Rowley: 282 (1990). Type: South Africa, [Northern Cape], Ezelsfontein, between Springbok and Spektakel Pass, 8 September 1950, *H. Hall 141* (NBG, holo.).

#### Additional specimens examined

NORTHERN CAPE.—2917 (Springbok): Ezelsfontein, between Springbok and Spektakel, (–DA), 21 August 1953, *Hall NBG771/49* (NBG); Farm Ezelsfontein, between Tierhoek and Sandhooigte, (–DA), 3 September 1985, *Le Roux 3391* (NBG); Spektakel Mountain, (–DA), 26 September 1974, *Goldblatt 2805* (NBG); Komaggas, Koufonteinberg, (–CD), October 1933, *Herre 2929* (NBG); 3017 (Hondeklipbaai): Grootvlei, (–BB), 26 August 1954, *Barker 8413* (NBG); Kamieskroon, (–BB), July 1952 [fruiting], *Hall NBG462/52* (NBG); 10 miles [16 km] south of Kamieskroon, (–BB), 7 September 1945, *Compton 17304* (NBG); 3018 (Kamiesberg): west side of Eselkop Mountain, (–AC), 13 October 1981, *Le Roux & Ramsey 760* (NBG); Kamiesberg, Farm Welkom, (–AC), 31 August 1975, *Oliver 5965* (NBG); Boplaas Farm, near top of Studer's Pass, (–AC), 30 August 2004, *Helme 3258* (NBG).

7. *Cacalia rigida* Thunb. is a thorny shrublet with obovate, sparsely denticulate leaves and shortly pedunculate, disciform capitula (Thunberg 1823). The species was transferred to *Kleinia* by De Candolle (1838) on the basis of the description alone, with the result that the taxon was redescribed by him in the same publication under the name *Doria spinescens* DC. from a collection of Drège's from the Sneeberg. In a reversal of the situation, Harvey (1865), who had access to the Thunberg herbarium but not to the Drège specimen, was nevertheless confident that they represented the same species and therefore transferred Thunberg's name to *Doria*, placing De Candolle's name in synonymy under it. We have been able to examine both relevant types for the first time and confirm Harvey in his decision. Schultz (1944), who included *Doria* in *Othonna*, later transferred *D. spinescens* to *Othonna* under the new name *O. rhamnoides* Sch.Bip. as De Candolle's epithet was preoccupied in the genus. Thunberg's *Cacalia rigida* is actually the earliest name for the taxon but this epithet is also preoccupied in *Othonna*, and Schultz's new name is thus the correct name for the species in *Othonna*. The species, which is rarely collected, has been overlooked in southern African checklists for the family under any of its available names (Welman 2006). We provide the complete nomenclature here.

***Othonna rhamnoides* Sch.Bip.**, Compositae Krausianae: 769 (1944) [replacement name for *Doria spinescens* DC.: 470 (1838), non *Othonna spinescens* DC.: 332 (1838)]. Type: South Africa, [Eastern Cape], Sneeberg, [September 1829], *Drège [619]* (G-DC, holo.–microfiche!; K–Aluka image!, website accessed 25-11-09).

*Doria rigida* (Thunb.) Harv.: 322 (1865), non *Othonna rigida* DC.: 476 (1838) [= *Othonna amplexicaulis* Thunb.], *Cacalia rigida* Thunb.: 624 (1823). *Kleinia rigida* (Thunb.) DC.: 338 (1838). Type: South Africa, without precise locality or date, *UPS-THUNB18765* (UPS-THUNB, holo.–microfiche!).

