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A Revision of the South African Genus *Hermas* (Apiaceae)

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Abstract—The morphologically and phylogenetically anomalous genus *Hermas* is revised and nine perennial species are recognized, all endemic to mountain slopes within the Cape Floristic Region of South Africa. The new combination *Hermas lanata* is instated as the correct name for *H. pillansii*, based on the oldest available basionym. The latter species is also shown to be a very narrow endemic of the Cape Peninsula (Table Mountain to Noordhoek), not extending into the Jonkershoek Mountains as previously reported. The genus is characterized by fruits with woody endocarps, rhomboidal crystals, and pseudo-wings, all features shared with subfamily Azorelloideae, but recent phylogenetic analyses suggest that *Hermas* is an isolated lineage in the family, possibly sister to subfamily Apioideae s. l. An isolated position for *Hermas* is supported further by the unique floral morphology, viz. petaloid sepals and filiform petals, both of which are recovered as generic synapomorphies. The species may be distinguished on the basis of their habits, the size, shape, and vestiture of the leaves and involucre bracts, the synflorescence structure, the colour and venation of the sepals and petals, and the morphology and anatomy of the fruits. Species relationships are assessed in the form of a cladistic analysis of 11 morphological characters, resulting in a well-resolved phylogenetic hypothesis. A comprehensive taxonomic treatment is presented, including a key to the species, updated nomenclature, typification, descriptions, and geographical distributions.

Keywords—Anatomy, Azorelloideae, Cape Floristic Region, morphology, South Africa, taxonomy.

Hermas L. is an anomalous genus of perennial herbs or shrubs endemic to the Fynbos biome of the Western and Eastern Cape Provinces of South Africa (Van Wyk et al. 2013). Most of the species within the genus are not considered to be of conservation concern as they occur on rocky mountain slopes (often on difficult-to-access ledges) usually at high elevation. The now-vulnerable *Hermas lanata*, once thought to be possibly extinct (Helme et al. 2012), is endemic to Table Mountain and was one of the earliest known Cape plants, first illustrated by Hendrik Claudius in 1685 (Burman 1738; Burt 1981). The genus was traditionally placed in subfamily Hydrocotyloideae (now defunct), and is currently treated with members of subfamily Azorelloideae (Plunkett et al. 2004), with which it shares similar carpophore features (Liu et al. 2012) and fruits with a woody endocarp, rhomboidal crystals, and prominent lateral pseudo-wings (Liu et al. 2009; Magee et al. 2010). Recent molecular systematic studies (Calviño et al. 2006; Nicolas and Plunkett 2009), however, place *Hermas* as an isolated lineage sister to the protoapioids of the subfamily Apioideae s. l. (Magee et al. 2010). The latter subfamily is diagnosed by several synapomorphies, viz. the absence of rhomboidal crystals, the presence of druse crystals scattered throughout the mesocarp (subsequently lost in the euapioids), the non-woody endocarp, and the presence of true fruit wings (Magee et al. 2010). An isolated position for *Hermas* is supported further by the unique floral morphology, viz. petaloid sepals and filiform petals. As such, the genus represents an isolated lineage between the Azorelloideae and Apioideae, which may ultimately warrant recognition as a new subfamily.

We present here a detailed taxonomic treatment of the genus, including a key to the species, their complete nomenclature, typification, formal descriptions, and known geographical distributions, as well as a cladistic analysis of morphological and anatomical characters.

MATERIALS AND METHODS

All species were studied in situ as well as in the complete collections from the following herbaria: BM, BOL, JRAU, K, MO, NBG, NY, PRE, S,

SAM, and UPS (abbreviations according to Thiers 2014). The recorded distribution of each species was verified and mapped using this material, together with geographical information from Leistner and Morris (1976). The specimens examined are cited under each species treatment and arranged by country, province, and then district. Within each district the specimens are ordered according to geographical position, from west to east and north to south.

Herbarium and FAA-preserved materials were used to study fruit anatomy. The herbarium material was first rehydrated and then placed in FAA for a minimum of 24 h. All material was subsequently treated according to the method of Feder and O'Brien (1968) for embedding in glycol methacrylate (GMA), but modified to involve a final infiltration in GMA for five days. Sections were stained according to the periodic acid Schiff/toluidine blue (PAS/TB) method (Feder and O'Brien 1968) and the sections photographed using a Leitz Wetzlar microscope and JVC KY-F1030 digital camera.

As a first attempt to resolve infrageneric relationships within the genus, character states (Appendix 1) were scored for 11 discontinuous and logically polarisable morphological characters across the 10 included taxa, using *Azorella compacta* as outgroup. The data set (Table 1) was analysed using the maximum parsimony (MP) algorithm of the software package PAUP version 4.0b10 (Swofford 2002). All characters were treated as unordered and equally weighted (Fitch parsimony, Fitch 1971). Tree searches were performed using the branch-and-bound algorithm with furthest addition sequence, MulTrees option in effect and multistate characters treated as polymorphisms. Internal support was assessed with 1,000 bootstrap replicates (Felsenstein 1985) using TBR swapping and the MULPARS option. The sequence of species in the cladogram was followed in the taxonomic treatment.

RESULTS AND DISCUSSION

Morphology and Anatomy—VEGETATIVE CHARACTERS—Most of the species are acaulescent herbs (Fig. 1A–G), although *H. quercifolia* and *H. quinquentata* are shortly caulescent suffrutices (Fig. 1H) and *H. villosa* is a small shrub up to 0.6 m tall (Fig. 1I). In these three species, the leaves are usually congested along the upper part of the stems rather than in a basal rosette as found in the acaulescent species. While the leaves are usually suberect to spreading, in *H. ciliata* they are diagnostically prostrate (Fig. 1G). *Hermas proterantha* is unique in having pinnately lobed, deciduous leaves (Fig. 2B), rather than the undivided evergreen leaves found in the rest of the genus (De Villiers and Van Wyk 2008). The leaves are

TABLE 1. Taxon by character matrix used for the morphological and anatomical phylogenetic analysis. See Appendix 1 for a description of characters and character states.

	1	2	3	4	5	6	7	8	9	10	11
<i>Azorella compacta</i>	1	0	0	0	0	0	0	0	0	0	0
<i>H. capitata</i>	0	0	0	1	0	0	1	0	1	0	0
<i>H. ciliata</i>	0	0	0	0	0	0	1	1	1	1	1
<i>H. gigantea</i>	0	1	0	0	0	0	1	0	1	1	0
<i>H. proterantha</i>	0	0	0	1	0	0	1	0	1	0	0
<i>H. intermedia</i>	0	1	0	0	1	1	1	0	1	1	0
<i>H. lanata</i>	0	1	0	0	1	1	1	0	1	1	0
<i>H. quercifolia</i>	1	1	0	0	0	0	1	1	1	1	1
<i>H. quinquedentata</i>	1	0	1	0	0	0	1	0	1	1	1
<i>H. villosa</i>	1	0	1	0	0	0	1	1	1	1	1

always simple but vary greatly in size, shape, and vestiture so that they can largely be used to distinguish the species (Fig. 2A–I). In particular, the vestiture of the upper leaf surface is a valuable diagnostic character. While the lower leaf surface is always densely felty to lanate, the upper leaf surface is glabrous to glabrescent in mature leaves of *H. capitata*, *H. ciliata*, *H. proterantha*, *H. quinquedentata*, and *H. villosa* (with the young leaves of *H. capitata* rarely densely lanate), or felty to densely lanate in *H. gigantea* (Fig. 1E), *H. intermedia* (Fig. 1D), *H. lanata* (Fig. 1C) and *H. quercifolia*. In fact, the vernacular name *tontelblaar* [“tinder leaf”] for *H. gigantea* refers to the use of these hairs for tinder (Van Wyk et al. 2013). The leaf margin also has diagnostic value. In *Hermas ciliata* (Fig. 2C), the margins are ± entire with prominent setose hairs reminiscent of species of *Alepidea* (e.g. *A. amatymbica* Eckl. & Zeyh.), and in *H. quinquedentata* and *H. villosa*, they are diagnostically stiffly toothed and often distinctly revolute (Fig. 2E & 2F).

REPRODUCTIVE CHARACTERS—The structure of the inflorescence in *Hermas* was studied by Froebe (1979). The inflorescences invariably develop close to the apical meristem, resulting in a pseudo-terminal raceme of compound umbels. Each plant may have up to six inflorescences, each of which has a single, large terminal primary compound umbel subtended by up to 19 smaller secondary umbels. The peduncle is usually basally lanate but can be densely felty and lanate throughout (*H. lanata* and *H. intermedia*— Fig. 1D) or entirely glabrous to glabrescent (*H. ciliata*). The involucrel and involucellar bracts of *H. lanata* and *H. intermedia* are distinct in that they are densely felty to lanate rather than glabrous to glabrescent, as in the other species. An aberrant population of *H. capitata* with adaxially densely lanate leaves and involucellar bracts has been collected, but even in this population, the involucellar bracts remain diagnostically glabrous.

Hermas is unique in having petaloid sepals and staminoid petals (Fig. 3). The sepals are large and very prominent, with a conspicuous median vein and usually two lateral veins (Fig. 3B, D), although the lateral veins of *H. ciliata* (Fig. 3C), *H. quercifolia* (Fig. 3A), and *H. villosa* are inconspicuous. The sepals are usually cream-coloured but are diagnostically maroon in *H. gigantea* and *H. intermedia*. In the latter species, only the sepals are maroon, whereas in *H. gigantea* the ovaries, rays, and much of the inflorescence are also maroon (Fig. 1F). In all the species, the petals are inconspicuous, filiform, and strongly inflexed.

The fruits are ovate to transversely ovate in shape, homomericarpic and dorsally compressed (Fig. 4A–I). Despite the putative sister relationship with the Apioideae, *Hermas* shares several fruit characters with members of the

Azorelloideae (Liu et al. 2009), viz. the lignified endocarp (Fig. 5A–F), the presence of rhomboidal crystals (Fig. 5F), the prominent lateral ribs and the wings (when present; Fig. 5A) composed of both the mesocarp and endocarp with the vascular bundle located at the margin (Fig. 5E); these are the so-called pseudo-wings of Magee et al. 2010). The median rib of the fruits is prominent in all the species (except in *H. capitata* and *H. proterantha*) and is distinctly winged in the lower third in *H. ciliata*, *H. quercifolia*, *H. quinquedentata*, and *H. villosa* (Fig. 5A). As pointed out by De Villiers & Van Wyk (2008), the fruits of *H. proterantha* are unique in that the pseudo-wings occur between the lateral and marginal ribs (Fig. 5D) rather than along the lateral ribs as in all the other species (Fig. 5E).

Phylogenetic Relationships—A single tree was obtained with a score of 14, a consistency index (CI) of 0.79 and a retention index (RI) of 0.82 (Fig. 6). The genus is distinguished from the outgroup (and to our knowledge all other Apiaceae genera) by two synapomorphies, viz. the petaloid sepals (character 7) and filiform petals (character 9). Within *Hermas*, three main clades were recovered, with the earliest diverging clade, the *H. capitata* clade (comprising *H. capitata* and *H. proterantha*), supported by only a single synapomorphy, viz. a slender petiole (character 4). This clade lacks also the prominent median rib in the fruit (character 10), which is a synapomorphy for the *H. villosa*–*H. gigantea* clades. The *H. villosa* clade comprises four species (*H. ciliata*, *H. quercifolia*, *H. quinquedentata*, and *H. villosa*) and is recognised by the shared presence of 1-veined sepals (character 8, but lost in *H. quinquedentata*) and basally-winged median fruit ribs (character 11). Within the latter clade, the caulescent habit (character 1) is recovered as a homoplasious character supporting the *H. quercifolia*–*H. villosa* grouping. The *H. gigantea* clade comprises three species (*H. gigantea*, *H. intermedia*, and *H. lanata*) based on the lanate upper leaf surface (character 2). This character was also recovered as a homoplasious autapomorphy in *H. quercifolia*. The lanate peduncle (character 5) and felty bracts (character 6) suggest a sister relationship between *H. intermedia* and *H. lanata*. This result is presented here as a first hypothesis of relationships within the genus *Hermas* and the sequence of species in the taxonomic treatment follows that of the cladogram (Fig. 6).

