

PSEUDOSELAGO, A NEW SEGREGATE FROM SELAGO

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Pseudoselago Hilliard (Scrophulariaceae) accommodates 28 species differing from *Selago* L. sens. str. in a number of fundamental characters including those of bract and calyx (long-persistent, not falling after the cocci are shed), cocci (soft-walled, not hard-walled), seeds (compressed, not fusiform), and hairs on vegetative parts (thin-walled, not sculptured). It comprises species enumerated under *Selago* section *Spurieae* Rolfe (1901: 163–168) as well as *S. heterophylla* Rolfe (nom. illegit.; *Pseudoselago similis* Hilliard) and 16 newly described species. The genus is endemic to the SW Cape.

INTRODUCTION

Linnaeus's choice of epithet, namely *spuria* (in place of a manuscript name, *dubia*, which was preoccupied; *Selago dubia* L. is *Agathelpis dubia* (L.) Hutch.), for one of the three species of *Selago* L. described in 1753 appears to reflect his doubt about the generic placement of the species. With many more species now known, it is clear that *S. spuria* and its 27 allies do indeed constitute a genus distinct from *Selago*, and for them the name *Pseudoselago* Hilliard is proposed. The major differences between the two genera are shown below.

Selago sens. str.	Pseudoselago
1. Leaves alternate, nearly always with axillary brachyblasts	Leaves opposite, often alternate upwards, brachyblasts absent (though incipient branches may be present)
2. Hairs on stems and leaves sculptured	Hairs on stems and leaves thin-walled
3. Corolla limb without clavate hairs around the mouth	Clavate hairs always present at least at base of posticous lip
4. Corolla limb without a yellow/orange patch at base of posticous lip	Yellow/orange (sometimes whitish?) patch always present at base of posticous lip
5. Bract and calyx eventually falling from axis of inflorescence, base of bract never inflated on the back	Bract and calyx persisting on axis of inflorescence, basal part of bract then inflated in many species
6. Cocci hard-walled	Cocci soft-walled
7. Seeds fusiform	Seeds compressed on one face, convex on the other

The cocci of the two genera differ not only in the texture of the wall but also in the patterning on the dorsal surface as seen under the SEM (Hilliard, 1990: fig. 2A, B).

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For practical purposes, the presence or absence of clavate hairs on the corolla limb is an easy way to distinguish *Pseudoselago* from *Selago*. Fruiting specimens may be distinguished by the soft-walled cocci and by vegetative characters. The genus *Cromidon* Compton shares with *Pseudoselago* the characters of opposite leaves, clavate hairs on the posticous lip, and soft-walled cocci, but differs in the sculptured hairs on stems and leaves as well as in its calyx: 3–5-toothed, the anticous lip only briefly divided (see Hilliard, 1990: figs 1, 2, 4). The form of the calyx is remarkably uniform in *Pseudoselago*, always deeply divided into five narrowly triangular sub-acute to very acute lobes (Fig. 1A) with small almost sessile globose glands always present on the margins of at least the anticous lobes and often below the sinuses as well (other sorts of hairs may also be present). The calyx and bract become indurated (as they do in many species of *Selago*) but they persist on the inflorescence axis so that long-spent spikes, grey with age, can often be seen. In *Selago*, once the cocci are shed, the bract and calyx fall as a unit; sometimes an old axis with its raised attachment scars may persist, but these have to be sought: they do not leap to the eye as do the persistent inflorescences of *Pseudoselago*.

Sporadic hybrids may occur between species of *Pseudoselago*, but hybridization involving back-crossing seems to be an important factor in blurring species limits. Putative hybrids are mentioned under *P. ascendens*, *P. caerulescens*, *P. gracilis*, *P. guttata*, *P. parvifolia*, *P. similis*, *P. serrata*, *P. verbenacea* and *P. violacea* but the phenomenon is possibly even more commonplace than the documentation suggests; for example, it is occasionally difficult to decide whether a corolla tube gradually widens upwards or is cylindrical then abruptly expanded, which suggests to me not that the shape of the corolla tube may vary within a species, but that crossing may have taken place leading to an intermediate corolla. Field investigations are needed.

This revision suffers from being a herbarium study dependent upon a random selection of herbarium specimens, many of which lack basal parts and information on the colour of the flowers. Habit is an important character in distinguishing between species; furthermore, the basal part of the plant (stem and leaves) may be hairy, the upper part glabrous, in contrast to wholly glabrous. Also, basal leaves are often different in form from cauline ones.

Indumentum is an important character, either its presence or absence on stems and leaves (though some species, e.g. *P. verbenacea*, can be variable in this respect), or in the types of hair present, particularly on the calyx (e.g. *P. caerulescens*, *P. outeniquensis*) or on the stems and leaves (e.g. *P. diplotricha* and *P. proluxa*). The indumentum on the bract and calyx is constant within a species; it may vary when hybridization is suspected. Note that the plants are very susceptible to galling, on the inflorescence in particular, but also on the stem; this induces the growth of hairs, therefore parts that are normally glabrous may be hairy in galled specimens.

The species fall into three seemingly natural groups on the basis of the form of the corolla (see Fig. 1); these groups are given the informal rank of Series.

SERIES A: corolla tube gradually widening in the upper part, corolla limb with spreading lateral lobes ('almost regular' in the formal descriptions). Species nos 1–15.

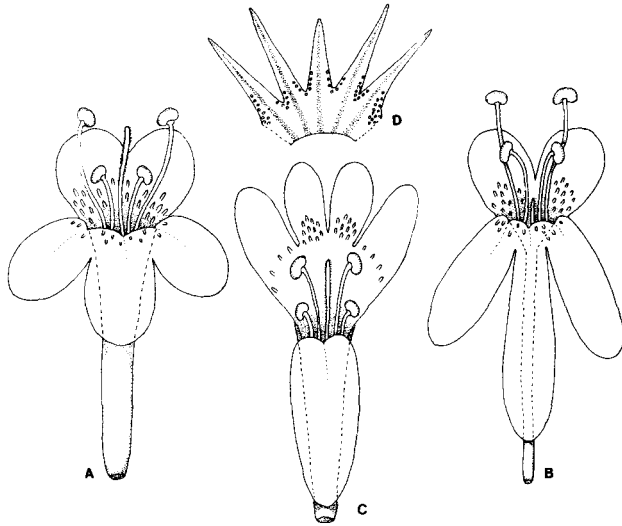


FIG. 1. A, typical form of corolla in Series A, tube widening gradually in upper part (*P. serrata*). B, typical form of corolla in Series B, tube narrowly cylindrical then abruptly expanded under the limb (*P. burmannii*). C, typical form of corolla in Series C, tube gradually widening in upper part, lateral lobes of the limb ascending (*P. similis*). D, typical form of calyx in *Pseudoselago* (*P. serrata*).

SERIES B: corolla tube narrowly cylindrical then abruptly expanded just under the limb, lateral lobes spreading, anticous lobe sometimes much elongated. Species nos 16–22.

SERIES C: corolla tube gradually widening in the upper part, lateral lobes of the corolla limb ascending, leaving the anticous lobe isolated. Species nos 23–28.

***Pseudoselago* Hilliard, gen. nov.** a *Selagine* L. inter alia corollae limbo saltem in labio postico pilis clavatis praedito (nec semper in pagina superiore glabro), bractea et calyce persistentibus (nec demum caducis), muris coccorum mollibus (nec duris), pilis caulis et foliorum laevibus (nec sculptis) distinguitur.

Type species: *Pseudoselago spuria* (L.) Hilliard.

Syn.: *Selago* L. section *Spurieae* Rolfe in Fl. Cap. 5(1): 134 (1901).

Annual or perennial herbs or subshrubs, stems erect, decumbent or prostrate, sometimes with axillary leaf-tufts (incipient branches), usually winged or ridged by decurrent leaf-bases. *Leaves* opposite, and then bases sometimes connate, usually becoming alternate upwards. *Inflorescence* a spike, either solitary or aggregated into a corymb or narrow panicle. *Bract* adnate to calyx tube, usually indurated with age, persistent. *Calyx* deeply 5-lobed, posticous lobe the shortest, lobes narrowly triangular, subacute to very acute, usually indurated with age, persistent. *Corolla* tube either funnel-shaped or cylindric, glabrous outside, limb bilabiate, 5-lobed, yellow/orange (perhaps sometimes white) patch at base of posticous lip and briefly down back of throat, bearded there with clavate hairs, hairs sometimes extending to anticous lip. *Stamens*

4, didynamous, inserted near top of corolla tube, posticous filaments usually decurrent down tube, anthers synthecous, anticous ones exerted in all but one species, posticous ones either exerted or held in mouth. *Stigma* lingulate with two marginal bands of stigmatic papillae. *Style* filiform, merging imperceptibly into stigma. *Ovary* elliptic-oblong in outline, base slightly oblique with a small adnate nectariferous gland on the ventral side, bilocular, one pendulous ovule in each loculus. *Fruit* a pair of soft-walled cocci, convex on outer face. *Seed* elliptic in outline, convex on one face, \pm plane on the other, smooth or rugulose.

Distribution. South Africa, SW Cape Province as far north as Calvinia, as far east as Humansdorp.

KEY TO SPECIES

Notes:

1. Measure calyx on anticous side, corolla tube from sinus between upper and lower lips to base.
2. Hybrids not catered for.

- 1a. Corolla limb with lateral lobes spreading; stems clearly ribbed or winged by decurrent leaf-bases _____ 2
- 1b. Corolla limb with lateral lobes sharply ascending to leave the anticous lobe isolated; ridges on stem usually obscure (Series C) _____ 26
- 2a. Corolla tube widening gradually upwards from the base or about the middle (Series A) _____ 3
- 2b. Corolla tube narrowly cylindrical then abruptly expanded under the limb (Series B) _____ 19

Series A

- 3a. Each stem wing between nodes tapering gradually from a broad apex to a much narrower base _____ 4
- 3b. Stem wings or ridges between nodes of almost uniform width _____ 6
- 4a. Subshrubs, stems and leaves glabrous or very nearly so, bract and calyx at most with minute glands, sessile or nearly so _____ 5
- 4b. Herb, stems and leaves villous to sparsely hairy, bract and calyx with hairs up to 0.1–0.3mm long, minutely glandular as well — **4. *P. quadrangularis***
- 5a. Leaves wholly appressed, margins with 7–14 pairs of teeth, axis of each spike glabrous, bract glabrous, corolla tube 8.5–10mm long, anticous filaments 3–3.7mm long _____ **1. *P. pulchra***
- 5b. Leaves appressed then recurved in upper part, margins with 5–9 pairs of teeth, axis of each spike minutely glandular, bract minutely glandular on lower back, corolla tube 5.8–8mm long, anticous filaments 1.5–3mm long _____ **2. *P. serrata***
- 6a. Leaves remaining opposite or nearly so up to the inflorescence, inflorescence usually a very loose corymb, corolla limb shades of mauve **9. *P. verbenacea***

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- 6b. Leaves becoming alternate upwards _____ 7
- 7a. Bracts with hairs up to 0.1–1mm long at least on the margins (more or less sessile glands also present) _____ 8
- 7b. Bracts either glabrous or minutely glandular _____ 11
- 8a. Leaves tapering to the base but not distinctly petiolate (ignore radical leaves), ascending; stems erect almost from base _____ **7. P. guttata**
- 8b. Leaves distinctly petiolate, spreading; stems decumbent or spreading _____ 9
- 9a. Corolla limb shades of violet or mauve, leaf blade toothed almost to base, anticous filaments 2.1–2.7mm long _____ **5. P. violacea**
- 9b. Corolla limb white, leaf blade toothed in upper part, anticous filaments up to 2mm long _____ 10
- 10a. Leaves villous on both surfaces, calyx minutely glandular-puberulous, hairs mostly less than 0.1mm long, or rarely a few 0.25–0.4mm _____ **6. P. peninsulæ**
- 10b. At least lowermost leaves with coarse hairs on margins and midline, otherwise with scattered hairs or glabrous, calyx with sessile glands only _____ **8. P. ascendens**
- 11a. Leaves usually folded and strongly recurved, elliptic or ovate, either glabrous or with a few hairs _____ **3. P. recurvifolia**
- 11b. Leaves plane, spreading to ascending or appressed but not recurved, differing further from above either in shape or indumentum _____ 12
- 12a. Stems one or few from base, decumbent only at extreme base, soon erect, cauline leaves relatively broad (ratio length: breadth c.2–4:1) with 4–8 pairs of teeth, at least lower leaves either pubescent on both surfaces or hairs nearly confined to margins, inflorescence of small corymbs arranged in narrow panicles, corolla limb white _____ **7. P. guttata**
- 12b. Combination of characters not as above _____ 13
- 13a. Stems several from the base, strongly decumbent, leaves spreading, relatively broad (ratio length: breadth 2–4:1), mostly 3–4 pairs of teeth, coarse hairs on margins and midline of at least lower leaves, sometimes scattered hairs on leaf surface, spikes either solitary or loosely to compactly arranged in corymbose panicles, corolla limb usually white, rarely mauve _____ **8. P. ascendens**
- 13b. Combination of characters not as above _____ 14
- 14a. Leaves oblong to narrowly oblanceolate (ratio length: breadth c.2–6:1) with 4–9 pairs of teeth, glabrous or rarely a few hairs on lower margins, inflorescence a compact corymb, corolla limb violet to mauve _____ **10. P. langebergensis**
- 14b. Combination of characters not as above _____ 15
- 15a. Leaves narrowly to broadly oblanceolate (ratio length: breadth c.5–15:1, breadth excluding teeth), with 3–5 pairs of teeth 1–2.5mm long, at least lowermost sparsely to densely hairy, inflorescence either a very loose panicle

- or a loose corymb, calyx very minutely glandular-puberulous, sessile glands as well (care needed to see the stalked hairs), corolla limb blue _____
- _____ **11. *P. caeruleus***
- 15b. Combination of characters not as above _____ 16
- 16a. Annual herb at least 300mm tall, stem solitary, simple or nearly so, leaves narrow (ratio length: breadth mostly 7–18:1, breadth excluding teeth) with mostly 3–6 pairs of teeth up to 2mm long, inflorescence a very loose corymb, corymbs sometimes paniced, calyx with conspicuous glistening glands all round tube, corolla limb white _____ **12. *P. outeniquensis***
- 16b. Combination of characters not as above (perennial herbs but will flower when very young and single-stemmed, stem then up to c.150mm) _____ 17
- 17a. Stem glabrous, leaves usually glabrous (very rarely a few small hairs), largest (excluding radical) 2.5–10(–20) × 1.2–2.5(–4)mm (ratio length: breadth 2–5(–13):1), appressed or sharply ascending, spikes solitary to several in small corymbs, calyx with conspicuous glistening glands most thickly clustered below the sinuses, corolla limb white _____ **15. *P. parvifolia***
- 17b. At least lower part of stem with hairs up to 0.25–1mm long on the decurrent leaf-bases, at least the lower leaves with some hairs, ratio of length: breadth c.8–33:1 _____ 18
- 18a. Stems usually simple, leaves crowded on lower half and there more or less spreading, on upper half rather abruptly smaller, distant, sharply ascending, spikes arranged in a congested corymb, flowers crowded even at base of spike, corolla limb shades of mauve or blue _____ **13. *P. spuria***
- 18b. Stems usually branched, leaves spreading to ascending, more or less evenly distributed and only gradually smaller upwards, spikes either solitary or up to c.5 in a loose corymb (or more if very loosely paniced), lowermost flowers in a spike often distant, corolla limb normally white (see discussion under *P. gracilis*) _____ **14. *P. gracilis***

Series B

- 19a. Anthers held in throat _____ **22. *P. arguta***
- 19b. Anthers far exerted _____ 20
- 20a. At least lowermost leaves with few to many coarse hairs up to 0.25–1mm long _____ 21
- 20b. Leaves glabrous _____ 23
- 21a. Largest cauline leaves c.20–60 × 4–14mm with a well-developed petiolar part, anticous lobe of corolla limb 1.8–2.4 × 1–1.3mm (measure fully developed flowers) _____ **16. *P. candida***
- 21b. Largest cauline leaves c.8–35 × 0.5–2.2mm (excluding spread of teeth), base not distinctly petiolar, anticous lobe of corolla limb c.2.2–5 × 1–2.2mm _____ 22

- 22a. Largest cauline leaves 0.5–1(–2)mm broad, spreading to ascending, calyx almost glabrous (few inconspicuous glands) _____ **17. P. subglabra**
- 22b. Largest cauline leaves 1.5–2.2mm broad, appressed or sharply ascending, calyx with conspicuous glistening glands particularly below sinuses _____
_____ **20. Pseudoselago** sp.
- 23a. Anticous lobe of corolla limb 2.4–3.5mm long _____ 24
- 23b. Anticous lobe of corolla limb 4–11mm long _____ 25
- 24a. Longest leaves 16–50 × 0.8–2.5mm (excluding teeth), linear, usually with only 1–2 pairs of teeth _____ **19. P. densifolia**
- 24b. Longest leaves 10–20 × 1.5–2.2mm (excluding teeth), oblong, with 2–4 pairs of teeth _____ **20. Pseudoselago** sp.
- 25a. Leaves ascending but not appressed, largest 15–47 × 1–3(–6)mm, linear or linear-lanceolate, lowermost bracts 4.5–7(–11)mm long, corolla tube c.7–12.5mm long _____ **18. P. rapunculoides**
- 25b. Leaves appressed, largest (excluding any radical ones) 5–15 × 2–6mm, oblong, elliptic or lanceolate, lowermost bracts 3–5mm long, corolla tube c.5–6.2mm long _____ **21. P. burmannii**

Series C

- 26a. Hairs on stems and bracts (if any) either spreading or retrorse and minute on stems, carried down by decurrent leaf-bases _____ 27
- 26b. Hairs on stems and backs of bracts more or less retrorse, c.0.4–1mm long _____ 30
- 27a. Bracts either glabrous or with a few tiny hairs at the tips of the lobes, corolla limb white, ovary and cocci glabrous _____ **23. P. humilis**
- 27b. Bracts variously hairy; corolla limb shades of blue, violet or purple, ovary and cocci minutely glandular at apex _____ 28
- 28a. Leaves glabrous except for hairs c.0.1–0.15mm long on decurrent margins _____ **24. P. similis**
- 28b. Leaves with hairs up to 0.5–1mm long on both surfaces or at least on margins _____ 29
- 29a. Stems and leaves with eglandular hairs only, leaves spreading, the largest 2.5–6.5mm broad and with 1–2(–3) pairs of teeth _____ **25. P. prolixa**
- 29b. Stems and leaves clad in a mixture of glandular and eglandular hairs, leaves more or less appressed, the largest 5–17mm broad and with 3–5 pairs of teeth _____ **26. P. diplotricha**
- 30a. Corolla limb pale purple or mauve, tube 4.5–7.5mm long, anticous filaments c.1.4–2.2mm long _____ **27. P. bella**
- 30b. Corolla limb white, tube 3–4mm long, anticous filaments c.1mm long _____
_____ **28. P. prostrata**

SERIES A: Corolla tube gradually widening upwards, lateral lobes of corolla limb spreading

1. *Pseudoselago pulchra* Hilliard, sp. nov. a *P. serrata* (P. J. Bergius) Hilliard foliorum laminis parte superiore numquam reflexo-patentibus marginibus plerumque 7–14 dentibus utrinque serrulatis (nec dentibus 5–9 utrinque serratis), inflorescentiae axibus et bracteis glabris (nec glandulosis), calyce 4–5mm longo glandulis sessilibus praecipue ad margines loborum (nec 3–4mm tubo omnino glanduloso), corollae tubo 8.5–10mm longo (nec 5.8–8mm), filamentis anticis 3–3.7mm longis (nec 1.5–3mm) distinguenda.

Type: SW Cape, Caledon div., 3419 AC, Hawston Mountain [Onrusberge], 30 xii 1940, *Bond* 749 (holo. NBG).

Subshrub up to c.400mm tall (possibly taller), loosely branched, stems stout, leafy throughout, strongly winged by decurrent leaf-bases, glabrous. *Leaves* 12–30(–43) × 7–14(–16)mm decreasing slightly in size upwards, opposite or subopposite becoming alternate upwards, crowded, overlapping, often ± appressed, broadly ovate or oblong-ovate, base slightly narrowed, decurrent in broad tapering wings, apex obtuse or abruptly apiculate, margins serrulate, mostly 7–14 pairs of teeth, texture thick, only midvein clearly visible, glandular-punctate, otherwise glabrous. *Inflorescence* a compact terminal corymb up to c.60–100mm in diam., flowers crowded, axis of each spike glabrous. *Bract* adnate to calyx tube, lowermost c.6–7 × 1–2.8mm, lanceolate, acuminate, sometimes with 1 or 2 teeth, glabrous, indurated with age. *Calyx* 4–5mm long on anticous side, minute sessile glands chiefly on margins of lobes, indurated with age. *Corolla* tube 8.5–10mm long, widening gradually in upper part, limb nearly regular, 6–8mm across spreading lateral lobes, posticous lobes 2–2.8 × 1.4–1.9mm, anticous lobe 2.8–3.6 × 1.2–1.8mm, all lobes elliptic, shades of mauve or blue, probably a yellow/orange patch on posticous lip, bearded there. *Stamens*: posticous filaments 1.7–2.8mm long, anthers 0.7–0.8mm, anticous filaments 3–3.7mm long, anthers 0.6–0.8mm, all well exerted. *Stigma* and *style* 10–14mm long. *Ovary* 0.8–1 × 0.4–0.6mm. *Cocci* not seen.

Additional specimens. CAPE. 3419 AD, Hermanus, Fernkloof Nature Reserve, 200m, 28 xii 1983, *Burman* 1256 (BOL); *ibid.*, 100m, 4 i 1977, *Woodvine* 44 (K, MO, STE); *ibid.*, 3 ii 1982, *Bean* 764 (BOL); Hermanus, 11 ii 1950, *Martin* 286 (NBG); slopes of Babylon's Tower, 2000–2500ft, iii 1939, *Zimm* s.n. (SAM 53689); Vogelgat, 150–1200ft, 1 i 1979, *Williams* 2705 (NBG); Shaw's Pass, 24 i 1951, *Barker* 7199 (NBG). 3419 BD, south of Napier, 18 ii 1951, *Compton* 22661 (NBG); Elands Kloof, 1000ft, 16 xii 1896, *Schlechter* 9752 (E, K, MO, S, W, Z). 3419 BD?, Die Mond, *Jordaan* s.n. (STE 32040). 3419 DB, Bredasdorp Mts, near Grashoek, 6 xii 1938, *Wall* s.n. (S); Bredasdorp Mts, 25 xi 1934, *Galpin* s.n. (BOL; 11315 in K).

Pseudoselago pulchra appears to be confined to Caledon and Bredasdorp divisions where it has been recorded from Onrusberge, Babylonstoringberge, Steenboksborg (Shaw's Pass), Kleinrivierberge and the Bredasdorpberge, growing in rocky places

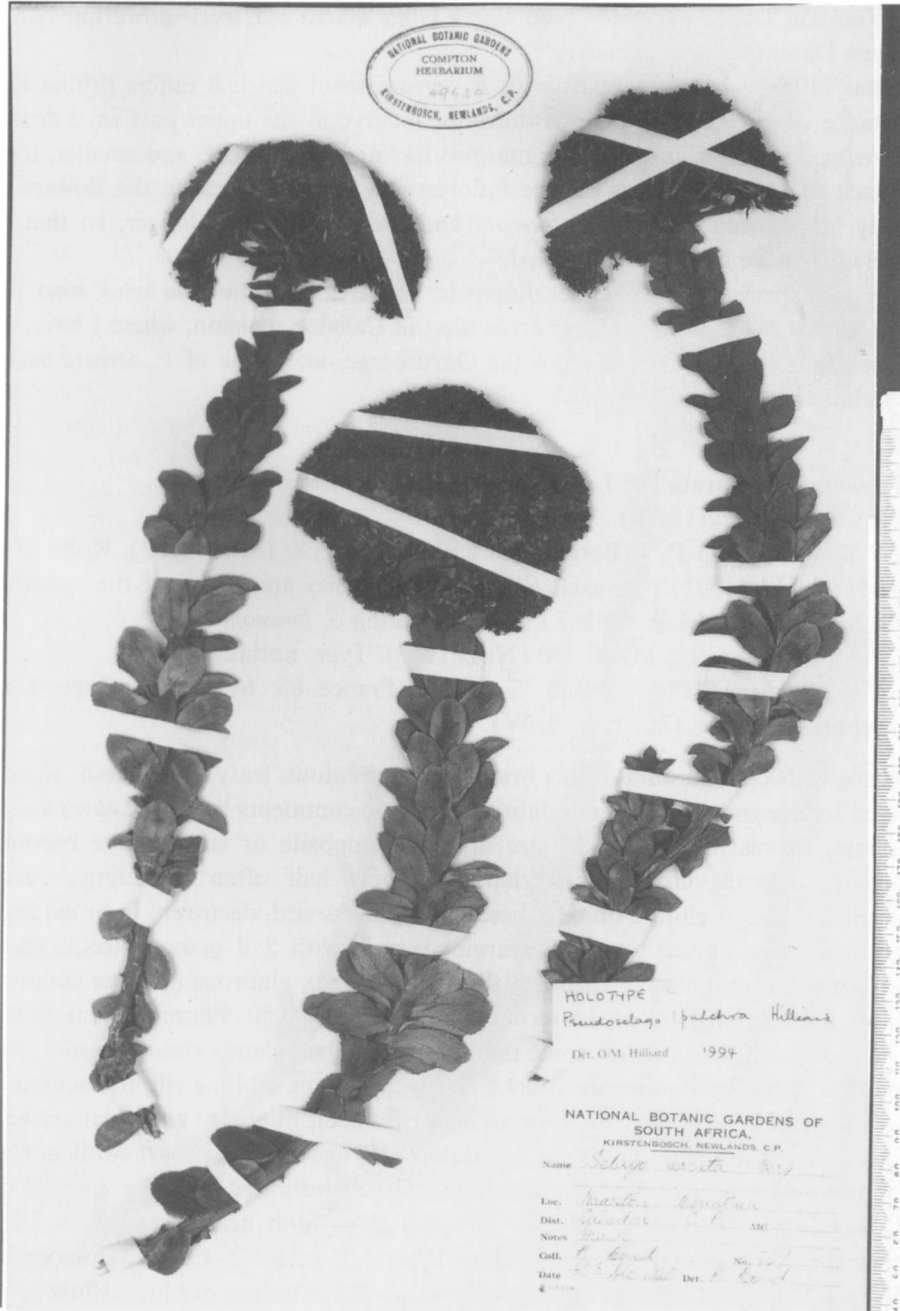


FIG. 2. *Pseudoselago pulchra* (holotype, Bond 749, NBG).

on mountain slopes between c.100 and 1370m above sea level, flowering mainly between December and February.

It has hitherto been confused with *P. serrata* from which it differs primarily in the stance of its leaves (the blade does not recurve in the upper part as it does in *P. serrata*; see Figs 2 and 3), their margins having mostly more, and smaller, teeth, and lack of glandular hairs on the inflorescence axes and bracts; the flowers are usually larger than those of *P. serrata* and the filaments are longer, so that the anthers are more noticeably exerted.

The two species appear to be allopatric, the area of *P. serrata* lying west then north of that of *P. pulchra*. Their areas abut in Caledon division, where I have seen no specimen of *P. pulchra* west of the Onrusberge, and none of *P. serrata* east of the Palmietberge.

2. *Pseudoselago serrata* (P. J. Bergius) Hilliard, **comb. nov.**

Type: C.B.S., Grubb (SBT).

Syn.: *Selago serrata* P. J. Bergius, Descr. Pl. Cap. 159 (Sept. 1767); Rolfe in Fl. Cap. 5(1): 164 (1901) p.p. excl. *S. lanceolata* Choisy and many of the specimens cited; Stapf in Bot. Mag. t. 9265 (1932) excluding *S. lanceolata*.

S. fasciculata L., Mant. 250 (Nov. 1767). Type: nothing quoted.

S. pentheri Gand. in Bull. Soc. Bot. France 65: 64 (1918). Type: Cape, Muizenberg, *Penther* 1867 (iso. S, W).

Subshrub c.60cm–2m tall, loosely branched, stems stout, leafy throughout, strongly winged by decurrent leaf-bases, glabrous (but see comments below). *Leaves* 6–28 × 5–13mm, decreasing slightly in size upwards, opposite or subopposite becoming alternate upwards, crowded, overlapping, upper half often spreading-recurved, obovate, elliptic or elliptic-oblong, base slightly narrowed, decurrent in broad tapering wings, apex obtuse to acute, margins serrate with 5–9 pairs of teeth, texture thick, only midvein clearly visible, glandular-punctate, glabrous (but see comments below). *Inflorescence* a compact terminal corymb up to c.50–90mm in diam. in fruit, flowers crowded, axis of each spike minutely glandular (glands almost sessile). *Bract* adnate to calyx tube, lowermost c.4.8–7 × 1–2(–3)mm, oblong-elliptic, acuminate, margins with 1–2 pairs of teeth (most bracts entire), minutely glandular on backs at base, glands sessile or almost so, indurated with age and lower part swollen. *Calyx* 3–4mm long on anticous side, minutely glandular, indurated with age. *Corolla* tube 5.8–8mm long, widening gradually in upper part, limb nearly regular, 5–6.5mm across spreading lateral lobes, posticous lobes 1.5–2.2 × 1.2–1.8mm, anticous lobe 2.5–3 × 1.2–1.7mm, all lobes broadly elliptic, shades of mauve or blue, yellow/orange patch on posticous lip, bearded there, a few hairs sometimes extending to lateral lobes. *Stamens*: posticous filaments 1.1–1.6mm long, anthers 0.5–0.7mm, anticous filaments 1.5–3mm, anthers 0.5–0.7mm, all exerted. *Stigma* and *style* c.7–14mm long. *Ovary* c.0.8–1 × 0.4mm. *Cocci* c.2 × 1mm. *Seeds* c.1.7 × 0.8mm, scarcely rugulose.

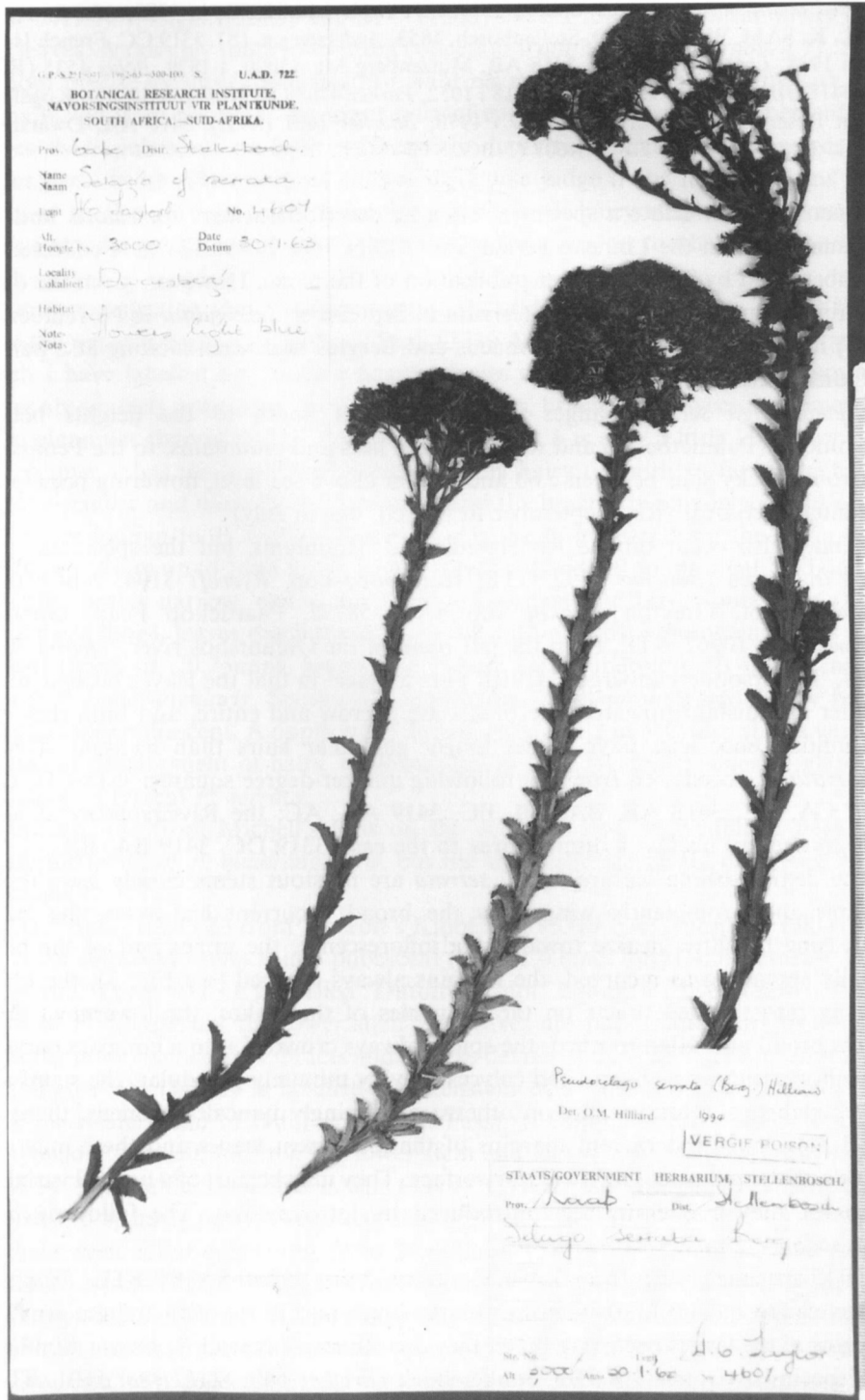


FIG. 3. *Pseudoselago serrata* (Taylor 4607, STE).

Selected additional specimens. CAPE. 3318 CD, Table Mt, 1000ft, ix 1882, *MacOwan* 239 (BOL, K, SAM, W). 3318 DD, Stellenbosch, 1853, *Anderson* s.n. (S). 3319 CC, French Hoek, 16 xii 1938, *Louw* 116 (NBG). 3418 AB, Muizenberg Mt, 1500ft, i 1879, *Bolus* 4535 (BOL, K). 3418 BB, above Sir Lowry's Pass, 18 i 1952, *Parker* 4703 (K, NBG). 3418 BD, Kogelberg Forest Reserve, Paardeberg, 1200ft, 7 i 1970, *Boucher* 1031 (STE). 3419 AA, Dwarsberg, 3000ft, 30 i 1963, *H. C. Taylor* 4607 (NBG, STE).

Linnaeus did not quote a specimen when he described *Selago fasciculata*, and the specimens now in the Linnean herbarium (LINN 786.11, 786.12) were collected by Thunberg and by Tulbagh, after publication of the name. However, given the dates of publication of the two names (*serrata* in September, *fasciculata* in November, of 1767) it is almost certain that Linnaeus and Bergius were each looking at a part of the same collection.