#### SENECIO

8. *Senecio albopunctatus* Bolus (1887) was described from a single gathering of several plants collected in Namaqualand at Klipfontein, west of Steinkopf on the old Steinkopf–Port Nolloth railway. *S. albopunctatus*

is a subshrub with terminal tufts of pinnatifid leaves, the lobes tipped with characteristic pale thickenings or calli that give the species its name, and solitary, radiate capitula on long peduncles. The plant was described as glabrous but careful examination of the type material shows the leaves and peduncles to be scantily clad in minute, sessile glands. No similar plants with radiate capitula have been collected since then but several collections have been made of plants that are vegetatively identical to *S. albopunctatus* but differ from it in having discoid capitula. The first of these collections was made in 1935 by R.H. Compton at Klipfontein hill, west of Steinkopf (Compton 5442 NBG), at the type locality of *S. albopunctatus*. It was identified tentatively by Compton as *S. albopunctatus* following careful comparison with the type, with the comment that apart from the slightly less indurated leaflet tips, he could find no significant differences between the two species and that he, therefore, interpreted his material as a rayless variant of *S. albopunctatus*. Since then several additional collections of this rayless form have been made in the Richtersveld, all of them agreeing exactly with Bolus's and Compton's original gatherings and also proving very good matches with the type of *S. albopunctatus*, apart from the clear absence of rays.

The occurrence of both discoid and radiate forms in a single species is rare in *Senecio* but not unknown. Among species from the Cape Floristic Region (CFR) it has been recorded in *S. agapetes* C. Jeffrey and *S. crispus* Thunb. (Goldblatt & Manning 2000), and in several species from KwaZulu-Natal, including *S. conrathii* N.E.Br., *S. hypochoerideus* DC., *S. polyodon* DC. and *S. poseideonis* Hilliard & B.L. Burt (Hilliard 1977). Such species are scattered throughout the genus. In most instances one of the forms is dominant, with the other rare or occasional, but in a few species both forms are common. A strikingly similar example is provided by *S. erosus* L.f., in which both radiate and discoid plants have been collected near Mooresburg (Helme 2131 [discoid] and Helme 2339 [radiate] NBG) in this otherwise entirely radiate species. We have no hesitation, therefore, in following Compton in treating both discoid and radiate forms as a single species.

However, it is now clear that the discoid material of *Senecio albopunctatus* from the Richtersveld is indistinguishable from *S. maydae* Merxm. (1960), which was based on several collections from the Huib Hoch Plateau and adjacent hills in southern Namibia (Dinter 1932). Of particular significance is the presence of unusual, sessile glands on the leaves, peduncles and phyllaries that render the surface of the plant sticky, evidenced in some specimens by a conspicuous load of adhering sand grains. The name *S. maydae* is accordingly placed in synonymy under *S. albopunctatus*.

***Senecio albopunctatus* Bolus** in Botanical Journal of the Linnean Society 24: 177 (1887). Type: South Africa, [Northern Cape], Namaqualand minor [Namaqualand], Klipfontein, September 1883, Bolus 423 (BOL, holo.!; K, P—Aluka images!, website accessed 25-11-09, SAM!).

*S. maydae* Merxm.: 608 (1960) [replacement name for *S. longipedunculatus* Dinter: 93 (1932)], syn. nov. Syntypes: Namibia, [Lüderitz], Garub, Tigerberg, 17 October 1922, Dinter 4107 (WIND, SAM!); Namibia, Buchberge [Boegoeburg], 28 June 1929, Dinter 6464 (NBG!, PRE, SAM!, WIND).

#### *Additional specimens examined*

NORTHERN CAPE.—2816 (Oranjemund): Richtersveld, Helskloof area northeast of Khubus, (—BD), 29 August 1977, Oliver, Tölken & Venter 348 (NBG); Vanderstersberg, (—AC), 30 July 1933, Van der Walt 296 (NBG). 2817 (Violsdriif): Kodaspiek, (—AA), 2 September 1977, Oliver, Tölken & Venter 450 (NBG); south of Van Zylsrus, (—CB), 4 September 1977, Thompson & Le Roux 324 (NBG). 2917 (Steinkopf): Klipfontein koppie, (—BA), 29 August 1935, Compton 5442 (NBG).