TAXONOMIC TREATMENT

HERMAS L., Mant 2: 299. 1771. Schrader in Neues J. Bot.: 44. 1808. Spreng. in Pl. Umbell.: 19. 1813. Thunb. in Fl. Cap 2: 184. 1818. L. in Syst. Veg. Sec., 6: 379. 1820. DC., Prodr. 4: 241. 1825.; Eckl. & Zeyh., Enum. Pl. Afric. Austral. 354. 1837. Sond. in Harv. & Sond., Fl. Cap. 2: 565. 1862.; Drude in Pflanzenfam. 3(8): 135. 1898.; Adamson and Salter, Fl. Cape Penins. 615. 1950. Burt in Edinb. J. Bot 48(2): 211. 1991. Van Wyk et al. African Apiaceae 208. 2013. —TYPE: *Hermas depauperata* L. nom. illeg. [= *H. villosa* (L.) Thunb.]

Acaulescent to caulescent, resprouting, evergreen or rarely deciduous herbs or shrubs, 30–600 mm tall (excluding the inflorescence). Leaves in a basal rosette or regularly arranged to congested along the upper parts of the branches, suberect to prostrate, simple; petioles longer than or shorter than the lamina, glabrescent to densely felty; lamina narrowly elliptic or lanceolate to oblong, obovate or ovate, 7–250 mm × 4–120 mm; base prominently cordate to attenuate, cuneate or truncate; apex broadly obtuse to attenuate; margins ± entire to crenate, serrate or dentate, strongly revolute; adaxial surface green to grey-green, glabrous to densely lanate, matted



FIG. 1. General morphology of *Hermas*. A. Diminutive *H. capitata* with small, sparsely crenate to dentate leaves. B–C. Adaxially shaggy lanate leaves with cordate bases of *H. lanata*. D. Adaxially shortly lanate leaves, densely felty peduncle and maroon petals and sepals of *H. intermedia*. E. Large adaxially lanate leaves with attenuate bases of *H. gigantea*. F. Maroon bracts, rays, ovaries and sepals of *H. gigantea*. G. Prostrate and marginally setose leaves of *H. ciliata*. H. Small shrubby habit of *H. quinquidentata*. I. Shortly petiolate and stiffly toothed leaves of *H. villosa*.



FIG. 2. Variation in leaf shape, size and vestiture of *Hermas* species. A. *H. capitata*. B. *H. proterantha*. C. *H. ciliata*. D. *H. quercifolia*. E. *H. quinquedentata*. F. *H. villosa*. G. *H. gigantea*. H. *H. intermedia*. I. *H. lanata*. Vouchers: A1: Compton 8306, NBG; A2: Esterhuysen 4731, BOL; A3: Andreae 1094, NBG; B1: Esterhuysen 35492, BOL; B2: Esterhuysen 36303, BOL; C1: Williams 3585, NBG; C2: Bolus 9219, BOL; C3: Kerfoot 6626, NBG; D1: Adamson 3741, BOL; D2: Kruger 892, NBG; E1: Esterhuysen 35748, BOL; E2: Adamson 3910, BOL; E3: Burman 1080, BOL; F1: Levyns 8147, NBG; F2: Kruger 154, NBG; F3: De Vos 5917, NBG; G1: Guthrie 18568, NBG; G2: Andreae 856, NBG; H: Pillans 6646, BOL; I: Magee et al. 484, NBG. Scale bar = 50 mm.

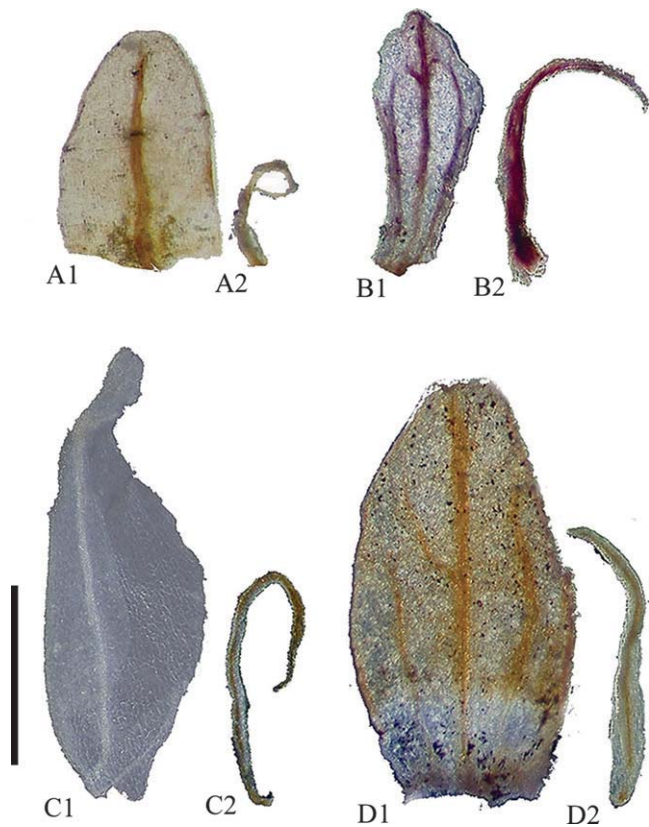


FIG. 3. Petaloid sepals (A1–D1) and filiform petals (A2–D2). A. *H. quercifolia* (Esterhuysen 1630, BOL). B. *H. gigantea* (Esterhuysen 13422, BOL). C. *H. ciliata* (Compton 5002, NBG). D. *H. quinquedentata* (Stokoe 56881, SAM). Note the inconspicuous lateral veins in the sepals *H. ciliata* (C1) and *H. quercifolia* (A1). Scale bar = 0.7 mm.

and shaggy; abaxial surface grey-white to rusty, densely felty to lanate. Synflorescences 120–1,000 mm long, with a terminal primary umbel subtended by 0–19 smaller secondary umbels; peduncle stout to slender, basally lanate to densely felty and lanate throughout (glabrous to glabrescent in *H. ciliata*); peduncular bracts simple, glabrescent to densely felty. Umbels compound, 10–80 mm in diameter, dense to sometimes sparse; involucre bracts lanceolate, 5–20, 3–20 mm long, grey-green to purple-black, venation parallel, adaxial surface glabrous to densely felty and lanate, abaxial surface glabrous to lanate; rays 3–100, 3–35 mm long at anthesis, green to purple-black, sparsely lanate to glabrous; involucellar bracts 2–4, 3–8 mm long; lanceolate to spatulate, green to purple-black, acuminate, glabrous to densely felty; raylets 5–12, ca. 2–6 mm long at anthesis, brown to purple-black, glabrous; umbellules with 1–10 hermaphroditic flowers surrounded by 1–10 functionally male flowers. Flowers with 5 large, petaloid sepals, ovate

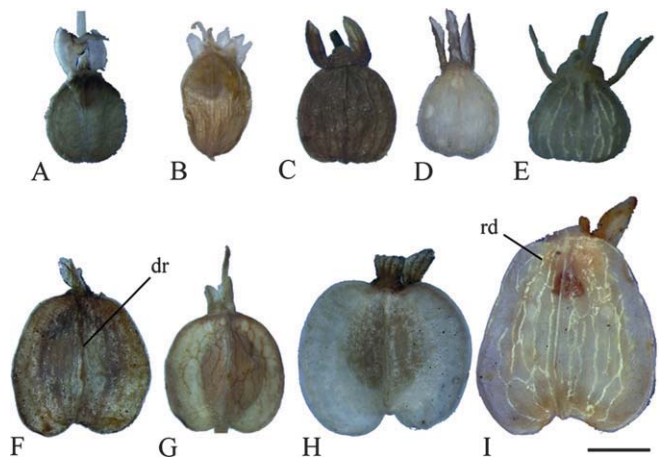


FIG. 4. The fruits of *Hermas* species. A. *H. capitata*. B. *H. proterantha*. C. *H. gigantea*. D. *H. intermedia*. E. *H. lanata*. F. *H. ciliata*. G. *H. quercifolia*. H. *H. quinquedentata*. I. *H. villosa*. rd = branching and anastomosing rib oil ducts; dr = dorsal rib. Vouchers: A: *Olivier 9101*, NBG; B: *Zinn s. n.*, NBG; C: *Rourke 1612*, NBG; D: *Esterhuysen 21346*, BOL; E: *Pillans 4171*, BOL; F: *Gillet 3853*, NBG; G: *Esterhuysen 19985*, BOL; H: *Helme 3838*, JRAU; I: *MacOwan 128*, NBG. Scale bar = 0.7 mm.

or narrowly oblong, cream to maroon, veins 3, with lateral pair sometimes inconspicuous; petals filiform, strongly inflexed, cream or maroon; stamens 5; ovary bilocular, green or maroon; stylopodium shortly conical; styles terete, longer than sepals. Fruits ovate to transversely ovate, base rounded, truncate or cordate, dorsally compressed, ca. 1.5–5.0 × 1.5–4.0 mm; mericarps homomorphic, glabrous; marginal ribs inconspicuous; lateral ribs inconspicuous to winged; median rib inconspicuous to prominently winged in lower third; endocarp lignified; rib oil ducts absent; vittae irregular, branching and anastomosing. Seed variable in shape, transversely oblong to sub-triangular.

Diagnostic Characters—This is a morphologically isolated genus easily distinguished from all other genera of Apiaceae by the large petaloid sepals and staminiform petals. The genus combines the compound umbels typical of the Apioideae with the woody endocarp, rhomboidal crystals and pseudo-winged fruits of the Azorelloideae. The broad simple leaves may somewhat resemble those of *Alepidea* (Apiaceae, tribe Saniculeae) but can be readily distinguished by the felty abaxial (and sometimes adaxial) leaf surfaces.

Phenology—Flowering is in early to late summer (December to February), and fruits reach maturity in late summer to autumn (February to April).

Distribution and Ecology—*Hermas* is endemic to the Cape Floristic Region of South Africa, where it invariably grows on sandstone slopes, often in fairly inaccessible places such as rock ledges or in cracks between rocks at high elevations.