Pseudoselago serrata ranges from Bainskloof south to the heights behind Kleinmond (Palmietberge) and west, over the hills and mountains, to the Peninsula; it favours rocky sites between c.60 and 1200m above sea level, flowering principally in January (records from September to March, one in July).

It may also occur on the Riviersonderend Mountains, but the specimens seen from that area (*Boucher* 4192, STE, from Jonaskop, *Rycroft* 3194, NBG, from Bosmanskloof, Greyton, *Stokoe* sub SAM 58772, Paardekop Peak, Greyton, *Leeuwenberg* 10962, STE, from the left bank of the Olifantsbos river, *Theron* 3039, PRU, 'Riviersonderendberge, 3419BB') are atypical in that the leaves become much smaller and distant upwards, the bracts are narrow and entire, and both they and the inflorescence axes have rather longer glandular hairs than is usual. Typical *P. serrata* has been seen from the following quarter-degree squares: 3318 CD, DD, 3319 CA, CC, 3418 AB, BA, BB, BC, 3419 AA, AC; the Riviersonderend plant appears then to occupy a discrete area to the east: 3319 DC, 3419 BA, BB.

The distinguishing features of *P. serrata* are its stout stems closely leafy to the summit and prominently winged by the broad decurrent leaf-bases, the leaves decreasing but little in size towards the inflorescence, the upper half of the blade usually spreading to recurved, the margins always toothed (see Fig. 3), the leaves passing into toothed bracts on the peduncles of the spikes, the lowermost floral bracts broad and often toothed, the spikes always crowded into a compact corymb, the inflorescence axis, bracts and calyces all very minutely glandular, the stems and leaves glabrous. Occasionally, on otherwise seemingly typical specimens, there are small hairs on the decurrent margins of the lowermost leaves and these may also occur on the midline of the lower leaf-surface. They may be part of a normal variation range or they may have been introduced by introgression. The following have been seen:

Of 15 specimens seen from Table Mountain, two (*Wilson* SA106, STE, *Thunberg*, S) have a few hairs 0.15–0.3mm long on the lower part of the stem and the proximal margins of the leaves occurring there; they are otherwise typical *P. serrata*. Similarly, two specimens from 3318 DD, Jonkershoek (*Bremer* 649, S, *Kerfoot* 5601, STE), one from 3418 AB, Klaasjagersberg, Simon's Town (*Wolley Dod* 295, BOL) and one

from 3419 AA, Elgin (*Loseby* sub STE 11568) have a few hairs on the lower stem and leaves. A possibly more interesting collection from 3419 AA (*Verdoucq* 77, STE, without precise locality) comprises five glabrous stems plus a whole plant with four stems tufted from the base; the lower part of each of these stems is pubescent, the leaves there pubescent on both surfaces; the hairs rapidly thin out upwards, the upper parts being glabrous (one cannot of course judge if the five cut stems were hairy at the base). Introgression from a species with hairy stems and leaves does seem a possibility; the bracts on all the inflorescences are less toothed than is normal in *P. serrata*.

Another collection that strongly suggests hybridity is *Esterhuysen* 22642 (BOL) from the western slopes of Waaihoek Peak (3319 AD) at c.900m. There are six stems, which I have labelled *a-f*. Stem *a* has the facies of *P. serrata*; the lower stem and leaves are sparsely pubescent, the inflorescence axes, bracts and calyces are somewhat more glandular than in typical *P. serrata*. Specimen *b* is only a little less hairy than *a*. Specimen *c* has the lowermost leaves sparsely hairy on both surfaces, the leaves become smaller and more distant upwards, and the bracts are narrow and entire, all characters foreign to *P. serrata*. Specimen *d* is thinly pubescent on the lower stem and leaves (hairs up to 1mm long), leaves spreading and becoming small and distant upwards, bracts narrow, entire. Specimen *e* has stem and leaves pubescent (hairs to c.0.6mm long), leaves much smaller and distant upwards, inflorescence axes puberulous (hairs to c.0.25mm), bracts and calyces also puberulous. It is very nearly typical *P. quadrangularis*. Specimen *f* approaches *P. quadrangularis* closely but is less markedly pubescent. A duplicate of *Esterhuysen* 22642 in MO also shows varying degrees of development of hairs, while another in PRE (4 stems) is nearly glabrous and close to typical *P. serrata*.

Wall s.n. (S) from Michell's Pass on the northern side of Waaihoek Peak has nearly the facies of *P. quadrangularis*, but the stems and leaves are only very thinly pubescent.

Hager 015 – 1969 (Z) from Du Toit's Kloof Pass (3319 CA) comprises two stems, the lower stem and leaves thinly pubescent (hairs c.0.6mm long), inflorescence as in *P. serrata*. *Tyson* 934 (E) labelled 'Dutoit's Kloof' comprises two stems with the facies of *P. serrata* but the lower stem and leaves are pubescent (hairs to 0.3mm) while the inflorescence axes, bracts and calyces deviate in having hairs up to c.0.2mm long. *Tyson* 934 (NBG) is labelled 'Drakenstein Mts' (the little Drakenstein Mts flank the western end of Du Toit's Kloof Pass). It comprises three stems: *b* and *c* are typical *P. serrata*, but in *a* the lower stem and leaves are pubescent. *Stokoe* sub SAM 54539 from the Drakenstein Mts (3319 CC) comprises five stems ranging from glabrous to sparsely hairy; the bracts are those of *P. serrata*.

I have seen seven collections from Bainskloof (3319 CA). *Rogers* 29270 (Z) is typical *P. serrata*. *Acock* 3973 (S), from the top of the pass near the hotel, comprises two stems deviating from *P. serrata* in having a few hairs on the margins of the lower leaves and hairs on the inflorescence axes and bracts a little longer than normal. *Hafström* s.n. (S), collected at the same time as *Acock*'s specimen, comprises four stems thinly hairy at the base. *Walters* 180 (NBG) differs from the last two collections

in its spreading leaves. *De Kok* 121 (STE), from 'road to Junction Pool', has the facies of *P. serrata*, a very few tiny hairs on the lower stem and leaves, but the inflorescence axes and bracts are remarkably glandular-puberulous (hairs up to 0.25mm long). *Herre* sub STE 8673 also has remarkably glandular inflorescence axes, bracts and calyces; the lower stem and leaves are thinly pubescent. *Gillett* 140 (STE) resembles *Herre* in hairiness of stem and leaves, but the inflorescence is that of typical *P. serrata*.

Esterhuysen 19638 (BOL) from Blaauwkoop near Keeromsberg (3319 DA) comprises three specimens, *a*, *b* and *c*. Specimen *c* is *P. serrata*; *a* and *b* are branched from the base, leaves spreading, smaller upwards, both stems and leaves on lower parts thinly pubescent (hairs to c.0.3mm), bracts (especially in *a*) narrower and less toothed than in *P. serrata*.

Clearly, field investigations are needed, and the area covered by 3319 AD, CA, CC, DA should prove a profitable starting point for testing the hypothesis that *P. serrata* hybridizes with one or more species. About a dozen species are known to occur in one or more of these quarter-degree squares; the markedly hairy ones are *P. ascendens*, *P. bella*, *P. diplotricha*, *P. guttata*, *P. prolixa*, *P. quadrangularis*, *P. violacea*. See also under *P. violacea*.

3. *Pseudoselago recurvifolia* Hilliard, sp. nov. a *P. serrata* (P. J. Bergius) Hilliard habitu (herba perenni nec suffrutice), foliis sursum distincte minoribus et remotioribus, lamina basi valde angustata in alas angustas per internodium aequilatas decurrente (nec paulo angustata tantum et alis superne distincte latioribus quam basi), bracteis floralibus infimis 2.8–4.5 × 0.4–0.8mm integris (nec c.4.8–7 × 1–2mm, saepe utrinque 1–2-dentatis), calyce 2–2.5mm antice longo (nec 3–4mm) distinguenda. Type: SW Cape, 3219 AA, Heuningvlei jeep tract, c.970m, 26 xii 1983, *H. C. Taylor* 10858 (holo. STE).

Syn.: *Selago fasciculata* L. var. *glabra* E. Mey. subvar. *b*, Comm. 259 (1838). Specimen cited: prope Honigvlei, alt. 3000 ped., 11 xii 1830, *Drège* (P, S).

Perennial herb, stems several from the base, decumbent, c.100–500mm long, simple or sparingly branched, the branches rod-like, narrowly winged by decurrent leaf-bases, glabrous or a few hairs c.0.1–0.3mm long on the wings near base of plant. *Leaves* 3–14(–24) × 3–8(–10)mm decreasing markedly in size upwards, opposite becoming alternate upwards, usually folded and strongly recurved, sometimes plane and spreading near base of plant or, in lax specimens, elliptic or ovate, base narrowed, distinctly petiolate particularly in lower leaves, decurrent in narrow wings of almost uniform width throughout, apex acute, margins with 3–8 pairs of teeth, texture thick, only midvein clearly visible, glandular-punctate, glabrous or occasionally a few hairs 0.1–0.2mm long on lower margins. *Inflorescence* a compact terminal corymb c.10–40(–80)mm in diam., flowers crowded, axes minutely glandular. *Bract* adnate to calyx tube, lowermost 2.8–3.8(–4.5) × 0.4–0.8mm, linear-lanceolate, long-acute, entire, minutely glandular on lower back, indurated with age and swollen on lower

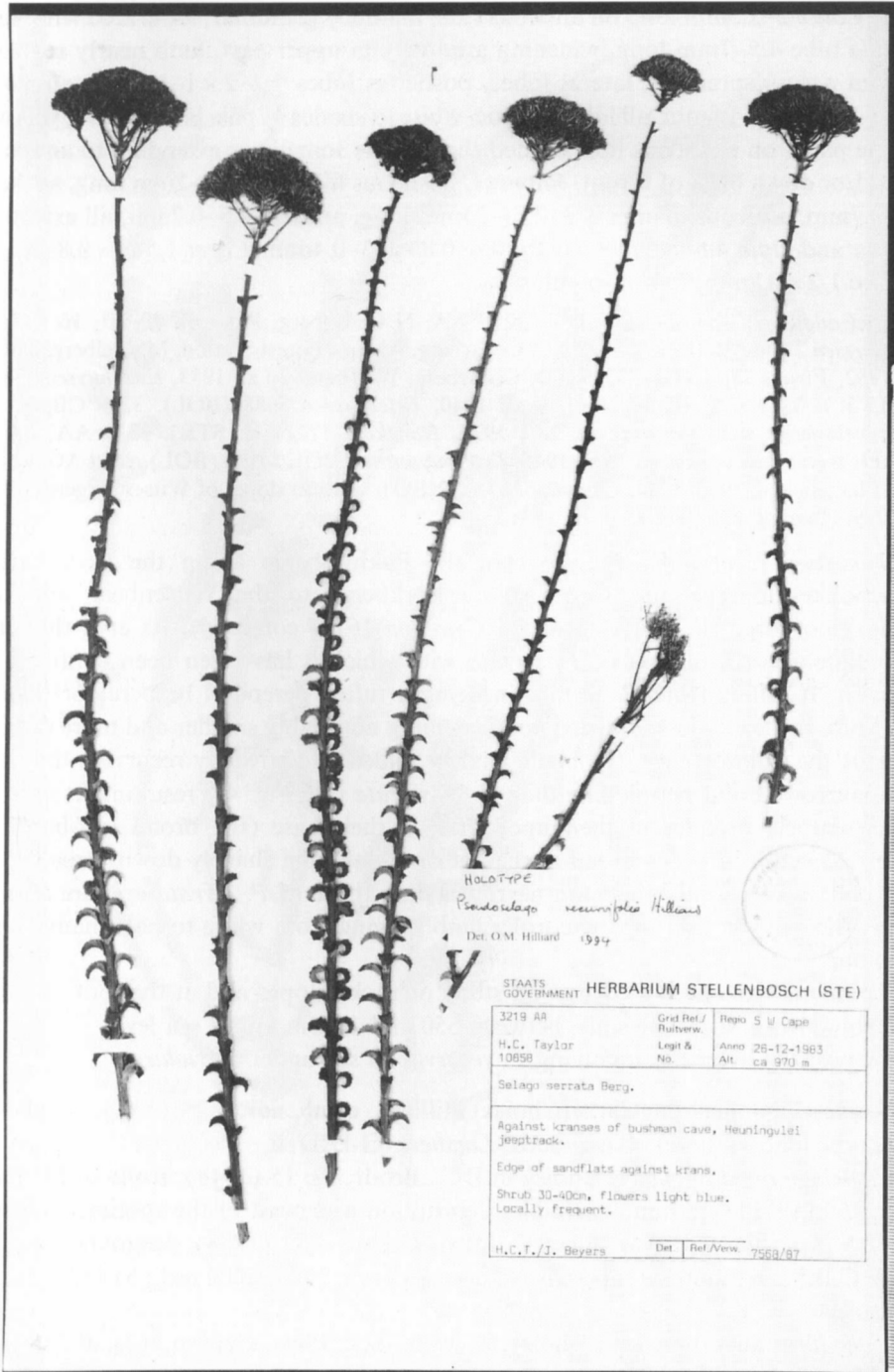


FIG. 4. *Pseudoselago recurvifolia* (holotype, Taylor 10858, STE).

back. *Calyx* 2–2.5mm long on anticous side, minutely glandular, indurated with age. *Corolla* tube 4.5–7mm long, widening gradually in upper part, limb nearly regular, 4–6mm across spreading lateral lobes, posticous lobes 1.2–2 × 1–1.6mm, anticous lobe 1.8–2.6 × 1–1.8mm, all lobes elliptic, white to shades of pale blue-mauve, yellow/orange patch on posticous lip, bearded there, hairs sometimes extending to anticous lip and/or down back of throat. *Stamens*: posticous filaments 1.2–2mm long, anthers 0.4–0.7mm, anticous filaments 2–2.5(–3)mm long, anthers 0.5–0.7mm, all exerted. *Stigma* and *style* 4.5–8.6mm. *Ovary* 0.6–0.8 × 0.3–0.4mm. *Cocci* 1.5–2 × 0.8–1mm. *Seeds* c.1.2 × 0.8mm, faintly rugulose.

Selected additional specimens. CAPE. 3219 AA, N Cedarberg, Pakhuis, 3000ft, 16 i 1953, *Esterhuysen* 21143 (BOL, K). 3219 AC, Cedarberg, Algeria Forest Station, Middelberg, 880m, 5 ii 1982, *Viviers* 149 (STE). 3219 AD, Cedarberg, Wolfberg, 26 xii 1953, *Esterhuysen* 22430 (BOL, K). 3219 CA, Elandskloof, 9 xii 1940, *Esterhuysen* 3988 (BOL). 3219 CB, Koue Bokkeveldberge, near Agtuurkop, 28 i 1972, *Hanekom* 1772 (K, STE). 3319 AA, upper Olifants River valley, Visgat, 25 xii 1946, *Esterhuysen* sub BOL 57136 (BOL). 3319 AC, Ceres div., Elandskloof, 19 xii 1944, *Compton* 16757 (NBG); western slopes of Witsenbergen, 550m, xii 1919, *Andreae* 134 (STE).

Pseudoselago recurvifolia ranges from the Pakhuisberge along the Cedarberge, Kouebokkeveldberge and Groot Winterhoekberge to the Witsenberg and the Elandskloofberge (if I have localized *Compton* 16757 correctly). Its area thus lies immediately north of that of *P. serrata* with which it has often been confused in herbaria. It differs from *P. serrata* in being a tufted perennial herb rather than a subshrub, the leaves less crowded and becoming noticeably smaller and more distant towards the inflorescence, the blade usually folded and strongly recurved, the base more narrowed and petiole-like than in *P. serrata* (see Fig. 4), resulting in narrow wings scarcely broader at their apex than at their base (the broad leaf-bases in *P. serrata* result in wings broad at the apex and tapering sharply downwards to the next node). The floral bracts are narrower than those of *P. serrata* and are always entire, the calyx is shorter, the corolla limb ranging from white to pale mauve-blue in colour.

The plants have been recorded on stony or rocky slopes and at the foot of cliffs, probably always in sandy soils, between 550 and 1250m above sea level.

For possible hybridity involving *P. recurvifolia* see under *P. violacea*.

4. *Pseudoselago quadrangularis* (Choisy) Hilliard, **comb. nov.**

Lectotype (chosen here): Cape, herb. *Lambert* (G-DC).

Syn.: *Selago quadrangularis* Choisy in DC., Prodr. 12: 15 (1848); Rolfe in Fl. Cap. 5(1): 164 (1901) p.p. min., excluding description and most of the specimens cited.

S. fasciculata L. var. *hirta* E. Mey., Comm. 259 (1838). Lectotype (chosen here): C.B.S., in montosis rupestris Nieuwekloof, alt. 1500–2000 ped., 5 i 1829, *Drège* (P; isolecto. E, K).

S. hirta auct. non L.f.; Choisy, in Mém. Soc. Phys. Genève 2(2): 107 (1823) and Mém. Selag. 37 (1823).

Herb, possibly perennial, stems c.450–750mm long, one or a few from a taproot c.5mm diam. at apex, decumbent, simple or branched low down, broadly winged,

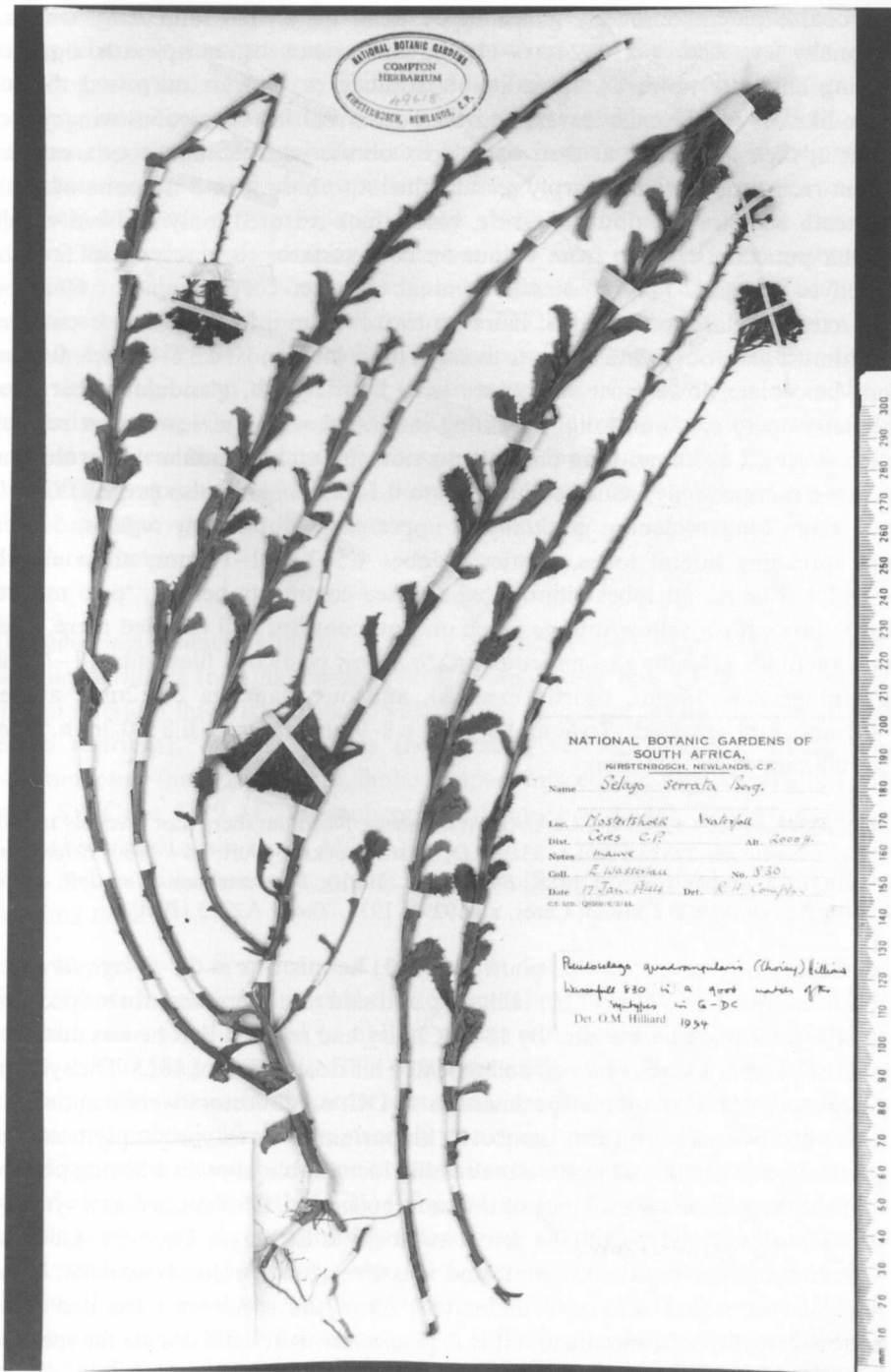


FIG. 5. *Pseudoselago quadrangularis* (Wasserfall 830, NBG).

rather coarse patent, minutely gland-tipped hairs up to 0.4–1mm long, or hairs occasionally few. *Leaves* c.10–24 × 6–11mm, smaller and distant upwards, opposite becoming alternate upwards, spreading, spatulate or obovate narrowed to base (petiole-like only in juvenile leaves) and then decurrent in conspicuous wings much broader at their apex than at their base, apex obtuse with terminal tooth, extreme tip often recurved, margins sharply serrate almost to base with 5–10 pairs of teeth, larger teeth occasionally doubly serrate, blade thick-textured, only midvein visible, glandular-punctate, ranging from villous on both surfaces to, rarely, hairs few and confined to margins. *Inflorescence* a terminal compact corymb up to c.60mm in diam., axes glandular-puberulous, hairs up to 0.1–0.3mm long (this so even when leaves almost glabrous). *Bract* adnate to calyx tube, lowermost c.3.8–6 × 0.5–0.8mm, oblong-lanceolate, lowermost sometimes with 1 or 2 teeth, glandular-puberulous, some hairs up to c.0.3mm long, becoming indurated with age, lower part scarcely swollen. *Calyx* 2.8–3.4mm long on anticous side, minutely glandular-puberulous all over or on margins only, scattered hairs up to 0.1–0.3mm long also present. *Corolla* tube 5–6mm long, widening gradually in upper part, limb nearly regular, 5–6mm across spreading lateral lobes, posticous lobes 1.5–2 × 1.1–1.4mm, anticous lobe 2.2–3 × 1.1–1.6mm, all lobes elliptic, ‘white’ (see comments below), ‘pale mauve’, ‘mauve’, probably a yellow/orange patch on posticous lip, well bearded there, a few hairs sometimes extending to anticous lip. *Stamens*: posticous filaments c.1–1.4mm long, anthers 0.6–0.7mm, shortly exerted, anticous filaments 2–2.2mm, anthers 0.5–0.7mm, well exerted. *Style* and *stigma* c.8–9mm. *Ovary* c.0.8 × 0.3mm. *Cocci* c.2.2 × 0.8mm. *Seeds* not seen.

Additional specimens. CAPE. 3319 AA/AC, Witzenberg, Neethlingsberg [not precisely traced], 2 i 1954, *Esterhuysen* 22528 (BOL). 3319 AD, Castle Rocks, 3800ft, 14 i 1960, *Esterhuysen* 28419 (BOL, K); near Ceres, i 1888, *Bolus* 8380 (BOL); Mostertshoek Waterfall, 2000ft, 17 i 1944, *Wasserfall* 830 (NBG); Ceres, xii 1929–i 1930, *Thode* A2273 (PRE).

When Choisy first described this plant (in 1823) he mistook it for *Selago hirta* L.f. [that is, *Chenopodiopsis hirta* (L.f.) Hilliard], and said that there were three specimens of it in De Candolle’s herbarium. By 1848, Choisy had realized that he was mistaken, named the plant *S. quadrangularis*, and repeated his description of 1823. The syntypes of the name are thus the three specimens in G-DC; no collectors were mentioned. I have chosen the specimen from Lambert’s herbarium as lectotype simply because it bears a source of origin and is therefore readily identifiable; there is a strong possibility that the three sheets are all part of the same collection. Choisy cited as a synonym *S. fasciculata* var. *hirta* Walp. (the actual authority is E. Mey.). The type is a collection made by Drège at Nieuwekloof, and it is *Pseudoselago quadrangularis*. Meyer also had an unnamed subvar. *b* under var. *hirta*; the specimen cited is a Drège collection from Table Mountain and it is *P. peninsulae*. Rolfe did not see the specimen in G-DC and he did not discriminate between the two specimens that Drège collected. The name *quadrangularis* has therefore been misapplied to the plant on Table Mountain ever since the publication of Rolfe’s account in *Flora capensis*.

Pseudoselago quadrangularis is known to me from only a very small area around Ceres, where it has been recorded as growing on the lower slopes of the Neethlingsberg and on flats on the north side of Castle Rocks peak; the other collections give no information. It is possibly also to be found on Michell's Pass. All the specimens were in full flower in January. The specimens are uniform in their strongly winged stems (the source of the epithet *quadrangularis*?), their very obtuse and sharply toothed leaves (see Fig. 5), and in their glandular inflorescence axes, bracts and calyces. They vary in the density of the hairs on stem and leaf. The syntypes and the Drège specimen from Nieuwekloof are villous, *Wasserfall* 830 and *Thode* A2273 are hairy but scarcely villous, *Esterhuysen* 22528 is somewhat less hairy, while *Esterhuysen* 28419 (BOL) consists of one villous plant together with four separate stems that range from thinly hairy to almost glabrous; this collection is the one recorded as having white flowers. Miss Esterhuysen collected a specimen of the white-flowered and less hairy species, *P. ascendens*, on the south slopes of Castle Rocks at 3500ft (*Esterhuysen* 28440, BOL). See also comments on *Esterhuysen* 22642, under *P. serrata*; for possible hybridization involving *P. quadrangularis*, see under *P. violacea*, below.

5. *Pseudoselago violacea* Hilliard, sp. nov. a *P. ascendente* (E. Mey.) Hilliard caulibus glanduloso-villosis (nec glabris nec parce pilosis), foliis fere e basi dentatis (nec in dimidio inferiore integris), utrinque villosis (nec pilis dispersis nec ad costam marginesque restrictis), bracteis villosis (nec glabris vel fere glabris), corollae tubo 6–8.5mm longo (nec 3.5–5.4mm), limbo semper violaceo (nec saepissime albo) differt. Type: SW Cape, 3319 AC, Witzenberg, Neethlingsberg, 4000ft, 2 i 1954, *Esterhuysen* 22507 (holo. BOL; iso. E, K, MO, S).

Syn.: *Selago ascendens* auct., non E. Mey.; Rolfe in Fl. Cap. 5(1): 167 p.p. maj., excluding type.

Herb, flowering in first year but can persist for more than one season, stems c.120–500mm long, several from the base, decumbent or sprawling, simple or loosely branched, narrowly 4-winged or ribbed, villous with delicate patent glandular hairs up to 1–1.5mm long. *Leaves* 10–38 × 4–20mm, smaller and distant upwards, opposite or subopposite, alternate upwards, spreading, spatulate or obovate tapering to a narrow, often petiole-like, base, strongly decurrent to form narrow wings or ribs of ± uniform width throughout, apex obtuse to acute terminating in a tooth, margins toothed almost to base, teeth in (3–)4–8 pairs, coarse, very acute, almost mucronate, spreading or recurved, occasionally a few teeth doubly serrate, blade thin, triplicated but only midvein easily seen, both surfaces villous, hairs glandular, up to 1–1.5mm long. *Inflorescence*: spikes terminal, either solitary or a few in a loose corymb or narrow panicle, flowers crowded, axis of each spike glandular-puberulous. *Bract* adnate to calyx tube, lowermost c.5–7 × 0.7–1.1mm, linear-lanceolate, very acute, lowermost sometimes with a pair of teeth, villous with glandular hairs up to 0.4–1mm long, much shorter glandular hairs also present, becoming indurated with

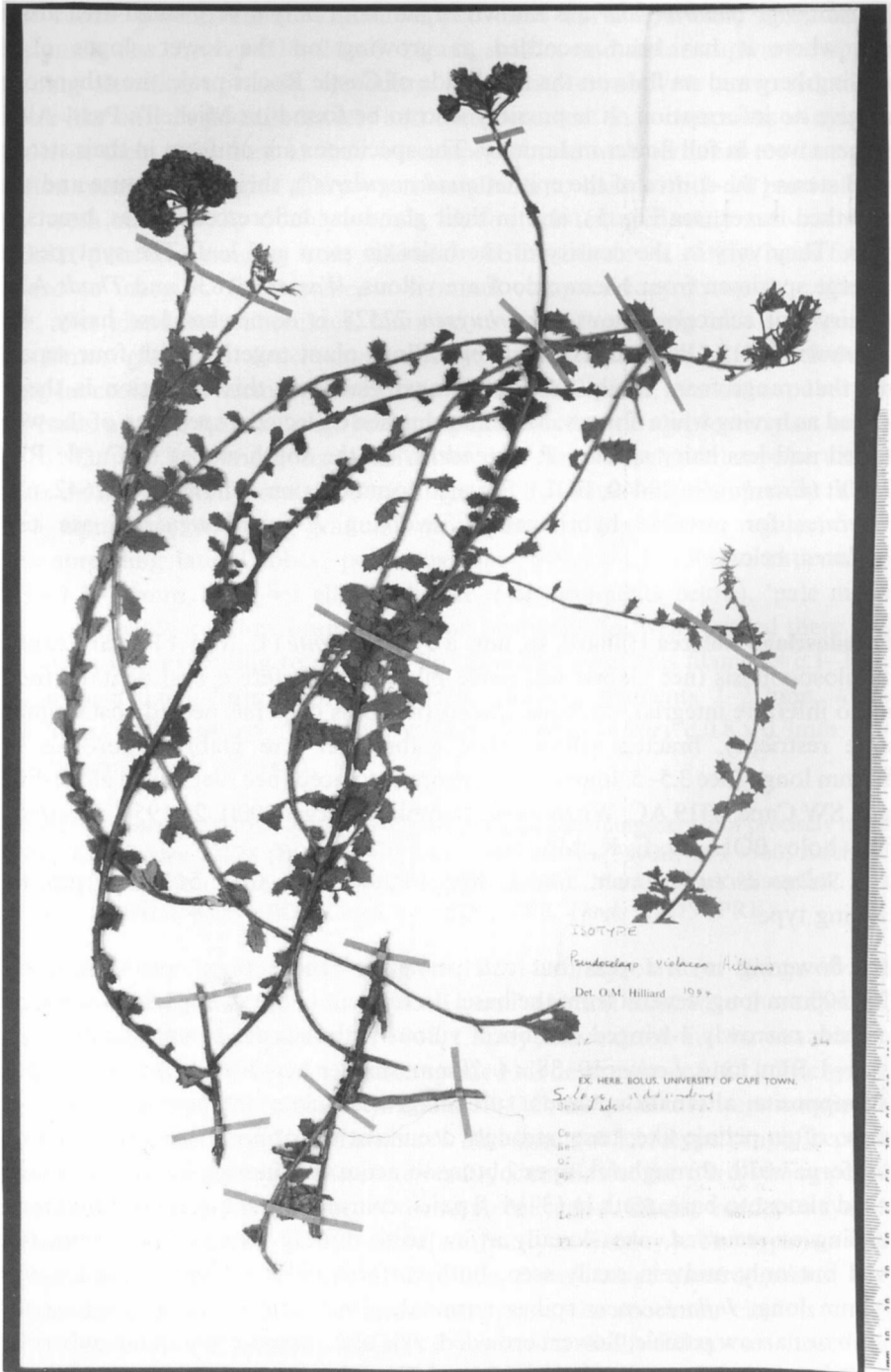


FIG. 6. *Pseudoselago violacea* (isotype, Esterhuysen 22507, E).

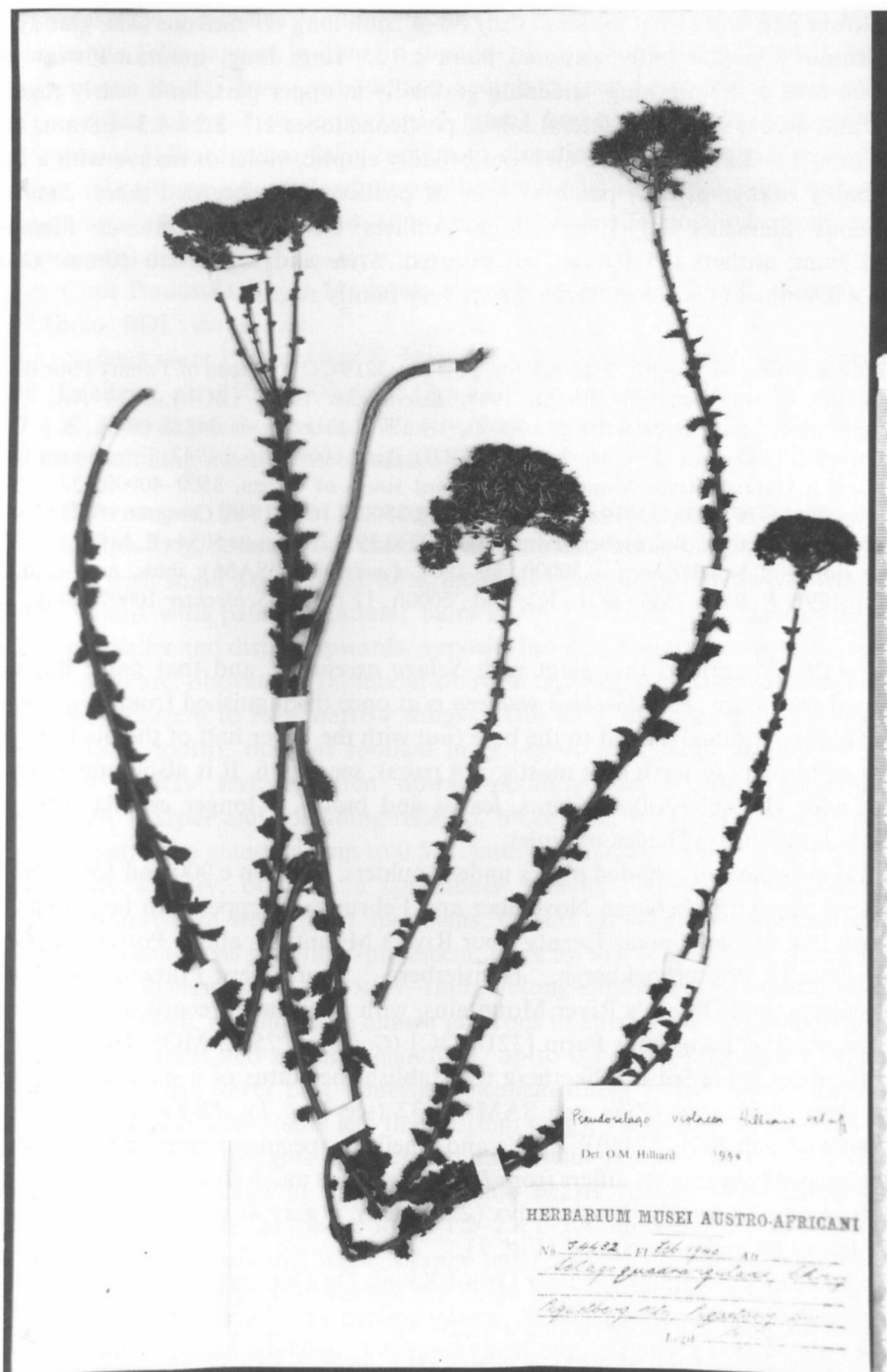


FIG. 7. *Pseudoselago violacea* vel. aff. from Piquetberg (Zinn sub SAM 54432).

age, lower part somewhat swollen. *Calyx* 3–4.2mm long on anticous side, glandular-puberulous together with scattered hairs c.0.25–1mm long, indurated with age. *Corolla* tube 6–8.5mm long, widening gradually in upper part, limb nearly regular, c.5–7mm across spreading lateral lobes, posticous lobes 1.7–2.2 × 1.3–1.8mm, anticous lobe 2.5–3.2 × 1.4–2mm, all lobes broadly elliptic, violet or mauve with a dark (probably orange-brown) patch at base of posticous lip, bearded there. *Stamens*: posticous filaments 1.1–1.8mm long, anthers 0.5–0.7mm, anticous filaments 2.1–2.7mm, anthers 0.5–0.8mm, all exserted. *Style* and *stigma* c.6–10mm. *Ovary* c.0.8 × 0.4mm. *Cocci* c.2 × 0.8mm. *Seeds* very faintly rugose.