9. Among the 20 annual species of *Senecio* recognized by Harvey (1865), are five with mauve or purple ray florets. Two of these species are well known: *S. elegans* L. is essentially a species of sand dunes along the western and southern Cape coast, from Saldanha in Western Cape to Port Alfred in Eastern Cape, whereas *S. arenarius* Thunb. is widely distributed on sandy and gravelly flats and in washes along the west coast and interior, from central Namibia through much of the western half of South Africa as far south as Agulhas in Western Cape (Goldblatt & Manning 2000). Both are ± glandular-pubescent herbs, extremely variable in leaf form [polymorphous is how they are described by Harvey (1865)] but readily separable by their different involucre: ± cylindrical and with a few subulate bracteoles in *S. arenarius*; ± campanulate and closely enveloped at the base by several imbricating, lanceolate, black-tipped bracteoles in *S. elegans*. The remaining three species in the group were known to Harvey from the type specimen or description alone and they remain poorly known today.

One of them, *Senecio cakilefolius* DC., was based on a collection made by Drège at Silwerfontein, southeast of Springbok. This material was not seen by Harvey (1865), who relied entirely on De Candolle's (1838) description. The species was distinguished from *S. arenarius* by its glabrous stem and leaves, and supposedly larger capitula but examination of the type collection confirms that the plants are actually sparsely but quite evidently glandular-pubescent and the capitula are no larger than commonly encountered in *S. arenarius*. The name has subsequently been applied rather indiscriminately to any *arenarius*-like plants with less than the usual pubescence. Subglabrous or thinly pubescent plants of the *cakilefolius* type are common between Springbok and Kamiesberg but also occur further south near Clanwilliam and through the Tanqua River Basin to Whitehill, whereas more densely pubescent plants of the *arenarius* type are widespread. With a full range of material from Namaqualand and the West Coast now available, it is clear that there are any number of intermediate conditions from almost glabrous plants to those with sparsely glandular-pubescent stems and leaves to densely glandular-pubescent plants. The size of the capitula also varies greatly and independently of the vestiture. Populations from Namaqualand and the Bokkeveld Plateau have slightly larger capitula with phyllaries 5–7 mm long compared with those from the Cold Bokkeveld and Little Karoo, in which the phyllaries are 4–6 mm long, but this small size difference is not correlated with other differences, and is not uncommonly encountered in other species in the genus. With the ample collections now at our disposal, it appears to us that the concepts of *S. arenarius* and *S. cakilefolius* represent the extremes of a continuous range of variation and we thus treat them as a single species.

**Senecio arenarius** Thunb., Prodrum plantarum capensium: 158 (1800b). Type: South Africa, without precise locality or date, *Thunberg UPS-THUNB19545* (UPS-THUNB, holo.–microfiche!).

*S. cakilefolius* DC.: 408 (1838), syn. nov. Type: South Africa, [Northern Cape], Silverfontain [Silwerfontein, September 1830], Drège [2816] (G-DC, holo.–microfiche!; P–Aluka image!, website accessed 25-11-09).

10. *Senecio pearsonii* Hutch. (1917) was based on a collection from the Kamiesberg and diagnosed against *S. hypochoerideus* DC., from which it was distinguished by its more finely serrate leaves and striate-papillate, as opposed to uniformly pubescent, achenes. Actually, the achenes of *S. hypochoerideus*, like those of most species of *Senecio*, are striate-hispid (Hilliard 1977). Examination of the type of *S. pearsonii* confirms Hutchinson's opinion of the Kamiesberg material in respect of *S. hypochoerideus* but shows his species to be a perfect match for the closely allied *S. asperulus* DC. This species differs primarily from *S. hypochoerideus* in its narrower leaves 2–10 mm wide, with more finely serrate margins with simple teeth vs broader, doubly-serrate leaves 10–40 mm wide in *S. hypochoerideus* (Hilliard 1977). At the time of Hilliard's (1977) treatment of the genus in Natal, *S. asperulus* was known from the escarpment of the Eastern Cape northwards along the Drakensberg into the Highveld but recent collections have extended its range westwards through the Nieuweveld Mountains and along the western escarpment as far as the Hantamsberg. The inclusion of *S. pearsonii* in *S. asperulus* is a natural extension of the range along the western escarpment to the Kamiesberg.