KEY TO THE SPECIES OF *HERMAS*

1. Upper leaf surfaces felty to densely lanate. 2
2. Involucre bracts densely felty and involucellar bracts lanate; much of peduncle densely felty to bearded; lamina ovate to oblong with a truncate to cordate base. 3
3. Sepals and petals cream to white; lamina shaggy lanate adaxially, base cordate; fruit lateral ribs narrowly-winged; Table Mountain. 5. *H. lanata*
3. Sepals and petals maroon; lamina shortly lanate adaxially, base truncate to sometimes cordate; fruit lateral ribs broadly-winged; fold mountains of the Western Cape. 4. *H. intermedia*
2. Involucellar bracts glabrous to glabrescent, sometimes sparsely and irregularly lanate, involucellar bracts glabrous; much of peduncle glabrous; lamina elliptic to obovate (rarely ovate) with an attenuate or sometimes truncate base or obovate to oblanceolate with a cuneate base. 4

- 4. Leaves ≤ 70 mm long, margins crenate and undulate; sepals cream-coloured, with one prominent vein (lateral veins when present inconspicuous). 7. *H. quercifolia*
- 4. Leaves ≥ 100 mm long, margins denticulate to crenulate; entire umbel (bracts, rays, ovaries and sepals) maroon, sepals with three prominent veins. 3. *H. gigantea*
- 1. Upper leaf surface glabrous to glabrescent, never felty (rarely densely lanate when young in *H. capitata* but then leaves less than 20 mm long and fruits without prominent median rib). 5
- 5. Plants deciduous, leaves pinnately-lobed. 2. *H. proterantha*
- 5. Plants evergreen, leaves undivided with entire or crenate to dentate or serrate margins. 6
- 6. Leaves prostrate, margins \pm entire, setose. 6. *H. ciliata*
- 6. Leaves suberect to spreading, margins variously toothed, teeth mucronate 7
- 7. Petiole longer than or equal to lamina; leaf margins sparsely crenate to dentate, not involute; fruit without prominent median rib. 1. *H. capitata*
- 7. Petiole shorter than lamina; leaf margins stiffly toothed, involute; fruit with prominent, basally-winged median rib. 8
- 8. Large shrubs up to 60 cm tall (excluding inflorescence); lamina ≥ 60 mm long, margins regularly serrate to dentate with > 20 teeth; primary umbel ≥ 40 mm in diameter; sepals with one prominent vein (lateral veins when present inconspicuous). 9. *H. villosa*
- 8. Dwarf shrublets less than 20 cm tall (excluding inflorescence), lamina ≤ 45 mm long, margins coarsely serrate with 5–11 teeth; primary umbel < 35 mm in diameter; sepals with three prominent veins. 8. *H. quinquedentata*

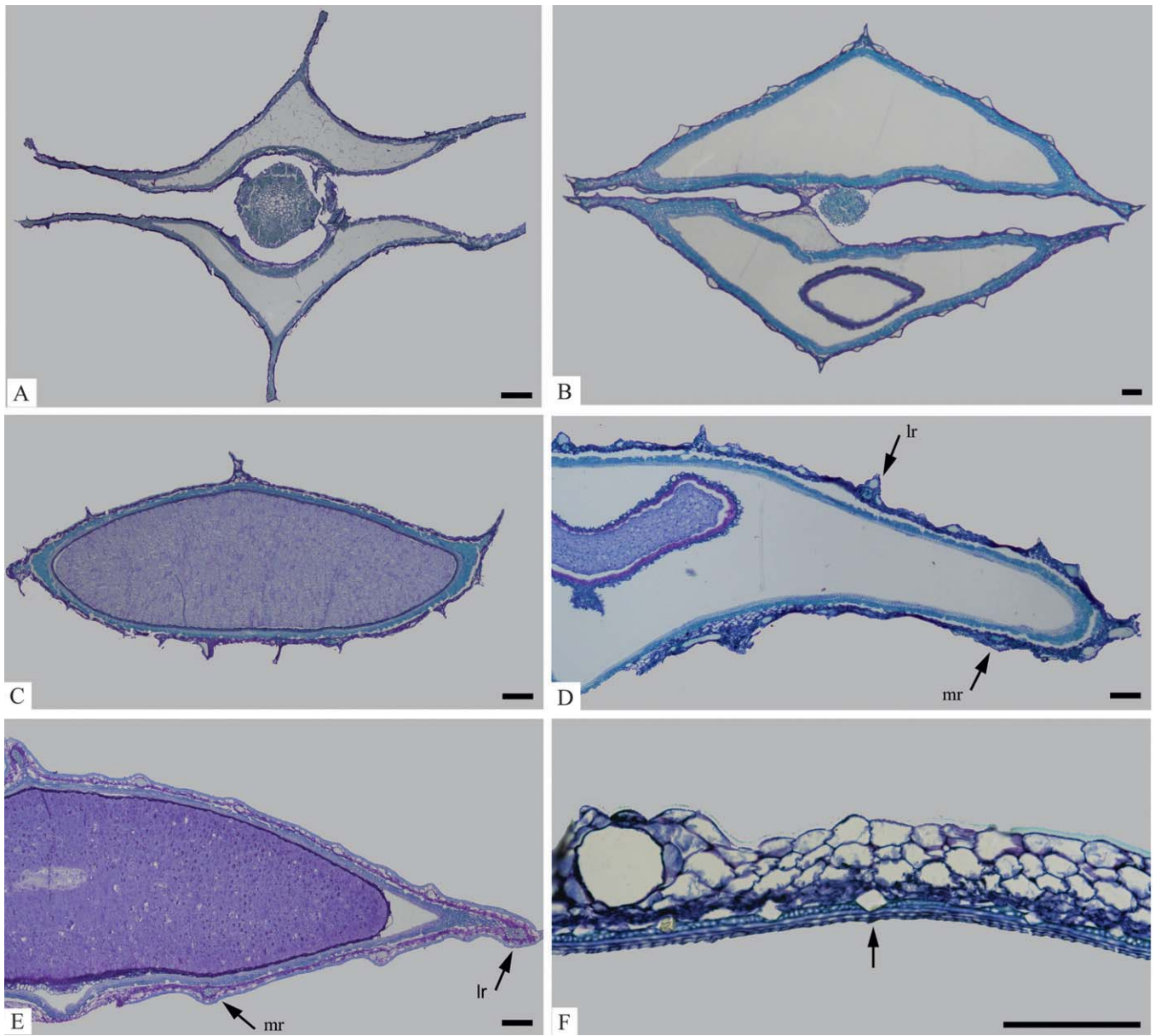


FIG. 5. Transverse sections through the mature fruit of selected *Hermas* species. A. *H. villosa*, with the prominently winged median and lateral ribs. B. *H. ciliata*, lignified endocarp. C. *H. capitata*, unwinged marginal ribs. D. *H. proterantha*, note the position of the lateral and marginal vascular bundles (arrow). E. *H. quinquedentata*, note the position of the lateral (lr) and marginal (mr) vascular bundles (arrows). F. *H. ciliata*, rhomboidal crystals in the endocarp (arrow). Vouchers: A: MacOwan 128, NBG; B: Wurts 557, NBG; C: Bolus 911, PRE; D: Zimm s. n., NBG; E: Bolus 127, PRE; F: Helme 3200, NBG. Scale bar = 100 μ m.

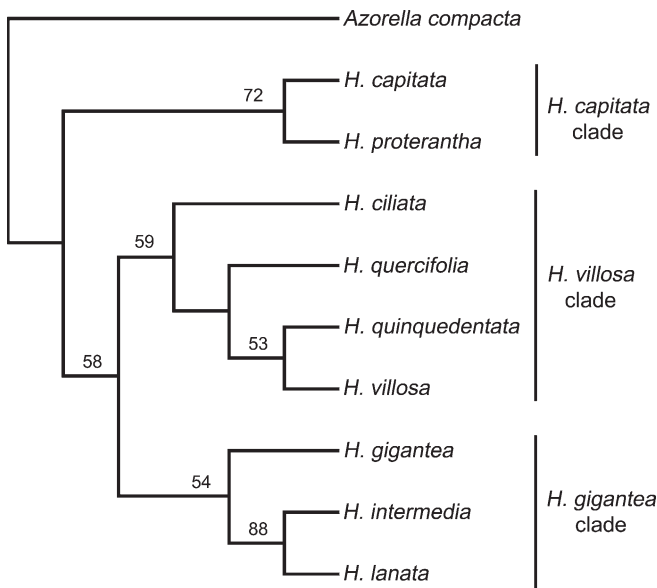


FIG. 6. Single most parsimonious tree obtained from a maximum parsimony analysis of the morphological data in Appendix 1 and Table 1. Bootstrap percentages are given above the branches. TL = 14. CI = 0.79. RI = 0.82.

1. HERMAS CAPITATA L. f., Suppl. 435. 1782.; Schrader in Neues J. Bot.: 44. 1808. Spreng. in Pl. Umbell.: 19. 1813. Thunb. in Fl. Cap 2: 184. 1818. L. in Syst. Veg. Sec., 6: 379. 1820. DC., Prodr. 4: 241. 1825. Eckl. & Zeyh., Enum. Pl. Afric. Austral. 354. 1837. Sond. in Fl. Cap. 2: 566. 1862. Adamson and Salter, Fl. Cap Penins. 616. 1950. Burt in Edinb. J. Bot 48(2): 211. 1991. Van Wyk et al. African Apiaceae 210. 2013. *Bupleurum capitatum* (L.f.) Thunb., Prodr. 50. 1794. *Perfoliata capitata* (L.f.) O. Kuntze, Rev. Gen. 1: 269. 1891. —TYPE: SOUTH AFRICA. Western Cape Province, Cape Town district (3318): "inter rupes verticis monitis 'Tafelberg' " [between rocks on Table Mountain] (-CD), *Thunberg s. n.* sub LINN 1227.3 (lectotype: LINN!, designated here).

Hermas minima Eckl. & Zeyh., Enum. Pl. Afric. Austral. 354. 1837. *Hermas capitata* var. *minima* (Eckl. & Zeyh.) Sond. in Fl. Cap. 2: 566. 1862. —TYPE: SOUTH AFRICA. Eastern Cape Province: Uitenhage, Van Stadens River Mountains, Ecklon & Zeyher 2261 (lectotype: SAM!, designated here; isolectotype: MO!, S!).

Acaulescent, resprouting, evergreen herb, 30–100 mm tall (excluding inflorescence). Leaves in basal rosette, spreading, simple, present at anthesis; petioles 7–110 mm long, sparsely to densely lanate, often becoming glabrescent in mature leaves; lamina ovate to elliptic, 7–40 mm × 4–22 mm; base ± cordate; apex obtuse; margins sparsely crenate to dentate, terminating in a small tubercle; adaxial surface green, sparsely villose when young, becoming glabrous to glabrescent; abaxial surface grey-white or coppery, densely felty, often also coppery-lanate around venation. Synflorescences 120–350 mm long, with terminal primary umbel subtended by 1 or 2 slightly smaller secondary umbels; peduncles slender, remaining densely lanate in upper and lowermost portions, remainder soon becoming glabrescent; peduncular bracts ca. 7–11 mm, lanceolate to foliose. Umbels compound, 10–20 mm in diameter; involucre bracts 5–10, 3–7 mm long, lanceolate, acumi-

nate; rays 3–12, 3–5 mm long at anthesis, glabrous or lanate, involucre bracts 2 or 3, 3–5 mm long, spatulate, acuminate, glabrous or lanate to felty; raylets 5–7, ca. 2 mm long at anthesis, glabrous; umbellules with 1–5 bisexual flowers surrounded by 1–5 functionally male flowers. Flowers with 5 large, petaloid sepals, ca. 1.5 mm long, elliptic, apex acute, cream-coloured, veins 3, usually prominent; petals filiform, strongly inflexed, cream-coloured. Fruits round to ovate, base rounded to truncate, strongly dorsally compressed, 2–3 mm × 2–2.5 mm; mericarps homomorphic, glabrous; marginal ribs inconspicuous; lateral ribs broadly-winged; median rib inconspicuous.