Additional specimens. CAPE. 3319 AA (or, possibly, 3219 CC), plateau of Twenty Four Rivers Mountains above Porterville, 16 xii 1949, *Esterhuysen* 16615 (BOL). 3319 AA, Great Winterhoek Reserve, Drostersberg, c.5000ft, 1 i 1978, *Esterhuysen* 34838 (BOL, K); Little Winterhoek, 1300m, xii 1884, *Marloth* 521 (PRE); *ibid.*, 6000ft, 16 ii 1947, *Esterhuysen* 13760 (BOL, K); Olifants River Mountains, ridge just south of Groen, 3500–4000ft, 27 ii 1947, *Esterhuysen* 13476 (BOL). 3319 AB, Hansies Berg, 3500ft, 16 xii 1944, *Compton* 16677 (NBG); Skurfdeberg, north of Skurfdeberg Pass, 4400ft, 27 xi 1973, *Carlquist* 5054 (E, MO). 3319 AD, lower slopes of Schurfteberg, c.3000ft, xii 1944, *Lewis* 3362 (SAM); *ibid.*, near Gydouw, 4800ft, 1891, *F. Bolus* 7555 (BOL, K); *ibid.*, 5000ft, 17 i 1897, *Schlechter* 10007 (BOL, K).

Rolfé (1901) confused this plant with *Selago ascendens*, and that name has been misused ever since. *Pseudoselago violacea* is at once distinguished from *P. ascendens* by its leaves, toothed almost to the base (not with the lower half of the blade entire), up to eight pairs of teeth (not mostly 3–4 pairs); see Fig. 6. It is also a much hairier plant with glandular-villous stems, leaves and bracts, a longer corolla tube, and corolla limb always shades of violet.

It favours partially shaded places under boulders, between c.900 and 1500m above sea level, flowering between November and February. It appears to be confined to a small mountainous area: Twenty Four Rivers Mountains above Porterville, Great and Small Winterhoekberge, Hansiesberg, Skurweberg (above Gydouw), Witsenberg, and Olifant's River Mountains, with an isolated record from Piketberg on the road to Langeberg Farm [3218 DC] (*Goldblatt* 7502, MO). However, field investigation is needed on Piketberg to establish the status of a plant there. I have seen three specimens (*Zinn* sub SAM 54432 (see Fig. 7), *Theiler* 20 (PRE) and *G. Edwards* sub BOL 57440). *Zinn*'s and *Theiler*'s specimens were in full flower in January and February. It differs from *P. violacea* in its much shorter bracts (c.3–3.5 × 0.4–0.5mm) and mostly shorter calyx (2.3–3mm); it may also be a more erect plant with leaves ascending-recurved (Fig. 7).

From 3319 BC (mountains near Groot Kloof, De Doorns) came what could be a hybrid between *P. violacea* and *P. quadrangularis* (*Stokoe* sub SAM 64813, PRE, SAM); the tapering wings on the stems suggest *P. quadrangularis*. A similar-looking plant in which the wings are, however, of almost uniform width (*Zinn* s.n. sub PRE 41558, from Little Winterhoek, 3319 AA) suggests hybridity between *P. violacea* and *P. recurvifolia*.

6. *Pseudoselago peninsulae* Hilliard, sp. nov. a *P. quadrangulari* (Choisy) Hilliard distinguenda foliis tantum in dimidio superiore (nec fere ad basin) serratis, basibus decurrentibus in alas basi apiceque fere aequilatis (nec apice multo latiore quam basi), corollae tubo 4–5mm longo (nec 5–6mm), limbo semper albo (nec malvino); a *P. violacea* Hilliard etiam foliis tantum in dimidio superiore (nec fere ad basin) serratis, axi cujusque spicae glanduloso-pubescente pilis ad 0.5mm longis (nec glanduloso-puberulo), corollae tubo 4–5mm (nec 6–8.5mm) longo, limbo semper albo (nec malvino) distincta.

Type: Cape Peninsula, Table Mountain above Klassenbosch, 2300ft, xi 1880, *Bolus* 4612 (holo. BOL; iso. K, Z).

Syn.: *S. fasciculata* L. var. *hirta* E. Mey. subvar. *b*, Comm. 259 (1838). Specimen cited: Tafelberg, alt. 1500–2000 ped., 13 x 1827, *Drège* (E, G, P).

S. quadrangularis auct. non Choisy; Rolfe in Fl. Cap. 5(1): 164 (1901) p.p. maj. and including most of the specimens cited.

Herb, flowering in first year but can persist for more than one season, stems c.120–750mm long, several from the base, decumbent, simple or sparingly branched (but often with small axillary leaf-tufts; incipient branches?), narrowly 4-winged or ribbed, villous with patent glandular hairs up to 1–1.5mm long. *Leaves* 10–43 × 5–23mm, smaller and distant upwards, opposite becoming alternate upwards, spreading, oblanceolate, obovate or rhomboid-obovate tapering to a narrow, often petiole-like, base, decurrent to form narrow wings or ribs of ± uniform width throughout, apex acute (a tooth), margins toothed in ± upper half, teeth in (3–)4–8 pairs, sometimes doubly serrate, often upward-pointing and bluntly callose-tipped, occasionally sharper and spreading-reflexed, blade thin, triplinerved, both surfaces thinly villous, hairs glandular, up to 0.5–1.5mm long. *Inflorescence*: spikes terminal, occasionally solitary, often in a corymbose panicle, eventually lax and up to 50–130mm across in well-grown specimens, flowers crowded, the lowermost ones sometimes distant, axis glandular-pubescent, hairs up to c.0.5mm long. *Bract* adnate to calyx tube, lowermost c.3.8–6 × 0.7–1mm, oblong-elliptic, acute, lower ones often with 1 pair of teeth, ranging from almost glabrous to almost villous but hairs usually confined to margins and midline, glandular, up to 0.1–1mm long, bract becoming indurated with age, lower part somewhat swollen. *Calyx* 3–4mm long on anticous side, minutely glandular (hairs less than 0.1mm long), very rarely a few hairs up to 0.25–0.4mm long on margins of lobes, indurated with age. *Corolla* tube 4.2–5.2mm long, widening gradually in upper part, limb nearly regular, 4.5–5.2mm across spreading lateral lobes, posticous lobes 1.2–2 × 1–1.4mm, anticous lobe 2.1–2.7 × 1.2–1.7mm, all lobes elliptic, white, orange patch at base of posticous lip, bearded there, hairs extending to anticous lip and down back of throat. *Stamens*: posticous filaments 1.1–1.5mm long, anthers 0.4–0.6mm, shortly exerted, anticous filaments 1.3–2mm long, anthers 0.4–0.6mm, well exerted. *Ovary* c.0.8 × 0.3–0.4mm. *Stigma* and *style* c.5.4–8mm long. *Cocci* c.2 × 0.8mm. *Seeds* smooth (fully ripe ones not seen).

Selected additional specimens. CAPE. Cape Peninsula, 3318 CD, Table Mountain, Skeleton

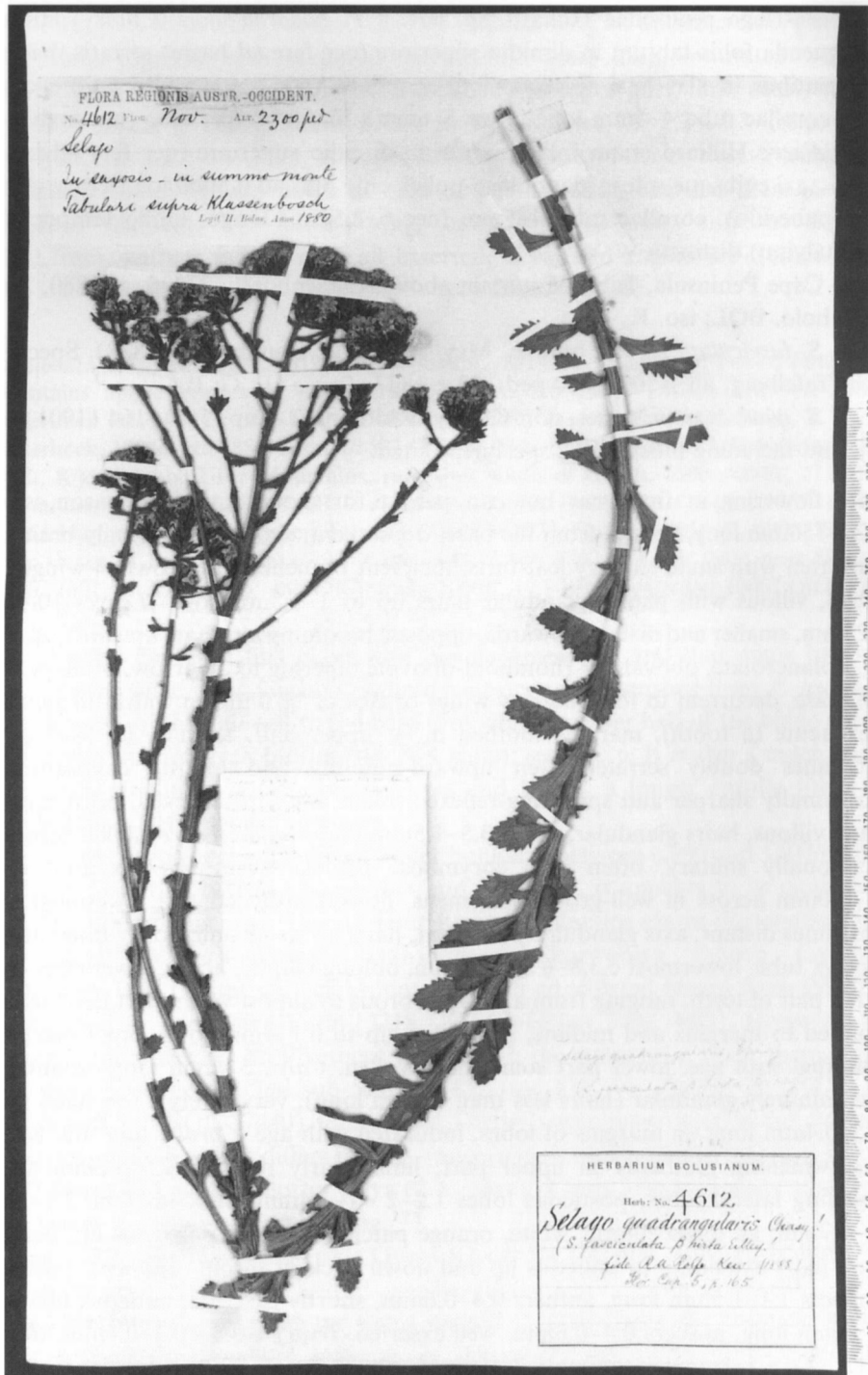


FIG. 8. *Pseudoselago peninsulae* (holotype, Bolus 4612, BOL).

Gorge, 2500ft, 26 xii 1944, *Esterhuysen* 11226 (BOL); summit Table Mountain, 3500ft, xi 1879, *Bolus* 4503 (BOL, K); Table Mountain, 3000ft, 24 xi 1938, *Wall* s.n. (S); *ibid.*, *Platteklip*, 2000ft, x 1907, *Dümmer* 524 (E); *ibid.*, Grootkop, 800m, ix 1929, *Marloth* 14053 (PRE, STE). 3418 AB, Table Mountain, Echo Valley, 28 xii 1939, *Compton* 8297 (NBG); Constantiaberg, 3000ft, 17 xii 1939, *Compton* 8236 (NBG).

When E. M. Meyer described *Selago fasciculata* var. *hirta* he also distinguished an unnamed subvariety, subvar. *b*. This proves to be specifically distinct from var. *hirta*, a fact unrecognized by Choisy when he reduced *S. fasciculata* var. *hirta* to synonymy under his species *S. quadrangularis*. It is the specimen quoted by Meyer under var. *hirta* (*Drège* from Nieuwekloof) that matches the syntypes of *S. quadrangularis* (in G-DC); the specimen quoted under subvar. *b* (*Drège* from Table Mountain) is *Pseudoselago peninsulae*. Rolfe (1901) misused the name *Selago quadrangularis* for the species on Table Mountain (see under *Pseudoselago quadrangularis* for details).

In my account of the tribe Manuleae (Hilliard, 1994: 436) I suggested that *Selago lobeliacea* Hochst. might be synonymous with *S. quadrangularis* sensu Rolfe. The type of the name is *Krauss* 1094, collected on Table Mountain in June 1838; the holotype was presumably destroyed in the Berlin fire, and no isotype has been traced. Choisy, followed by Rolfe, reduced the name to synonymy under *S. herbacea*, which proves to be *Phyllopodium cuneifolium*. Some specimens of *Pseudoselago peninsulae* bear a superficial resemblance to *Phyllopodium cuneifolium* (which does not occur in the SW Cape), and it is just possible that *Selago lobeliacea* and *Pseudoselago peninsulae* are conspecific. However, in the absence of a type for the older name, it seems best to abandon it, particularly as Hochstetter's description is very brief.

Pseudoselago peninsulae is readily distinguished from *P. quadrangularis* by its leaves, serrate only in the upper half (see Fig. 8) and decurrent in narrow wings of almost uniform width; also, the flowers are always white, not mauve. The species is known to me only from Table Mountain and Constantiaberg, between c.700 and 1050m above sea level. It favours rocky places, flowering between September and January.

7. *Pseudoselago guttata* (E. Mey.) Hilliard, **comb. nov.**

Lectotype (chosen here): Cape, Cedarberg range near Ezelsbank, 4000–5000ft, *Drège* [3109] (E; isolecto. G-DC, K, MO, P, S, W).

Syn.: *Selago guttata* E. Mey., *Comm.* 259 (1838); Choisy in A. DC., *Prodr.* 12: 16 (1848); Rolfe in *Fl. Cap.* 5(1): 166 (1901).

Herb, possibly annual, stems one to few from apex of woody taproot, c.90–650mm long, decumbent at extreme base, soon erect, simple below the inflorescence, narrowly 4-winged by decurrent leaf-bases, hairs to 0.25–0.6mm long carried down by leaf-bases often present especially on lower parts. *Leaves* (largest) 7–32 × 2–8mm, smaller and distant upwards, opposite at extreme base, soon alternate, ascending, obovate tapering at base but not petiolate except sometimes in lowermost few pairs, decurrent in narrow wings of almost uniform width throughout their length, apex acute, mar-

gins with 4–6(–8) pairs of small teeth, indumentum variable in density, both surfaces pubescent with hairs up to 0.3–0.6mm long or upper leaves less hairy or all leaves with hairs nearly confined to margins. *Inflorescence* composed of small compact corymbs up to c.20mm across further arranged in loose, narrow (because the peduncles ascend sharply) panicles (no fruiting specimens seen), axis of each spike minutely glandular. *Bract* adnate to calyx tube, c.3.2–4.5 × 0.6–1mm, lanceolate, acute, glabrous except for minute glandular hairs on backs at base, indurated with age. *Calyx* 2.2–3.2mm long on anticous side, minutely glandular on margins and backs, indurated with age. *Corolla* tube c.3.2–6mm long, widening gradually in upper part, limb nearly regular c.3.3–5mm across spreading lateral lobes, posticous lobes 0.8–1.5 × 1–1.3mm, anticous lobe 1.5–1.8 × 1–1.3mm, all lobes broadly elliptic, white with a conspicuous orange patch at base of posticous lip, bearded there, a few hairs sometimes extending to anticous lobes. *Stamens*: posticous filaments c.1mm long, strongly decurrent down tube, anthers 0.3–0.5mm, held in mouth, anticous filaments 1.3–1.5mm long, anthers 0.3–0.5mm, exserted. *Stigma* and *style* c.3.5–6.7mm long. *Ovary* c.0.6 × 0.2mm. *Cocci* not seen.

Additional specimens. CAPE. 3218 BB/3219 AA, Pakhuis Pass, xi 1929, *Thode* A2131 (PRE). 3219 AA, N Cedarberg, Heuningvlei, 16 i 1953, *Esterhuysen* 21138 (BOL); Moedersielshoek path up Groot Krakadouw, c.1550m, 21 xi 1987, *H. C. Taylor* 11896 (E). 3219 AC, Cedarberg Wilderness Area, Sneeberg and Hoogvertoon, c.5100ft, 9 ii 1977, *Haynes* 1351B (STE). [3219 CD?] South Kloof on descent from Sneeuw Kop, *Wallich* (BOL, S). 3319 AD, Schurfdeberg, 28 xi 1941, *Pillans* 9611 (BOL).

The characters that will distinguish *P. guttata* from *P. ascendens* are its stems, few from the crown and erect almost from the base, leaves opposite only at the extreme base, tending to be held erect rather than spreading, and mostly with more pairs of teeth (4–8 pairs vs. 2–4 pairs), bracts glandular on the lower part of the backs (see Fig. 9).

Little material has been seen, all of it from the Cedarberg and the Skurweberg, at approximately 1500m above sea level and flowering between November and January. The plants have been recorded on 'sandy burnt slopes', 'damp sand in ravine', 'shale band on NE slope', 'rocky open dry slope burnt 2 years ago'.

Two specimens from Elandskloof in the Cold Bokkeveld (3219 CA) need special mention: *Levyans* 5116 (BOL; 5716 in MO is probably part of the same collection), Cold Bokkeveld, Elandskloof, under rocks on a ledge, 3500ft, 15 xii 1935, and *Esterhuysen* 18452 (BOL), west slopes of Cold Bokkeveld Mts at Elandskloof, 4000ft, 25 iii 1951. The two specimens match precisely; they differ from *P. guttata* in having longer hairs on the stems and leaves (up to c.0.8–1mm long) and scattered hairs up to c.0.25mm long on the inflorescence axes and bracts.

Field investigation in the Cold Bokkeveld Mountains is desirable. It is too on Bailey's Peak (3318 DB) whence came *Esterhuysen* 22347 (BOL); this specimen bears a superficial resemblance to the Bokkeveld plants, from which it differs in its more strongly winged stems and leaves with more pairs of teeth; it is possibly a hybrid

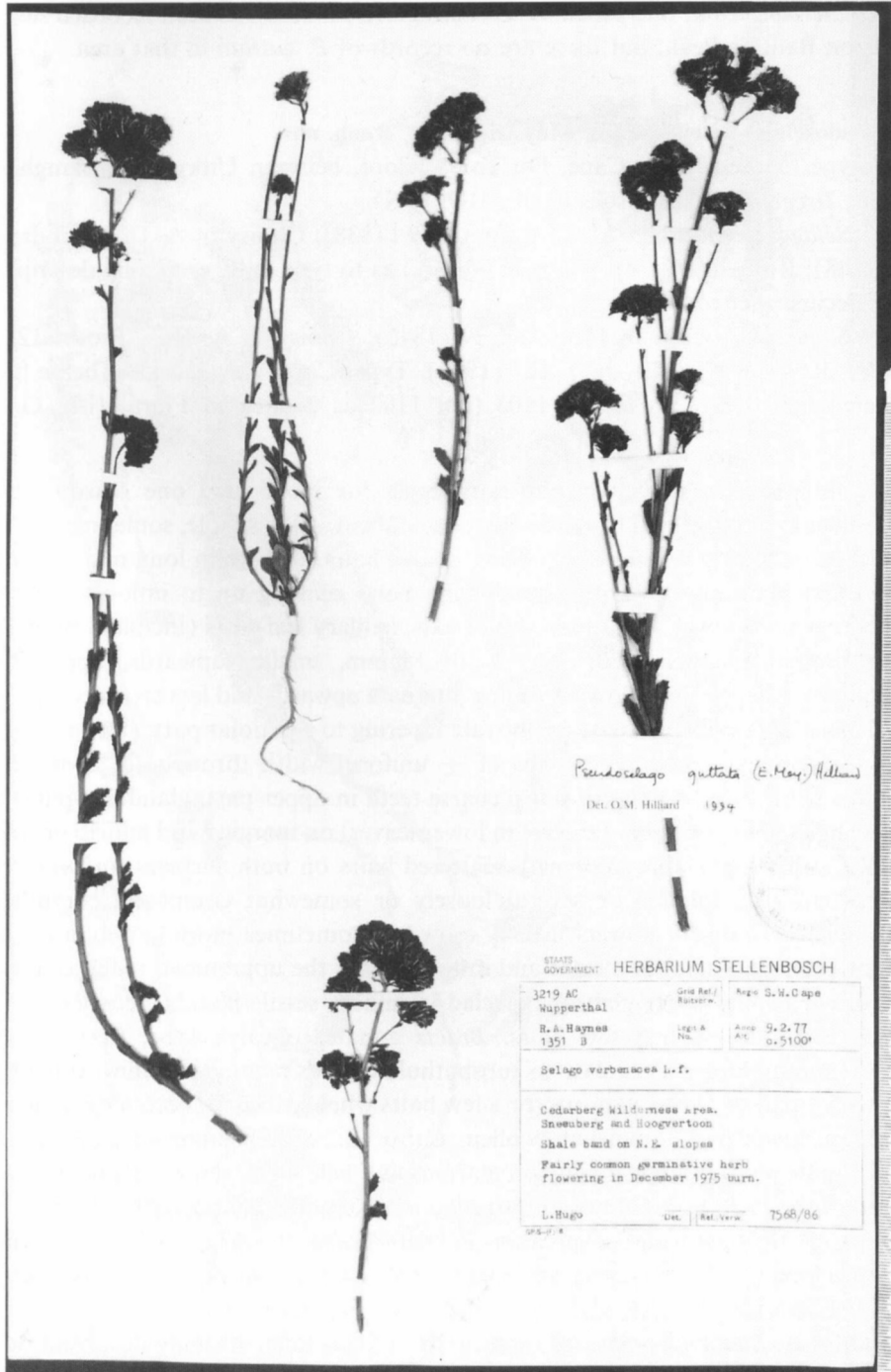


FIG. 9. *Pseudoselago guttata* (Haynes 1351B, STE).

with *P. verbenacea* as one parent. *Pseudoselago verbenacea* has been recorded several times on Bailey's Peak, but there are no records of *P. guttata* in that area.

8. *Pseudoselago ascendens* (E. Mey.) Hilliard, comb. nov.

Lectotype (chosen here): Cape, Du Toit's Kloof, between Uitkyk and Slanghoek, 4000ft, *Drège* [1330] (E; isolecto. K, MO, P, S).

Syn.: *Selago ascendens* E. Mey., *Comm.* 259 (1838); Choisy in A. DC., *Prodr.* 12: 17 (1848); Rolfe in *Fl. Cap.* 5(1): 167 (1901) as to type only, excluding description and specimens cited.

S. incisa Hochst. in *Flora* 28: 69 (1845); Choisy in A. DC., *Prodr.* 12: 17 (1848); Rolfe in *Fl. Cap.* 5(1): 167 (1901). Type: Cape, Baviaanskloofberge [near Genadendal], xii 1838, *Krauss* 1103 (not 1102 as printed in *Flora*) (iso. G, K, MO, W).

Herb, flowering in first year but can persist for more than one season, stems c.50–450mm long, several from the base, decumbent, often simple, sometimes loosely branched, narrowly 4-winged or ribbed, coarse hairs c.0.3–1mm long mainly on the ribs, often glabrous upwards, occasionally hairs running up to inflorescence and sometimes onto lower few internodes of axis, axillary leaf-tufts (incipient branches) often present. *Leaves* 6–20(–35) × 2–10(–14)mm, smaller upwards, opposite or sometimes subopposite below becoming alternate upwards and less crowded, spreading, lanceolate to oblanceolate or obovate tapering to a petiolar part, strongly decurrent to form narrow wings or ribs of ± uniform width throughout, apex acute, margins with (2–)3–4 pairs of sharp coarse teeth in upper part, glandular-punctate, coarse hairs always present (at least in lower leaves) on margins and midrib on lower surface, otherwise glabrous or with scattered hairs on both surfaces. *Inflorescence*: spikes terminal, solitary or several loosely or somewhat compactly corymbose-paniculately arranged, flowers usually crowded, sometimes more loosely arranged, the lowermost sometimes distant and in the axils of the uppermost, reduced, leaves, axis of each spike either glabrous or clad in minute sessile glands, occasionally the lower internodes with a few hairs. *Bracts* adnate to calyx tube, (3–)3.5–5.2 × 0.6–1(–2)mm, linear-lanceolate to subspathulate, apex acute, lowermost often leaf-like with 1 pair of teeth, glabrous (or a few hairs when leaf-like), becoming indurated with age, lower part somewhat swollen. *Calyx* (2.2–)2.8–3.4mm long on anticous side, minute sessile glands mainly on margins and below sinuses, indurated with age. *Corolla* tube (3.5–)3.7–5.4mm long, widening gradually in upper part, limb nearly regular, (3–)3.7–6mm across spreading lateral lobes, posticous lobes 1–2 × 0.8–2mm, anticous lobe 1.5–3 × 1.2–2mm, all lobes broadly elliptic, white (see comments below) with yellow/orange patch at base of posticous lip, bearded there, fewer hairs on lateral lobes. *Stamens*: posticous filaments 1–1.5mm long, strongly decurrent down tube, anthers 0.4–0.5mm, held in mouth, anticous filaments 1.2–1.8mm long, anthers 0.4–0.6mm, exerted. *Stigma* and *style* c.4–8mm long. *Ovary* c.0.6 × 0.2mm. *Cocci* 1.8–2.3 × 0.8–0.9mm. *Seeds* smooth.

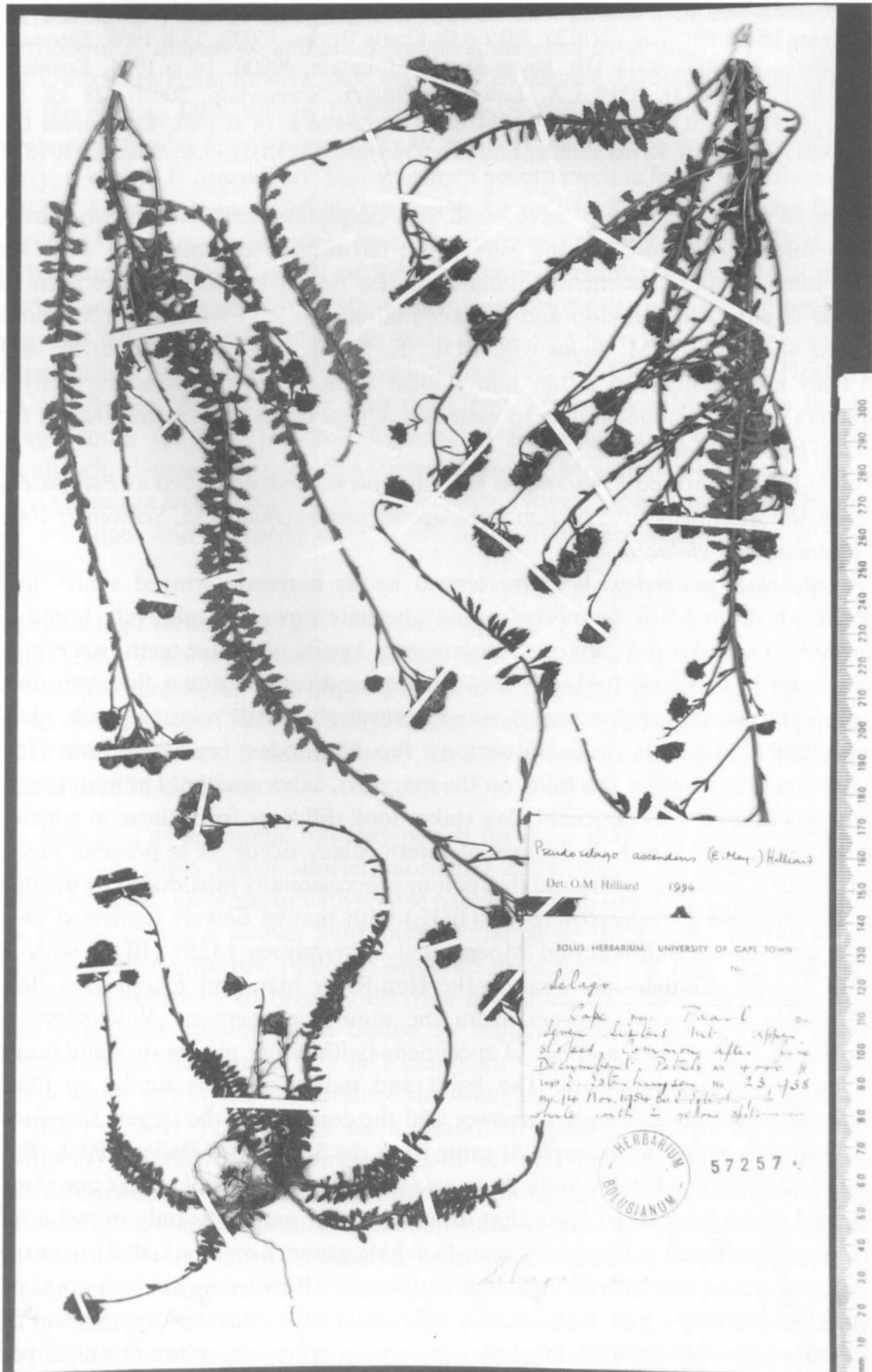


FIG. 10. *Pseudoselago ascendens* (Esterhuysen 23938, BOL).

Selected additional specimens. CAPE. 3319 AA, Great Winterhoek, 5000ft, 31 xii 1951, *Esterhuysen* 19769 (BOL, K, NBG). 3319 AD, Castle Rocks, 3500ft, 13 ii 1960, *Esterhuysen* 28440 (BOL, K, MO). 3318 DB, Seven Sisters Mountain, 4000ft, 14 xi 1954, *Esterhuysen* 23938 (BOL, K, MO). 3319 CA, Lower Wellington Sneeuwkop, 5000ft, 28 xii 1945, *Esterhuysen* 12420 (BOL, NBG, PRE). 3418 BB, Helderberg, 14 xi 1948, *Esterhuysen* 14646 (BOL, NBG). 3419 BB, Rivier Zonder End Mts, Oudebos, 5423ft, iv 1930, *Stokoe* 2130 (STE).

The type of *Selago incisa* has leaves with very deeply cut teeth (about two thirds of way to midrib), delicate-looking very loose flat-topped corymbs and calyx only 2.2mm long. Similar specimens, though with less deeply cut leaves, have been seen from the environs of Greyton and Genadendal on the Riviersonderend Mountains (*Barnard* 481, 482, SAM, *Bolus* 678, BOL, K, SAM, Z, *Esterhuysen* 20781, BOL, K). They are possibly no more than a local form of *P. ascendens*; certainly the characters given seem inadequate to maintain *Selago incisa* as a species distinct from *Pseudoselago ascendens*.

Rolfe (1901) confused *P. ascendens* with the species here described as *Pseudoselago violacea*; the specimens cited by him as *Selago ascendens* (*Bolus* 755, *Schlechter* 10007) are *Pseudoselago violacea*.

Pseudoselago ascendens is characterized by its narrowly winged stems, leaves opposite or subopposite below becoming alternate upwards, relatively broad and tapering to a petiolar part, margins with mostly 3 pairs of coarse teeth (see Fig. 10), coarse hairs at least on the lower leaf-margins and carried down the stem on the decurrent bases, inflorescence axis either glabrous or with minute sessile glands, occasionally a few hairs on the lowermost few internodes, bracts glabrous (lower leaf-like ones may have a few hairs on the margins), calyx clad only in minute sessile glands. Specimens with noticeably lax spikes look different from those in which the flowers are crowded, but all degrees of intermediacy occur. It is possible that the corolla limb is normally white and that colour is occasionally introduced by introgression, for example *Esterhuysen* 18440 (BOL) with mauve flowers (collected on the Hexberg in the Cold Bokkeveld Mountains), *Esterhuysen* 14259 (BOL) with pale pinkish flowers, from Milner Peak in the Hex River Mts, and *Esterhuysen* 30902a (BOL) with pale mauve flowers, from the mountains between Villiersdorp and Genadendal. There are a number of specimens (with either mauve or white flowers) that may be of hybrid origin. The habit and indumentum is similar to that of *P. ascendens* but the leaves are narrower and the corolla may be larger. *Esterhuysen* 34101 provides a striking example; it came from the SE ridge of Bailey's Peak, Bain's Kloof. The sheet in MO is wholly *P. ascendens*; the sheet in BOL bears one stem of *P. ascendens*, another large piece that differs from *P. ascendens* only in being more hairy than usual, but a third specimen (a whole plant, now marked B) is narrow-leaved, and is possibly hybrid. Jonkershoek Forestry Reserve would be a good place to test the hypothesis that *P. ascendens* hybridizes with other species. *Kerfoot* 5530 (STE) from Jonkershoek, Langrivier, is a narrow-leaved, white-flowered plant; *Kerfoot* 5531 (STE) is similar and the collector remarked 'compare K5530'; he did not record colour. *Kerfoot* 5650 (STE) is typical *P. ascendens*. *Kerfoot* 5631 (STE),

also from Langrivier, is narrow-leaved, flowers 'wine purple'; the flowers are larger than those of *P. ascendens*, and his specimen is matched by *Rycroft* 1489 (MO) from Little Dwarsberg Peak, flowers 'pale mauve'. *Esterhuysen* 33750 (BOL, S), collected along the path to Disa Vlei in Jonkershoek Forestry Reserve has leaves narrower than those of typical *P. ascendens* and pale mauve flowers (*Esterhuysen* 34198a, same locality, is typical *P. ascendens*). This specimen accords well in facies with *Esterhuysen* 34558 (BOL) from along the hiking trail below Landdrost Kop in Nuweberg Forestry Reserve (3419 AA), flowers pale saxe-blue-mauve. *Esterhuysen* 9711 (BOL) from the Hottentots Holland Mts 'N of S Sneeuwkop' resembles *Rycroft* 1489, flowers recorded as 'purplish pink'. Clearly, field investigations are needed; the problem is far beyond the scope of a herbarium study.