**Senecio asperulus** DC., Prodrum systematis naturalis regni vegetabilis 6: 386 (1838). Type: South Africa, [Eastern Cape], Albany, Ecklon [83] (G-DC, lecto., here designated–microfiche!; P–Aluka image!, website accessed 25-11-09).

*S. pearsonii* Hutch. in Pearson & Hutchinson: 398 (1917), syn. nov. Type: South Africa, [Northern Cape], Kamiesberg [Kamiesberg], southwest of Leliefontein, 16 January 1911, Pearson 6310 (K, holo.–Aluka image!, website accessed 25-11-09).

#### Additional specimens (Greater CFR) examined

NORTHERN CAPE.—3119 (Calvinia): Hantamsberg, Van Rhynshoek Farm, (–BD), 18 August 1976, M.F. Thompson 2349 (NBG); 10 October 1983, M. Thomas 41a (NBG). 3220 (Sutherland): Sutherland, (–BC), 8 July 1968, F. Stayner s.n. NBG87.402 (NBG). 3221 (Merweville): Nuweveldberge, Bok se Plaas, (–BA), 26 February 1986, Mofjett & Steensma 4017 (NBG).

11. *Senecio carroensis* DC. (1838) was based on a collection made by Drège along the southern margin of the Great Karoo at Kendo [Kendouslaagte] between Klaarstroom and Willowmore. The species is a slender, laxly branched shrublet with deeply incised, almost bipinnatisect leaves, the lobes narrow and deeply toothed. The sparsely woolly or subglabrous branches are characteristically yellowish striate when young, often flushed purple when older. The radiate, yellow capitula are in lax corymbs, with glabrous phyllaries. Ample material of the taxon has now been collected from the drier mountains of the Little Karoo westwards to Karooport and thence northwards through the Cold Bokkeveld and Swarttruggens as far as the Bokkeveld Mountains. This material displays significant variation

in the shape and size of the leaf lobes, a feature that was already evident to De Candolle. Although mostly narrowly oblong or linear and 2–7 mm long, the lobes in some collections are much reduced, almost quadrate, and 1–2 mm long. These plants are an exact match for *Senecio parvifolius* DC., another of Drège's collections, from the Kamiesberg in Namaqualand, and which was distinguished from *S. carroensis* essentially by its smaller leaf lobes. Further collections from the Kamiesberg confirm the general constancy of this leaf character among the Namaqualand plants but also include plants in which the leaf lobes are longer and narrower and thus indistinguishable from more xeromorphic forms of *S. carroensis*. With this larger range of material now available, we conclude that these two species represent extreme leaf forms in a single species.

**Senecio carroensis** DC., Prodrum systematis naturalis regni vegetabilis 6: 396 (1838). Type: South Africa, [Eastern Cape], Carro [Willowmore], Kendo, [22 June 1829], Drège [5910] (G-DC, holo.–microfiche!; K, P–Aluka images!, website accessed 25-11-09).

*S. parvifolius* DC.: 396 (1838), syn. nov. Type: South Africa, [Northern Cape], Kamiesberg, Modderfontein, [4 November 1830], Drège [2820] (G-DC, holo.–microfiche!; K, P–Aluka images!, website accessed 25-11-09, SAM!).

#### Additional specimens examined

NORTHERN CAPE.—2917 (Springbok): Brakdam, (–BC), 24 July 1941, Compton 11085 (NBG). 3018 (Kamiesberg): Kamiesberg, Farm Welkom, (–AC), 16 October 1954, Esterhuysen 23680 (NBG); koppie east of Rooiberg, (–AC), 14 October 1981, Le Roux & Ramsey 791 (NBG); between Garies and Leliefontein, (–AC), November 1939, Esterhuysen 1399 (NBG). 3118 (Vanrhynsdorp): Gifberg, (–DC), 2 September 1948, Compton 20777 (NBG); Nardouw, (–DC), 6 September 1951, Compton 22833 (NBG). 3119 (Calvinia): Oorlogskloof Nature Reserve, (–AC), 19 September 1996, Pretorius 353 (NBG); 20 September 2000, Pretorius 308 (NBG); top of Botterkloof Pass, (–CD), 24 August 1950, B. Maguire 188 (NBG).