Diagnostic Characters—An easily recognisable species distinguished from other adaxially-glabrescent, evergreen species with suberect to spreading leaves by the long petioles (longer than or equal to the lamina), the sparsely crenate to dentate leaf margins and the fruits without a prominent median rib. There are two collections from an aberrant Nuweberg population (Mc Donald 609, NBG; Haynes 523, NBG) which are unusual in having adaxially densely lanate leaves and involucre bracts, but in all other aspects are typical for the species. These can be distinguished from other adaxially non-glabrescent species by the lanate rather than felty adaxial indumentums, smaller leaves and umbels.

Distribution and Ecology—This species favours cool, shady and moist slopes or outcrops, and occurs in occasional localised populations on the uppermost slopes or summits from the Cape Peninsula Mountains to the Van Stadens and Groot Winterhoek Mountains (Fig. 7).

Additional Specimens Examined—SOUTH AFRICA. 3318 (Cape Town): Noordhoek mountains (-AB), Salter 1956 (BM, K); Table Mountain (-CD), Bolus 9111, Bowie s. n. (BM), Bolus 4002, Pillans 2778 (BOL), Wolley 917 (BOL, K), Bolus 911 (BOL, PRE), Ecklon and Zeyher s. n., Stokoe s. n. (SAM), Ecklon and Zeyher 2260 (SAM, S), Marloth 5185, 81486 (PRE), Drège s. n., Thunberg s. n., Wahlberg s. n. (S); Table Mountain, boulders on path to Maclears Beacon (-BD), Magee, Nicolas & Plunkett 486 (NBG, NY); Table Mountain, Grootkop (-CD), Andreae 1094 (NBG); Table Mountain, Valley of Isolation (-CD), Marloth s. n. (PRE); Table Mountain, Echo Valley (-CD), Compton 8306 (NBG). 3319 (Worcester): Mostert Hoek Twins (-CD), Esterhuysen 36283 (BOL); Kaaimansgat (-BD), Goldblatt 5416 (NBG); Du Toit's Peak (-CC), Esterhuysen 8580 (BOL); Wemmershoek Mountains (-CC), Andreae 792 (NBG); Waaihoek Peak (-CB), Esterhuysen 18216, 22605 (BOL); Villiersdorp, Wolfieskop (-CD), Esterhuysen 32845 (BOL, S). 3322 (Oudtshoorn): Swartberg Pass (-AC), Adamson 4357 (BOL), Stokoe 8871 (BOL, SAM); Uniondale, Buffelsberg Mountain, Kammanassie (-DB), Compton 10552 (NBG), Viviers and Vlok 32 (NBG, PRE); Uniondale, Mannetjiesberg (-DB), Esterhuysen 4731 (BOL). 3325 (Port Elizabeth):

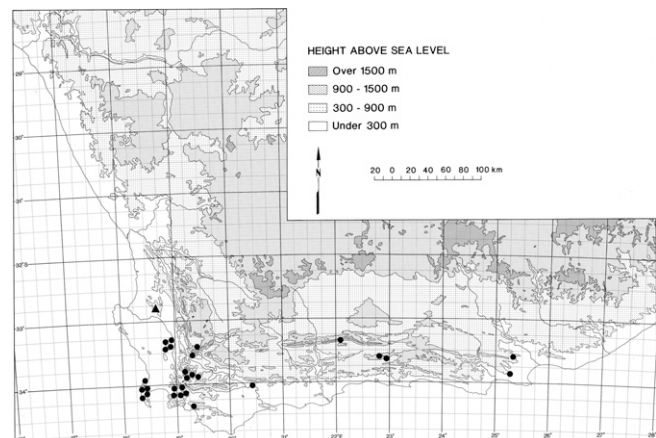


FIG. 7. Known distribution of *H. capitata* (circles) and *H. proterantha* (triangle).

Uitenhage, Groot Winterhoek (–CB), *Esterhuysen* 27114 (BOL); Uitenhage, Van Stadens River Mountains (–CD), *Ecklon and Zeyher* 2261 (NBG). 3418 (Simonstown): Constantiaberg (–AB), *Compton* 14535 (SAM); Klaasjagers Mountain (–AB), *Wolley* 304 (BM, BOL); Muizenberg (–AB), *Salter* 262/16 (BM, K), *Bolus* 3372 (BOL); Oranje Kloof (–AB), *Compton s. n.* (NBG); Stellenbosch, Somerset West Triplets (–BB), *Esterhuysen* 15254 (BOL); Hangklip, Kogelberg State Forest, Steenras Peak (–BB), *Boucher* 3656 (NBG); Landdros Kloof (–BB), *Stokoe* 7817 (BOL); Somerset West, Sneeuwkop (–BB), *E. Esterhuysen* 27071, *T.P. Stokoe* 2854 (BOL, SAM) Hottentot Hollands Mountains, near summit of Moordenaarskop (–BB), *Stokoe s. n.* (SAM); Nuweberg State Forest, Landdroskloof (–BB), *Kruger* 1565 (PRE). 3419 (Caledon): Franschoek Mountains (–AA), *Stokoe* 68836 (SAM); Houwhoek (–AA), *Schlechter* 7343 (BM, K, S); Jakkals River, Lebanon Forest Reserve (–AA), *Haynes* 523 (NBG, PRE); Stellenbosch, Jonkershoek State Forest, Dwarsberg, Victoria Peak (–AA), *Esterhuysen* 9760 (BOL), *Kerfoot* 6605 (NBG, PRE), *Kerfoot* 5749, *Kerfoot and Haynes* 4 (PRE); Caledon, Vogelgat (–AD), *Williams* 3640 (NBG). 3420 (Bredasdorp): Swellendam, Swellendam Mountain (–AB), *Compton* 10584 (NBG).

2. HERMAS PROTERANTHA B.J. de Villiers in *Novon* 18(1): 29. 2008. Van Wyk et al. *African Apiaceae* 213. 2013. —TYPE: SOUTH AFRICA. Western Cape: Clanwilliam district (3218) Piquetberg, Zebraskop (DC), 16 Dec. 1979, *Esterhuysen* 35322 (holotype: BOL!; isotypes: K!, S!).

Acaulescent, resprouting, deciduous herb, ca. 90 mm tall (excluding inflorescence). Leaves in basal rosette, spreading, simple, senescing at anthesis; petioles 30–110 mm long, glabrescent; lamina ovate-elliptic, 20–40 mm × 15–45 mm; base cuneate to cordate; apex obtuse; margins pinnately left, lobes dentate; adaxial surface green, glabrous; abaxial surface grey-white, densely felty. Synflorescences 300–350 mm long, with terminal primary umbel subtended by 1–4 slightly smaller secondary umbels; peduncles slender, densely lanate in upper and lowermost portions; peduncular bracts 2–3 mm, lanceolate. Umbels compound, 20–40 mm in diameter; involucre bracts 4–6, 2–2.5 mm long, lanceolate, acuminate; rays 5–12, 20–30 mm long at anthesis, glabrous, involucellar bracts 3, 2–3 mm long, lanceolate, acuminate, glabrous; raylets 5–9, 2–3 mm long at anthesis, glabrous; umbellules with 1 or 2 bisexual flowers surrounded by 3–6 functionally male flowers. Flowers with 5 large, petaloid sepals, ca. 1.5 mm long, elliptic, apex acute, cream-coloured, veins 3, usually prominent; petals filiform, strongly inflexed, cream-coloured. Fruits ovate, base rounded, strongly dorsally compressed, 3–4 mm × 2.5–3 mm; mericarps homomorphic, glabrous; marginal, lateral and median ribs inconspicuous, with a prominent wing between the lateral and marginal ribs.

Diagnostic Characters—*Hermas proterantha* is easily distinguished from all other species in the genus by the deciduous, pinnately-lobed leaves which begin to senesce soon after flowering. The fruits are also unique in that the pseudowings occur between the lateral and marginal ribs rather than along the lateral ribs as in all the other species.

Distribution and Ecology—This species is endemic to the Piketberg Mountains in the Western Cape where they occur as rare occasional, on shaded cliffs and ledges between 700–900 m (Fig. 7).

Additional Specimens Examined—South AFRICA. 3218 (Clanwilliam): Piketberg, (–DC), *Esterhuysen* 35322, 35492, 36303 (BOL); *Pillans* 7856 (BOL); *Zinn* 54619 (SAM); Piketberg Mountains, stony sandstone soil around edges of dam E. of Levant Peak, 2,600 ft (–DC), 1 Feb. 1982 (fl), *Goldblatt* 6496 (NY); Piketberg, lower S slopes of Zebrakop, just NE of largest dam and 0.6 km SE of Levant Hill (–DC), *Helme* 5217 (NBG).

3. HERMAS GIGANTEA L.f., *Suppl.* 435. 1782. Aiton in *Hort. Kew.*, Vol. 5: 451. 1813. Spreng. in *Pl. Umbell.*: 19. 1813. Thunb. in *Fl. Cap* 2: 184. 1818. L. in *Syst. Veg. Sec.*, 6: 379. 1820. DC., *Prodr.* 4: 241. 1825. Eckl. & Zeyh., *Enum. Pl. Afric.*

Austral. 354. 1837. Sond. in *Harv. & Sond.*, *Fl. Cap* 2: 566. 1862. Burt in *Edinb. J. Bot* 48(2): 212. 1991. Van Wyk et al. *African Apiaceae* 211. 2013. *Bupleurum giganteum* (L.f.) Thunb. *Prodr.* 50. 1794. *Buprestis gigantea* (L.f.) Spreng. in *Mag. Ges. Nat. Fr. Berlin*, 6: 259. 1813. *Perfoliata gigantea* (L.f.) O. Kuntze *Rev. Gen.* 1: 269. 1891. —TYPE: SOUTH AFRICA. Western Cape Province: “Cap. bonae spei in montibus altissimis” [Cape of Good Hope, the highest mountains], *Thunberg s. n.* (lectotype: LINN 1227.2, designated here; probable isolectotypes: THUNB-UPS sheets 6769! & 6770!, LD, image!).

Acaulescent, resprouting, evergreen herb, 100–300 mm (excluding inflorescence). Leaves in basal rosette, spreading, simple, present at anthesis; petioles 50–300 mm long, densely lanate, matted and shaggy; lamina elliptic to obovate, rarely ovate; 100–250 mm × 40–100 mm; base attenuate to sometimes truncate, apex acute to obtuse, margins denticulate to crenulate, terminating in a small tubercle; adaxial surface grey-green, densely felty and slightly lanate; abaxial surface grey-white, densely felty and slightly lanate. Synflorescences 500–1,000 mm long, with terminal primary umbel subtended by 4–19 smaller secondary umbels; peduncles stout, sometimes felty and lanate when very young but soon becoming largely glabrescent; peduncular bracts 20–60 mm, oblong to foliose, densely felty and lanate. Umbels compound, 60–80 mm in diameter, dense; involucre bracts lanceolate, 10–12, 10–15 mm long, maroon to purple-black, venation parallel, adaxial surface glabrous to glabrescent, abaxial surface sparsely lanate; rays ca. 40–65, 15–25 mm long at anthesis, glabrous; involucellar bracts 2–4, 5–8 mm long; lanceolate, maroon to purple-black, glabrous to glabrescent; raylets 6–12, ca 2 mm long at anthesis, maroon to purple-black, glabrous; umbellules with 1–7 hermaphroditic flowers surrounded by 4–10 functionally male flowers. Flowers with 5 large, petaloid sepals, maroon to purple, veins 3, inconspicuous; petals filiform, strongly inflexed, maroon to purple. Fruits ovate, base truncate to cordate, dorsally compressed, ca. 2.0–2.5 × 1.5 mm; mericarps homomorphic, glabrous; marginal ribs inconspicuous; lateral ribs narrowly-winged; median rib prominent, narrow.