Pseudoselago ascendens is on the mountains of the SW Cape from the Hexberg in the Cold Bokkeveld Mountains and the Great Winterhoek Mountains north of Tulbagh south to the Hex River Mountains and mountains east and south of Stellenbosch, thence east along the Riviersonderend Mountains, between c.900 and 1800m above sea level, flowering mainly between November and January. The plants grow on ridges and southerly slopes, and have often been recorded as appearing after fire.

9. *Pseudoselago verbenacea* (L.f.) Hilliard, **comb. nov.**

Type: C.B.S., *Thunberg* (lecto. LINN 786.16; iso. S, UPS).

Syn.: *Selago verbenacea* L.f., Suppl. 285 (1782); *Thunb.*, Prodr. 100 (1800) and Fl. Cap. ed. Schultes 464 (1823); Choisy, Mem. Selag. 38 (1823) and in A. DC., Prodr. 12: 17 (1848) incl. var. β *villosa* Choisy; E. Mey., Comm. 258 (1838); Rolfe in Fl. Cap. 5(1): 163 (1901) p.p.

Herb, behaving as an annual but may persist for more than one season, stem up to 1(-2)mm tall, often much shorter, normally erect, simple to loosely branched, strongly 4-angled, glabrous or with coarse patent hairs up to 1.25mm long, sometimes hairy below, glabrous above, hairs often confined to the ridges. *Leaves* 15-80 \times 3-24mm, smaller upwards, opposite often up to or nearly up to first branching of inflorescence, narrowly to broadly obovate or oblong to elliptic, triplinerved, side nerves sometimes obscure, apex obtuse to acute, narrowed to base but scarcely petiolate (except the lowermost 1 or 2 pairs), strongly decurrent in wings of almost uniform width throughout to produce the 4-angled stem, margins serrate in upper half with (5-)7-9(-12) pairs of teeth, glandular-punctate, otherwise glabrous or showing varying degrees of hairiness (both surfaces hairy in type). *Inflorescence*: spikes of crowded flowers further arranged in loose (rarely compact) terminal corymbs, axis of each spike minutely glandular-puberulous. *Bract* adnate to calyx tube, c.4.5-7 \times 0.4-0.8mm, linear-lanceolate, acuminate, minutely glandular-puberulous on lower back, occasionally with longer hairs as well (up to 0.2-0.3mm) on margins, bract becoming indurated, scarcely swollen in lower part. *Calyx* 2.7-3.2mm long on anticous side, minutely glandular-puberulous all over, occasionally with longer hairs on margins, indurated with age. *Corolla* tube 5-8mm long, widening gradually in upper part, limb nearly regular, 4.8-6.5mm across spreading lateral lobes, posticous

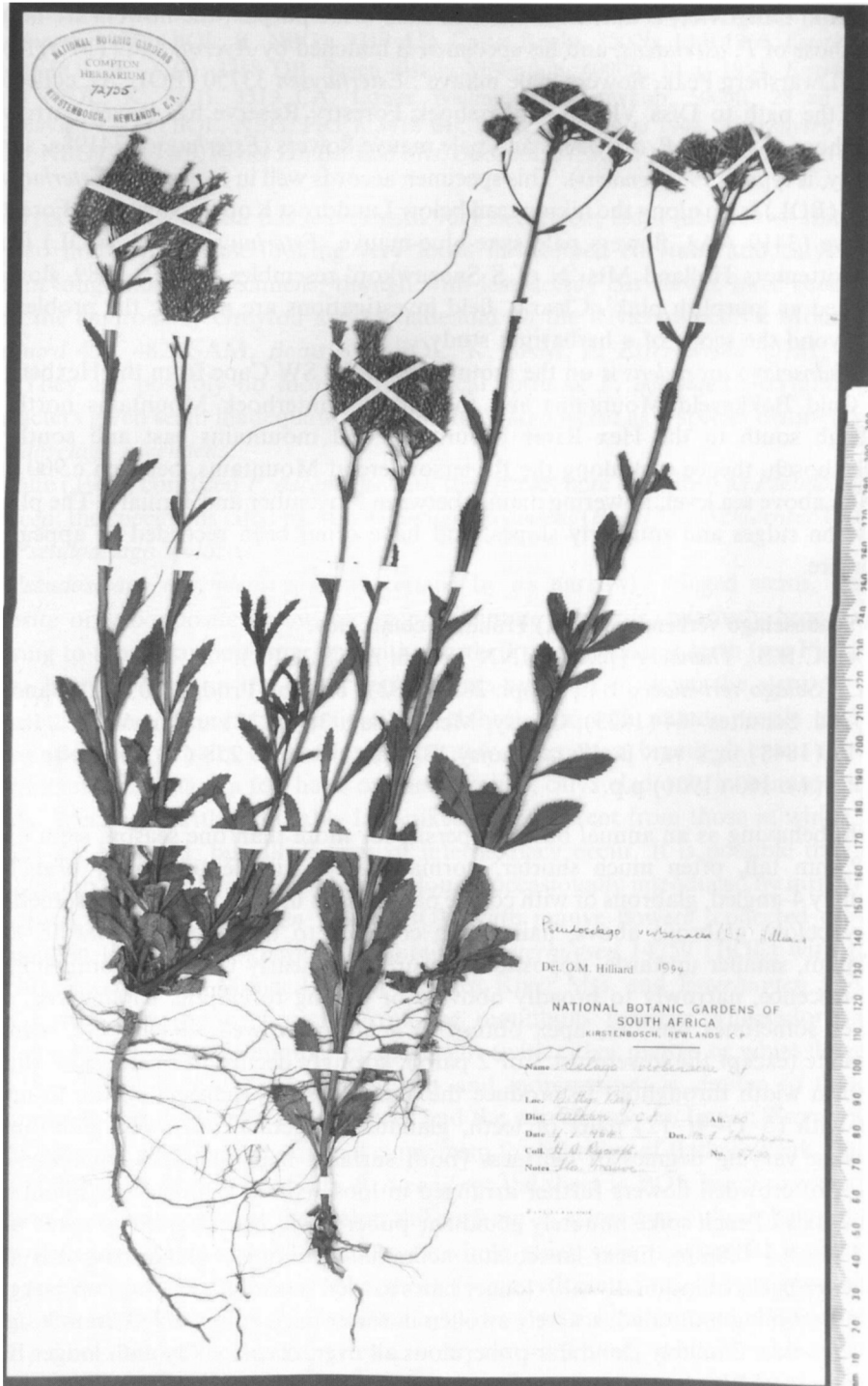


FIG. 11. *Pseudoselago verbenacea* (Rycroft 2730, NBG).

lobes 1.8–2.5 × 1–1.5mm, anticous lobe 2.3–3.8 × 1.2–1.8mm, all lobes elliptic, shades of mauve or purple, conspicuous orange patch at base of posticous lip and briefly down back of tube, base of posticous lip bearded, few hairs extending to laterals and sometimes to anticous lobe. *Stamens*: posticous filaments 1–1.6mm long, strongly decurrent down tube, anthers 0.5–0.7mm long, held in mouth, anticous filaments 1.3–2.2mm, anthers 0.6–0.8mm, exerted. *Stigma* and *style* c.5.7–9mm long. *Ovary* c.0.8 × 0.2mm. *Cocci* c.2 × 0.8mm. *Seeds* smooth.

Selected additional specimens. CAPE. 3318 CB, Paarl Mt, 900ft, i 1882, *Tyson* 951 (MO, NBG). 3318 DD?, Guardian Peak, 2000–4000ft, 13 i 1955, *Esterhuysen* 24114 (BOL). 3319 AD, Waaihoek Peak, 13 i 1954, *Esterhuysen* 22637 (BOL, MO). 3319 CA, Du Toit's Kloof, 1500ft, 16 ii 1938, *Wall* s.n. (S). 3418 BD, Betty's Bay, 14 xii 1964, *Rycroft* 2774 (NBG, STE). 3419 AD, Vogelgat, 300ft, 30 xi 1896, *Schlechter* 9527 (E, MO, S, K, Z). 3419 AA, Dwarsberg, 3000ft, 30 i 1963, *H. C. Taylor* 4606 (STE).

Rolfe's annotation on *Bolus* 5217 b (K.) claims that the specimen is a precise match of the type of *Selago ramulosa* Link (Enum. Hort. Berol. 2: 124, 1822). The type was subsequently destroyed in the Berlin fire; if Rolfe's observation was correct, *S. ramulosa* is synonymous with *Pseudoselago verbenacea*. However, Link described the corolla as white (*alba*); it is always shades of mauve in *Pseudoselago verbenacea*.

Pseudoselago verbenacea ranges from the mountains around Worcester, Paarl and Stellenbosch to the mountains and flats south of the Riviersonderend Mountains, in Caledon and Bredasdorp divisions (the easternmost specimens seen came from Cape Agulhas). The plants grow on mountain slopes and flats, between sea level and 1200m, always in damp places, often along streams, flowering mainly between November and January (September to February).

The characteristic features of the species are the strongly 4-angled stems, opposite leaves with mostly 7–9 pairs of teeth (the leaves remain opposite up to or very nearly up to the inflorescence; see Fig. 11), the long-acute narrow bracts, and the minutely glandular-puberulous inflorescence axis, bracts and calyx; the inflorescence is usually a very loose corymb. The leaves show much plasticity in width. Stems and leaves range from glabrous to hairy, with all degrees of intermediacy; when the stems are hairy, the hairs are not usually carried up onto the inflorescence axis.

Pseudoselago verbenacea may hybridize with other species: see under *P. gracilis* and *P. guttata*.

10. *Pseudoselago langebergensis* Hilliard, sp. nov. a *P. verbenacea* (L.f.) Hilliard foliis sursum alternantibus (nec ad, vel fere ad, summum oppositis) et corymbis compactis (nec laxis); a *P. serrata* (P. J. Bergius) Hilliard foliis in alis per internodium fere aequilatis (nec superne latis inferne angustioribus) et bracteis floralibus lineari-lanceolatis integris usque ad 0.3–0.8mm latis (nec oblongo-ellipticis, saepe 1-vel 2-dentatis usque ad 1–3mm latis) distinguenda.

Type: SW Cape, Swellendam div., 3420 BB, Langebergen near Heidelberg, 3500ft, 1 i 1951, *Esterhuysen* 18264 (holo. BOL).

Subshrub c.350–500mm tall, loosely branched, stems ± erect, rod-like, often with conspicuous axillary leaf-tufts (incipient branches?) ribbed by decurrent

leaf-bases, usually glabrous, rarely a few hairs on ribs near base. *Leaves* 7–35(–60) × 4–9(–14)mm, decreasing in size and usually becoming distant upwards, opposite becoming alternate upwards, somewhat spreading, usually oblong or narrowly oblanceolate, rarely spatulate, narrowed to base but base scarcely petiolar except in broad leaves, decurrent in narrow wings of nearly uniform width throughout, apex acute to obtuse, margins serrate in upper half with 4–9 pairs of teeth, teeth usually small, occasionally larger and then some doubly serrate, texture thick, only midvein visible, glandular-punctate otherwise glabrous or rarely with a few hairs on lower margins of lower leaves. *Inflorescence* a compact terminal corymb c.25–80mm across, flowers crowded, axes minutely glandular, glands almost sessile. *Bract* adnate to calyx tube, lowermost c.4.2–6.5 × 0.3–0.8mm, linear-lanceolate, long-acute to acuminate, entire, minutely glandular at extreme base, indurated with age, not swelling on lower back. *Calyx* 2.5–3.2(–4 in fruit)mm on anticous side, minutely glandular-puberulous, indurated with age. *Corolla* tube c.5–6.9mm long, widening gradually in upper part, limb nearly regular, 4.5–6.4mm across spreading lateral lobes, posticous lobes 1.4–2.2 × 1.1–1.4mm, anticous lobe 2–3 × 1–1.4mm, all lobes elliptic, shades of violet or mauve, dark patch on lower part of posticous lip, bearded there, hairs often extending to lateral lobes. *Stamens*: posticous filaments 1–1.5mm long, anthers 0.5–0.7mm, shortly exerted, anticous filaments 1.7–2.2mm long, anthers 0.5–0.7mm, well exerted. *Stigma* and *style* c.5.5–9mm long. *Ovary* c.0.8 × 0.3–0.4mm. *Cocci* 1.8–2 × 0.8mm. *Seeds* c.1.7 × 0.8mm, smooth.

Selected additional specimens. CAPE. 3319 DD, Klaasvoogds, south slopes of Langeberg, 31 i 1954, *Esterhuysen* 22692 (BOL). 3320 CD, Langebergen, contour path below Clock Peaks, 1700ft, 18 ii 1971, *Rourke* 1290 (NBG). 3320 DD, Langeberg Helderfontein area, Boosmansbos Wilderness area, 1189m, 3 iii 1987, *McDonald* 1258 (STE). 3420 AB, near Swellendam, Leeuwivier mountains, 3000ft, iv 1941, *Stokoe* 8381 (BOL). 3421 AA, Korente river dam, 200m, 14 v 1979, *Bohnen* 5653 (STE). 3322 CD, near Montagu Pass, 28 xii 1949, *Martin* 72 (NBG). 3322 AC, Zwartberg Pass, c.5100ft, xii 1904, *Bohus* 57127 (BOL).

Pseudoselago langebergensis has hitherto been confused with *P. serrata* and *P. verbenacea*; the decurrent leaf-bases in *P. langebergensis* form narrow wings of almost uniform width between each node whereas in *P. serrata* each wing is much broader at its apex than at its base; the two species also differ in the stance and shape of the leaves and in the shape and width of the floral bracts. *Pseudoselago verbenacea* is strikingly different in having leaves opposite up to or nearly up to the inflorescence; also, it is a herb, not a shrublet, with spikes arranged in loose corymbs. F. A. Rogers collected *P. verbenacea* at Groot Drakenstein under his number 10529 (BOL). Under the same number, in BOL as well as in K and Z, are specimens of *P. langebergensis*, superficially similar to Rogers' collection of *P. verbenacea* but differing in alternate leaves with fewer teeth, and compact inflorescences. It is doubtful that these three specimens were collected at Groot Drakenstein; the area of *P. langebergensis* appears to lie wholly east of that of *P. verbenacea*; it is known from the whole length of the Langeberg, where the plants mostly have long narrow leaves, often with conspicuous axillary tufts of smaller leaves (see Fig. 12). Specimens

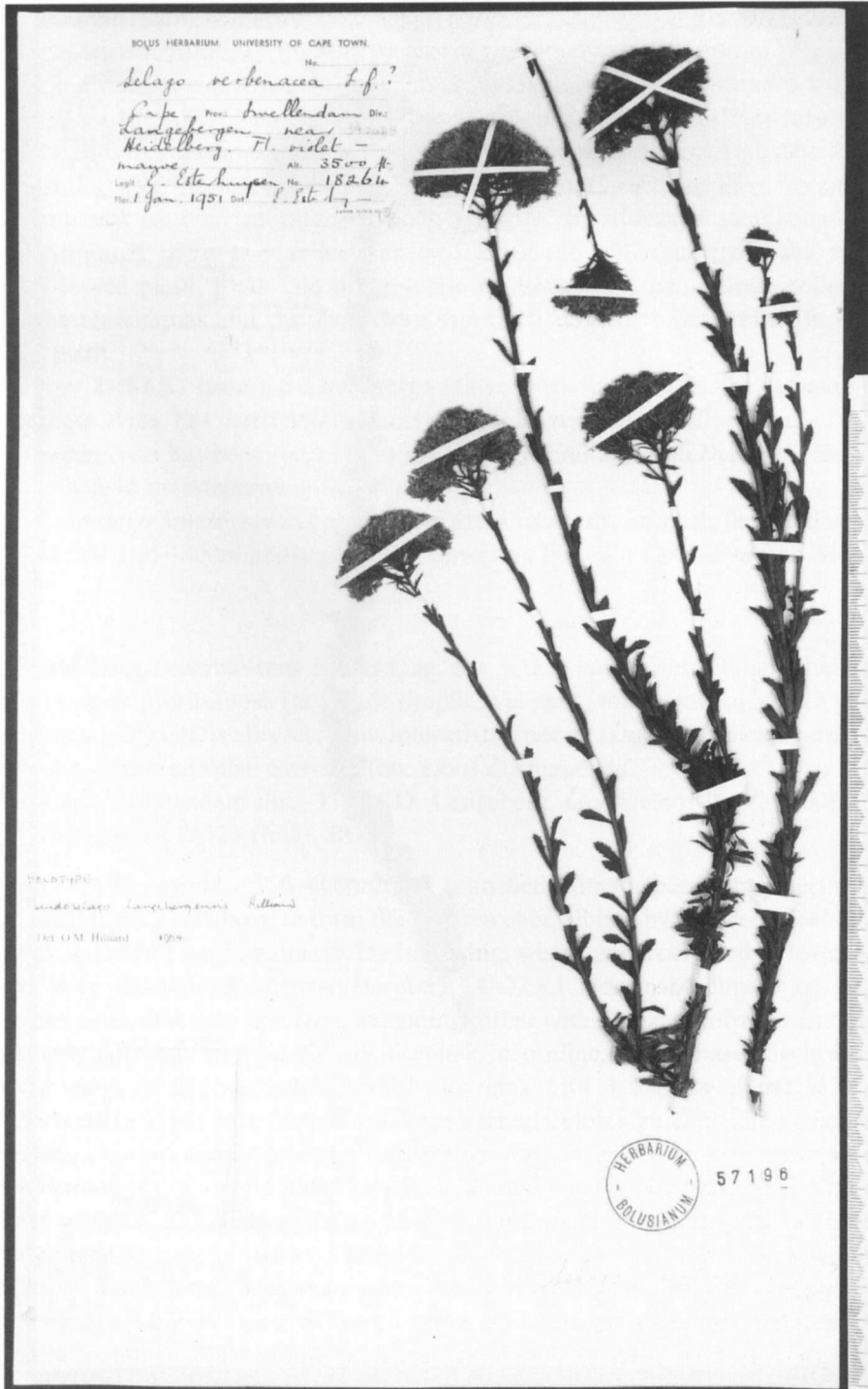


FIG. 12. *Pseudoselago langebergensis* (holotype, Esterhuysen 18264, BOL).

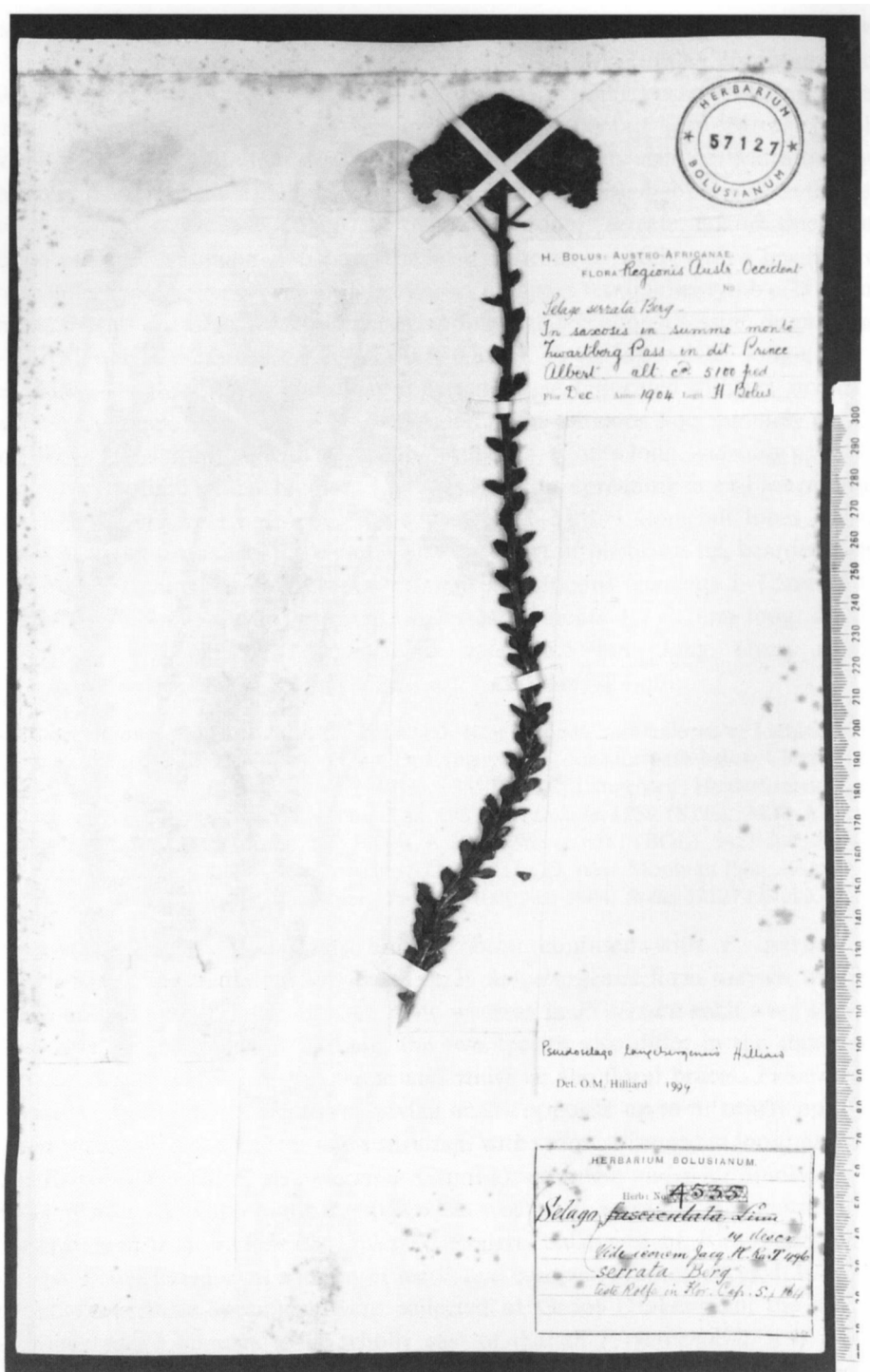


FIG. 13. *Pseudoselago langebergensis*, form with leaves broad in relation to their length (Bolus 4535, BOL).

from the Rooielsberg at the extreme eastern end of the Langeberg (*Viviers* 294, STE), as well as specimens from Montagu Pass over the Outeniqua Mountains (*Martin* 72, NBG, and *Stokoe* sub SAM 54725) and from the Zwartberg (*Esterhuysen* 26817, BOL, *Bolus* 4535, BOL) tend to have leaves broad in relation to their length (see Fig. 13). *Stokoe*'s specimen has leaves up to 60 × 14mm, and probably came from a damp shady spot; *Pocock* S58 (BOL), from the top of Zwartberg Pass, 'in pockets of loamy soil between rocks on peaks', is also a broad-leaved straggling specimen. Although these two collections look strikingly different from the typical narrow-leaved plant, I can find nothing else to distinguish them. Good collections from the Outeniquas and the Zwartberg are much needed to determine the status of this plant.

Burger 8 (STE) from the Langeberge above Witbooisrivier in the Bosmansbos Wilderness Area has remarkably short broad leaves (up to 10 × 8mm). Typical *P. langebergensis* has been recorded in the same general area (*McDonald* 1258, cited above). A field investigation is desirable.

Pseudoselago langebergensis appears to grow in scrub, on both flats and slopes, between 200 and 1800m above sea level, flowering between December and March.

11. *Pseudoselago caerulescens* Hilliard, sp. nov. a *P. outeniquensi* Hilliard habitu, e basi et superne pluriramosa (nec caule simplice vel parcissime ramoso), calyce glandulis minutis pedicellatis aliis sessilibus intermixtis (nec glandulis conspicuis nitentibus sessilibus), limbo corollae caeruleo (nec albo) distinguenda.

Type: Cape, Swellendam div., 3320 CD, Langeberg, Goedgeloof Peak, 5000ft, 6 iii 1977, *Esterhuysen* 34523 (holo. BOL).

Herb, probably annual, c.150–600mm tall, branched from the base, stems decumbent then erect, branching above to form the inflorescence, ribbed by decurrent leaf-bases, sparsely to densely hairy, hairs c.0.25–1mm long, when sparse confined to lowermost parts, leafy throughout. *Leaves* (largest) 14–27 × 1.2–5mm (exclusive of teeth), opposite, soon alternate upwards, ascending, often with axillary leaf-tufts (incipient branches), narrowly to broadly oblanceolate in outline, acute, bases decurrent in narrow wings of almost uniform width, margins with 3–5 pairs of coarse, often narrow teeth in upper part, teeth c.1–2.5mm long, glandular-punctate, hairy as stems, when hairs sparse, nearly confined to margins. *Inflorescence* a narrow leafy panicle in well-grown plants, a very loose corymb in smaller ones (seedlings), flowers distant at base of spike, c.2–5mm apart, axis either glabrous or with a few tiny glands, or a few hairs in specimens with very hairy stems. *Bract* adnate to calyx tube, lowermost c.3.7–5.3 × 0.6–0.7mm, linear-lanceolate, acute, glabrous, indurated with age and much swollen on lower part of back. *Calyx* 2.2–3mm long on anticous side, very minutely glandular-puberulous, small sessile glands as well, indurated with age. *Corolla* tube 4.8–6mm long, gradually widening upwards, limb almost regular, 4–5mm across spreading lateral lobes, posticous lobes 1.3–2 × 0.8–1.2mm, anticous

lobe 2–2.7 × 1.1–1.4mm, lobes oblong-elliptic, blue, orange patch at base of posticous lip, well bearded there and briefly down back of throat, few hairs extending to anticous lip. *Stamens*: posticous filaments 0.8–1.4mm long, anthers 0.5–0.6mm, held in mouth, anticous filaments 1.2–1.8mm long, anthers 0.5–0.6mm, well exerted. *Stigma* and *style* c.3.7–8mm long. *Ovary* c.0.8 × 0.3mm. *Cocci* c.2 × 0.8mm. *Seeds* not seen.

Additional specimens. S CAPE. 3419 BB, Rivier Zonder Einde Mts, Oudebos, 6 xii 1929, Cuthbert 8912 (BOL). 3320 CD, Langeberg, Marloth Reserve below 10 o'clock Mountain, 600ft, 1 xi 1952, Wurts 471 (NBG); Crown Mountain [not traced precisely], 4200ft, 26 xii 1952, Wurts 541 (NBG). 3320 DD, Langeberg, Grootvadersbosch State Forest, 800m, 27 xi 1987, McDonald 1516 (STE). 3320 DC, Zuurbraak, 660m, 18 i 1893, Schlechter 2111 (BOL, G, K, NBG, P, PRE, S).

Pseudoselago caerulescens will be found in herbaria under *P. verbenacea* (easily distinguished by its opposite leaves mostly with 7–9 pairs of teeth and minutely glandular-puberulous inflorescence axis, bracts and calyces) and *Selago incisa*, that is, *Pseudoselago ascendens*, which differs in habit (tufted stems), in its spreading leaves, and in its white corolla limb (see Fig. 14). The close relationship of *P. caerulescens* lies with *P. outeniquensis*, which differs in its solitary stem, simple or nearly so, calyx clad in conspicuous glistening sessile glands, and white corolla limb. The difference in indumentum on the calyx is a valuable character (as it is in several more species). Examination under a compound microscope showed that the hairs on the calyx of *P. caerulescens* are of two types, one with an elongated stalk cell, a small neck cell, and a glandular apical cell about one and a half times the width of the stalk cell, the other type with a small stalk cell surmounted by a much bigger globular cell. In *P. outeniquensis*, the latter type of hair is present, but the apical cell is about one and a half times the diameter of that in *P. caerulescens* (approx. 40µm vs. 25µm) and is sometimes divided into two cells; there are also very small hairs comprising a tiny stalk cell and two much bigger apical cells; viewed from above, the head is elliptic, slightly constricted midway where the two cells adjoin.

Wurts 413 (NBG), from the Marloth Reserve on the Langeberg, and collected below 11 o'clock Mountain at an altitude of c.200m, has all three types of hair on the calyx. It is aberrant in other respects too, and may represent a hybrid between *P. caerulescens* and *P. outeniquensis*; *P. langebergensis* is also present in the area.

Pseudoselago caerulescens is known to occur on both the Riviersonderend Mountains and the Langeberg, between c.200 and 1525m above sea level, flowering between November and March. The only ecological information given is 'mountain fynbos'. The species should be sought on the Babylon's Tower Mountains (3419 AD) roughly 50km SW of the Riviersonderend Mountains, whence came Esterhuysen 34760 (BOL). The two specimens on the sheet are not identical, but the one marked A is close to *P. caerulescens*. The plants may be of hybrid origin, but I have seen no collections of any species other than *P. pulchra* from this locality; however, *P. gracilis* and *P. verbenacea* may well occur there.

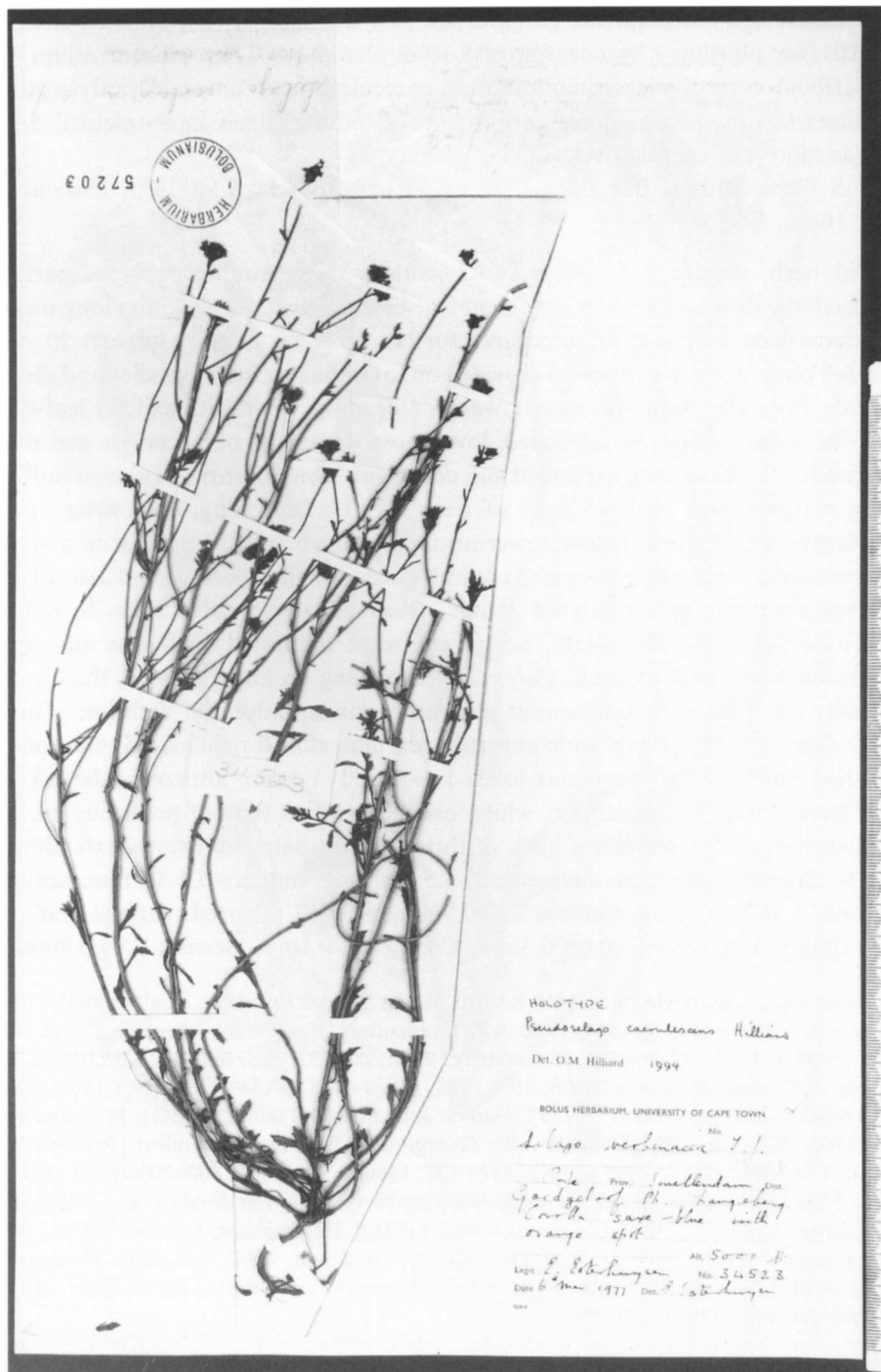


FIG. 14. *Pseudoselago caerulescens* (holotype, Esterhuysen 34523, BOL).

12. *Pseudoselago outeniquensis* Hilliard, sp. nov. a *P. spuria* (L.) Hilliard caulibus solitariis (nec pluribus e basi caespitosis), foliis plerumque 4–6 paribus dentium (nec 1–3 paribus), corymbo laxissimo interdum paniculato (nec compacto), calyce glandulis nitentibus majusculis dense induto (nec glandulis parvis inconspicuis), limbo corollae albo (nec caeruleo vel malvino) differt.

Type: S Cape, Mossel Bay div., 3322 CC, Ruytersbosch, 5 xii 1951, *Esterhuysen* 19612 (holo. BOL).

Annual herb, stem c.300–750mm tall, solitary, erect, simple or very sparingly branched low down, ribbed by decurrent leaf-bases, hairs c.0.1–0.25mm long on ribs at extreme base of plant, or sometimes further up stem. *Leaves* (largest) 20–45 × 1.8–3(–8)mm (exclusive of teeth) crowded on lower part of stem, smaller and distant upwards, opposite, soon alternate upwards, ascending, often with axillary leaf-tufts, linear-lanceolate, acute, broad-based, lowermost sometimes oblanceolate and much narrowed to the base, then expanded and decurrent, wings narrow, of almost uniform width, margins with (2–)3–6 pairs of teeth up to c.2mm long, or coarser on big basal leaves, glandular-punctate, lowermost with hairs 0.1–0.25mm long on margins. *Inflorescence* a very loose corymb, corymbs occasionally loosely panicked, axis of each spike with minute scattered glands. *Bract* adnate to calyx tube, lowermost c.4–5.6 × 0.8–1.1mm, lanceolate, acute, glabrous, indurated with age and much swollen on lower part of back. *Calyx* 2.5–3mm long on anticous side, thickly clad especially on tube with conspicuous glistening glands, indurated with age. *Corolla* tube 5–6mm long, gradually widening upwards, limb almost regular, 4.5–6mm across spreading lateral lobes, posticous lobes 1.4–1.8 × 1–1.5mm, anticous lobe 2.3–3 × 1.2–1.8mm, lobes oblong-elliptic, white, orange patch at base of posticous lip, well bearded there and often down back of throat, a few hairs sometimes extending to laterals. *Stamens*: posticous filaments 1–1.5mm long, anthers 0.4–0.7mm, anticous filaments 1.5–2mm long, anthers 0.5–0.7mm, all well exerted. *Stigma* and *style* c.7.5–10mm long. *Ovary* c.0.8 × 0.3mm. *Cocci* c.2.4 × 1mm. *Seeds* c.1.5 × 0.8mm.