WESTERN CAPE.—3219 (Wuppertal): Cedarberg, Matjiesrivier Reserve, (–CB), 4 October 1997, Lechmere-Oertel 749 (NBG); Swarttruggens, Knollfontein, (–DC), 15 September 2006, Jardine & Jardine 448 (NBG). 3319 (Worcester): Karooport, (–BA), 28 September 1951, Compton 22932 (NBG). 3320 (Montagu): Laingsburg, Wittebergskloof, (–BC), 16 July 1923, Compton 2502 (NBG); eastern end of Anysberg, (–DA), 6 October 1982, Van Zyl 3372 (NBG); Touwsberg, (–DB), 17 September 1993, Snijman 1336 (NBG); 7 October 1993, McDonald 2442 (NBG). 3321 (Merweville): Ladismith, Seweweekspoort, (–AD), 13 September 1938, Compton 7877 (NBG).

12. Among the taxa with yellow, radiate capitula that were included in Harvey's (1865) *Sinuosi* are two species characterized by a short, vertical rhizome closely covered by imbricating leaves, with the base of the petioles expanded and encircling the rhizome. The investing leaf bases form an almost bulb-like structure, with their inner faces densely covered with woolly hairs that also run up along the margin of the sheath and onto the petiole for a short distance. These woolly rhizomes set these two species apart from others in the group but the difference between them is not clear. *Senecio eriobasis* DC. (1838), based on a collection from Worcester, was distinguished from *S. erosus* L.f. (1782) by its glabrous vs scabro-pubescent leaves and involucre. Like many other species of *Senecio*, *S. erosus* is extremely variable in the degree of development of the vestiture, varying from sparsely to densely pubescent, with no clear distinction between the two conditions. More significantly, however, examination of the type of *S. eriobasis* shows

the leaves and peduncles to be distinctly pubescent and quite indistinguishable from those of *S. erosus*, and there is no doubt that Goldblatt & Manning (2000) were correct in their conclusion that the two could not be separated. We accordingly formally include *S. eriobasis* in the synonymy of *S. erosus*. The species is distributed from Namaqualand to the southern Cape.

Examination of the type of *Doria incisa* Thunb., treated as a synonym of *Senecio erosus* by Harvey (1865), confirms that it has radiate capitula, despite its initial placement in *Doria*, and that it cannot be distinguished from *S. erosus*. Harvey (1865) also included in *S. erosus* the species described by Thunberg (1823) as *Cineraria pandurata* Thunb. (later transferred to *Senecio* as *S. panduratus* (Thunb.) Less.), but he explicitly excluded De Candolle's (1838) application of the name. De Candolle (1838) based his interpretation of *S. panduratus* on several specimens in G-DC. These represent a taxon very similar to *S. erosus* in leaf and inflorescence but differing from it in the rootstock, which is a  $\pm$  horizontal rhizome bearing a lax tuft of leaves that are not strongly widened at the base and lacking the distinctive woolly vestiture in the axils and along the base of the petiole that is such a striking feature of *S. erosus*. Harvey (1865) considered that De Candolle's plants represented *S. hastatus* but this is not the case (see below under *S. robertiifolius*).

There are two specimens labelled *Cineraria pandurata* in UPS-THUNB. One of them, a complete plant with the diagnostic erect, villous rhizome of *Senecio erosus*, is also labelled *Doria incisa* and constitutes the type of that name. The second specimen, securely identified by the locality data as the type of *Cineraria pandurata*, comprises just an inflorescence and a single, unattached basal leaf. This incomplete specimen, in our opinion, might equally be assigned either to *S. erosus* or to the taxon that is currently known under the name *S. panduratus* but Thunberg's (1823) application of the name is quite clear. His phrase '*caulis erectus, striatus, villosus*' is essentially identical to his description of the stem of *Doria incisa* as '*caulis ... flexuoso-erectus, simplex, teres, striatus, pubescens*' and clearly indicates *S. erosus*. We thus have no hesitation in following Harvey (1865) in treating *S. panduratus* as a synonym of *S. erosus*.