Diagnostic Characters—*Hermas gigantea* shares the very large, adaxially felty leaves with *H. intermedia* and *H. lanata* but can be easily distinguished from these species by the glabrous to glabrescent involucre and involucellar bracts and much of the peduncle. Both *H. gigantea* and *H. intermedia* have distinct maroon sepals (all other species have cream-coloured sepals), however in *H. gigantea* the bracts, rays, ovaries and often much of the peduncle are also maroon. The leaves also differ in that they are often larger, elliptic to obovate (rarely ovate) with an attenuate or sometimes truncate base. In *H. lanata* and *H. intermedia* they are ovate to oblong with a truncate to cordate base.

The following vernacular names have been recorded for this species and refer to the use of the woolly indumentum of the leaves as tinder: *tondelblaar* [“tinder leaf”], *tondel doek* [“tinder cloth”] (from voucher specimen, *Guthrie* 18568 and *Burchell* 7102 respectively), *tondelblad* [“tinder bush”] (Pappe 1862), “tundel-bloom” (Sonder 1862) and “Tundelbloem” [both “tinder flower”] (Bastian and Hartmann 1872). Historical artefacts showing how the leaves were once used to stuff the tinderbox and even to make tinderboxes are depicted in Van Wyk et al. (2013).

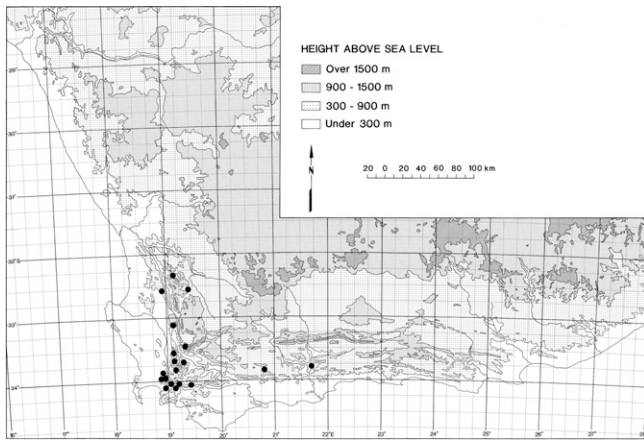


FIG. 8. Known distribution of *H. gigantea*.

Distribution and Ecology—This species occurs in small, occasional groups and favours partially shaded, rocky slopes or ledges above 600 m. It has been recorded from the Cedarberg Mountains south to the Hottentots Holland Mountains and east along the Langeberg Mountains to Riversdale (Fig. 8).

Additional Specimens Examined—South AFRICA. 3218 (Clanwilliam): Ceres (–DB), Guthrie 18568 (K); Ceres, Olifants River Mountains (–DB), Esterhuysen 13422 (BOL). 3219 (Wuppertal): Cedarberg mountains (–AC), Pocock 5324 (PRE), Compton *s. n.* (NBG) Skoongesig, Koue-Bokkeveld (–CC), Hanekom 1527 (K). 3418 (Simonstown): Somerset West, Helderberg (–BB), Rourke 1612 (NBG); 3318 (Cape Town) Stellenbosch, Jonkershoek Twins (–DD), Esterhuysen 11467 (NBG, PRE), Taylor 10346 (PRE); Jonkershoek, Bosboukloof (–DD), Borchardt 442 (PRE) Jonkershoek Nature Reserve, Panorama trail, between Banghoek Peak and First Ridge Peak (–DD), Magee, Nicolas & Plunkett 475 (NBG, NY); Jonkershoek, Lang River (–DD), Kerfoot 5710 (NBG, PRE); Jonkershoek State Forest, Dwarsberg, Victoria Peak (–DD), Kerfoot & Haynes 2 (PRE), 3319 (Worcester): Wintershoek Mountains (–AA), Ecklon & Zeyher 2256 (SAM, S), Drège *s. n.* (S); Worcester, Waaihoek Mountains (–AD), Barnard *s. n.* (SAM); Tulbagh, top of ridge between Bailey's Peak and Pic Blanc (–CA), Stokoe *s. n.* (SAM); Goudini, Jan du Toit's Kloof (–CB), Andreae 856 (NBG, PRE); Du Toit's Kloof (–CA), Esterhuysen 11537 (PRE), Drège *s. n.* (S); Franschhoek Pass, Du Toit's Kop (–CC), Compton 21899 (NBG), Marloth 5319I (PRE). 3320 (Montagu): Tradouw Mountains (DD), Bowie *s. n.* (BM). 3321 (Ladismith): Vryersberg, Attakwasberg (–DC), McDonald 1769 (NBG); Wilde Perdeberg (–AC), Stokoe 9454 (BOL); 3419 (Caledon): Caledon, Lebanon River Catchment (–AA), Kruger 639 (PRE); Jonkershoek Nature Reserve, Panorama trail, near Dwarsberg (–AA), Magee, Nicolas & Plunkett 479 (NBG, NY); Villiersdorp, Elandsdoo Pass (–AB), Gillett 735 (NBG, PRE).

4. HERMAS INTERMEDIA Norman in J. Bot. 71: 125. 1933. Burt in Edinb. J. Bot 48(2): 212. 1991. Van Wyk et al. African Apiaceae 211. 2013. —TYPE: SOUTH AFRICA. Western Cape Province, Cape Town district (3318): South side of crest of Riebeeck Kasteel (–BD), 14 February 1932, Pillans 6646 (holotype: BM!; isotypes: BOL!, K!).

Acaulescent, resprouting, evergreen herb, 80–200 mm (excluding inflorescence). Leaves in basal rosette, spreading, simple, present at anthesis; petioles 25–160 mm long, felty and densely lanate; lamina ovate to oblong; 25–120 mm × 15–80 mm; base truncate to cordate, apex acute to obtuse, margin denticulate to serrulate, terminating in a small tubercle; adaxial surface grey-green, densely lanate; abaxial surface grey-white, densely felty and lanate. Synflorescences 250–450 mm long, with terminal primary umbel subtended by 1–4 smaller secondary umbels, often verticillately arranged; peduncles stout, densely felty and lanate throughout; peduncular bracts

20–40 mm, foliose, densely felty and lanate. Umbels compound, 40–60 mm in diameter, dense; involucre bracts lanceolate, ca. 12, 10–15 mm long, green, venation parallel, adaxial surface densely felty and lanate, abaxial surface lanate to partly glabrescent; rays ca. 40–60, 15–20 mm long at anthesis, brown, glabrous; involucellar bracts 2–4, 5–7 mm long; lanceolate, green, apically lanate; raylets 6–12, ca 2 mm long at anthesis, brown, glabrous; umbellules with 1–7 hermaphroditic flowers surrounded by 4–10 functionally male flowers. Flowers with 5 large, petaloid sepals, maroon to purple, veins 3, inconspicuous; petals filiform, strongly inflexed, maroon to purple. Fruits ovate, base rounded to truncate, dorsally strongly compressed, ca. 1.5 × 1.5 mm; mericarps homomorphic, glabrous; marginal ribs inconspicuous; lateral ribs broadly-winged; median rib prominent, narrow.

Diagnostic Characters—*Hermas intermedia* shares the large, adaxially felty leaves with *H. gigantea* and *H. lanata*. It can be distinguished from *H. gigantea* by the densely felty or lanate involucre bracts, involucellar bracts and peduncle, as well as having only the sepals maroon (entire umbels maroon in *H. gigantea*). It can be distinguished from *H. lanata* by the maroon sepals (cream in *H. lanata*), less rigid, adaxially short lanate leaves (rigid, long lanate, matted and shaggy in *H. lanata*) with usually truncate bases (prominently cordate in *H. lanata*).

Distribution and Ecology—This species occurs in rock crevices on shaded or semi-shaded ledges or outcrops above 1,000 m. It is known from only a few small populations along the western mountains of the Western Cape from the Cedarberg and Piketberg to Hottentots Holland Mountains (Fig. 9).

Additional Specimens Examined—South AFRICA. 3218 (Clanwilliam): Skimmelberg (–BD), Pillans 9087 (BOL); Piquetberg Mountains, Zebraskop (–DB), Pillans 7373 (BOL). 3318 (Cape Town): Summit ridge of Kasteelberg, east of Farm Waterval to Spes Bona (–BD), Helme 5432 (NBG); Summit ridge of Kasteelberg (–BD), Magee, Nicolas & Plunkett 492 (NBG, NY); South side of crest of Riebeeck Kasteel (–BD), Pillans 6061 (BM, K). 3319 (Worcester): Ceres, Witzenberg (–AC), Pillans 9635 (BOL); Hex Rivier Mountains, base of headwall below Milner Peak (–AD), Helme 2848 (NBG); Klein Drakenstein Mountains, Mias Poort, NE of Huguenoot kop (–CA), Helme 4535 (NBG); Franschhoek Pass (–CC), Pillans 6743 (K); Groot Drakenstein Mountains, Duiwelskloof (–CC), Esterhuysen 21346 (BOL). 3419 (Caledon): Paarl, Disavlei area at western base of Victoria Peak (–AA), Helme 3293 (NBG).

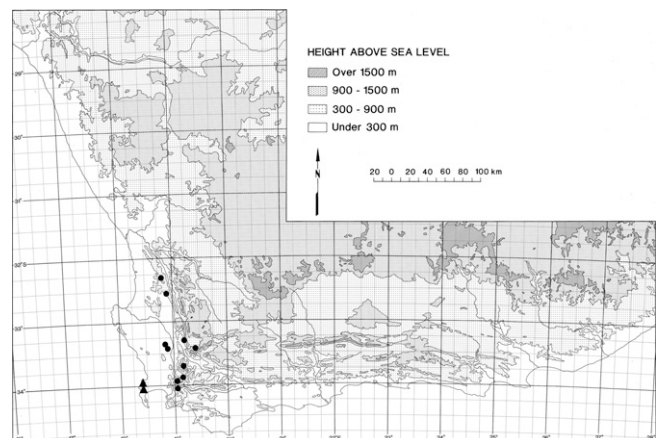


FIG. 9. Known distribution of *H. intermedia* (circles) and *H. lanata* (triangles).

5. *Hermas lanata* (Hill) Magee, comb. nov. *Scabiosa lanata* Hill, Syst. Veg. 5: 46. 1763. —TYPE: SOUTH AFRICA. Western Cape: Cape of Good Hope, in Burman, Rar. Afric. Pl.: t. 72, Fig. 3. 1738. (lectotype designated here; epitype: Magee, Nicolas & Plunkett 484 (NBG). [Note: The only original elements eligible for lectotypification of *Scabiosa lanata* are two figures: Burman's and Hill's. As expressed by Burt (1981), Hill's illustration and description are clearly taken from those of Burman's with the differences in his plate "taken from his own imaginative interpretation of Burman's comments and name". As such we designate the Burman plate as the lectotype. An epitype is also designated to facilitate the precise application of the name]

Hermas pillansii Norman in J. Bot. 66: 195. 1928. Adamson and Salter, Fl. Cape Penins. 616. 1950. Burt in Edinb. J. Bot 48 (2): 212. 1991. Van Wyk et al. African Apiaceae 211. 2013. —TYPE: SOUTH AFRICA. Western Cape Province, Simonstown district (3418): Cape Peninsula, krantzies on south side of Noordhoek mountains (–AB), 15 January 1922, Pillans 4171 (holotype: BOL!).