Additional specimens. S CAPE. c.3419 BA/BB, Rivier Sonder End Mts, Apples Kraal, x 1947, *Stokoe* sub SAM 64815 (SAM). 3420 AB, Swellendam, 4 xii 1939, *Thorns* s.n. sub NBG 49651 (NBG). 3322 CC, road to Jonkersberg, 900ft, ix 1932, *Fourcade* 4775 B (BOL). 3322 CD, top of Outeniqua Pass, c.3000ft, 19 x 1953, *Lewis* 4148 (SAM); *ibid.*, 19 x 1953, *Barker* 8189 (NBG); George, 600ft, 15 i 1897, *Guthrie* s.n. sub NBG 49632 (NBG); Montagu Pass, 1875–1880, *Rehmann* 289 (Z). 3422 AB?, George div., flats by Pleckendorf [Pacaltsdorp?], c.600ft, 5 xi 1928, *Gillett* 2088 (STE). 3323 CC, Gouna Reserve, 1800–2000ft, 22 vii 1954, *Taylor* 1302 (SAM); Buffelsnek Forestry Station, 19 vi 1961, *van Breda* 1143 (PRE). 3323 DC, Lauterwater, 31 i 1941, *Esterhuysen* 4663 (BOL); Helpmekaar, summit, 5000ft, 18 xii 1933, *Compton* 4592 (BOL). c.3323 DC/DD, Ratels Bosch, 650ft, viii 1905, *Fourcade* 54 (BOL). 3424 AA, Witte Els Bosch, 750ft, ii 1937, *Fourcade* 5357 (BOL); Eerste River, iii 1921, *Fourcade* s.n. sub BOL 47720 (BOL).

This species has generally passed as *Selago spuria*; its distinguishing features are its annual habit, solitary and often simple stems, very loose corymb (see Fig. 15), calyx thickly clad in glistening glands, and white corolla limb. It occurs further east than

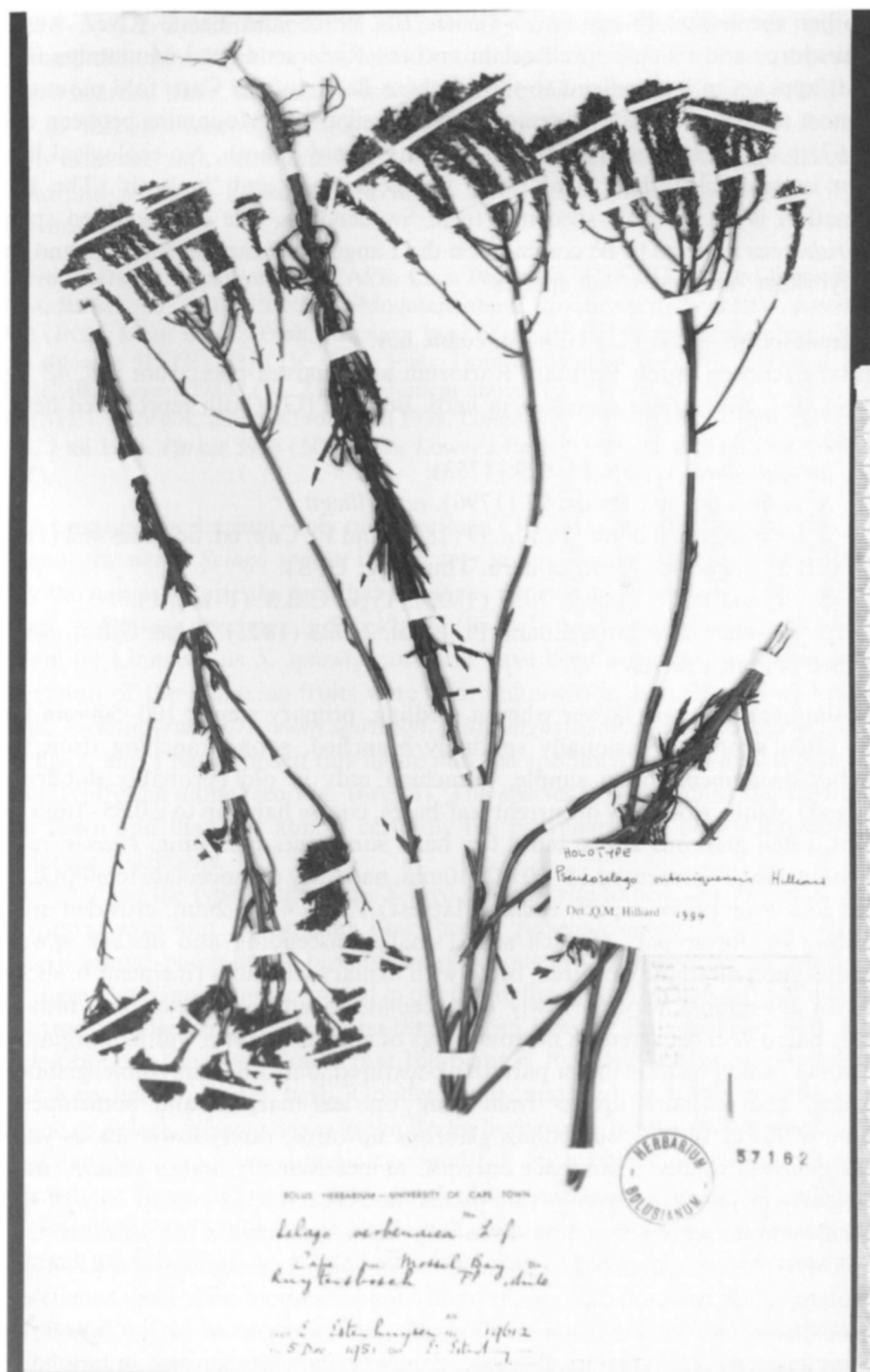


FIG. 15. *Pseudoselago outeniquensis* (holotype, Esterhuysen 19612, BOL).

any other species of *Pseudoselago* (Witte Els Bosch and Eerste River, west of Humansdorp) and reaches Swellendam and the Riviersonderend Mountains in the west. It appears to be confined to the southern flanks of the Cape fold mountains, with most records from the Outeniqua and Tsitsikamma Mountains between c.600 and 1675m above sea level, flowering possibly in any month. No ecological information is available other than 'flats', 'open ground' and 'in bush'. The latter information is on Thorn's specimen from Swellendam. The closely allied species *P. caerulescens* appears to be common on the Langeberg near Swellendam, and they may hybridize: see under that species.

13. *Pseudoselago spuria* (L.) Hilliard, **comb. nov.**

Lectotype (chosen here): Burman, *Rariorum africanarum plantarum* tab. 42 fig. 3 (1738–1739), based on a specimen in herb. Burman (G) (both reproduced here as Fig. 16).

Syn.: *Selago spuria* L., *Sp. Pl.* 629 (1753).

S. pallida Salisb., *Prodr.* 93 (1796), *nom. illegit.*

S. heterophylla Thunb., *Prodr.* 99 (1800) and *Fl. Cap. ed. Schultes* 463 (1823).

Type: C.B.S. (sheet no. 13890 in herb. Thunberg, UPS).

S. dentata Poir., *Encycl.* 7: 57 (1806). Type: C.B.S. (P-LAM).

S. fulvomaculata Link, *Enum. Pl. Berol.* 2: 123 (1822). Type: C.B.S. *Bergius* (B†). See comment below.

Perennial herb that will flower when a seedling, primary stem c.100–500mm long, erect, often simple, occasionally sparingly branched, soon branching from base, branches decumbent, often simple, branching only in old (probably unburnt or damaged) plants, ribbed by decurrent leaf-bases, coarse hairs up to c.0.35–1mm long on ribs, often glabrous above but a few hairs sometimes persisting. *Leaves: radical* (only occasionally present) c.14–50 × 2–10mm, narrowly oblanceolate to elliptic, narrowed to a long petiolar part; *cauline* (largest) 12–50 × 0.8–2mm, crowded and ± spreading on lower part of each stem, smaller, ascending and distant upwards, opposite, soon alternate upwards, often with axillary leaf-tufts (incipient branches), linear or lowermost very narrowly oblanceolate, acute, apiculate, base broad or slightly narrowed, decurrent in narrow wings of almost uniform width, margins with 1–3 pairs of small teeth in upper part, thick-textured, only midvein visible, glandular-punctate, coarse hairs up to 1mm long on leaf-margins and sometimes on midline of lower surface, sometimes glabrous upwards, rarely lower leaves villous. *Inflorescence* normally a compact corymb, or occasionally spikes solitary or few particularly in young or depauperate plants, flowers crowded even at base of spike, axis with minute scattered glands, or in very hairy specimens a few hairs carried up onto lower part of axis. *Bract* adnate to calyx tube, lowermost 4–7 × 0.8–1.2mm, lanceolate, acute to acuminate, occasionally the lowermost with 1 or 2 small teeth, glabrous, indurated with age and much swollen on lower part of back. *Calyx* 2–3mm long on anticous side, very small sessile glands present, whole calyx indurated with age. *Corolla* tube 6–8mm long, gradually widening upwards, limb almost regular, 4.5–8mm across spreading lateral lobes, posticous lobes 1.8–3 × 1.2–1.8mm, anticous

lobe 2.5–5 × 1.2–2.2mm, elliptic, all lobes usually shades of blue or violet, very rarely white and then possibly always in mixed colonies, orange patch at base of posticous lip, well bearded there, some hairs extending all round mouth and often briefly down back of throat. *Stamens*: posticous filaments 1–2mm long, anthers 0.5–0.8mm, shortly exerted, anticous filaments 1.2–3mm long, anthers 0.4–0.8mm, well exerted. *Stigma* and *style* c.7–12mm long. *Ovary* 0.7–1 × 0.3–0.4mm. *Cocci* c.2.5 × 0.8mm. *Seeds* not seen.

Selected additional specimens. SW CAPE. Cape Peninsula, 3318 CD, above Camps Bay, 26 x 1944, *Barker* 3207 (NBG, S); Table Mountain above Kirstenbosch, 28 xi 1953, *Esterhuysen* 22393 (BOL, MO); Devil's Peak, *Rehmann* 1060 (Z); 3418 AB, above Muizenberg, 500ft, x 1908, *Dümmer* 517 (E). 3318 DC, Cape Flats, Doornhoogde (= code 78), *Ecklon & Zeyher* (S); Belville, *Rogers* 29482 (K, Z); Sewefontein above Kuils River, 1000ft, 2 xi 1973, *Oliver* 4781 (STE). 3319 CA, Bain's Kloof, 27 xi 1939, *Compton* 8196 (NBG). 3418 BB, Helderberg, 240m, 2 xii 1944, *Parker* 3958 (NBG); Sir Lowry's Pass, 1000ft, 11 x 1894, *Schlechter* 5361 (K, Z).

In the Linnaean herbarium, only one specimen (786.10) was collected prior to publication of the name *Selago spuria*; it is in very young bud and is quite inadequate to typify the name, despite the fact that Linnaeus appears to have based his description upon it. A fruiting specimen in Stockholm (S, herb. Linn., seen on microfiche), sent to Dahl by Linnaeus as *S. spuria*, must also have been acquired by Linnaeus after publication of the name, as fruits were then unknown to him. However, Linnaeus quoted *Melampyrum africanum spicatum, foliis angustissimis, dentatis* Burm. afr. 115 t. 42 fig. 3, and I have chosen this figure and the specimen upon which it was based to lectotypify the name (see Fig. 16A, B). The species is common in the environs of Cape Town and that was almost certainly the provenance of both Linnaeus's and Burmann's specimens.

Rolfe judged the type of the name *Selago heterophylla* to be a seedling of *S. spuria*, and I agree with him. When Link described *S. fulvomaculata* (the epithet refers to the dark orange patch at the base of the posticous lip), he wrote 'An *S. spuria* L.?'. The original specimen was destroyed in the Berlin fire, but a fragment in St Petersburg (LE) from the Berlin garden can be taken as an isotype; this, together with Link's full description, leaves no doubt that the plant is *Pseudoselago spuria*. A specimen in the Kew herbarium (ex herb. Goodenough), matched by Rolfe in 1883 against the type of *Selago fulvomaculata* in the Berlin herbarium, is also *Pseudoselago spuria*.

The name has become a dumping ground for any specimen of *Pseudoselago* with linear leaves. The earlier references are wholly or in part so unreliable that they are not quoted; Rolfe (1901) for example had about six species under *Selago spuria*, including *Pseudoselago gracilis* (Series A), *P. densifolia*, *P. rapunculoides*, and *P. subglabra* (Series B).

Typical *P. spuria* is a perennial plant eventually branching from the base though it will flower in the single-stemmed juvenile stage, the individual stems usually simple, leaves crowded and more or less spreading on the lower part, smaller, distant and sharply ascending on the upper part (see Figs 16, 17), more or less hairy on the

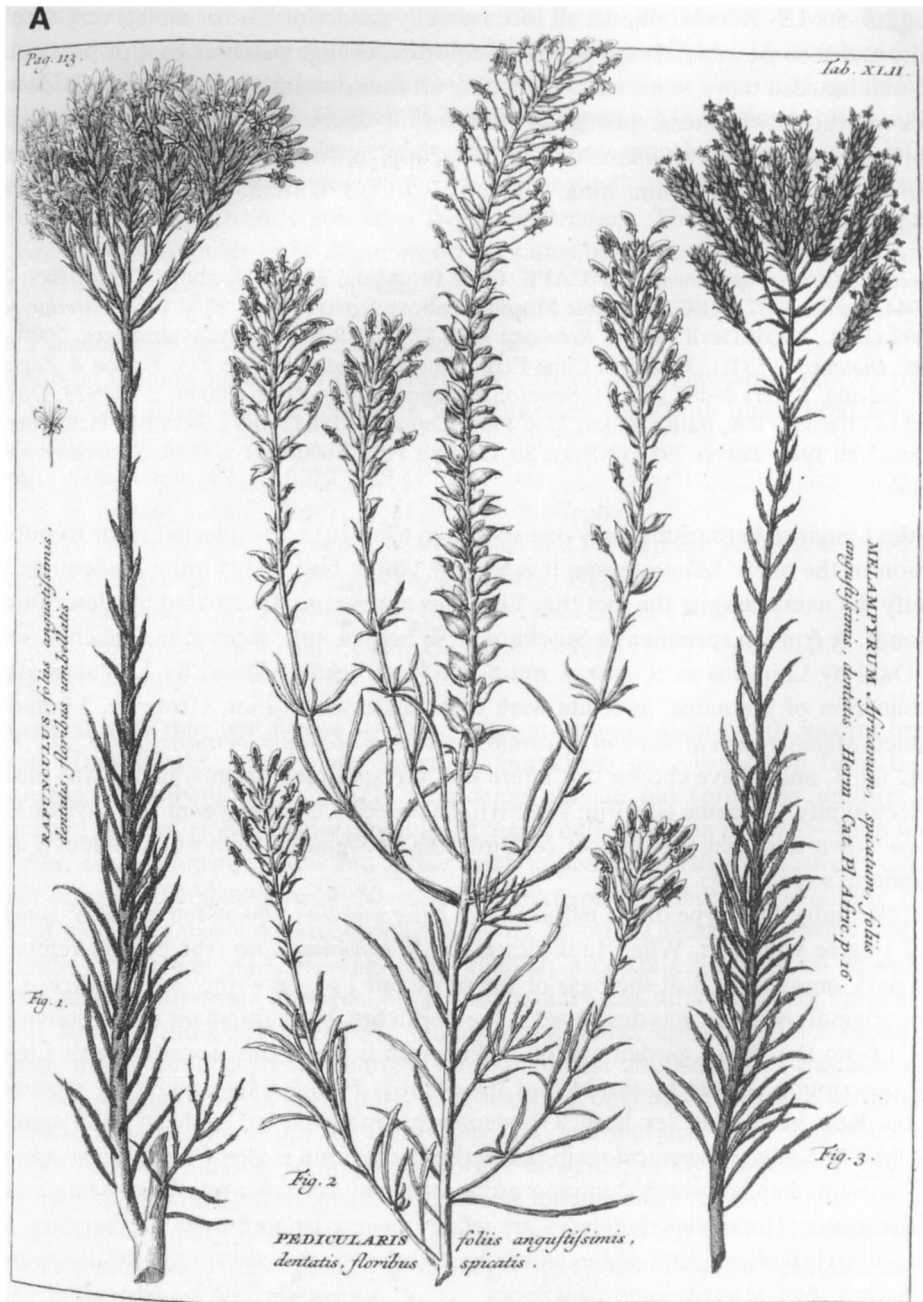


FIG. 16A. *Pseudoselago spuria* (lectotype), Burman, Rariorum africanarum plantarum tab. 42 fig. 3; fig. 1 is *Pseudoselago rapunculoides*. FIG. 16B (opposite). *Pseudoselago spuria*, specimen (on the right) from which the illustration of the lectotype was prepared (herb. Burm., G).



Thyridaceae
Afric. foliis
Cappi elongat. fol.
Spermat. foliis
united. Kunt
altiss. 1/2 cm
C. p. pl. Afric.
p. 122
P. R. Burmann
p. 304

HERBIER DELESSERT
COLLECTION BURMANN

Africa australis:
Caput bonae Spei.

Melampyrum Afric
Spicatum, foliis angust,
tuffinis, dentatis. H. Burm.
Cat. pl. Afric. p. 16

Selago africana, polyphylla
P. Burm.

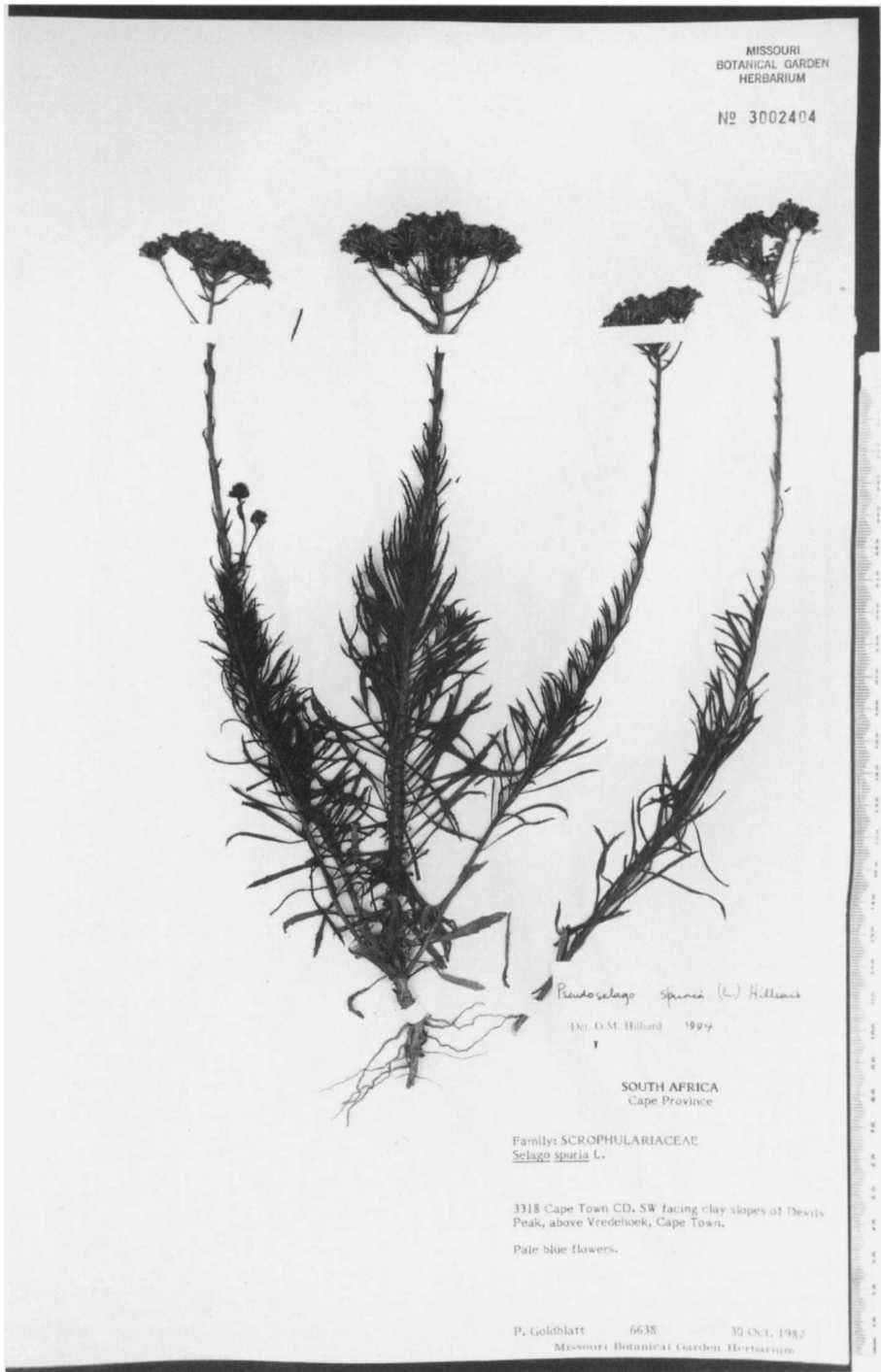


FIG. 17. *Pseudoselago spuria* (Goldblatt 6638, MO).

margins, the inflorescence a compact corymb composed of several (up to c.12) spikes, the longest peduncles up to c.50mm in fruit, the flowers consistently crowded even at the base of each spike, and the corolla limb shades of mauve or blue (see Figs 16, 17). It ranges from the environs of Tulbagh and Mostert's Hoek (3319 AC, AD) south over high ground (c.180 to 1300m a.s.l.) to the Cape Peninsula, Cape Flats, Hottentot Holland Mountains and Kogelberg to the environs of Cape Hangklip (3418 BD) where it descends to sea level if I am correct in taking specimens such as *Boucher* 848a (STE), *Rodin* 3120 (BOL, E, S) to be a maritime form of the species with short, broad, fleshy leaves. Scant ecological information has been recorded, but the plants seem often to grow in scrub, on both slopes and flats, flowering mainly between October and December (August to February recorded).

A plant with the lower leaves villous appears to be a highly localized form of *P. spuria*. It is known only from Tulbagh Waterfall (Nieuwekloof of older collections); *MacOwan* 19038 in SAM, said to be from Table Mountain, surely bears the wrong label; it matches precisely *MacOwan* s.n. (E) from Tulbagh Waterfall. I have seen the following collections, the most recent made in 1896: *Drège*, collected 18 x 1828 (P); *Ecklon & Zeyher* (code 1.12), MO, S, Z; *MacOwan* s.n., E, SAM (one of the two sheets in E also bears two stems of *P. densifolia*, clearly collected by MacOwan to demonstrate the difference between the two species; *Drège* also collected both); *Schlechter* 9054, E, K, MO, S, Z.

Pseudoselago spuria may be involved in complex hybridization; see under *P. gracilis*.

14. *Pseudoselago gracilis* Hilliard, sp. nov. a *P. spuria* (L.) Hilliard habitu, caulibus plerumque ramosis foliis plerumque acute ascendentibus et gradatim sursum decrescentibus (nec caulibus plerumque simplicibus, foliis in dimidio inferiore congestis et inferne plus minusve patentibus, in dimidio superiore abruptius minoribus distantibus acute ascendentibus), inflorescentia spicis solitariis vel paucis in panícula laxa corymbosa (nec in corymbo congesto), floribus infimis spicae saepe distantibus (nec congestis), limbo corollae albo (nec varie caeruleo) distinguenda.

Type: Cape, Clanwilliam div., 3219 AC, Uitkyk Pass, 3 xii 1934, *Compton* 4787 (holo. NBG).

Perennial herb, taproot woody, up to c.8mm diam. at apex, stems eventually several from the base, c.150–750mm tall, primary stem erect, laterals often decumbent, all sparingly branched, branches often long, thin, rod-like, possibly straggling in very tall plants, ribbed by decurrent leaf-bases, glabrous except for hairs carried down by leaf-bases. *Leaves*: radical (rarely present) c.28–40 × 2–10mm, oblanceolate, largest cauline 7.5–35 × 0.8–1.7mm, opposite becoming alternate upwards, evenly distributed to very moderately crowded on lower part and there ascending or somewhat spreading, gradually smaller and sharply ascending upwards, linear or very narrowly oblanceolate, apex acute, base broad, decurrent in very narrow wings of nearly uniform width, margins with 1–3(–4) pairs of very small teeth in upper part, teeth

sometimes obscure or leaf entire, thick-textured, only midvein visible, glandular-punctate, lower leaves sparsely to moderately hairy, ranging from margins only to all over both surfaces, upper leaves either glabrous or very sparsely hairy, hairs up to 0.2–1mm long. *Inflorescence* terminal, spikes either solitary or few (up to 5) in a loose corymb or very loosely paniced, when paniced the peduncles up to 75–300mm long and sharply ascending, lowermost flowers often becoming distant (c.1.5–3mm apart), axes glabrous or with scattered minute glands. *Bract* adnate to calyx tube, lowermost 3.2–6.5 × 0.7–1.2mm, lanceolate, acute to shortly acuminate, glabrous, indurated with age, much swollen on lower back. *Calyx* c.2–3.2mm long on anticous side, small inconspicuous sessile glands mostly on anticous side, and hidden under bract (or conspicuous all round in southernmost part of range), indurated with age. *Corolla* tube c.5–10mm long, widening gradually upwards, limb nearly regular, c.5–7.5mm across the spreading lateral lobes, posticous lobes (1.2–)1.8–2.4 × (1–)1.2–2mm, anticous lobe (1.8–)2.5–4 × (1.1–)1.6–2.8mm, all lobes elliptic, white (but see discussion), dark orange patch at base of posticous lip, bearded there and down back of throat, hairs extending all round mouth. *Stamens*: posticous filaments 0.8–1.5mm long, anthers 0.4–0.8mm, in mouth or briefly exerted, anticous filaments 1.2–2mm, anthers 0.4–0.8mm, well exerted. *Stigma* and *style* c.6–14mm long. *Ovary* c.0.8 × 0.3mm. *Cocci* c.2–2.3 × 0.8mm. *Seeds* not fully ripe.

Selected additional specimens (see further below). CAPE. Van Rhynsdorp div., 3118 DC, Giftberg, 2000ft, 15 x 1953, *Esterhuysen* 22023 (BOL, MO); *ibid.*, *Drège* (E, distributed as *Selago spuria* L. g). Clanwilliam div., 3218 BB/3219 AA, Pakhuis Pass, 1 xii 1934, *Compton* 4770 (NBG); 3219 AA, Cedarberg Wilderness Area, Krakadouwpoort, c.3400ft, 16 i 1977, *Haynes* 1259 (STE). 3219 AD, Cedarberg, Wolfberg, 26 xii 1953, *Esterhuysen* 22439 (BOL). 3219 AC, Cedarberg, Tafelberg, 4300ft, 24 i 1963, *Rycroft* 2653 (NBG, STE). 3219 CC, Grasmuggens Mt, 26 xi 1938, *Pillans* 8798 (BOL, K, NBG). 3319 AB, Skurfdberge, E of Citrusdal, ii 1928, *Primos* sub SAM 45692 (SAM). Ceres div., 3319 AC, Elands Kloof, 3500ft, 19 xii 1944, *Compton* 16784 (NBG, STE). 3319 BC, Matroosberg near Laaken Vlei, xi 1917, *Phillips* 2136 (SAM). Langebergen [possibly Garcia's Pass, 3321 CC], 460m, 20 xi 1892, *Schlechter* 1829 (E, K, S, STE, Z); *ibid.*, 27 xi 1814, *Burchell* 6888 (K).

Pseudoselago gracilis will be found in herbaria under several different names, including *Selago burmannii* (Series B), *S. heterophylla* [that is, *Pseudoselago similis*], *S. humilis* (both Series C), *S. incisa* [that is, *Pseudoselago ascendens*] and *S. spuria* (both Series A). The relationship of the species lies with *P. spuria* from which it may be distinguished by its habit, the stem usually branching, leaves more or less evenly distributed on lower part of stem and only gradually smaller (and sometimes distant) upwards (not stem usually simple, leaves crowded on lower half and there more or less spreading, on upper half rather abruptly smaller, distant, sharply ascending; see Figs 17, 18), inflorescence with spikes solitary or few in a loose corymb or corymbose panicle (not in a congested corymb), lowermost flowers in a spike often distant (not crowded), corolla limb white (not mauve/blue). This last character breaks down where *P. gracilis* and *P. spuria* meet around Tulbagh, Ceres, Paarl, and on the Cape Peninsula (see further below).

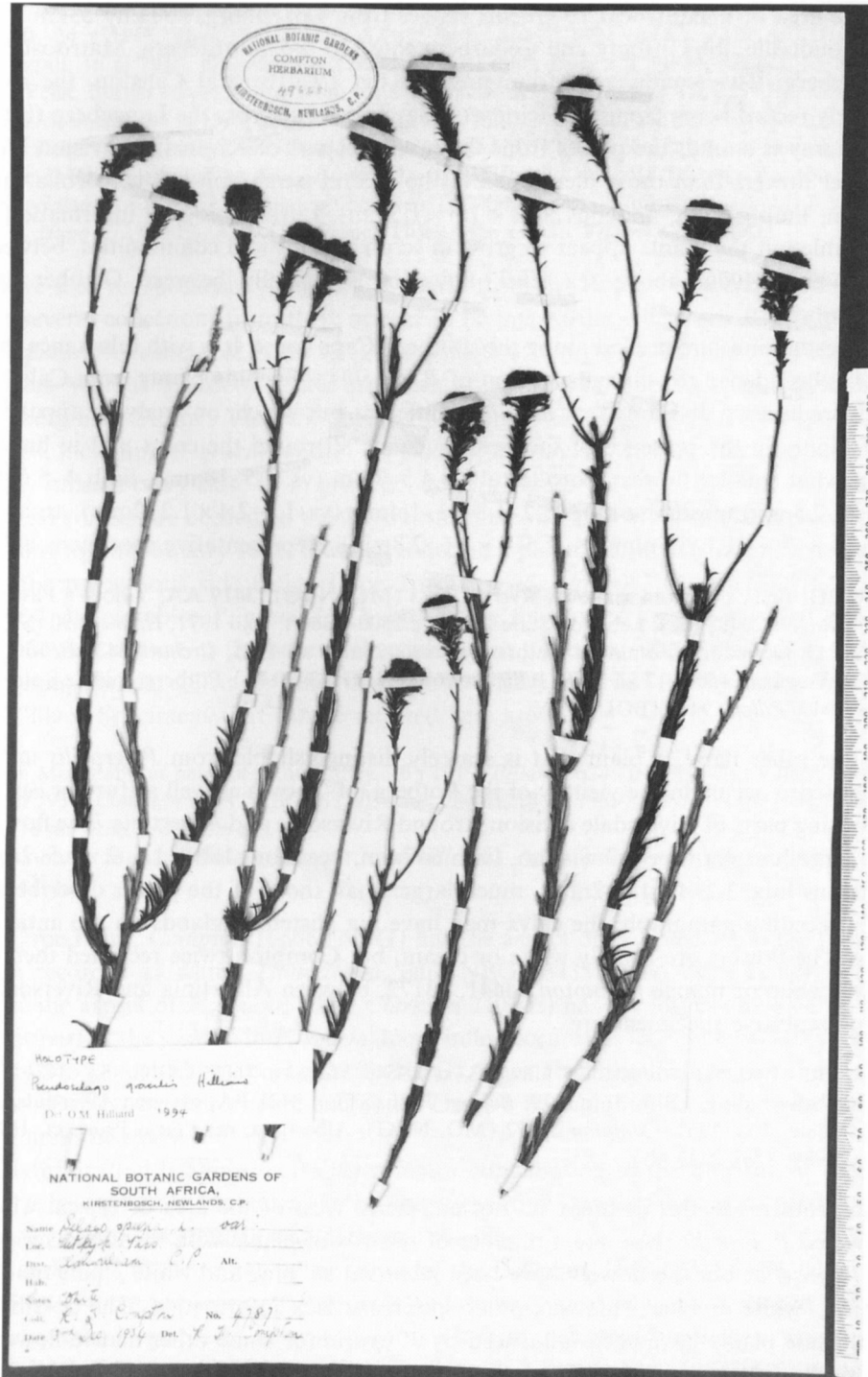


FIG. 18. *Pseudoselago gracilis* (holotype, Compton 4787, NBG).

The area of unequivocal *P. gracilis* ranges from Lokenburg, roughly 35km S of Niewoudtville, the Giftberg and Cedarberg south to the Skurfdeberg, Matroosberg, Langeberg, Riviersonderend Mountains and the Zwartberg at Caledon, the most easterly record being from the vicinity of Garcia's Pass across the Langeberg (if my taxonomy is sound; the plants from the montane part of Riversdale division have smaller flowers than those mentioned in the second paragraph below: corolla tube c.6mm, limb c.5mm, anticous lobe c.2.3 × 1.5mm). Little ecological information is available but the plants appear to grow in scrub and restioid communities, between c.450 and 1400m above sea level, flowering principally between October and December.

Investigations are needed along the southern Cape coast. It is with reluctance that I have broadened my circumscription of *P. gracilis* to include plants from Caledon and Bredasdorp divisions that may *look* different but which, on analysis, appear to differ only in the presence of tiny sessile glands all round the calyx and in having somewhat smaller flowers: corolla tube c.4.5–7mm (vs. 6.5–10mm), limb 4–5.6mm (vs. 5–7.5mm), posticous lobes 1.2–1.8 × 1–1.4mm (vs. 1.8–2.4 × 1.2–2mm), anticous lobe 1.8–2.8 × 1.1–1.7mm (vs. 2.5–4 × 1.6–2.8mm). Representative specimens are:

3418 BD, Betty's Bay, 14 xii 1964, *Rycroft* 2773 (MO, NBG). 3419 AA, Viljoen's Pass, xii 1924, *Rogers* 28488 (K); Lebanon State Forest, c.2500–3300ft, 7 xii 1971, *Haynes* 590 (STE). 3419 AD, Hermanus, Fernkloof Nature Reserve, 125m, 4 xii 1975, *Orchard* 343 (E, MO, S, STE); Vogelgat, 150ft, 17 xii 1978, *Williams* 2674 (NBG). 3420 BC, Potberg, middle S slopes, 12 x 1940, *Pillans* 9482 (BOL).