Although mostly radiate, occasional plants have discoid capitula, sometimes with both forms in the same population (e.g. *Helme 2131, 2339* NBG).

***Senecio erosus* L.f.**, Supplementarum plantarum: 370 (1782 '1781'). Type: South Africa, without locality or date, *Thunberg 446* (LINN996.72, holo.—Linnean Society of London image!, website accessed 25-11-09).

*Cineraria incisa* (Thunb.) Willd.: 2074 (1803). *Doria incisa* Thunb.: 156 (1800b). Type: South Africa, without precise locality or date, *Thunberg UPS-THUNB19830* (UPS-THUNB, holo.—microfiche!).

*S. panduratus* (Thunb.) Less.: 392 (1832). *Cineraria pandurata* Thunb.: 672 (1823). Type: South Africa, [Western Cape], Kam-tous [Gamtoos] River, December without year, *Thunberg UPS-THUNB19934* (UPS-THUNB, holo.—microfiche!).

*S. eriobasis* DC.: 388 (1838), syn. nov. Type: South Africa, [Western Cape], Worcester, without date, *Ecklon [1901]* (G-DC, holo.—microfiche; P—Aluka image!, website accessed 25-11-09).

### Selected additional specimens examined

NORTHERN CAPE.—3017 (Hondeklipbaai): Kamieskroon, (—BB), 29 August 1937, *Compton 6799* (NBG); Grootvlei, (—BB), 7 September 1945, *Compton 17284* (NBG); Darter's Grave, (—BD), 2 September 1951, *Maguire 970* (NBG). 3018 (Kamiesberg): Welkom, near Garies, (—AB), 16 October 1954, *Esterhuysen 23666* (BOL) [discoid capitula]. 3119 (Calvinia): top of Vanrhyn's Pass, (—AC), 1 October 1947, *Taylor 2864* (NBG); west of Nieuwoudtville on road to Vanrhyn's Pass, (—AC), 23 August 1950, *Barker 6453, Middlemost 1603* (NBG); Nieuwoudtville Reserve, (—AC), 8 September 1983, *Perry & Snijman 2333* (NBG); Oorlogskloof Nature Reserve, (—AC), 19 September 1995, *Pretorius 298* (NBG); Karigabosch Fountain, (—DD), 20 August 1975, *Thompson 2468* (NBG); Kareehout River, south of Perdekloof, (—DD), 21 August 1975, *Thompson 2520* (NBG). 3220 (Sutherland): 11 km east of Sutherland, (—BD), 22 September 1985, *Moffett 3774* (NBG). 3319 (Worcester): Tweedside, (—AB), 25 September 1932, *Compton 4000* (NBG).

WESTERN CAPE.—3118 (Vanrhynsdorp): Nardouw, (—DC), 6 September 1951, *Johnson 242* (NBG). 3217 (Vredenburg): Vredenburg, Trekossenkraal, (—DD), 28 September 2002, *Boucher 6992* (NBG). 3218 (Clanwilliam): near Clanwilliam, (—BB), 20 July 1941, *Compton 10996* (NBG). 3219 (Wuppertal): Pakhuis, (—AA), 18 September 1937, *Compton 6951* (NBG); 13 September 1947, *Barker 4693* (NBG); Nieuwoudt's Pass, (—AC), 3 September 1982, *Le Maitre 322* (NBG); Matjiesrivier, (—AD), September 1943, *Wugener 183* (NBG); Kromrivier Farm, (—CA), 15 September 1984, *Taylor 11050* (NBG); Gonnafontein Farm, (—CB), 2 September 2000, *Pond 125* (NBG); Swartruggens, Knolfontein, (—DC), 15 September 2006, *Jardine & Jardine 452* (NBG). 3318 (Cape Town): Mooresburg, (—BA), [discoid capitula], 31 August 2001, *Helme 2131* (NBG); 12 September 2001, *Helme 2339* (NBG); Stellenbosch, (—DD), 13 September 1989, *Buys 30* (NBG). 3319 (Worcester): Worcester, (—CB), 23 August 1976, *Bayer 202* (NBG); near Rusbos, (—CC), 29 August 1979, *Hugo 1824* (NBG). 3320 (Montagu): Bantams, (—BA), 27 October 1941, *Compton 12216* (NBG). 3321 (Ladismith): Gamka Mountain Nature Reserve, (—CB), 15 August 1983, *Cattell 291* (NBG). 3322 (Oudtshoorn): George, (—AC), September 1932, *Fourcade 4709* (BOL). 3418 (Simon's Town): Cape of Good Hope Nature Reserve, (—AD), 17 September 19709, *Taylor 7792* (NBG); Greyton Nature Reserve, (—BA), 19 September 1980, *Rycroft 3365* (NBG). 3420 (Bredasdorp): De Hoop, (—AD), 14 September 1979, *Burgers 2242* (NBG). 3421 (Riversdale): Reisisbaan Siding, (—AB), 6 August 1983, *Bohnen 8231* (NBG). 3424 (Humansdorp): Kromme River, Company's Drift, (—BA), September 1922, *Fourcade 2318* (BOL).