Acaulescent, resprouting, evergreen herb, 150–250 mm (excluding inflorescence). Leaves in basal rosette, spreading, simple, present at anthesis; petioles 100–250 mm long, densely lanate, matted and shaggy; lamina ovate; 40–150 mm × 20–120 mm; base prominently cordate, apex broadly obtuse, margin crenulate, terminating in a small tubercle; adaxial surface grey-green, densely lanate, matted and shaggy; abaxial surface grey-white, densely felty and lanate. Synflorescences 300–800 mm long, with terminal primary umbel subtended by 0–5 smaller secondary umbels; peduncles stout, densely felty, lanate, matted and shaggy when young but becoming patchy and largely glabrescent on upper third; peduncular bracts 30–60 mm, oblong to foliose, densely felty and lanate. Umbels compound, 60–70 mm in diameter, dense; involucre bracts lanceolate, 10–12, 10–15 mm long, grey-green, venation parallel, adaxial surface densely lanate, matted, abaxial surface lanate to partly glabrescent; rays ca. 40–60, 15–20 mm long at anthesis, green, glabrous; involucellar bracts 2 or 3, 5–8 mm long; lanceolate, green, apically lanate; raylets 6–12, ca 2 mm long at anthesis, brown, glabrous; umbellules with 4–10 hermaphroditic flowers surrounded by 2–5 functionally male flowers. Flowers with 5 large, petaloid sepals, cream-coloured, veins 3, conspicuous; petals filiform, strongly inflexed, cream-coloured. Fruits ovate, base rounded to truncate, dorsally slightly compressed, ca. 2–2.5 × 1.5 mm; mericarps homomorphic, glabrous; marginal ribs inconspicuous; lateral ribs narrowly-winged; median rib prominent, narrow.

Diagnostic Characters—*Hermas lanata* can be distinguished from the similar *H. gigantea* and *H. intermedia* by the cream-coloured sepals, felty involucre and involucellar bracts and peduncle (shared with *H. intermedia*) and the firmer, cordate leaves with a long shaggy indumentum.

Distribution and Ecology—This species is a very narrow endemic of the Cape Peninsula recorded from Table Mountain to Noordhoek. It favours high western, shaded and moist sandstone kloofs or cliffs facing the ocean (Fig. 9). Previously this species had been reported to extend onto the Jonkershoek Mountains near Stellenbosch (Goldblatt & Manning 2000; Magee et al. 2012). However, closer examination of the specimen for that record, revealed its correct identity to be *H. gigantea*. There were concerns that *H. lanata* was extinct as

it had not been collected for several years despite numerous searches of previous known localities by N. Helme to locate it. However, in 2012 we were able to locate six plants from two subpopulation near Fountain Ledge on Table Mountain. As this species is one of the Cape's earliest known plants, first illustrated in 1685 (Burt 1981), it was probably not extremely rare, although it does appear to be so now. As a result of its declining population and threats from recreational rock climbing and hiking all across Table Mountain this species has been listed as VU D1 + 2 (Helme et al. 2012).

Additional Specimens Examined—South AFRICA. 3318 (Cape Town): Table Mountain, beginning of India Venster path from plateau, Fountain valley (–CD), Magee, Nicolas & Plunkett 484 (NBG, NY); Table Mountain, Mystery B Route (–CD), Hutchinson et al. MSB 5213 (NBG); Twelve Apostles, between Grootkop and St. Luke's (–CD); Pillans 8876 (BOL); Table Mountain, Fountain Ledge (–CD), Stokoe 45088 (SAM); Table Mountain (–CD), Stokoe 4171 (BOL). 3418 (Simonstown): Campsbay, Noordhoek (–AB), Stokoe 9451 (BOL), Pillans s. n., Salter 272/13 (K), Norman 293 (BM).

6. *HERMAS CILIATA* L.f., Suppl. 436. 1782. Schrader in Neues J. Bot.: 44. 1808. Spreng. in Pl. Umbell.: 19. 1813. Thunb. in Fl. Cap 2: 184. 1818. L. in Syst. Veg. Sec., 6: 379. 1820. DC., Prodr. 4: 242. 1825. Eckl. & Zeyh., Enum. Pl. Afric. Austral. 354. 1837. Sond. in Fl. Cap. 2: 567. 1862. Burt in Edinb. J. Bot 48(2): 211–213. 1991. Burt in Edinb. J. Bot 48(2): 212. 1991.; Van Wyk et al. African Apiaceae 210. 2013. *Bupleurum ciliatum* (L.f.) Thunb., Prodr. 50. 1794. *Perfoliata ciliata* (L.f.) O. Kuntze, Rev. Gen 1: 269. 1891. —TYPE: SOUTH AFRICA. Western Cape Province: "Cap. bonae spei" [Cape of Good Hope], *Thunberg s. n.* sub THUNB - UPS 6755 (lectotype: UPS!, here designated).

Hermas uitenhagensis Eckl. & Zeyh., Enum. Pl. Afric. Austral. 354. 1837. —TYPE: SOUTH AFRICA. Eastern Cape, Uitenhage district: Van Stadensriversberge, Ecklon & Zeyher 2259 (lectotype: S!, here designated; isolectotypes: C, image!, K!, M, image!, MO, two sheets!, SAM!).

Acaulescent, resprouting, evergreen herb, 40–80 mm tall (excluding inflorescence). Leaves in basal rosette, procumbent, simple, present at anthesis; petioles 15–60 mm long, usually glabrescent, margins villose; lamina lanceolate to ovate-elliptic, 28–75 mm × 10–50 mm; base attenuate to cuneate; apex acute to attenuate; margins ± entire, setose; adaxial surface green, glabrous to glabrescent; abaxial surface grey-white, felty. Synflorescences 500–850 mm long, with terminal primary umbel subtended by 1–5 smaller secondary umbels, often verticillately arranged; peduncles slender, glabrous throughout or glabrescent at the base; peduncular bracts lanceolate, 10–25 mm, setose. Umbels compound, 35–70 mm in diameter, dense; involucre bracts lanceolate, 10–14, ca. 10 mm long, venation parallel; rays 36–50, 20–35 mm long at anthesis, glabrous; involucellar bracts 1 or 2, 3–8 mm long, spatulate, glabrous; raylets 5–7, 3–5 mm long at anthesis, glabrous; umbellules with 1–6 hermaphroditic flowers surrounded by 1–6 functionally male flowers. Flowers with 5 large, petaloid sepals, ca. 1.5 mm long, elliptic, apex acute, cream-coloured, veins 1 with lateral pair sometimes present but inconspicuous; petals filiform, strongly inflexed or coiled, cream-coloured. Fruits broadly ovate, base cordate, dorsally compressed, 3.0–4.5 mm × 2.5–4.0 mm; mericarps homomorphic, glabrous; marginal ribs inconspicuous, lateral ribs winged; median rib prominent, becoming winged in lower third.

Diagnostic Characters—*Hermas ciliata* is readily distinguished from all other species by the prostrate, adaxially

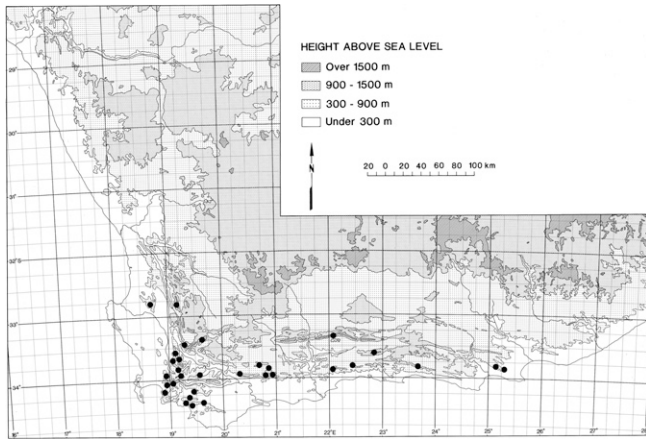


FIG. 10. Known distribution of *H. ciliata*.

glabrous to glabrescent leaves with \pm entire and setose margins, usually forming a tidy rosette. As in *H. quercifolia* and *H. villosa*, the sepals have only a single prominent central vein with the lateral pair inconspicuous, when present. *H. ciliata* was at first thought to be unusual in lacking the lignified endocarp found in all other species of the genus and typical for the subfamily Azorelloideae. However, further studies showed that the fruit originally sectioned was immature and that mature fruits do indeed have lignified endocarps.

Distribution and Ecology—This species favours moist, steep, lower to upper southern slopes between 400–1,525 m. It occurs from Hottentots Holland and Piketberg Mountains east largely along the Langeberg and Outeniqua Mountains to the Van Stadens Mountains, as well as the Swartberg Mountains (Fig. 10).

Additional Specimens Examined—South AFRICA. 3218 (Clanwilliam): Piquetberg Mountain (–DC), *Zinn* 54440 (SAM). 3219 (Wuppertal): Skoongesig, Koue-Bokkeveld (–CC), *Hanekom* 2580 (K, PRE). 3318 (Cape Town): Jonkershoek Nature Reserve, Panorama trail, between Banghoek Peak and First Ridge Peak (–DD), *Magee, Nicolas & Plunkett* 474 (NBG, NY); Stellenbosch, Simonsberg (–DD), *Taylor* 8056 (K, PRE, NBG). 3319 (Worcester): Worcester, Waaihoek Peak (–AD), *Compton* 822 (NBG), *Esterhuysen* 22659 (BOL); Ceres, Matroosberg (–BC), *Phillips* 2033 (SAM); Wellington, Klein Sneekop (–CA), *Adamson* 3636 (BOL); Bains Kloof, Observation Peak (–CA), *Adamson* 3644 (BOL); Du Toit's Kloof (–CA), *Bolus* 5167 (BOL, K), *Drege* (S); Frenchhoek Pass, Du Toit's Kop (–CC), *Pillans* 6742 (BOL, K), *Compton* 21913 (NBG); Franschhoek Mountains (–CC), *Stokoe s. n.* (SAM), *Marloth* 6018 (PRE); Wemmershoek Mountains, April Peak (–CC), *Compton* 10169, *Helme* 3300 (NBG); Caledon, Jonaskop (–DC), *Rourke* 713 (NBG). 3320 (Montagu): Swellendam, Langberg Mountains, Ten O'Clock Mountains (–CD), *Compton* 557 (NBG); Barrydale (–DC), *Acocks* 20337 (PRE); Lemoenshoek Peak (–DD), *Adamson* 3875 (BOL); Grootvadersbosch State Forest (–DD), *McDonald* 1510, *C. Ruiters* 57 (NBG, PRE); Heidelberg, Strawberry Hill (–DD), *Stokoe s. n.* (SAM). 3322 (Oudtshoorn): Swartberg Mountain (–AC), *Stokoe s. n.* (SAM); Robinson Pass, Outeniqua (–CC), *Hops* 83 (BOL); Montagu Pass, Cradock Peak (–CD), *Zinn* 54809 (SAM); Mannetjeberg, Kammanassie (–DB), *Esterhuysen* 4719 (BOL), *Rourke* 376 (NBG). 3323 (Willowmore) Uniondale, Formosa (–DC), *Compton* 4236 (BOL). 3325 (Port Elizabeth): Humansdorp, Loerie Forest Reserve (–CC), *Long* 51 (NBG); Van Stadensberg (–CD), *Macowan* 1128 (K). 3418 (Simonstown): Landdroskloof Nek (–BB), *McDonald* 633 (NBG, PRE); Somerset West, Helderberg (–BB), *Salter* 4231 (BM), *Galpin* 12386 (PRE); Stellenbosch, Lourensford (–BB), *Pillans* 10023 (BOL); Simonstown (–BD), *Boucher* 15 (NBG); Jonkershoek Forest Reserve (–DD), *Kruger* 1004 (NBG). 3419 (Caledon): Dwarsberg Mountains, Jakkals River, Lebanon Forest Reserve (–AA), *Haynes* 270, 518, *Kerfoot* 6626, *Kruger* 620, *Viviers* 117 (PRE, NBG); Caledon, Zwarteberg (–AB), *Bolus* 9219 (BOL); Babylon's Tower (–AB), *Esterhuysen* 5602 (BOL), *Esterhuysen* 5002 (NBG); Caledon, Avontuur (–AD), *Fourcade* 2067 (BOL, K), *Fourcade* 1303 (BOL, NBG); Beaconhead, Vogelgat (–AD), *Williams* 3585 (NBG); Riversonderend, Pilaarskop (–BB), *Olivier & Olivier* 11227 (NBG).