On the other hand, a plant that is scarcely distinguishable from *P. gracilis* in the strict sense occurs in the vicinity of the Potberg (cf. above) as well as further east in low-lying parts of Riversdale division, around Riversdale and Albertinia. The flowers are large (corolla tube c.7–8.4mm, limb 6–7mm, posticous lobes 1.7–2 × 1.5–2mm, anticous lobe 3.2–4 × 1.6–2mm), much larger than those of the plants described in the preceding paragraph; the calyx may have big glistening glands on the anticous side. The flowers are usually white or cream, but Compton twice recorded them as being white or mauve (*Compton* 24441, 23172, between Albertinia and Riversdale). Representative specimens are:

3420 BC, Potteberg, limestone hills, 13 xi 1954, *Maguire* 2609 (NBG, S). 3421 AB, Reisesbaan Siding, 150ft, 31 x 1979, *Bohnen* 7091 (STE). 3421 BA, between Albertinia and Riversdale, 7 xii 1951, *Compton* 23172 (MO, NBG); Albertinia, near farm Prospect, 160m, 18 xi 1989, *Vlok* 2235 (E).

The problems in this complex do not end here. West of the area of typical white-flowered *P. gracilis* there are a number of records of plants with the characteristics of *P. gracilis*, but the flowers have been recorded as 'blue and white', 'pale mauve-white', 'white or blue', 'mauve'; other specimens lack information. The possibility that these plants have been influenced by *P. spuria* (or some other mauve-flowered species) needs investigation. The following specimens, excluding those from the Cape Peninsula, have been seen:

3318 BC, Malmesbury, 28 ix 1941, *Stokoe* 8384 (BOL). 3318 BD, summit of Riebeeck Kasteel, 2000ft, 24 x 1968, *Hall* 3309 (NBG, STE); *ibid.*, *Marsh* 1022 (STE). 3319 AC, Tulbagh Waterfall, 16 xi 1941, *Compton* s.n. (NBG 49636); *ibid.*, *Isaac* s.n. (BOL 57177). 3318 DA, near Pella, Burger's Post Farm, 200m, 11 x 1979, *Boucher & Shepherd* 4788 (STE). 3318 DB, Paarl Mountain, 26 ix 1961, *Jordaan* 1283 (STE); *ibid.*, 3 xi 1986, *van Schalkwyk* s.n. (STE); *ibid.*, *Drège* (E, K, MO, S, distributed as *Selago spuria* L. c); between Paarl and French Hoek, *Drège* (MO, distributed as *Selago spuria* L. b). 3319 AC, Voelvllei Tortoise Reserve, 14 ix 1989, *Solomon* 77 (STE); on plateau between Tulbagh waterfall and Kluitjieskraal F.S., 4 xi 1976, *Hugo* 772 (STE). 3319 CC, French Hoek Mts, i 1937, *Thorns* s.n. (NBG).

I have seen no specimens of typical *P. spuria* from the Riviersonderend Mountains, but several collections from there appear to be intermediate between *P. gracilis* and *P. spuria*: *Bokelmann & Paine* 55 (E), outskirts of Greyton (very close to *P. spuria*, flowers 'various shades of mauve and pure white'); *Stokoe* sub SAM 64818 (SAM), Dasberg near Storm's Vlei (the sheet in MO under this number is a hotchpotch of scraps, including *P. gracilis* and *P. subglabra*); *Morley* 317 (STE), Riviersonderend, rocky hillside (very close to *P. gracilis*, 'flowers blue').

Field studies are needed on the Cape Peninsula, on Table Mountain and elsewhere. As long ago as January 1811, Burchell collected a plant 'on Table Mountain (ascending the precipitous side facing Cape Town) on the summit.' (*Burchell* 587, K, his italics). It resembles *P. gracilis* in habit, in the solitary or loosely paniced spikes, and flowers distant at the base of the spikes, but the calyx tube is clad all round in glistening glands; collectors other than Burchell have recorded the flowers as 'mauve' and 'lilac'. Specimens that can be referred here are:

Table Mountain, at head of Echo Valley, 26 i 1919, *Pillans* 3624 (BOL); Echo Valley, 3000ft, 28 xii 1939, *Compton* 8298 (NBG, STE); *ibid.*, 2800ft, 18 xii 1939, *Levyms* 7133 (BOL). Table Mt, 18 xii 1936, *Hafström* s.n. (S).

In summo Monte Tabulari, Decmbr., *sine coll.* (K). Ad latera mont. tabularis, Octbr., *sine coll.* (K).

At Cape Point, *Compton* 16666 (NBG) has the aspect of *P. gracilis* and the flowers were recorded as white; *Thomas* s.n. (sub NBG 43433), also white-flowered, has more the aspect of *P. spuria*, while *Clarkson* 210 (E) has the leaves crowded on the lower part of the stem as in *P. spuria*, loose inflorescences as in *P. gracilis* and flowers 'mauve to almost white'. *Barker* 3958 (NBG), from Theefontein, is *P. gracilis*. Lion's Head, Fish Hoek, Simonsberg and above Camp's Bay might also prove to be profitable areas of study.

Hybridization is almost certainly a factor contributing to the blurring of species limits. Several more examples can be given, the first a possible sporadic hybrid, the others possibly the result of much back-crossing.

Acock 3298 (S) from the lower slopes of the Bottelary Hills (3318 DD), collected on 5 x 1934, has the aspect of *P. gracilis*, but the very narrowly funnel-shaped corolla tube and the large bracts suggest that it is a hybrid, possibly *P. gracilis* × *rapunculoides*. Both *P. rapunculoides* (*Acock* 1273, S) and *P. spuria* (*Acock* 3370, S) occur in the area.

The area of the Kogelberg, Dwarsrivierberg, Rooielsberg and south to Betty's Bay (3418 BD) and east to the Palmietberge behind Kleinmond (3419 AC) should be investigated for possible hybridization; *P. gracilis*, *P. rapunculoides*, *P. serrata*, *P. spuria*, *P. pulchra* and *P. verbenacea* have all been recorded there, but it may be only *P. gracilis* and *P. spuria* that hybridize. Both these species have been recorded from sea level to 1220m (on Kogelberg), but a good many specimens are more or less intermediate between the two; for example *Compton* 16477 (NBG), *Hafström & Lindeberg* s.n. (S) and *Boucher* 1819 (STE) have the aspect of *P. gracilis* but the flowers are mauve, while *Compton* 12260 (NBG, S) and *Barker* 1517 (NBG) have the foliage and flower-colouring of *P. gracilis*, but the inflorescences are either congested or slightly lax.

The mountainous area from the Jonkershoekberge, Stellenboschberg and Hottentot's Holland to the Groenlandberge (3419 AA) also needs investigation as a possible area of hybridization; *P. ascendens*, *P. gracilis*, *P. spuria*, *P. subglabra* and *P. verbenacea* are the species recorded there that may be involved. All the specimens of *P. verbenacea* from the Lebanon State Forest are exceptionally narrow-leaved (see *Haynes* 494, 888, *Kruger* 1020, *Viviers* 75, all STE). *Pseudoselago gracilis* and *P. subglabra* may hybridize on Viljoen's Pass; *Wall* s.n. (S) is possibly this cross. See further under *P. ascendens*.

15. *Pseudoselago parvifolia* Hilliard, sp. nov. a *P. gracili* Hilliard foliis appressis vel acute ascendentibus (nec ascendentibus vel paulo patentibus), plerumque brevioribus et latioribus (2.5–10(–20) × 1.2–2.5(–4)mm, nec 7.5–35 × 0.8–1.7mm) uti caulibus glabris (nec parce vel moderatim pilosis), calyce glandulis conspicuis (nec glandulis parvis ad latus anticum restrictis), et corollae tubo plerumque brevior (4.5–7mm, nec 6.5–10mm) distinguenda.

Type: SW Cape, Worcester div., 3319 DA, Keeromsberg, 3000ft, 22 xi 1956, *Esterhuysen* 26602 (holo. BOL; iso. K, MO).

Perennial herb, taproot woody, c.4–5mm diam. at apex, stems 1 to several from base, c.200–900mm tall, stiffly erect, rod-like, sparingly branched, branches sharply ascending, occasionally twiggy at apex through production of short flowering branchlets, ribbed by decurrent leaf-bases, usually glabrous, rarely a few hairs at extreme base. *Leaves* (largest) 2.5–10(–20) × 1.2–2.5(–4)mm, opposite becoming alternate upwards, appressed or sharply ascending, crowded and ± overlapping on lower parts, somewhat distant upwards, oblong, oblong-lanceolate, oblong-elliptic or elliptic, apex acute, base broad, decurrent in very narrow wings of nearly uniform width, margins with 1–4 pairs of small teeth, uppermost, reduced, leaves entire, thick-textured, only midvein visible, glandular-punctate, otherwise usually glabrous, rarely a few tiny hairs on margins and midline. *Inflorescence* terminal, spikes either solitary or 2–3, rarely several, in a ± compact corymb, flowers crowded, axes glabrous or with a few minute scattered glands. *Bract* adnate to calyx tube, lowermost 3–5 × 0.7–1.2mm, lanceolate, acute, glabrous or a few minute glands, indurated with age, much swollen on lower back. *Calyx* 2–2.8mm long on anticous side, conspicuous

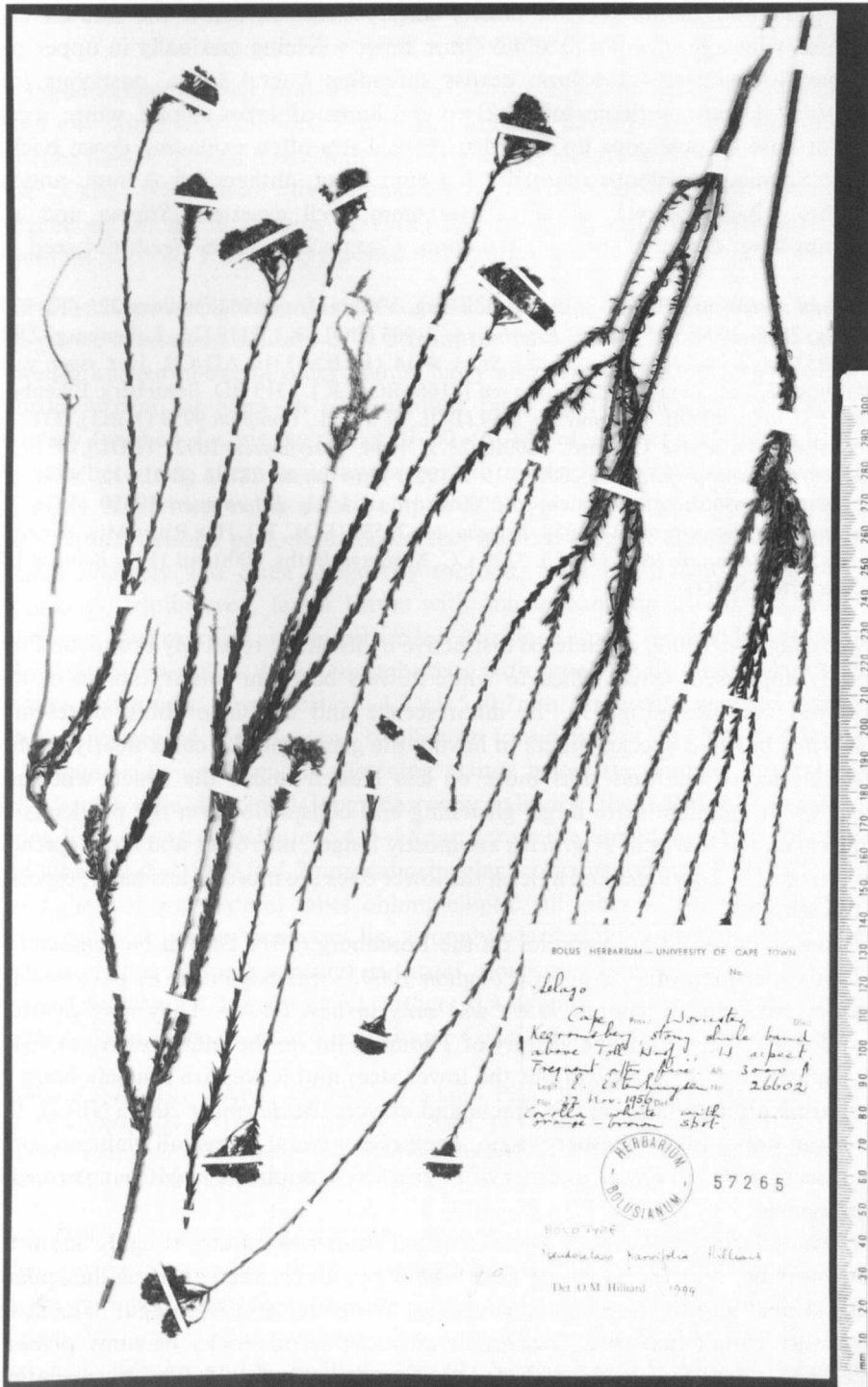


FIG. 19. *Pseudoselago parvifolia* (holotype, Esterhuysen 26602, BOL).

sessile glistening glands present, mostly thickly clustered below the sinuses, calyx indurated with age. *Corolla* tube 4.5–7mm long, widening gradually in upper part, limb nearly regular, 4.3–6.4mm across spreading lateral lobes, posticous lobes 1.4–2 × 1.1–1.6mm, anticous lobe 2–3 × 1.2–1.8mm, all lobes elliptic, white, orange patch at base of posticous lip, bearded there, hairs often extending down back of throat. *Stamens*: posticous filaments 1–1.8mm long, anthers 0.5–0.7mm, anticous filaments 1.2–2mm long, anthers 0.4–0.6mm, well exerted. *Stigma* and *style* 4.5–8mm long. *Ovary* c.0.8–1 × 0.3–0.4mm. *Cocci* c.2.5 × 1mm. *Seeds* not seen.

Additional specimens. CAPE. 3118 DC, Gifberg, Vleikraal, xii 1982, *Walters* 225 (K, STE); Giftberg, 2500–3000ft, 15 x 1953, *Esterhuysen* 21963 (BOL, K). 3119 CA, Lokenburg, 2200ft, 16 x 1953, *Acocks* 17448 (K); *ibid.*, *Story* 4414 (PRE). 3319 AD/CB, Hex river valley, Buffelshoek Kloof, 30 xi 1947, *Esterhuysen* 14166 (BOL, K). 3319 BD, Bonteberg, Eikenbosch Hoek, 3 xi 1940, 4000ft, *Esterhuysen* 3759 (BOL, K); *ibid.*, *Compton* 9959 (NBG). 3319 BC, Kavadouws Mts above Orchard, 3500ft, 23 xi 1944, *Esterhuysen* 10921 (BOL). 3319 CB, Audenberg, Malkops Kloof, c.2000ft, 15 ii 1959, *Esterhuysen* 28182 (BOL, K, MO). 3319 DA, near Keeromsberg, Blaauwkop, 3000ft, 16 xii 1951, *Esterhuysen* 19650 (BOL, K); Keeromsberg, Blaaskloof, 23 ii 1958, *Esterhuysen* 27584 (BOL, K). Hex River Mts, Kleinberg, 10 xi 1953, *Esterhuysen* 9947 (BOL). 3320 CC, Montagu Baths, 800ft, xii 1892, *Bolus* in herb. Guthrie 2766 (NBG).

Pseudoselago parvifolia is rendered distinctive by its short, relatively broad, and often strongly appressed, leaves allied to white flowers borne in solitary spikes or loose few-rayed corymbs (Fig. 19). In inflorescence and colour of limb it resembles *P. gracilis*, but that species differs in having the glands on the calyx nearly confined to the anticous side and thus more or less hidden under the bract, whereas in *P. parvifolia* the glands are large, glistening and conspicuous on the posticous side of the calyx; the leaves of *P. gracilis* are mostly longer, narrower and more spreading than those of *P. parvifolia* and at least the lower ones are more or less hairy, especially on the margins.

Compton collected both species on the Bonteberg (3319 BD) in November 1940, when his specimen of *P. gracilis* (*Compton* 10002) was beginning to pass into fruit while *P. parvifolia* (*Compton* 9959) was only in first flower. They may hybridize: *Forsyth* 310 (STE), from the vicinity of Thomas Hut on the Matroosberg at 1340m, has the aspect of *P. parvifolia* but the lower stem and leaves are sparsely hairy and there are scattered hairs on the bracts and calyces. *Middlemost* 2042 (NBG), from the lower slopes of Naudesberg, Koo, comprises several stems, all glabrous; one is reminiscent of *P. parvifolia*, another of *P. gracilis*. A duplicate in MO is intermediate in character.

Pseudoselago parvifolia has been recorded from Lokenburg, roughly 35km S of Niewoudtville, and the Giftberg near Van Rhynsdorp, then there is an apparent distributional gap to the mountains around Worcester and Montagu; its area thus lies wholly within that of *P. gracilis*. It grows in scrub (rocky or stony places on slopes and ridges frequently recorded) between c.600 and 1300m above sea level, flowering mainly in November and December.

SERIES B: Corolla tube narrowly cylindrical then abruptly expanded under the limb, lateral lobes spreading

16. *Pseudoselago candida* Hilliard, sp. nov. a *P. subglabra* Hilliard foliis maximis 20–60 × 4–14mm (nec 8–35 × 0.5–2mm) ellipticis in parte petiolari distincta angustata (nec linearibus basi latis), inflorescentia multo laxiore differt.

Type: Cape, [Riversdale div., immediately W of Garcia's Pass through the Langeberge] on the mountains at Valley-Rivers Poort, just above the waterfall at Mountain Station, 3 xii 1814, *Burchell* 7014 (holo. K).

Coarse herb, probably annual, stem c.250–750mm tall, 4–5mm in diam. at base of well-grown specimens, solitary or 2–3 from the base, simple when young, sparingly to well-branched above in older plants, hairy all round at extreme base, otherwise glabrous except for hairs on ribs in lower part, leafy particularly in lower half, narrowly 4-ribbed. *Leaves* (largest) c.20–60 × 4–14mm, smaller and distant upwards, opposite becoming alternate in upper part to moderately crowded on lower part, spreading, largest leaves lanceolate, elliptic or narrowly elliptic, acute, base tapering into a distinct petiolar part, decurrent in very narrow wings of almost uniform width, margins coarsely and often irregularly toothed, teeth mostly more than 4 pairs, herbaceous, triplinerved, larger leaves with coarse hairs up to c.0.4–0.5mm long mainly on lower margins and midrib on lower surface, upper reduced leaves glabrous. *Inflorescence* typically a loose corymb, axis with some small sessile glands. *Bract* adnate to calyx tube, lowermost c.3–4.7 × 0.5–0.7mm, lanceolate, acute to acuminate, glabrous, indurated with age and swollen on lower back. *Calyx* c.2.2–2.5mm long on anticous side, conspicuous glistening glands below the sinuses, indurated with age. *Corolla* tube 4–5.3mm long, narrowly cylindrical then abruptly expanded in throat, limb strongly bilabiate, c.4.2–4.8mm across the spreading lateral lobes, posticous lobes c.1.2–1.5 × 0.9–1.2mm, suborbicular, anticous lobe c.1.8–2.4 × 1–1.3mm, it and the 2 shorter lateral lobes oblong-elliptic, all lobes white, probably yellow/orange patch at base of posticous lip, strongly bearded there, sometimes a few hairs on anticous lip. *Stamens* inserted in throat, posticous filaments c.0.8–1.2mm long, anticous filaments 1.2–1.8mm, all anthers 0.4–0.5mm, all far exerted. *Style* and *stigma* 5–7mm long. *Ovary* c.0.8 × 0.3mm. *Cocci* c.2.3 × 0.8mm. *Seeds* not ripe.

Additional specimens. CAPE. 3320 DC, Tradouw Pass, 1000ft, i 1923, *Levy* 675 (BOL); *ibid.*, 28 i 1969, *Marsh* 1148 (STE); *ibid.*, c.1200ft, 14 i 1980, *Goldblatt* 5429 (MO). 3320 DD, Strawberry Hill, xii 1954, *Stokoe* sub SAM 68578 (SAM). 3321 CC, top end of Garcia's Pass, 2000ft, 29 i 1969, *Marsh* 1165 (PRE).

Rolfe (1901: 164) cited *Burchell* 7014, type of the name *Pseudoselago candida*, as *Selago verbenacea* (see Fig. 20), but *P. candida* has nothing other than generic characters in common with that species. The corolla tube is that characteristic of *Pseudoselago rapunculoides* and its allies. An unknown hand has written on the sheet 'near *rapunculoides*' and N. E. Brown wrote '*Selago arguta* E. Mey.?'. *Pseudoselago candida* is immediately distinguished from *P. arguta* by its well-exserted stamens

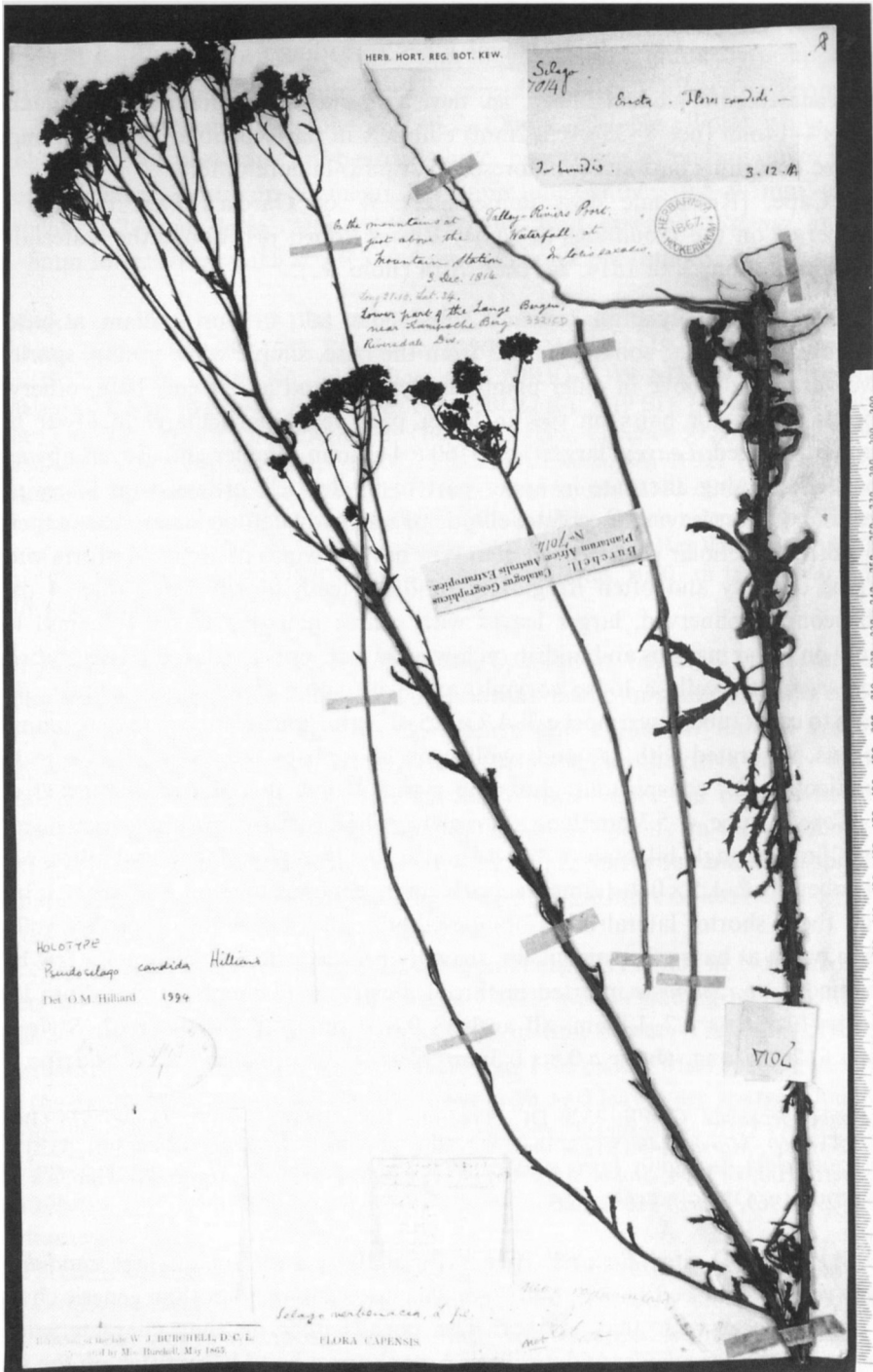


FIG. 20. *Pseudoselago candida* (holotype, Burchell 7014, K).

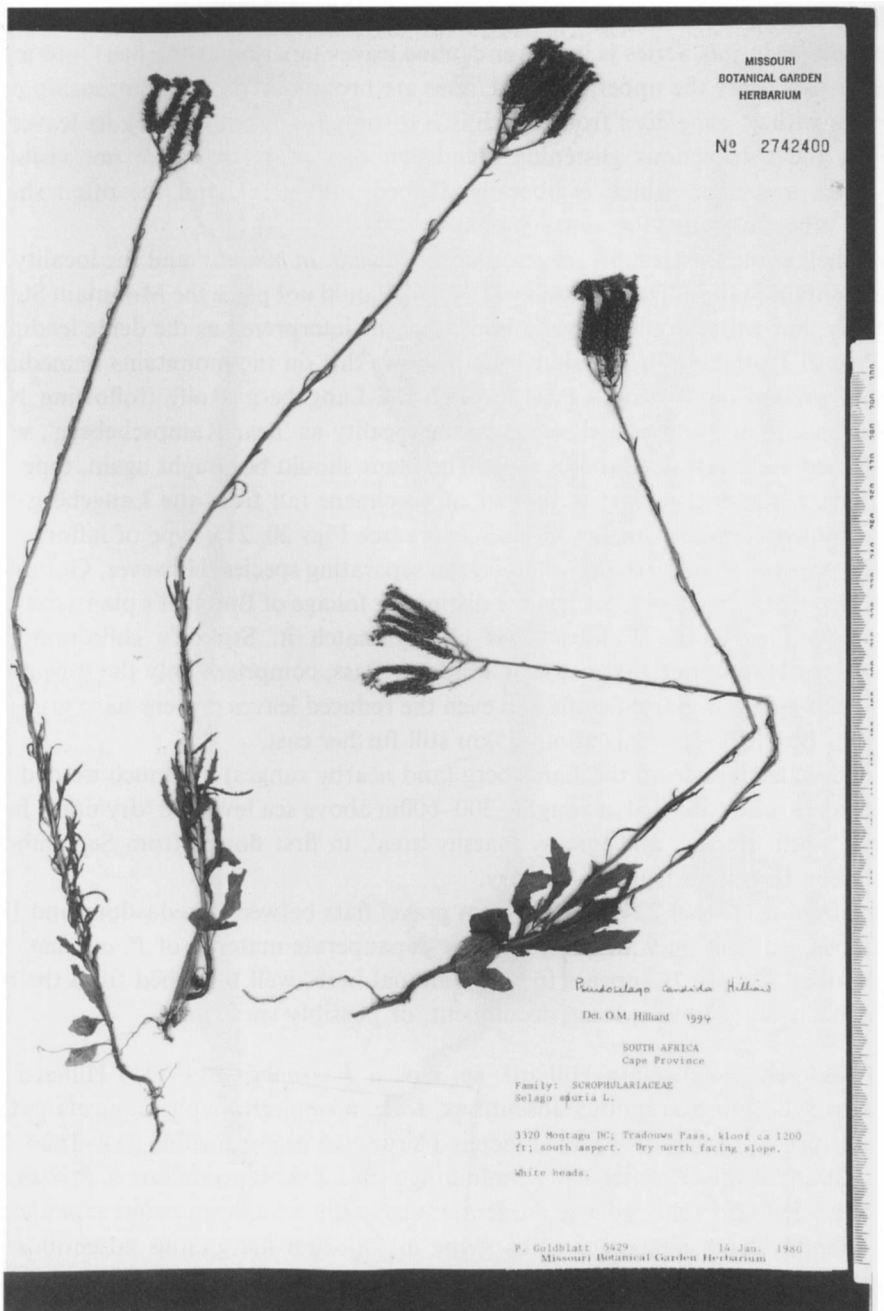


FIG. 21. *Pseudoselago candida*, specimen with the inflorescence more compact than in the typical plant (Goldblatt 5429, MO).

(held in the throat in *P. arguta*). The character that sets *P. candida* apart from all other species in this Series is its lower cauline leaves tapering at the base into a long petiolar part (only the upper, reduced, ones are broad-based). Its relationship probably lies with *P. subglabra* from which it is distinguished not only by its leaves but also by the conspicuous glistening glands on the calyx (these are not visible in Burchell's specimen, which is liberally daubed with glue), and the often shorter corolla tube, anticonic lobe, and filaments.

Burchell wrote on his label '*Erecta. Flores candidi. In humidis*' and the locality was his Mountain Station. Helen McKay (1943: 62) could not place the Mountain Station precisely, but wrote 'Valley River's Poort may be interpreted as the defile leading to the Pass at Platteklouf'. The sketch map shows this on the mountains immediately west of present-day Garcia's Pass through the Langeberg. Rolfe (following N. E. Brown's annotation on the sheet) gave the locality as 'near Kampscheberg', which lies immediately east of Garcia's Pass. The plant should be sought again, especially as I have associated with it a number of specimens (all from the Langeberg) that differ in having more compact inflorescences (see Figs 20, 21); type of inflorescence usually appears to be a reliable character in separating species. However, Goldblatt's collection from Tradouw Pass has the distinctive foliage of Burchell's plant; the other two collections from Tradouw Pass clearly match it. Stokoe's collection from Strawberry Hill, about 10km east of Tradouw Pass, comprises only the tops of two stems, but agrees in floral details and even the reduced leaves present have four pairs of teeth. Burchell's site was about 35km still further east.

Good collections from the Langeberg (and nearby ranges) are much needed. The plants have been recorded at roughly 300–600m above sea level, on 'dry north facing slope', 'south slopes', and 'grassy marshy area', in first flower from September to December, mostly in fruit by January.

Hafström & Acocks 2241 (PRE) from gravel flats between Bredasdorp and Elim, and mostly in fruit on 9 xii 1938, is either depauperate material of *P. candida* or an undescribed species. It appears to be an annual herb, well branched from the base, the stems up to c.100mm long, decumbent, or possibly sprawling.

17. *Pseudoselago subglabra* Hilliard, sp. nov. a *P. rapunculoide* (L.) Hilliard pilis saepe in foliorum marginibus adsentibus, foliis ad apicem caulis angustis patentibusque (nec latis appressisque), bracteis plerumque angustioribus (0.4–1mm latis, nec 1–3mm) et calyce antice 1.8–2.9mm longo (nec 3–4.5mm) differt. A *P. densifolia* (Hochst.) Hilliard foliis inferne moderate aggregatis ad apicem caulis remotioribus (nec omnino dense aggregatis) pilis saepe in foliorum marginibus adsentibus (nec semper marginibus glabris) corollae limbo malvino vel in uno populo et malvino et albo (nec semper albo) recedit.

Type: Cape, 3318 DD, Stellenbosch, Jonkershoek, near Kleinplaas, 26 x 1919, *Garside* 1320 (holo. K).

Perennial herb, taproot woody, plant c.100(seedling)–800mm tall, stem solitary, usually simple for c.20–150mm then sparingly branched, branches stiff, woody,

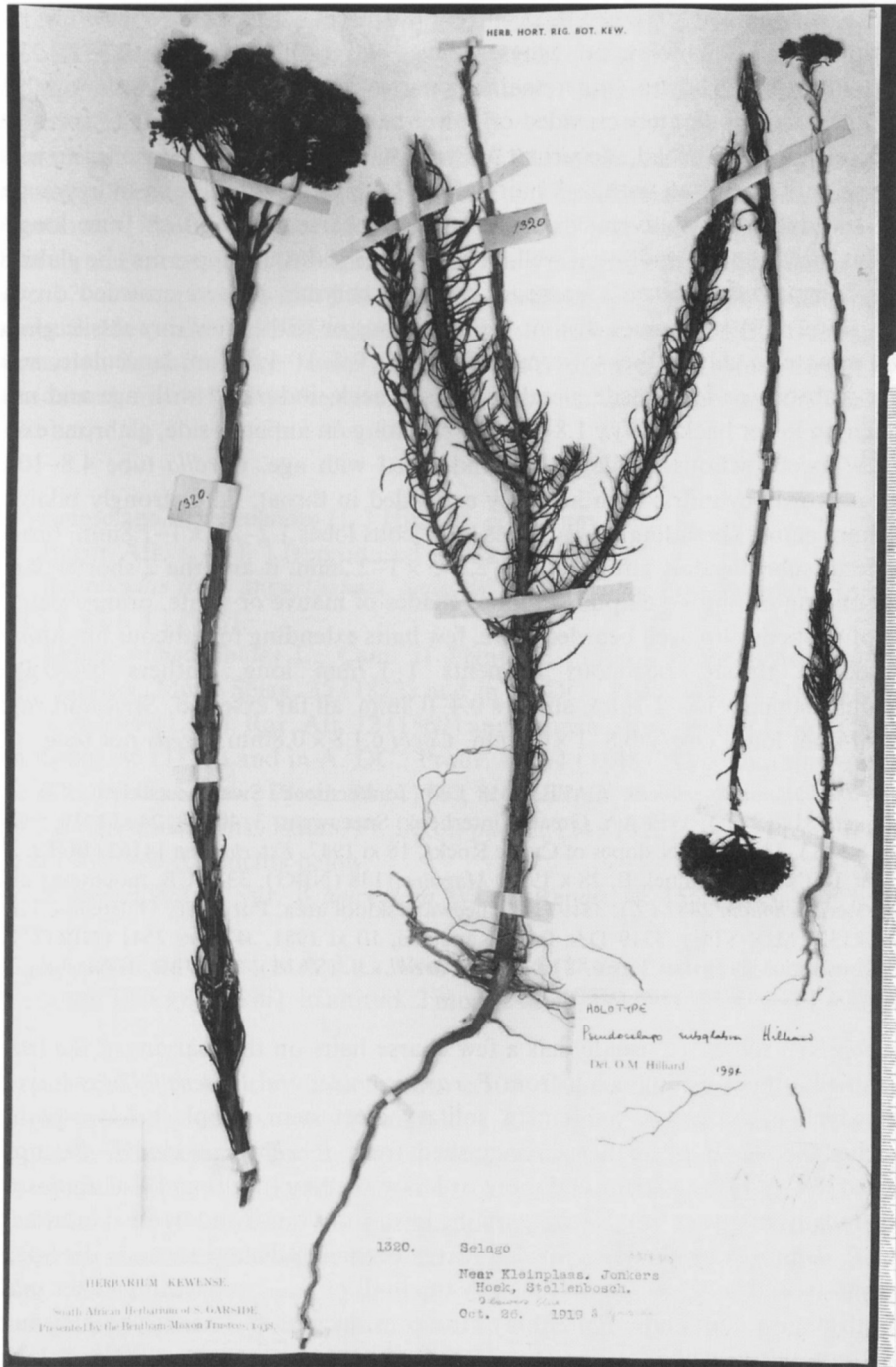


FIG. 22. *Pseudoselago subglabra* (holotype, Garside 1320, K).

rod-like, very narrowly winged by decurrent leaf-bases, glabrous except for few hairs occasionally carried down on wings. *Leaves* (largest) 8–35(–40) × 0.5–1(–2)mm (excluding teeth), shorter (but remaining narrow) and distant upwards, opposite, soon alternate, moderately crowded on lower part of stems, ascending to spreading, linear, acute, base broad, decurrent in very narrow wings of ± uniform width, margins entire or often with 1–3 pairs of teeth up to 0.5–1mm long in upper part, thick-textured, only midvein visible, often few coarse hairs c.0.25–1mm long on margins, occasionally midline as well, or sometimes glabrous (upper may be glabrous, lower hairy). *Inflorescence* a compact terminal corymb, flowers crowded on each spike, lowermost sometimes distant, axis glabrous or with a few tiny sessile glands. *Bract* adnate to calyx tube, lowermost 2.6–6.5 × 0.4–1(–1.3)mm, lanceolate, acute, either glabrous or few sessile glands on lower back, indurated with age and much swollen on lower back. *Calyx* 1.8–2.3(–3)mm long on anticous side, glabrous except for few inconspicuous sessile glands, indurated with age. *Corolla* tube 4.8–10mm long, narrowly cylindric then abruptly expanded in throat, limb strongly bilabiate, 4.2–8mm across spreading lateral lobes, posticous lobes 1.2–2.2 × 1–1.8mm, broadly elliptic to suborbicular, anticous lobe 2.2–5 × 1–2.2mm, it and the 2 shorter lateral lobes oblong or oblong-elliptic, all lobes shades of mauve or white, orange patch at base of posticous lip, well bearded there, few hairs extending to anticous lip. *Stamens* inserted in throat, posticous filaments 1–1.7mm long, anthers 0.4–0.8mm, anticous filaments 1.5–2.7mm, anthers 0.4–0.8mm, all far exerted. *Style* and *stigma* c.5.4–14mm long. *Ovary* 0.8–1 × 0.3mm. *Cocci* c.1.8 × 0.8mm. *Seeds* not seen.