13. The name *Senecio panduratus* (Thunb.) Less. was misapplied by De Candolle (1838) to plants that resemble *S. hastatus* L. in general appearance but which are distinct from it in their sparsely branched corymbs with much larger capitula. Both *S. hastatus* and *S. panduratus sensu* DC. have a short,  $\pm$  horizontal rhizome, and radical leaves with long petioles and inciso-pinnatifid blades, and the stems and leaves are thinly or densely pubescent with a mix of short, glandular hairs and longer eglandular hairs. True *S. hastatus* is characterized by few- to well-branched corymbs of up to 20, relatively small, cylindrical capitula, 9–12  $\times$  5–7 mm, with 12–14 phyllaries. It is widely distributed in moister situations from Ceres in the southwestern Cape eastwards to Lesotho and the Free State (Hilliard 1977; Goldblatt & Manning 2000). The taxon currently known under the name *S. panduratus*, in contrast, has sparsely branched corymbs of (1–)3–10, larger, campanulate capitula, 10–12  $\times$  8–12 mm, with 20–24 phyllaries. It has a more restricted distribution in the interior southwestern Cape, in more arid environments. The name *S. hastatus* is in fact a synonym of *S. erosus* (see above) and the plant currently known under that name thus requires a new name. Examination of the type of *S. robertiifolius* DC. (1838), a poorly known taxon based on a collection made in the Kamiesberg, confirms that it precisely matches the plants currently identified as *S. hastatus* and this name is therefore available for use.

**Senecio robertiifolius** DC., *Prodromus systematis naturalis regni vegetabilis* 6: 384 (1838). Type: South Africa, [Northern Cape], Camisberg [Kamiesberg], Modderfontein, [4 November 1830], Drège [5901] (G-DC, holo.-microfiche!; P-Aluka image!, website accessed 25-11-09).

*S. panduratus* sensu DC., non (Thunb.) Less.

#### Additional specimens examined

NORTHERN CAPE.—2917 (Springbok): Steinkopf, Besondermeid, (–BC), 27 September 1933, Herre s.n. (NBG). 3017 (Hondeklipbaai): Kamieskroon, (–BB), 29 August 1937, Compton 6810 (NBG). 3018 (Kamiesberg): Welkom, near Garies, (–AB), 16 October 1954, Esterhuysen 23683 (BOL). 3119 (Calvinia): Nieuwoudtville Reserve, (–AC), 7 September 1983, Perry & Snijman 2297 (NBG); Oorlogskloof Nature Reserve, (–AC), 28 September 2000, Pretorius 538 (NBG); Zoetwater, west of Calvinia, (–BC), 24 September 1952, Maguire 1933 (NBG); Akkerendam Nature Reserve, (–BD), 6 August 1993, Jooste 1 (NBG); behind Hantam, Farm Saaihoek, (–BD), 7 September 2002, Rosch 124 (NBG). 3220 (Sutherland): 11 km east of Sutherland, (–BD), 22 September 1985, Moffett 3772 (NBG); Komsberg, Farm Klein Jakhals Valley, (–DA), 6 September 1986, Cloete & Haselau 237 (NBG).