7. HERMAS QUERCIFOLIA Eckl. & Zeyh., Enum. Pl. Afric. Austral. 355. 1837. Van Wyk et al. African Apiaceae 213. 2013. —TYPE: SOUTH AFRICA. Western Cape, Cape Town district (3318): “montium vallis ‘Tulbagh’ supra cataractan” [Tulbagh valley, above the waterfall] (–CD), no date, *Ecklon & Zeyher* 2263 (lectotype: SAM!, designated here; isolectotypes: G, image!, HAL, image!, MO!, S!).

Shortly caulescent, resprouting, evergreen suffrutices, 60–150 mm (excluding inflorescence). Stems short, woody, 3–5 mm in diameter. Leaves congested along upper part of the stems, spreading, simple, present at anthesis; petioles 5–15 (25) mm long, lanate; lamina obovate to oblanceolate; 20–70 mm \times 10–35 mm; base cuneate, apex acute to obtuse, margins crenate, slightly undulate, teeth obtuse, terminating in an inconspicuous tubercle; adaxial surface grey-green, lanate; abaxial surface grey-white to rusty, densely felty. Synflorescences (250) 350–700 mm long, with terminal primary umbel subtended by 0–4 smaller secondary umbels; peduncles slender, slightly lanate in upper and lowermost portions, remainder glabrescent; peduncular bracts 5–20 mm, foliose to lanceolate, glabrescent. Umbels compound, (15) 25–45 mm in diameter, dense; involucre bracts lanceolate, 10–12, 4–8 mm long, green, venation parallel, adaxial surface glabrescent, abaxial surface glabrescent; rays 7–30, 5–15 mm long at anthesis, glabrous; involucellar bracts 2–3, 5–7 mm long; lanceolate, green, glabrescent; raylets 3–7, ca 2 mm long at anthesis, brown, glabrous; umbellules with 1–3 hermaphroditic flowers surrounded by 2–5 functionally male flowers. Flowers with 5 large, petaloid sepals, cream, veins 1; petals filiform, strongly inflexed, cream. Fruits ovate, base truncate, dorsally compressed, ca. 3.5 \times 2.5 mm; mericarps homomorphic, glabrous; marginal ribs inconspicuous; lateral ribs narrowly-winged; median rib prominent, becoming winged in lower third.

Diagnostic Characters—This species has previously been incorrectly treated as synonymous with *H. quinquidentata* (Sonder 1862, Burt 1991), with which it shares the basally-winged median fruit ribs, but can be distinguished by the densely lanate adaxial leaf indumentums, the sepals with one prominent vein (lateral veins when present inconspicuous) and the soft, crenate and slightly undulate leaf margins, which are not involute. It shares the felty to densely lanate upper leaf surface indumentum and glabrous involucellar bracts and bracteoles with *H. gigantea* but is easily distinguished by the

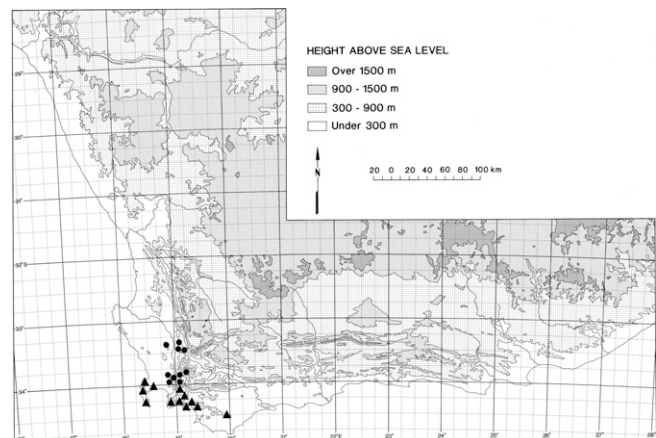


FIG. 11. Known distribution of *H. quercifolia* (circles) and *H. villosa* (triangles).

smaller leaves (less than 70 mm long), the cream-coloured sepals with a single prominent vein and the fruit with basally-winged median ribs.

Distribution and Ecology—This species favours rocky slopes between 400–800 m, where it grows as a rare occasional in rock crevices or amongst rocks. It occurs from the Elandskloof Mountains south to the Hottentots Holland Mountains near Stellenbosch (Fig. 11).

Additional Specimens Examined—South AFRICA. 3318 (Cape Town): Kasteel Kloof, Zachariashoek (–CC), *Smith* 204 (NBG, PRE), *Kruger* 892 (NBG, PRE); Jonkershoek Nature Reserve, Panorama trail, contour path below Banghoek Peak (–DD), *Magee, Nicolas & Plunkett* 470 (NBG, NY); Stellenbosch, Jonkershoek Valley (–DD), *Esterhuysen* 33748 (BOL), *Esterhuysen* 33747, 34577 (BOL, PRE, S), *Rourke* 735 (NBG), *Kerfoot* 5699 (PRE), *Kruger* 404 (PRE), *Goldblatt* 6809 (S); Groot Drakenstein Mountains, Banhoek (–DD), *Taylor* 4635 (NBG); Jonkershoek State Forest (–DD), *Esterhuysen s. n.* (PRE). 3319 (Worcester): Between Nuwekloof and Elandskloof (–AC), *Drège s. n.* (S); Tulbagh (–CD), *Schlechter* 7962 (K); Tulbagh Police Station (–AC), *Schlechter* 7961 (BM), *Schlechter* 7462 (BM, BOL); Worcester, Slanghoek Pass (–CA), *Adamson* 3609 (BOL); Worcester, Bainskloof Pass (–CA), *Compton* 16925 (BOL, NBG), *Esterhuysen* 19985, 22753 (BOL), *Hafstrom s. n.* (S); Bainskloof, Tweede Tol, path to Baileys Peak (–CA), *Magee, Nicolas & Plunkett* 465 (NBG); Paarl, Limiet Mountains (–CA), *Esterhuysen* 1630 (BOL); Worcester, St. Sebastians Kloof (–CA), *Stokoe* 8810 (BOL); Paarl, Robert's Valley (–CC), *Pillans* 6787 (BOL, NBG); Paarl, Franschoek Forest Reserve (–CC), *Compton* 12977 (NBG), *Leighten* 187 (BOL); Franschoek, LaMotte Forest Station (–CC), *Viviers* 103, 959 (NBG, PRE); Paarl, Berg River Hoek (–CC), *Compton* 8345 (NBG). PRECISE LOCALITY UNKNOWN: *Drège s. n.* (BM).

8. HERMAS QUINQUEDENTATA L.f., Suppl. 436. 1782. Schrader in Neues J. Bot.: 44. 1808. Spreng. in Pl. Umbell.: 19. 1813. Thunb. in Fl. Cap 2: 184. 1818. L. in Syst. Veg. Sec., 6: 379. 1820. DC., Prodr. 4: 242. 1825. Eckl. & Zeyh., Enum. Pl. Afric. Austral. 355. 1837. Sond. in Harv. & Sond., Fl. Cap. 566. 1862., pro parte (excl. *H. quercifolia*); Burt in Edinb. J. Bot 48(2): 212. 1991. Van Wyk et al. African Apiaceae 213. 2013. *Bupleurum quinquedentatum* (L.f.) Thunb., Prodr. 50. 1794. *Perfoliata quinquedentata* (L.f.) O. Kuntze, Rev. Gen. 1: 269. 1891. —TYPE: SOUTH AFRICA. Western Cape Province: “Cap. bonae spei” [Cape of Good Hope], *Thunberg s. n.* THUNB - UPS 6779 (lectotype: THUN-UPS!, designated here).

Shortly caulescent, resprouting, evergreen suffrutices, 60–450 mm (excluding inflorescence). Stems relatively short, woody, 3–5 mm in diameter. Leaves congested along upper part of stems, suberect, simple, present at anthesis; petioles 5–15 (25) mm long, lanate to glabrescent; lamina elliptic to narrowly elliptic; (15) 20–45 mm × 6–25 mm; base attenuate, apex acute, margins coarsely serrate, strongly revolute, teeth 5–11, acute, mucronate; adaxial surface green, glabrous to glabrescent; abaxial surface grey-white to rusty, densely felty. Synflorescences 90–300 mm long, with terminal primary umbel subtended by 0–1 (2) smaller secondary umbels; peduncles slender, slightly lanate in upper and lowermost portions, remainder glabrescent; peduncular bracts 4–12 mm, foliose to lanceolate or narrowly ovate, glabrescent. Umbels compound, 12–25 (35) mm in diameter, dense; involucre bracts lanceolate, 5–8, 4–8 mm long, green, venation parallel, adaxial surface glabrescent, abaxial surface glabrescent; rays 10–30, 3–8 mm long at anthesis, sparsely lanate to glabrescent; involucellar bracts 2–4, ca. 3–6 mm long; elliptic to lanceolate, green, glabrescent; raylets 4–7, ca 2 mm long at anthesis, brown, glabrous; umbellules with 1–2 hermaphroditic flowers surrounded by 3–5 functionally male flowers. Flowers with 5 large, petaloid sepals, cream, veins 3; petals filiform, strongly

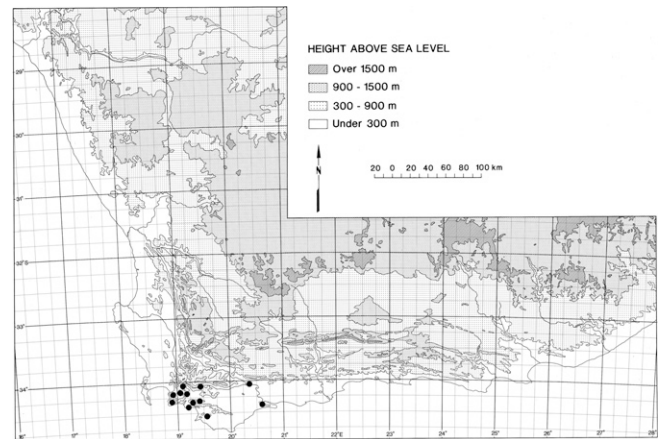


FIG. 12. Known distribution of *H. quinquedentata*.

inflexed, cream. Fruits transversely ovate, base cordate, dorsally compressed, ca. 3.5 × 4.0 mm; mericarps homomorphic, glabrous; marginal ribs inconspicuous; lateral ribs winged; median rib prominent, becoming winged in lower third.

Diagnostic Characters—This species is easily distinguished from *H. quercifolia* by the glabrous upper leaf surface, the stiff coarsely serrate leaves with strongly involute margins and the sepals with three prominent veins. It shares the stiffly toothed, adaxially glabrescent and shortly petioled leaves with *H. villosa* but is readily distinguished from this species by the much smaller habit (dwarf shrublets less than 20 cm tall), the smaller leaves (lamina less than 45 mm long) that are coarsely serrate with only 5–10 teeth and the sepals with three prominent veins.