Selected additional specimens. CAPE. 3318 DD, Jonkershoek, Swartboschkloof, 4 x 1982, McDonald 817 (STE). 3319 AA, Great Winterhoek, Sneeuwgat, 3–4000ft, 24 xi 1916, Phillips 1890 (SAM). 3319 AD, N slopes of Castle Rocks, 16 xi 1947, Esterhuysen 14162 (BOL). 3319 CA, du Toit's Kloof tunnel, E, 28 x 1951, Maguire 1138 (NBG). 3319 CB, mountains above Worcester, Rehmann 2481 (Z). 3319 CC, Theewaterskloof area, Purgatory Outspan, c.1100ft, Hugo 2133 (MO, STE). 3319 DA, farm Kanetylei, 10 xi 1981, Walters 2541 (NBG). 3418 AB, Constantia, Bergvliet Farm, 8 xi 1918, Purcell s.n. (SAM). 3418 BB, Helderberg butress, 23 x 1928, Gillett 1806 (STE).

Pseudoselago subglabra usually has a few coarse hairs on the margins of the leaves, which will at once distinguish it from *P. rapunculoides* and *P. densifolia*, two species with which it shares the habit of a solitary erect stem, simple below, sparingly branched above. It is further distinguished from *P. rapunculoides* by the upper, reduced, leaves being narrow and more or less spreading (not broad and appressed), by its mostly narrower bracts (compare the lowermost ones) and by its shorter calyx; from *P. densifolia* by the less crowded leaves becoming distant towards the apex of the stem (see Figs 22, 23 and 24) and by the limb of the corolla being either mauve or both mauve and white in a colony (the constancy of this needs checking in the field), not always white.

Specimens from Piquetberg Mountain differ from typical *P. subglabra* by their somewhat longer leaves (to 40mm), broader bracts (1.1–1.3mm) and longer calyx (2.3–3mm); Piquetberg is at the north-west extremity of the range of the species and

isolated from it by extensive flats (Piquetberg Mountain, 3 xi 1952, *Barker* 7559, NBG, STE, *Martin* 902, NBG, *Maguire* 1190, NBG; hills NW of Mouton's Vlei, 6 xi 1934, *Pillans* 7470, BOL, hills between Mouton's Vlei and Gruy's Kop, 7 xi 1934, *Pillans* 7255, BOL).

The species appears to range from Piquetberg Mountain and the Great Winterhoek Mountains north of Tulbagh south to the mountains around Ceres, Worcester and Stellenbosch, the Hottentots Holland Mountains and Constantiaberg on the Peninsula. Information on altitudinal range is very meagre, but I have seen no record above 770m except for what I take to be seedlings collected at 1200m on the Hawequas Mountains near the microwave tower (*Thompson* 1439, STE). Ecological information is also scanty: 'steep slope, fynbos', 'slight slope, white sand', 'with restioids and ericoids' have been recorded. The plants flower between October and December.

18. *Pseudoselago rapunculoides* (L.) Hilliard, comb. nov.

Type: *Burm. Afr.* t. 42 f. 1 (reproduced here as Fig. 16A).

Syn.: *Rapunculus foliis angustissimis, dentatis, floribus umbellatis* Burman, *Rar. afr.* Pl. 113 t. 42 f. 1 (1738).

Selago rapunculoides L., *Cent. II Plant.* 22 (1756), *Amoen. Acad.* 4: 319 (1788); Choisy, *Mém. Selag.* 35 (1823) and in A. DC., *Prodr.* 12: 14 (1848).

S. coccinea L., *Pl. Rar. Afr.* 12 (1760) and *Amoen. Acad.* 6: 89 (1764); Choisy, *Mém. Selag.* 36 (1823) and in A. DC., *Prodr.* 12: 14 (1848). Type: nothing quoted.

S. pulchella Salisb., *Prodr.* 93 (1796), *nom. illegit.*

? *S. teretifolia* Link, *Enum. Pl. Berol. pars 2:* 124 (1822). Type: Prom. b. spei, *Bergius* (B†). See comments below.

S. fasciculata L. var. β *lanceolata* Walp., *Repert.* 4: 155 (1845–48), *nomen nudum*.

S. lanceolata Choisy in A. DC., *Prodr.* 12: 15 (1848). Lectotype (chosen here): Cape, prope Tockay [Tokai], in altitud. 2 montis tabul. oriental., *Ecklon* (G; isolecto. E, K).

Perennial herb with woody taproot, plant c.100–500mm tall, stems often solitary, then either simple or sparingly branched c.20–100mm above ground level, or occasionally branching at ground level, erect or slightly decumbent, stiff, woody, very narrowly winged by decurrent leaf-bases, glabrous. *Leaves* (largest) 15–47 × 1–3(–6)mm, shorter, broader and distant upwards, opposite only at extreme base, soon subopposite then alternate, crowded on lower part of stem (but stem always visible), distant upwards, ascending (uppermost \pm appressed), linear or linear-lanceolate (uppermost, reduced, leaves broadly lanceolate and often more distinctly toothed than lower leaves), apex acute, base broad, decurrent in very narrow wings of almost uniform width, margins with 2–7(–9) pairs of very small, often obscure, teeth, thick-textured, only midvein visible, glabrous. *Inflorescence*: spikes occasionally solitary, usually several forming a corymb, up to c.140mm long in fruit, flowers

crowded, axis glabrous. *Bract* adnate to calyx tube, lowermost 4.5–7(–11) × 1–2.5(–3.1) mm, oblong-lanceolate, acute, mucronulate, tip often incurved, glabrous, indurated with age and much swollen on lower part of back. *Calyx* 3–4.5 mm long on anticous side, glabrous except for sessile glands particularly on anticous part of tube, indurated with age. *Corolla* tube 7–12.5 mm long, narrowly cylindrical then abruptly expanded in throat, limb strongly bilabiate, 6–12 mm across spreading lateral lobes, posticous lobes 1.5–3.5 × 1.5–2.5 mm, broadly elliptic to suborbicular, anticous lobe 4.5–11 × 1.5–3(–4) mm, it and the 2 shorter lateral lobes oblong or oblong-elliptic, all lobes either shades of mauve or sometimes white, yellow/orange patch at base of posticous lip, well bearded there, hairs extending right round mouth. *Stamens* inserted in throat, posticous filaments 1.6–4 mm long, anticous filaments 2.2–4 mm long, all anthers 0.5–1 mm long, far exerted. *Style* and *stigma* c. 10–17 mm long. *Ovary* 0.8–1.4 × 0.3 mm. *Cocci* (few seen) c. 2.6 × 0.8 mm. *Seeds* (only 1 seen) 2 × 0.7 mm, smooth.

Selected additional specimens. CAPE. Cape Peninsula, 3318 CD, Kenilworth Race Course, 11 xii 1969, *Esterhuysen* 32354 (BOL, MO, S). 3418 AB, Constantia, Bergvliet Farm, 15 xi 1915, *Purcell* s.n. (SAM); Clovelly, xii 1924, *Rogers* 29861 (Z). Stellenbosch div., 3318 DC, Kraaifontein, 4 x 1947, *Barker* 4816 (NBG). 3318 DD, Cape Flats, Klapmuts, *Rehmann* s.n. (Z); north of Bottelary Road, 8 xii 1932, *Acock* 1273 (S). 3418 BA, Cape Flats, 16 xi 1891, *Guthrie* 775 (BOL). 3419 AC, Caledon div., Kleinmond, ii 1947, *Davis* sub SAM 64815 (SAM). Bredasdorp div., 3419 DA, portion of Klein Hagelkraal, 3 x 1986, *Williams* 3721 (MO, NBG).

Linnaeus did not see a specimen of this plant; he described it from Burmann's plate. Burmann's figure (reference above) is a good representation of the plant but no specimen matching the figure could be found in his herbarium in Geneva (see Figs 16A, 23). The use of the name *Selago rapunculoides* was generally understood prior to Rolfe's reduction of it, and several more names, to synonymy under *S. spuria*; thereafter, chaos reigned.

Pseudoselago rapunculoides is at once distinguished from *P. spuria* by the shape of the corolla tube: narrowly cylindrical then abruptly expanded in the throat (view the flattened corolla from the posticous side), not gradually widening upwards. Linnaeus cited neither specimen nor figure when he described *S. coccinea* but wrote (freely translated) 'similar to *S. rapunculoides* but leaves thicker, glabrous, lower ones small-toothed, stems several from the root, a foot high, simple. Whole plant dries black. Flowers very dark purple, outermost [anticous] corolla lobe larger', none of which is particularly helpful, and Burmann did not describe the colour of the flowers. The anticous lobe in Burmann's figure is about 7 mm long. Among the specimens of *P. rapunculoides* that I have seen there is a gradation from 4.5–11 mm. *Williams* 371 (cited above) is a particularly robust specimen with the broadest leaves seen (6 mm); the anticous lobe is c. 9 mm long and the flowers were described as purple. Unfortunately I have seen only this one specimen from Bredasdorp division; another (*Davis*, cited above) from Caledon division, has the anticous lobe only 4.5 mm long although the plant is coarse. Specimens from Eersterivier near Cape Town (*Raitt*

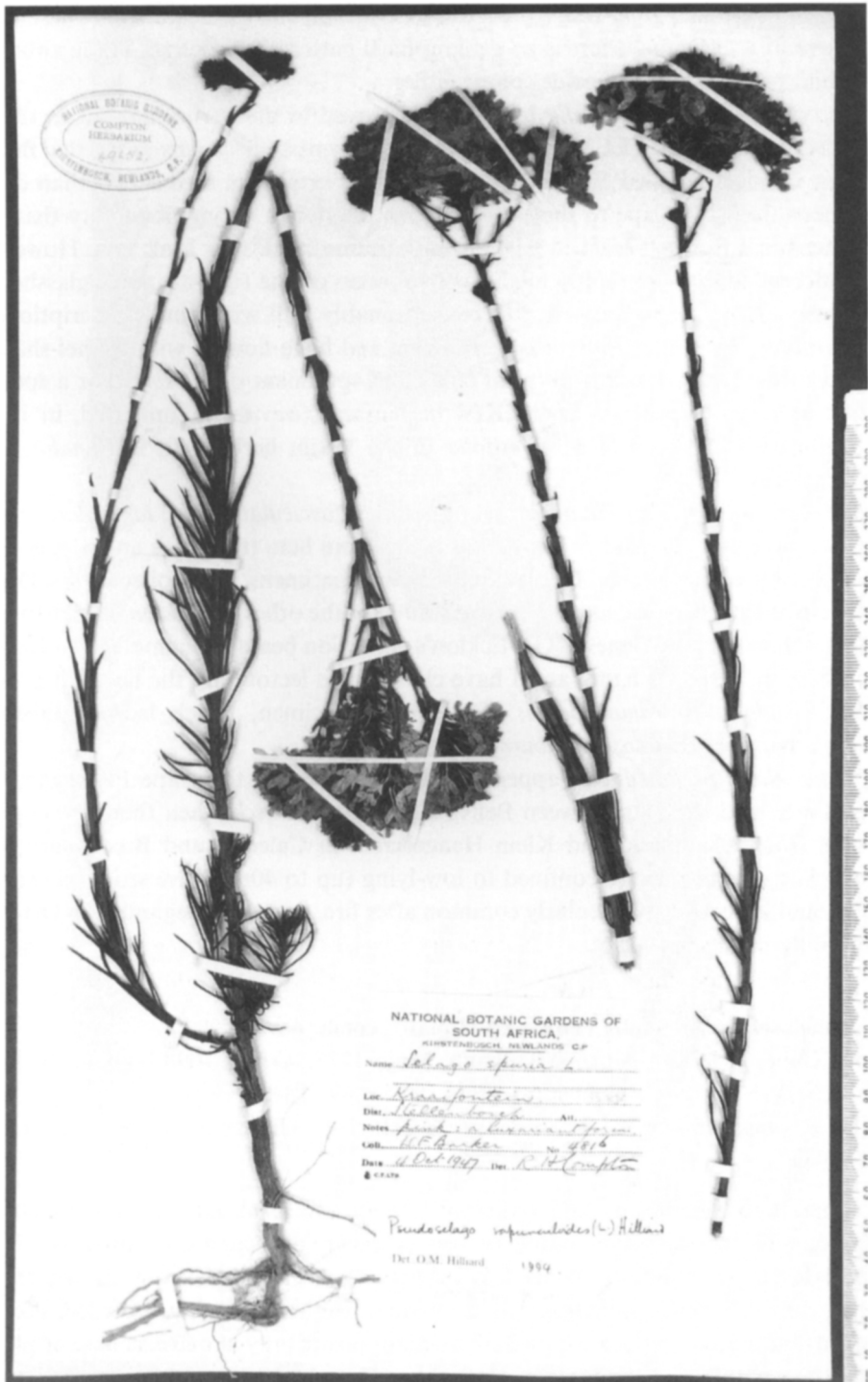


FIG. 23. *Pseudoselago rapunculoides* (Barker 4816, NBG). Compare with the left-hand specimen (fig. 1) in Fig. 16A.

435, STE) have the largest anticous lobe seen, c. 1.1 mm, and the flowers were described as mauve. It is clear that there is no geographical patterning to length of the anticous lobe, and possibly not in flower colour either.

The type of *Selago teretifolia* Link was destroyed in the Berlin fire, but in the St Petersburg herbarium (LE) are 6 pieces of cultivated specimens from the Berlin Botanic Garden, labelled *S. teretifolia*. As Bergius often sent seed rather than dried specimens from the Cape to the Berlin garden, there is a strong possibility that the specimens in LE are at least in part from the same stock that Link saw. However, two different species are represented; the two pieces on the right are weak glasshouse specimens of *P. rapunculoides* and agree reasonably well with Link's description of *S. teretifolia*. The other four pieces are hairy and have flowers with funnel-shaped corolla tubes; they are either atypical cultivated specimens of *P. spuria* or a species in that affinity. A specimen in the Kew herbarium (Grey s.n.), compared, in 1883, by Rolfe with the type of *S. teretifolia* in the Berlin herbarium, is *Pseudoselago rapunculoides*.

Under the name *S. lanceolata*, Choisy quoted *S. fasciculata* var. β *lanceolata* Walp. Walpers gave no type, and *S. lanceolata* is therefore here treated as an independent name attributed to Choisy. Choisy quoted two specimens: one collected by Drège and distributed under the name *S. fasciculata* L. a, the other by Ecklon 'in h. Moric.'. Both specimens are in Geneva (G). Ecklon's collection bears the name *Selago lanceolata* Choisy in Choisy's hand, and I have chosen it to lectotypify the name; it proves to be *Pseudoselago rapunculoides*. The Drège specimen, which lacks a label in Choisy's hand, is *Pseudoselago burmannii*.

Pseudoselago rapunculoides appears to be common on the Cape Peninsula, the Cape Flats, and the flats between Bellville and Stellenbosch, then there are coastal records from Kleinmond and Klein Haegelkraal in Caledon and Bredasdorp divisions. The species may be confined to low-lying (up to 40 m above sea level) sandy places, and is possibly particularly common after fire, flowering beginning in October and tailing off by February.

19. *Pseudoselago densifolia* (Hochst.) Hilliard, comb. nov.

Type: Cape, in lapidosis prope Tulbagh, Majo 1838, *Krauss* 1098 b (holo. B†).

Syn.: *Selago densifolia* Hochst. in *Flora* 28(5): 69 (1845).

S. rapunculoides L. var. β *densifolia* (Hochst.) Choisy in A. DC., *Prodr.* 12: 14 (1848).

Perennial herb with woody taproot, plant c. 500 mm to 2.1 m tall, stem up to c. 10 mm in diam., stiff, woody, either simple or very sparingly branched some distance above ground level, very narrowly winged by decurrent leaf-bases, glabrous. *Leaves* (largest) 16–50 × 0.8–2.5(–4) mm (excluding spread of teeth), ascending, crowded, shorter upwards but remaining narrow and crowded, opposite only at extreme base of plant, linear or narrowly oblong, acuminate or acute, base broad, decurrent in very narrow wings of almost uniform width, either entire or with 1–2 (rarely 4) teeth each side,

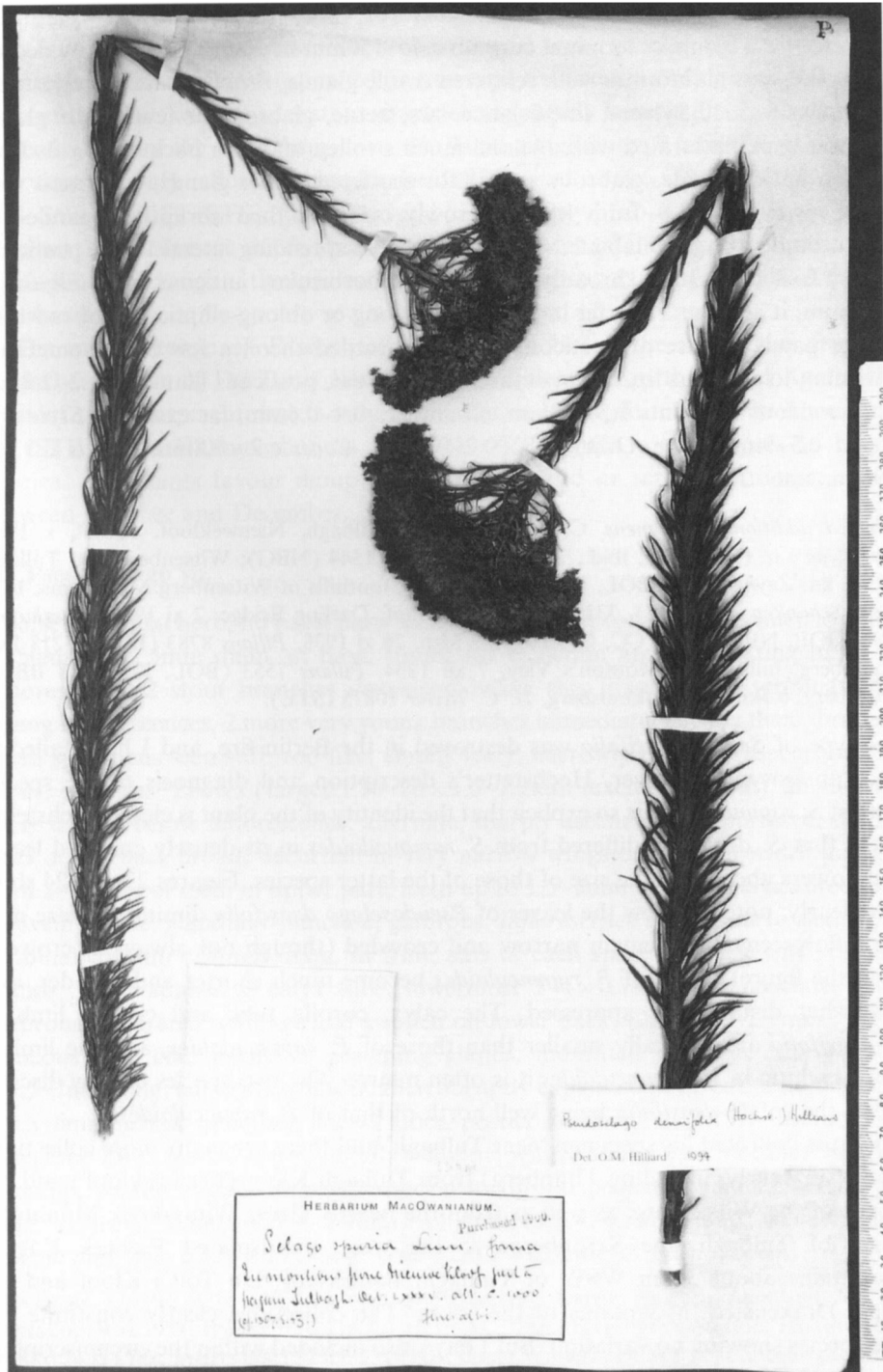


FIG. 24. *Pseudoselago densifolia* (MacOwan s.n., E).

teeth up to c.0.5–1.3mm long, thick-textured, only midvein visible, glabrous. *Inflorescence* a compact terminal corymb c.40–150mm in diam., flowers crowded on each spike, axis glabrous or with scattered sessile glands. *Bract* adnate to calyx tube, lowermost 3–5 × 0.5–1mm, linear-lanceolate, acute, glabrous or few sessile glands on lower back, indurated with age and much swollen on lower back. *Calyx* 2–3mm long on anticous side, glabrous except for scattered sessile glands, indurated with age. *Corolla* tube 4.8–7mm long, narrowly cylindrical then abruptly expanded in throat, limb strongly bilabiate, 4.5–5.5mm across spreading lateral lobes, posticous lobes 1.2–2 × 1–1.3mm, broadly elliptic to suborbicular, anticous lobe 2.4–3.5 × 1–1.5mm, it and the 2 shorter lateral lobes oblong or oblong-elliptic, all lobes white, orange patch at base of posticous lip, well bearded there, a few hairs sometimes extending to anticous lip. *Stamens* inserted in throat, posticous filaments 1.2–2.8mm long, anticous filaments 1.5–2.8mm, all anthers 0.4–0.6mm, far exerted. *Style* and *stigma* c.5–9mm long. *Ovary* 0.8 × 0.2–0.3mm. *Cocci* c.2 × 0.8mm. *Seeds* c.1.5 × 0.7mm, smooth.

Selected additional specimens. CAPE. 3319 AC, Tulbagh, Nieuwekloof, 1000ft, x 1885, MacOwan s.n. (E, SAM); *ibid.*, 18 x 1941, Barker 1544 (NBG); Witsenberg and Tulbagh Kloof, xii, Zeyher 1387 (BOL, E, K, S, SAM, Z); foothills of Witsenberg Mountains, 17 ix 1980, Schonken 318 (STE). 3319 CA, Bain's Kloof, Darling Bridge, 2 xi 1940, Esterhuysen 3795 (BOL, NBG). 3219 CC, Grasruggens Mtn, 26 xi 1938, Pillans 8783 (BOL). 3218 DA, Piquetberg, hills W of Mouton's Vley, 7 xii 1934, Pillans 7553 (BOL, K). 3218 BB, N Cedarberg, c.5km NW Pakhuisberg, H. C. Taylor 10875 (STE).

The type of *Selago densifolia* was destroyed in the Berlin fire, and I have failed to trace an isotype; however, Hochstetter's description and diagnosis of the species against *S. rapunculoides* is so explicit that the identity of the plant is clear. Hochstetter noted that *S. densifolia* differed from *S. rapunculoides* in its densely crowded leaves and flowers about half the size of those of the latter species. Figures 23 and 24 show this clearly; note too how the leaves of *Pseudoselago densifolia* diminish in size near the inflorescence but remain narrow and crowded (though not always as crowded as in the figure); those of *P. rapunculoides* become much shorter and broader, also somewhat distant and appressed. The calyx, corolla tube and corolla limb of *P. densifolia* are generally smaller than those of *P. rapunculoides*, and the limb is always white; in *P. rapunculoides* it is often mauve. The two species occupy discrete areas, that of *P. densifolia* being well north of that of *P. rapunculoides*.

Krauss collected his specimen 'near Tulbagh' and there are many more collections (some very early, including Thunberg) from Tulbagh Kloof (Nieuwekloof) and the slopes of the Witsenberg, as well as from the nearby Great Winterhoek Mountains north of Tulbagh, the Saronberge to the west, the isolated Riebeek Kasteel Mountains about 30km WSW of Tulbagh, Bainskloof, Du Toit's Kloof and the Klein Drakenstein Mountains to the south. The collections clearly constitute but one species showing no variation. But I have also included within the circumscription of the species plants from the Piquetberg and from Grasruggens Mountain and Pikeman's Pass on the escarpment ranges east of Piquetberg that have dried blackish

(those from Tulbagh etc. mostly dry greenish) and the leaves may be somewhat distant towards the inflorescence. Pillans made some careful collections on the Piquetberg and on Grasruggens Mountain and his are the only ones to show the base of the plant with its very stout simple stem sparsely branched only above. Three collections from the Cedarberg have also been assigned to *P. densifolia* though all are virtually only inflorescences: Taylor 10875, cited above, Thode A2132 (PRE), and Stirton 10189 (STE), the latter said to be a 7ft shrub collected at the top of Pakhuis Pass, altitude 850ft (but 850m is surely meant). There is a great need, throughout the range of the species, for good collections including, or at least describing, basal parts.

The overall range of *P. densifolia* appears to be on the mountains from the Cedarberg south to Du Toit's Kloof, and the isolated Piquetberg and Kasteelberg west of the escarpment, but it may also occur at lower altitudes: Immelman 7 and 12 (STE) from Halfmanshof on the Porterville–Gouda road appears to be this species. The plants favour damp places in grassland or scrub and flower mainly between October and December.

20. *Pseudoselago* sp.

Coarse perennial herb, no basal parts seen, stem of most complete specimen available c.750mm tall, 5mm diam. at base, simple for c.200mm and terminating in an old inflorescence, 2 stout branches developed below this inflorescence terminating in young inflorescences, 2 more very young branches immediately below them, branches of all specimens seen stiff, rod-like, closely leafy, narrowly ridged by decurrent leaf-bases, glabrous. *Leaves* (largest) 10–20 × 1.5–2.2mm (excluding teeth), smaller and more distant below inflorescence, alternate, sharply ascending to appressed, oblong, apex acute, base broad, decurrent in very narrow wings of uniform width, margins with 2–4 pairs of teeth in upper part, teeth up to 1.5–2mm long, thick-textured, only midvein visible, glandular-punctate, glabrous. *Inflorescence* a compact to slightly lax terminal corymb c.70mm diam. in fruit, axis of each spike with few tiny scattered glands. *Bract* adnate to calyx tube, lowermost 3–4 × 0.7–1mm, lanceolate, acute, glabrous, indurated with age and swollen on lower back. *Calyx* 1.8–2.7mm long on anticous side, clad in sessile glistening glands, indurated with age. *Corolla* tube c.5.5–7mm long, narrowly cylindrical then abruptly expanded in throat, limb bilabiate, c.4.5–6mm across spreading lateral lobes, posticous lobes 1.2–2 × 1.1–1.8mm, anti-cous lobe 2.4–3.5 × 1.2–2mm, all lobes elliptic, white, orange patch at base of posticous lip, bearded there. *Stamens* inserted in throat, posticous filaments 1.1–2mm long, anticous filaments 1.4–2.5mm, all anthers 0.4–0.5mm long, well exerted. *Stigma* and *style* c.5.5–8mm long. *Ovary* c.0.8 × 0.3mm. *Cocci* not seen.

Specimens. CAPE. 3218 DC/DD, top of Piquetberg Range between Avontuur Mt and Zebrakop, 9 xi 1934, Pillans 7608 (BOL). 3219 AC, Cedarberg Forest Station, Hoogvertoon, 4300ft, 24 xi 1982, Viviers 800 (STE). 3319 AA, Great Winterhoek Mts near Sneeuwgat Camp, 3500ft, 13 ii 1934, Galpin 12605 (K); *ibid.*, above Kleinkliphuis River bridge, 2 x 1980, Low 1040 (STE). 3319 AD? (not precisely localized), Ceres div., Bokkerivier Farms, 8 xi 1963,

Middlemost 2228 (NBG). 3319 DA, Hex River Mountains, Kleinberg, 10 xi 1943, *Esterhuysen* 9945, at least in part (BOL).

Levyans 5144 (BOL), from Elandskloof in Ceres division, 3500ft, 16 iv 1935, may also belong here.

This plant is allied to *P. burmannii* but there is no specimen adequate to typify a name (that shown in Fig. 25 comprises a very old fruiting inflorescence and others in very young bud). It resembles *P. burmannii* in its short, crowded, more or less appressed leaves, but these are much more strongly toothed than those of *P. burmannii*, and the corolla limb differs in aspect because the anticus lobe is shorter and relatively broader. Although the two species are sympatric in the Cedarberg, the nameless plant may always occur at higher altitudes than does *P. burmannii*.

Collectors have recorded 'in moist fynbos on rocky soil', and 'Restioid and Proteoid veld, in deep TMS soil'. The plants flower in October and November, though *Pillans* 7608 (early November) is mostly in young bud while *Levyans* 5144, whose placement here is somewhat doubtful, was in full flower in mid April.

Esterhuysen 9945 may be a mixed collection; the sheet carries a small whole plant with five hairy decumbent stems tufted from the base, as well as four much longer, stouter rod-like glabrous stems; it is the latter that correspond to the other specimens cited.

21. *Pseudoselago burmannii* (Choisy) Hilliard, **comb. nov.**

Type: C.B.S., specimen in herb. Delessert ex herb. Burmann (G).

Syn.: *Selago burmannii* Choisy in Mém. Soc. Phys. Genève. 2(2): 108 (1823), reimp. Mém. Sélag. 38 (1823), and in A. DC., Prodr. 12: 15 (1848), excl. syn.

S. lanceolata Choisy in A. DC., Prodr. 12: 15 (1848) as to the *Drège* syntype only, distributed as *S. fasciculata* L. a (E, G, MO, P, S, SAM), excluding lectotype (which is *P. rapunculoides*).

Perennial herb or suffrutex, either single-stemmed or loosely branched, c.300–900mm tall, stems stiff, woody, leafy throughout, narrowly ridged by decurrent leaf-bases, glabrous. *Leaves* (largest) 5–15(–40 in radical leaves) × 2–6mm, somewhat smaller upwards, opposite, soon alternate upwards, crowded, mostly overlapping, appressed except at extreme base of plant, oblong, lanceolate or elliptic, apex acute, mucronate, base slightly narrowed, decurrent in narrow wings of almost uniform width, margins often with 1–5 pairs of very small or obscure teeth in upper part, thick-textured, only midvein visible, glandular-punctate, glabrous. *Inflorescence* a compact terminal corymb c.30–90mm in diam. in fruit, flowers crowded becoming slightly lax in fruit, axis of each spike with scattered sessile glands. *Bract* adnate to calyx tube, lowermost c.3–5 × 0.8–1.2mm, lanceolate, acute, apiculate, minutely glandular on back at base otherwise glabrous, indurated with age and swollen in lower part. *Calyx* 2.4–3mm long on anticus side, clad in sessile glistening glands, indurated with age. *Corolla* tube 5–6.2mm long, narrowly cylindrical then abruptly expanded in throat, limb strongly bilabiate, c.6–8mm across spreading lateral lobes, posticus lobes

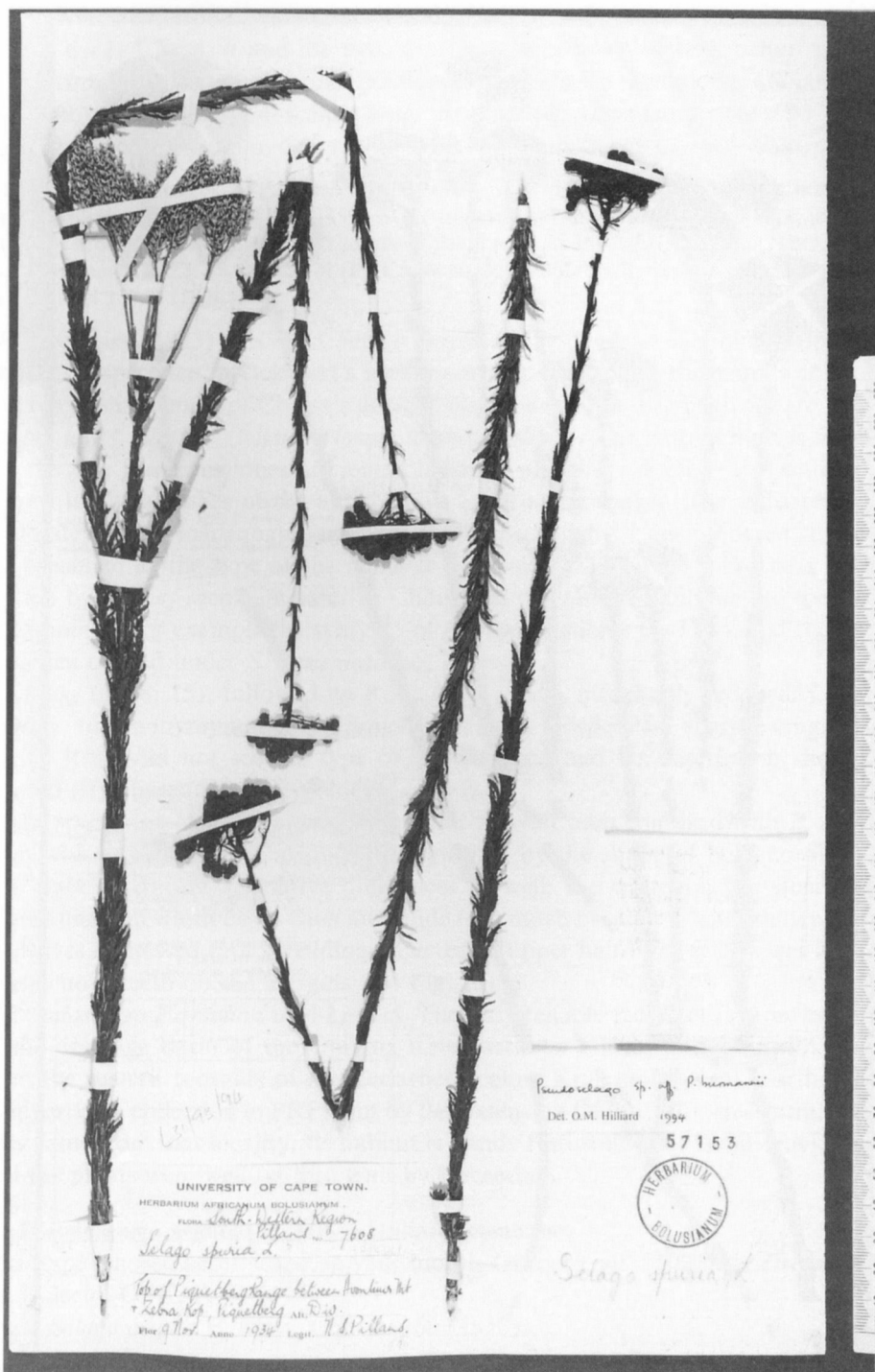


FIG. 25. *Pseudoselago* sp. aff. *P. burmannii*, no. 20 in the enumeration (Pillans 7608, BOL).