WESTERN CAPE.—3219 (Wuppertal): Pakhuis, (–AA), 29 September 1940, Compton 9559 (NBG). 3318 (Cape Town): Riebeeck-Kasteel, (–BD), 14 September 1941, Compton 11723 (NBG). 3319 (Worcester): Tweedside, (–AB), 25 September 1932, Compton 4011 (NBG); Whitehill, (–BA), 17 September 1945, Compton 17398 (NBG); Whitehill Ridge, (–BA), 20 September 1943, Compton 14900 (NBG); Bonteberg, (–BD), 20 September 1931, Compton 3780 (NBG); Rabiesberg, (–DA), 26 September 1935, Compton 5835 (NBG). 3321 (Ladismith): west of Seweweekspoortberg, (–AD), 3 February 1992, Oliver 9998 (NBG); Klein Swartberg, east of Kouveldberg, (–AD), 23 December 2006, Helme 4370 (NBG). 3322 (Oudtshoorn): Kamanassie, Mannetjiesberg, (–DB), 1 February 1941, Compton 10563 (NBG).

14. *Senecio lobelioides* DC. (1838) was based on material collected by Drège on the Farm Silwerfontein, midway between Springbok and Kamieskroon. It was not seen by Harvey (1865), who merely repeated De Candolle's description. Examination of isotype material at Paris confirms that it is readily recognized among the other annual species by being completely glabrous, and with characteristic leaves, the lower conspicuously petiolate with ovate-reniform blades, and the upper sessile and cordate-amplexicaul. Although becoming progressively smaller towards the end of the branches, the upper leaves retain their distinctive shape, giving the inflorescences a rather leafy character. Another distinctive feature of the species is the narrowly cylindrical capitula, which are obscurely radiate with very short rays barely exceeding the involucre. Drège's material of *S. lobelioides*, however, is indistinguishable from collections at SAM that have been identified as *Senecio flavus* (Decne.) Sch.Bip. subsp. *flavus* by both Merxmüller (1967) and later, in 1988, by Aaron Lister (now Department of Botany and Plant Pathology, Oregon State University). Although we have not been able to examine type material of *S. flavus*, the protologue (Decaisne 1834), as well as the description and accompanying illustration in Boulos & Hind (2002), give us no reason to doubt this opinion and we accordingly treat *S. lobelioides* as a synonym of *S. flavus*.

**Senecio flavus** (Decne.) Sch.Bip. in Webb. & Berth., *Histoire naturelle des Îles Canaries* 2: 319, t. 107 (1845). *Crassocephalum flavum* Decne.: 265 (1834). Type: Arabia [Egypt], Sinai, without date or collector (P). Illus.: Boulos & Hind: 264 (2002).

*S. lobelioides* DC.: 382 (1838), syn. nov. Type: South Africa, [Northern Cape], Silverfontein [Silwerfontein], [31 August 1830], Drège [2730] (G-DC, holo.-microfiche!; P-Aluka image!, website accessed 25-9-09).

#### Additional specimens examined

NAMIBIA.—2426 (Maltahohe): Bullspoor, (–AB), July 1947, R.G. Strey 2175 (NBG).

NORTHERN CAPE.—3120 (Williston): Wolwe Rivier, (–CA), 26 July 1941, R.H. Compton 11144 (NBG).

15. The replacement name *Senecio odontophyllus* C.Jeffrey (1992) that was published for the Indian species until then known under the illegitimate later homonym *S. linifolius* (DC.) C.B.Clarke, was applied in error by Goldblatt & Manning (2000) to the Eastern Cape species that is correctly known as *S. linifolius* L.

**Senecio linifolius** L., *Systema naturae* 2: 1215 (1759). *Senecio odontophyllus* sensu Goldblatt & Manning (2000) [non C.Jeffrey: 95 (1992) (= *Senecio linifolius* (DC.) C.B.Clarke: 202 (1876)].

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