Distribution and Ecology—This species favours moist, partially shaded soils amongst rocks above 400 m and is particularly prominent soon after a fire. It occurs from the Hottentots Holland Mountains near Sir Lowry's Pass eastwards along the Klein River Mountains to Potberg (Fig. 12).

Additional specimens Examined—South AFRICA. 3418 (Simonstown): Hottentot's Holland Mountains, Sir Lowry's Pass (–BB), *Schlechter* 1205 (BM), *Bolus* 127 (BM, K, SAM, PRE), *Burman* 1080 (BOL), *Esterhuysen* 35748 (BOL, K, S), *Parker* 4707 (BOL, NBG), *Parker* 4707, *Schlechter s. n.* (K), *Bolus* 5338 (NBG, PRE), *Schlechter* 615, 616 (PRE); Hangklip, Kogelberg Forest Reserve (–BD), *Boucher* 924, 1143 (NBG), *Rourke* 314 (NBG, PRE); Oudebos (–BD), *Stokoe* 2104 (PRE). 3419 (Caledon): Houhoek, Houtech site, near lookout (–AA), *Magee, Nicolas & Plunkett* 488 (NBG, NY); Grabouw (–AA), *Goldblatt and Manning* 10856 (NBG); Houwhoek Mountain (–AA), *Esterhuysen* 35393 (BOL), *Boucher* and *Stindt* 5352, *de Vos* 1534, *Guthrie* 2251, *Williams* 2717 (NBG), *Esterhuysen* 35748, *Haynes* 521 (PRE); Lebanon Nature Reserve (–AA), F.G. *Kruger* 662 (PRE); Zwartberge (–AB), *E. Esterhuysen* 4976 (BOL, NBG), *Stokoe s. n.* (SAM), *Ecklon and Zeyher* 2262 (SAM, S), *Bolus s. n.* (PRE); Hermanus (–AC), *Guthrie* 24423 (BOL), *Gillett* 579 (NBG); Babylon's Tower, above Hillendale (–AD), *Helme* 3838 (JRAU, NBG); Klein River Mountains (–AD), *Stokoe* 9452 (BOL), *Stokoe s. n.* (SAM); Palmiet Rivier Mountains (–BB), *Levyns* 5376 (BOL), *Walgate s. n.*, *Stokoe* 1951 (PRE), *Stokoe s. n.* (SAM, PRE), *Stokoe* 1944, 1945 (NBG); Bredasdorp Mountains (–DD), *Galpin* 24403 (BOL). 3420 (Bredasdorp): Swellendam (–AB), *Adamson* 3910 (BOL); Bredasdorp, Potberg (–BC), *Acocks* 23518 (K). PRECISE LOCALITY UNKNOWN: *Drège s. n.* (BM).

9. HERMAS VILLOSA (L.) Thunb., Nov. Act. Petrop. 14: 531. 1805. Schrader in Neues J. Bot.: 44. 1808. Spreng. in Pl. Umbell.: 19. 1813. Thunb. in Fl. Cap 2: 184. 1818. L. in Syst. Veg. Sec., 6: 379. 1820. DC., Prodr. 4: 242. 1825. Eckl. & Zeyh., Enum. Pl. Afric. Austral. 354. 1837. Sond. in Harv. & Sond., Fl. Cap. 2: 566. 1894. Adamson and Salter, Fl. Cape Penins. 615. 1950. Burt in Edinb. J. Bot 48(2): 212. 1991. Van Wyk et al. African Apiaceae 213. 2013.

Bupleurum villosum L., Sp. Pl. 238. 1735. Burm f., Prodr. 7. 1768. *Perfoliata villosa* (L.) O. Kuntze, Rev. Gen. 1: 269. 1891. *Hermas depauperata* L., Mant. 2: 299. 1771. nom. illeg. *Hermas villosa* var. *depauperata* DC., Prodr. 4: 241. 1825. —TYPE: SOUTH AFRICA. Western Cape Province: Cape of Good Hope, "*Perfoliata foliis oblongis, sinuosis, subtus incanis*" in Burman, Rar. Afric. Pl., 196, t. 71, f. 2 (1738), [lectotype, designated by Burt in Jarvis et al. (1993)].

Cauliscent, resprouting, evergreen shrubs, up to 600 mm (excluding inflorescence), evergreen. Stems prominent, 10–20 mm in diameter. Leaves regularly arranged or congested along upper part of branches, suberect, simple, present at anthesis; petioles 5–25 (40) mm long, densely felty; lamina elliptic to narrowly elliptic or ovate to narrowly ovate; (30) 60–180 mm × 20–60 mm; base cordate to cuneate, apex acute, margins regularly serrate to dentate, strongly revolute, acute, mucronate; adaxial surface green, glabrous to glabrescent; abaxial surface grey-white to rusty, densely felty. Synflorescences (150) 30–700 mm long, with terminal primary umbel subtended by 0–5 (8) smaller secondary umbels; peduncles stout, lanate in upper and lowermost portions, remainder glabrescent; peduncular bracts 5–50 mm, foliose to lanceolate, glabrescent. Umbels compound, (30) 40–95 (35) mm in diameter, dense; involucre bracts lanceolate, 8–20, 5–20 mm long, green, venation parallel, adaxial surface glabrescent, abaxial surface glabrescent; rays 40–100, 15–30 mm long at anthesis, sparsely lanate to glabrescent; involucre bracts 1–3, ca. 5–6 mm long; elliptic to lanceolate, green, glabrescent, sometimes with an abaxial tuft of lanate hairs; raylets 4–8, 4–6 mm long at anthesis, brown, glabrous; umbellules with 1 or 2 hermaphroditic flowers surrounded by 3–6 functionally male flowers. Flowers with 5 large, petaloid sepals, cream, veins 1 with lateral pair sometimes present but inconspicuous; petals filiform, strongly inflexed, cream. Fruits ovate to transversely ovate, base cordate, dorsally compressed, ca. 4.0–5.0 × 3.5–4.0 mm; mericarps homomorphic, glabrous; marginal ribs inconspicuous; lateral ribs winged; median rib prominent, becoming winged in lower third.

Diagnostic Characters—*Hermas villosa* shares the stiffly toothed, adaxially glabrescent and shortly petioled leaves and basally-winged median fruit ribs with *H. quinqueidentata* but is readily distinguished by the larger, stout shrubby habit (to 60 cm tall), the larger primary umbels (more than 40 mm in diameter), the larger leaves (lamina more than 60 mm long) that are regularly serrate to dentate with numerous teeth, and the sepals with a single prominent vein.

Distribution and Ecology—This is the most commonly encountered species occurring on stony southern lower to middle slopes from 50 m above sea level. It occurs from the Cape Peninsula westwards along the Hottentots Holland Mountains around Caledon to the Klein River Mountains (Fig. 11).

Representative Specimens Examined—South AFRICA. 3318 (Cape Town): Cape Town (–CD), Bolus 3264 (BM, BOL), Mogg H13729 (PRE); Table Mountain, (–CD), Baker 951, Bowie s. n., Bunbury s. n., Corsick s. n. (BM), Hutchinson & Smuts 3184 (BM, K), Levyns s. n. (BOL), Macowan 128 (BOL, K, SAM), Balkwill, Balkwill and Brummitt 8731, Bowie s. n., Maude 91, Worsdell s. n. (K), Pole Evans 4398 (K, PRE); Curator Pretoria 2459, Marloth s. n., Flanagan s. n. (PRE), Andreae 285, Ecklon and Zeyher s. n., Smuts s. n. (NBG), Ecklon and Zeyher 2257 (SAM, S), Hafstrohm s. n., Thunberg s. n., Wahlberg s. n. (S); Table Mountain, Klaasens Buttress (–AB), McKinnon s. n. (NBG). 3418 (Simonstown) Table Mountain, Constantia Nek (–AB), Gillett

3368 (NBG); Noordhoek Mountains (–AB), Norman 281 (BM); Table Mountain, Devil's Peak (–CD), Williams 3244 (BM, K), Kuntze s. n. (K), Thode 6235 (NBG); Simonstown (3418): Cape Point (–AD), Gillett 3470 (NBG); Constantia Corner (–AB), Salter 9540 (BM); Kalk bay (–AB), Rogers 16090 (BM), Wall 739/59 (S); Muizenberg (–AB), Bolus 3264 (BOL), Garside 1369 (K), Galpin 12599, Kewit 3264 (PRE), Penther 55 (S); Simonstown, Red Hill (–AD), Pillans 2845 (BOL); Cape Flats, April Mountains (–BA), Burke s. n. (K); Betty's Bay (–BD), Parker 4840 (K, NBG), Eicker 43, Van Rensburg 2175 (PRE); Betty's Bay, Harold Porter Botanical Reserve (–BD), Barker s. n., Ebersohn 6/69. (NBG); Betty's Bay, Pringle Peak (–BD), Theron & Van der Schijff 2319 (PRE); Hangklip, Kogelberg Forest Reserve (–BD), Boucher 1132 (NBG, PRE), Boucher 210 (PRE), Walters 1094 (NBG), Viviers 111 (NBG, PRE); Oudebosch, Kogelberg State Forest (–BD), Kruger 154 (NBG). 3419 (Caledon): Grabouw, Palmiet River Mountain (–AA), Stokoe 8812 (BOL), Stokoe s. n. (SAM); Grabouw (–AA), Stokoe s. n. (SAM); Grabouw, Palmiet River Mouth (–AA), Levyns 8147 (BOL), Stokoe s. n. (PRE), Compton s. n. (NBG), Grobler 356 (NBG, PRE); Hermanus, Babylon's Tower (–AD), Esterhuysen 5000 (BOL); Zwartkop Mountains, Partridge Point (–AB), Pillans s. n. (NBG); Caledon, Paardeberg (–AC), Jordaan s. n. (NBG); Hermanus (–AC), Gilmore s. n. (NBG); Hermanus, Fernkloof Nature Reserve (–AC), Burman 1070 (BOL); Kleinmond (–AC), De Vos 5917 (NBG, PRE); Vogelgat (–AD), Schlechter 9507 (BM, BOL, K, PRE), 3594 (PRE), Williams 3777 (NBG), Williams 2689, 3375 (NBG, PRE); Mossel River (–AD), GeoPotts s. n. (SAM), Guthrie 59854 (PRE), Compton 16844 (NBG). Bredasdorp (3420): Bredasdorp (–DB), Galpin 24404 (BOL), Galpin 11335 (PRE), Galpin 11325 (K); Bredasdorp, Napier (–DB), Van Breda 1067 (PRE).

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APPENDIX 1. Morphological characters and character states used in the cladistic analysis. 1. HABIT (acaulescent = 0; caulescent = 1); 2. ADAXIAL LEAF SURFACE (glabrescent = 0; lanate = 1); 3. LEAF MARGIN (not stiffly toothed = 0; stiffly toothed = 1); 4. PETIOLE (stout = 0; slender = 1); 5. PENDUCLE (glabrous = 0; lanata = 1); 6. BRACT (glabrous = 0; felty = 1); 7. SEPAL (not petaloid = 0; petaloid = 1); 8. SEPAL VENATION (lateral veins prominent = 0; lateral veins obscure or absent = 1); 9. PETAL (ovate to elliptic = 0; filiform = 1); 10. FRUIT MEDIAN RIB (obscure = 0; prominent = 1); 11. MEDIAN RIB (not winged = 0; basally-winged = 1.)