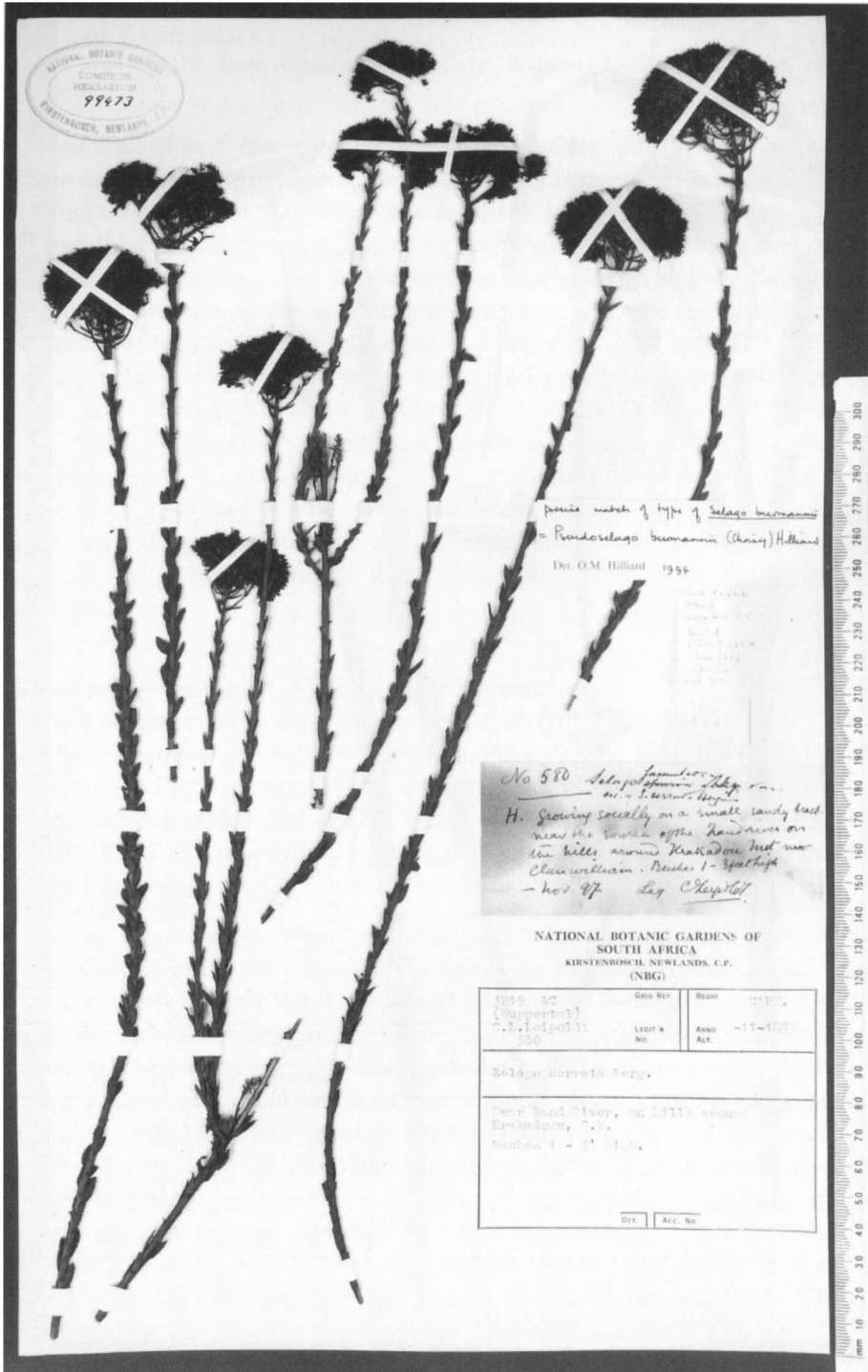


FIG. 26. *Pseudoselago burmannii* (Leipoldt 580, NBG, a precise match of the type).

1.8–2.8 × 1.2–1.8mm, elliptic, well bearded, hairs extending to lateral lobes, anticous lobe 4–6 × 1–1.7mm, it and the two, shorter, lateral lobes oblong, colour possibly 'blue'. *Stamens* inserted in throat, posticous filaments 1.5–2mm long, anticous ones 2.2–3.7mm, all anthers 0.4–0.5mm long, far exserted. *Stigma* and *style* c.5.5–9.2mm long. *Ovary* c.0.8 × 0.3mm. *Cocci* c.1.8–2.2 × 0.8–1mm. *Seeds* c.1.4 × 0.7mm, smooth.

Additional specimens. CAPE. Clanwilliam div., 3218 BB, 8 miles N of Clanwilliam, Grootkliphuis, xii 1940, *Leipoldt* 3459 (BOL, this number used for 3 different species); 3219 AC, hills around Krakadou Mt near source of Zand river, xi 1897, *Leipoldt* 580 (NBG, SAM); Cedarbergen, xi 1922, *Thode* A2174 (PRE); W bank of Olifants River at Keerom, 3 xii 1950, *Esterhuysen* 17852 (BOL).

When Choisy (1823) described *Selago burmannii* he cited 'v. s. sp. h. Burm. Del.'. There is a specimen in Delessert's herbarium that came from Burmann's collection and fits precisely most of Choisy's detailed description. The discrepancies are: 'limbo 4-lobo' and 'lobis . . . 1 lineam longis subinaequalibus'. The corolla limb is 5-lobed, but the two posticous lobes are joined halfway; only the posticous lobes are 1 line (2mm) long, the lobes of the anticous lip being much longer. These discrepancies could stem from inadequate magnification in poor light. I am prepared to accept the specimen as the type of the name *S. burmannii*. That it does not bear a label written by Choisy seems immaterial: Choisy did not always annotate the specimens he examined, for example the syntypes of *S. quadrangularis* (G-DC), and the Drège specimen quoted under *S. lanceolata* (see below).

Choisy (1848: 15), followed by Rolfe (1901: 165), mistakenly reduced *S. arguta* E. Mey. to synonymy under *S. burmannii*; it is an independent species, enumerated below. Rolfe did not see the type of *S. burmannii* and his description should be ignored (it is based on the type of *S. arguta*).

The specimens of *P. burmannii* before me have all been confused with *P. serrata*, from which the species is at once distinguished by the shape of both corolla tube and limb. There are vegetative differences as well: the wings on the stem are of almost uniform width down each internode (not much broader at apex than at base), the leaves appressed (not spreading-recurved in upper half) and with fewer and less conspicuous teeth on the margins (see Fig. 26).

Pseudoselago burmannii is ill-known. The only reliable records are from two sites in the drainage basin of the Olifants River between Klaver and Clanwilliam and from the eastern foothills of the Cedarberg below Krakadouw Peak north-east of Wuppertal. A collection in PRE, sent by the Extension Officer, Moorreesburg, doubtfully came from that locality. Its habitat is 'sandy restioveld' and 'sandy rocky hills', and the plants were well on into fruit by December.

22. *Pseudoselago arguta* (E. Mey.) Hilliard, **comb. nov.**

Lectotype (chosen here): Cape, in valle montis Giftberg, alt. 1500 ped., *Drège* [8011] (E; isolecto. G, K, P, S, W).

Syn.: *Selago arguta* E. Mey., *Comm.* 260 (1838).

Perennial herb, stems 1–several from apex of woody taproot c.3–10mm in diam., c.60–450mm long, simple or sparingly branched near the base, erect or slightly

decumbent, stiff, woody, leafy throughout, narrowly winged by decurrent leaf-bases, glabrous. *Leaves* (largest) 4–30 × 1.5–5mm, slightly smaller upwards, opposite, soon alternate upwards, crowded, ascending to spreading, oblong, oblong-elliptic or elliptic, apex acute, mucronate, base scarcely narrowed, decurrent in narrow wings of almost uniform width, margins with 2–7 pairs of small, sometimes obscure, teeth, thick-textured, only midvein visible, glandular-punctate, glabrous. *Inflorescence*: few to many spikes 20–40mm long in fruit arranged in a ± lax corymb c.30–90mm in diam., flowers crowded becoming somewhat lax in fruit, axis of spike minutely glandular-puberulous. *Bract* adnate to calyx tube, lowermost c.3.7–6 × 0.7–1.5mm, lanceolate, acuminate, recurved, minutely glandular-puberulous on lower back otherwise glabrous, indurated with age and swollen on lower part of back. *Calyx* 2.2–3mm long on anticous side, minutely glandular-puberulous, indurated with age. *Corolla* tube 4.7–6mm long, narrowly cylindrical then abruptly expanded in throat, limb strongly bilabiate, 6–10mm across spreading lateral lobes, posticous lobes 2–3 × 1.3–1.6mm, elliptic, anticous lobe 5–7 × 1–1.7mm, it and the 2, shorter, lateral lobes oblong to narrowly elliptic, all lobes white or mauve, bearded all round mouth. Stamens inserted in throat, posticous filaments 0.5–0.8mm, anticous filaments 0.7–1mm, all anthers 0.3–0.4mm long, held in throat. *Stigma* and *style* c.3–6.2mm long. *Ovary* c.0.6 × 0.3mm. *Cocci* c.1.4 × 0.8mm. *Seeds* c.1.2–1.4 × 0.7mm, smooth.

Additional specimens. CAPE. Calvinia div., 3119 AC, near Nieuwoudtville, Arendskraal Farm, 6 xi 1962, *Barker* 9769 (NBG); 3119 CA, Lokenburg, c.3700ft, 14 x 1953, *Acocks* 17402 (K, PRE); *ibid.*, *Story* 4376 (PRE). c.3219A, Ceres road from Citrusdal, 3000ft, 18 x 1973, *Bayliss* 6183 (Z).

Because Choisy (1848), followed by Rolfe (1901), reduced *Selago arguta* to synonymy under *S. burmannii*, neither name has ever been used correctly. The two species can immediately be distinguished by their stamens, included in the throat in *Pseudoselago arguta* (unique in the genus), far exerted in *P. burmannii*. They differ further in their leaves, ascending to spreading in *P. arguta* (see Fig. 27), appressed in *P. burmannii*, and in the indumentum on the inflorescence axes, bracts and calyces (minute stalked glands vs. sessile glistening glands). The epithet *arguta* probably refers to the acuminate tips of the bracts; those of *P. burmannii* are merely acute with a small apiculus.

Pseudoselago arguta is known from a few localities in the vicinity of Nieuwoudtville, Calvinia and Klaver, and from an unlocalized site along the road from Citrusdal to Ceres. Acocks recorded 'arid fynbos of Table Mountain Sandstone ridge, sandy valleys', Story 'macchia on sandstone hills, in seepage areas', Bayliss 'mountain foothills, sandy'. The plants were in full flower in October and November. Although young single-stemmed plants will produce a large terminal corymb and look like an annual herb, older plants bush out from the base and carry fresh corymbs as well as old fruiting ones.

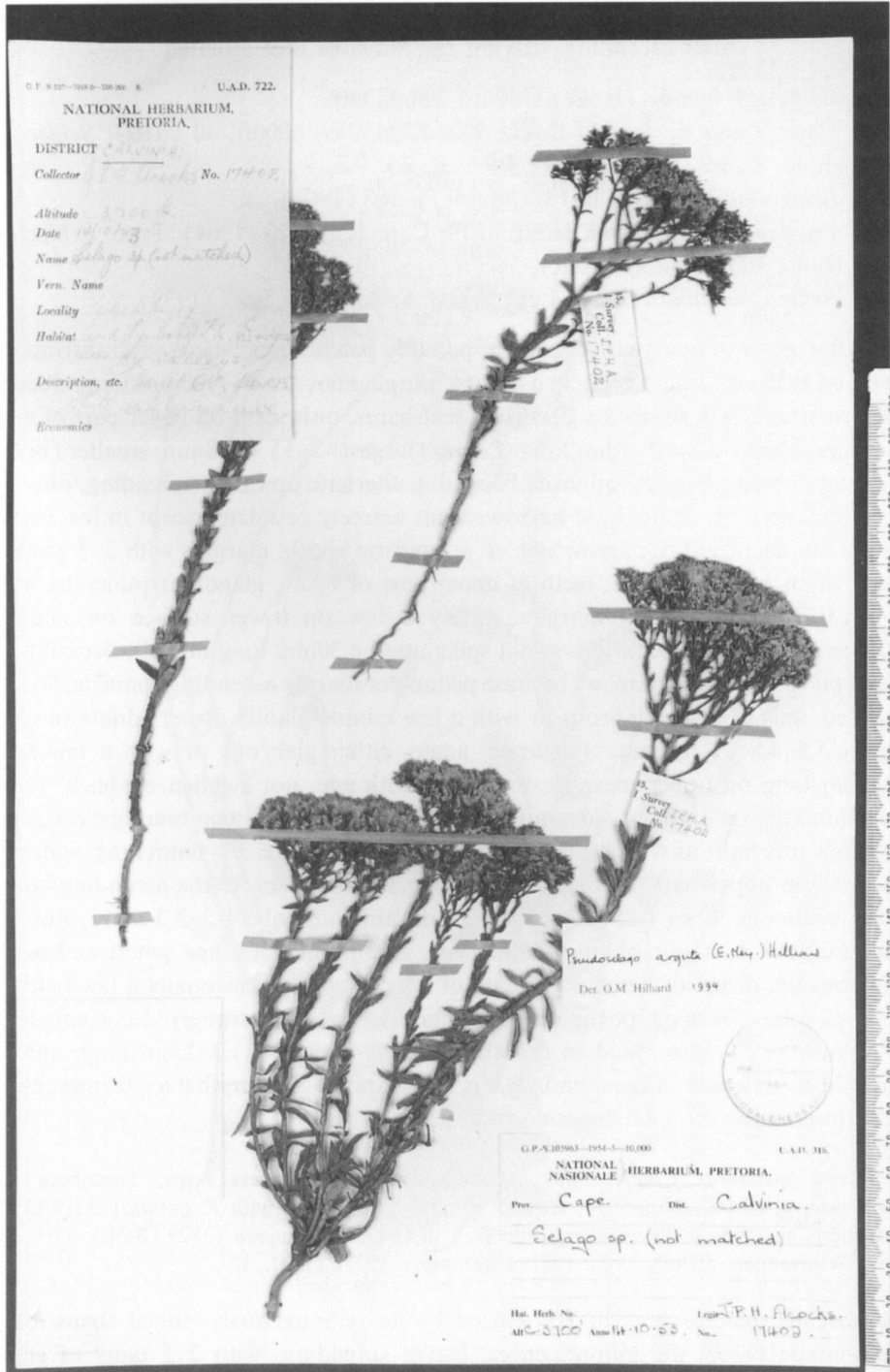


FIG. 27. *Pseudoselago arguta* (Acocks 17402, PRE).

SERIES C: Corolla tube gradually widening upwards, lateral lobes of corolla limb ascending, leaving the anticous lobe isolated

23. *Pseudoselago humilis* (Rolfe) Hilliard, comb. nov.

Type: Cape, Ceres div., Cold Bokkeveld, Klyn Vlei, 6000ft, 30 i 1897, *Schlechter* 10205 (holo. K; iso. BOL, E, MO, PRE, S, Z).

Syn.: *Selago humilis* Rolfe in Fl. Cap. 5(1): 168 (1901).

Phyllopodium rudolphii Hiern in Fl. Cap. 4(2): 320 (1904). Type: *Schlechter* 10205 (holo. BOL; iso. as above).

Selago rudolphii (Hiern) Levyns in J. S. Afr. Bot. 5: 37 (1939).

Herb, flowering in first year of growth, possibly perennating, stems several from the base and there sparingly branched or not, simple above, c.50–400mm long, decumbent, very narrowly ribbed by decurrent leaf-bases, pubescent on lower part of stem on ridges, hairs up to c.0.7mm long. *Leaves* (largest) 7–15 × 3–8mm, smaller (bract-like) and distant upwards, opposite becoming alternate upwards, spreading, obovate or elliptic, apex ± acute, base narrowed but scarcely petiolate except in lowermost few leaves, decurrent in narrow ribs of ± uniform width, margins with 2–5 pairs of small, often rather obscure, teeth in upper part of blade, glandular-punctate, hairs up to 0.7–1mm long on margins, rarely a few on lower surface on midline. *Inflorescence* often a solitary terminal spike up to c.30mm long in fruit, occasionally a few spikes in a loose, narrow (because peduncles sharply ascending) panicle, flowers crowded, axis of spike glabrous or with a few minute glands. *Bract* adnate to calyx tube, c.3.5–4.8 × 1–1.6mm, ± elliptic, acute, either glabrous or with a few hairs c.0.2mm long on upper margins, indurated with age, not swollen on back. *Calyx* 3–3.2mm long on anticous side, minutely glandular especially on margins, occasionally a few tiny hairs as well, indurated with age. *Corolla* tube 3.7–6mm long, widening gradually in upper part, limb zygomorphic, c.3–4.5mm across the ascending lateral lobes, posticous lobes 1.25–1.5 × 0.8–1.2mm, anticous lobe 1.5–2.3 × 1–1.5mm, all lobes elliptic or elliptic-oblong, white with a prominent orange patch at base of posticous lip, bearded there and at base of lateral lobes, occasionally a few hairs on anticous lobe. *Stamens*: posticous filaments c.1mm long, strongly decurrent down tube, anthers c.0.7mm, held in mouth, anticous filaments 1.3–2mm long, anthers 0.6–0.7mm, exserted. *Stigma* and *style* c.3.5–6mm long. *Ovary* c.0.8 × 0.3mm. *Cocci* c.2 × 1mm. *Seeds* c.1.5 × 0.8mm, convex face rugulose.

Additional specimens. CAPE. 3219 AC, Cedarberg Wilderness Area, Sneeuwberg and Hoogvertoorn, c.5100ft, 9 ii 1977, *Haynes* 1351D (STE, mixed with *P. guttata*). 3219 CA, S Cedarberg, east side of Sneeuwberg, 4000ft, 1 iii 1947, *Esterhuysen* 13829 (BOL). 3319 AA, Great Winterhoek, 5000ft, 31 xii 1951, *Esterhuysen* 19770 (BOL, K).

Pseudoselago humilis may be recognized by its very narrowly ribbed stems, often nearly nude below the inflorescences, leaves spreading, with 2–5 pairs of small, sometimes rather obscure, teeth, hairs confined to leaf-margins and ribs (decurrent leaf-bases) (rarely a few hairs present on lower surface of leaf on midline), bract and

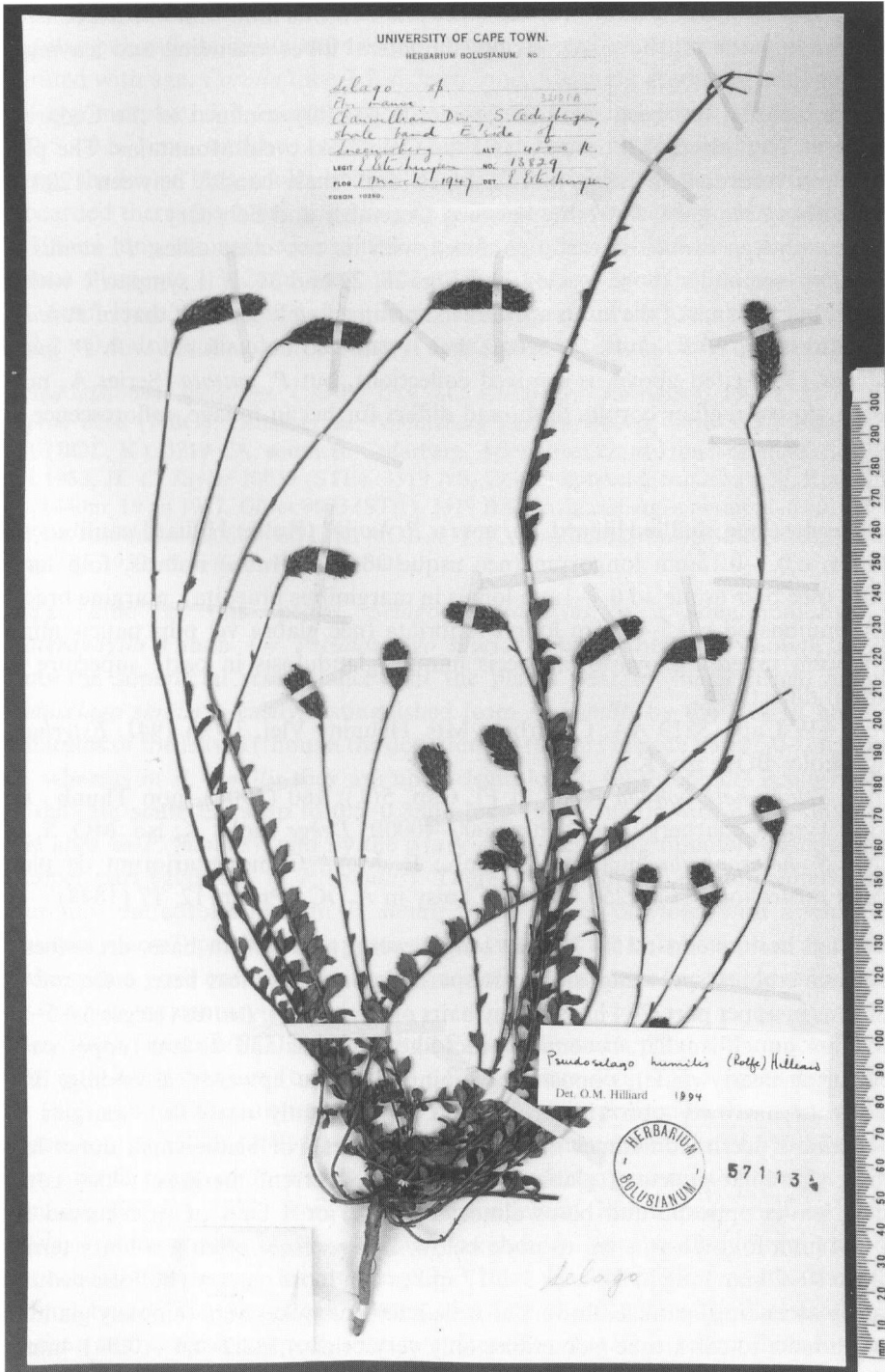


FIG. 28. *Pseudoselago humilis* (Esterhuysen 13829, BOL).

calyx glabrous or rarely a few tiny hairs at apices, corolla limb white with a conspicuous orange patch on the posticous lip, the lateral lobes ascending and leaving the anticous lobe isolated.

Little material has been seen; the species is possibly confined to the Cedarberg, the Great Winterhoek Mountains, and the Cold Bokkeveld Mountains. The plants have been recorded on 'stony burnt slopes' and 'shale bands', between 1200 and 1800m above sea level, flowering between December and February.

Pseudoselago humilis is easily confused with its two close allies, *P. similis* and *P. proluxa*: see under those species, and Figs 28, 29 and 31. It is sympatric with the former, but the area of the latter appears to lie immediately south of that of *P. humilis* but within that of *P. similis*. It seems that it can also be confused with *P. guttata* (Haynes 1351, cited above, is a mixed collection), but *P. guttata* (Series A, no. 7) has an almost regular corolla limb, and differs further in foliage, inflorescence and bracts.

24. *Pseudoselago similis* Hilliard, sp. nov. a *P. humili* (Rolfe) Hilliard caulibus linea pilorum c.0.1–0.15mm longorum (nec usque ad c.0.7–1mm) notatis, folii lamina glabra (nec pilis usque ad 0.7–1mm longis in marginibus praedita), margine bractae pilis tenuibus ad c.0.5–0.8mm longis fimbriata (nec glabra vel pilis paucis minutis ad apicem praedita), ovario et coccis minute glandulosis in parte superiore (nec glabris) differt.

Type: SW Cape, 3219 AA, Cedarberg Mts, Heuning Vlei, 31 xii 1941, *Esterhuysen* 7465 (holo. BOL, iso. K).

Syn.: *Selago heterophylla* Rolfe in Fl. Cap. 5(1): 160 (1901), non Thunb., *nom. illegit.* Type: Cedarberg, Ezelsbank, 3000–4000ft, *Drège* (holo. K; iso. MO, S, W).

S. heterophylla auct. non Thunb.; E. Mey., *Commentariorum de plantis africae australioris* 1(1): 256 (1838); Choisy in A.DC., *Prodr.* 12: 17 (1848).

Perennial herb, stems c.150–750mm long, several tufted from base, decumbent at base then erect to sprawling, simple or sparingly branched near base, often rod-like, glabrous in upper part, 2–4 lines of tiny hairs on lower part. *Leaves* (largest) 6.5–22 × 1.3–6mm, much smaller, becoming bract-like, upwards and distant (upper part of stem often nearly nude), opposite becoming alternate upwards, ascending, linear-oblong or narrowly obovate, apex acute, base slightly narrowed, margins with 1–4 pairs of teeth (sometimes obscure) on upper half of blade, small upper leaves entire, glandular-punctate, glabrous except on decurrent margins, which carry 2 (when leaves opposite and bases almost connate) or 4 lines of ± recurved hairs 0.1–0.15mm long down stem to node below. *Inflorescence* often a solitary terminal spike c.10–70mm long in fruit, or 3–c.17 spikes in a loose narrow (because peduncles sharply ascending) panicle, flowers crowded, axis of spikes very minutely glandular. *Bract* adnate to calyx tube (sometimes only very briefly), c.2.2–4.5 × 0.5–1.4mm, ± oblong-spathulate, abruptly acute, minutely glandular on margins and lower backs, margins also fringed with delicate acute hairs up to c.0.5–0.8mm long, bract indu-

rated with age, not swollen on back. *Calyx* 2.8–4mm long on anticous side, minutely glandular-puberulous, acute hairs to 0.3–0.4mm as well on upper margins of lobes, indurated with age. *Corolla* tube 3.7–6.5mm long, widening gradually in upper part, limb zygomorphic, 3.2–5mm across the ascending lateral lobes, posticous lobes 1.3–2.5 × 0.8–1mm, anticous lobes 2.7–4 × 0.9–1.5mm, all lobes elliptic or elliptic oblong, shades of blue, violet, mauve or purple, white patch at base of posticous lip, bearded there, few hairs extending to lateral lobes. *Stamens*: posticous filaments 0.8–1.5mm long, strongly decurrent down tube, anthers 0.4–0.8mm, held in mouth, anticous filaments 1.3–2mm long, anthers 0.4–0.8mm, exerted. *Stigma* and *style* c.3.2–6mm long. *Ovary* c.0.8–1 × 0.3mm, minutely glandular on upper part. *Cocci* 1.8–2.2 × 0.8–1mm, glandular as ovary. *Seeds* c.1.2 × 0.8mm, convex face rugulose.

Selected additional specimens. CAPE. 3219 AC, Cedarberg, Juriesberg, 4500ft, 11 ii 1936, *Compton* 6258 (NBG); Cedarbergen, Middelberg Plateau, 4000ft, 25 ii 1957, *Esterhuysen* 13791 (BOL, K). 3219 CA, southern Cedarberg, Apex-Breekkran's-Hondverbrand, c.1200m, 16 xii 1983, *H. C. Taylor* 10839 (STE). 3319 AB, Cold Bokkeveld, Schurweberg, Rocklands Peak, 1440m, 19 xii 1987, *Oliver* 9073 (STE). 3319 BA, Baviaansberg, summit plateau, 6200ft, 8 iii 1964, *Esterhuysen* 30631 (BOL, K, MO). 3319 BC, Groothoek Peak (Matroosberg group), 6000ft, 18 i 1959, *Esterhuysen* 28136 (BOL).

Rolfe's name for this species, *Selago heterophylla*, is a later homonym of *S. heterophylla* Thunb. (= *Pseudoselago spuria*). The epithet now chosen, *similis*, reflects the superficial resemblance that the plants bear to *Pseudoselago humilis*. *Pseudoselago similis* is easily distinguished from *P. humilis* by the lack of hairs on the margins of the leaves (though the decurrent part bears minute hairs c.0.1–0.15mm long, whereas in *P. humilis* they are up to 1mm long), by the bracts being fringed with delicate acute hairs up to 0.5–0.8mm long (glabrous or with a few tiny hairs at the apex in *P. humilis*), and by the ovary and cocci being minutely glandular on the upper part (glabrous in *P. humilis*). There is probably a constant difference in colour too, the corolla limb in *P. similis* being shades of violet with a white (or sometimes yellow?) patch on the posticous lip, whereas the corolla limb in *P. humilis* is white with a vivid orange patch at the base of the posticous lip, visible in the dried state (even in the century-old type).

Bond 1458 (BOL, NBG) is a mixture of *P. similis* and a plant differing in having leaves with hairy margins (hairs up to c.0.25–0.3mm long), and up to 6 pairs of teeth (best seen on the substantial piece in NBG). The collection was made on the Baviaansberg at 5500ft (1675m) and the aberrant specimen may be of hybrid origin.

The overall range of *P. similis* is from the Cedarberg south to the Hex River Mountains (*Zeyher* 3572, from the Riviersonderend Mountains, cited by Rolfe as *Selago heterophylla*, is *Pseudoselago ascendens*). In the Cedarberg and the Schurweberg, the largest leaves are 1.3–3.2mm broad; further south, they are 2.5–6mm broad. The plants can consist of a tuft of erect stems or the stems may straggle: a stiffly erect plant with solitary spikes (Fig. 29) looks rather different from a straggling stem topped by a narrow panicle (Fig. 30), but the essential characters of the stem, leaves, bracts and calyx are constant. An astonishing range of habitat

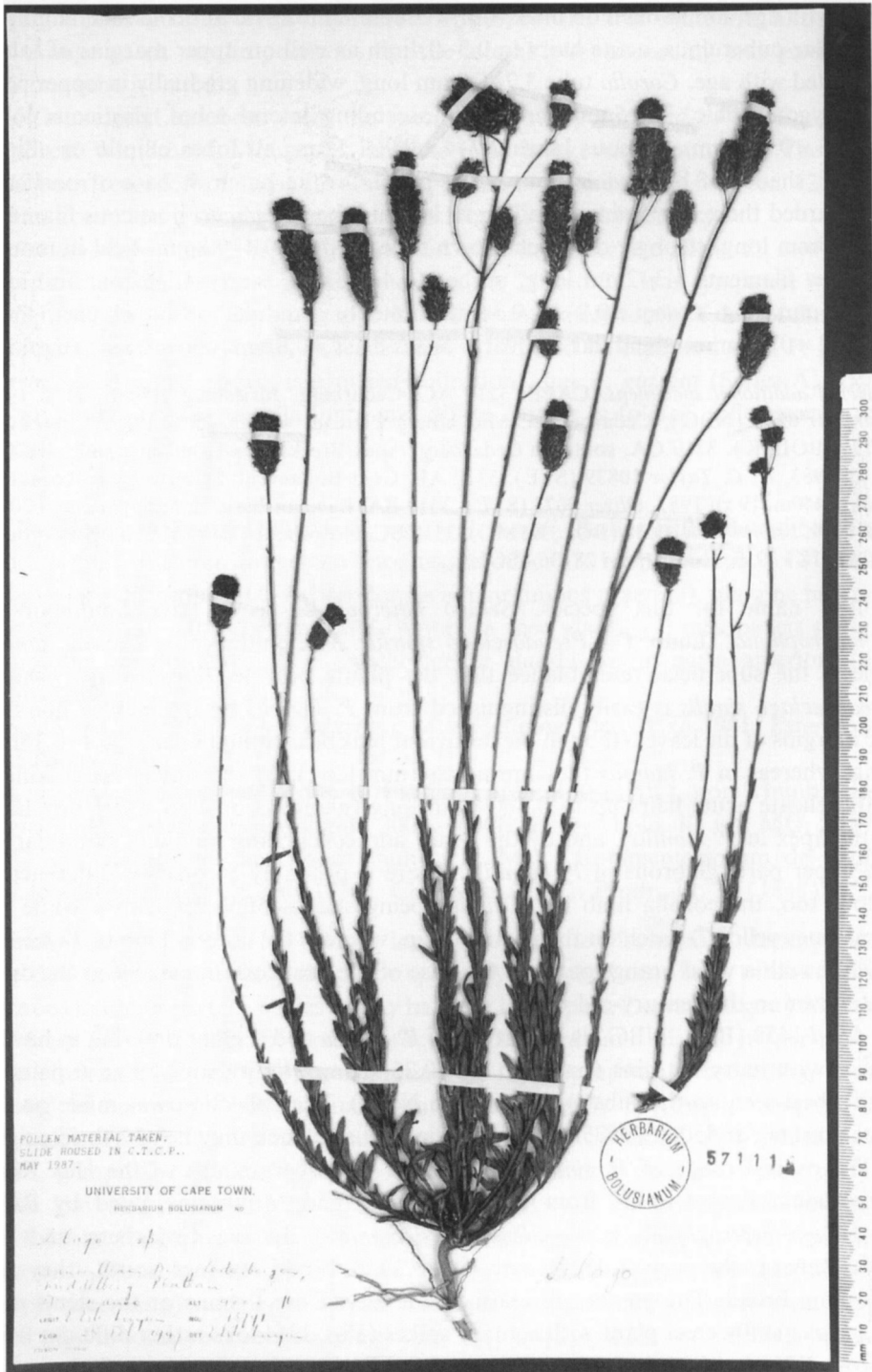


FIG. 29. *Pseudoselago similis* (Esterhuysen 13791, BOL); erect plant.

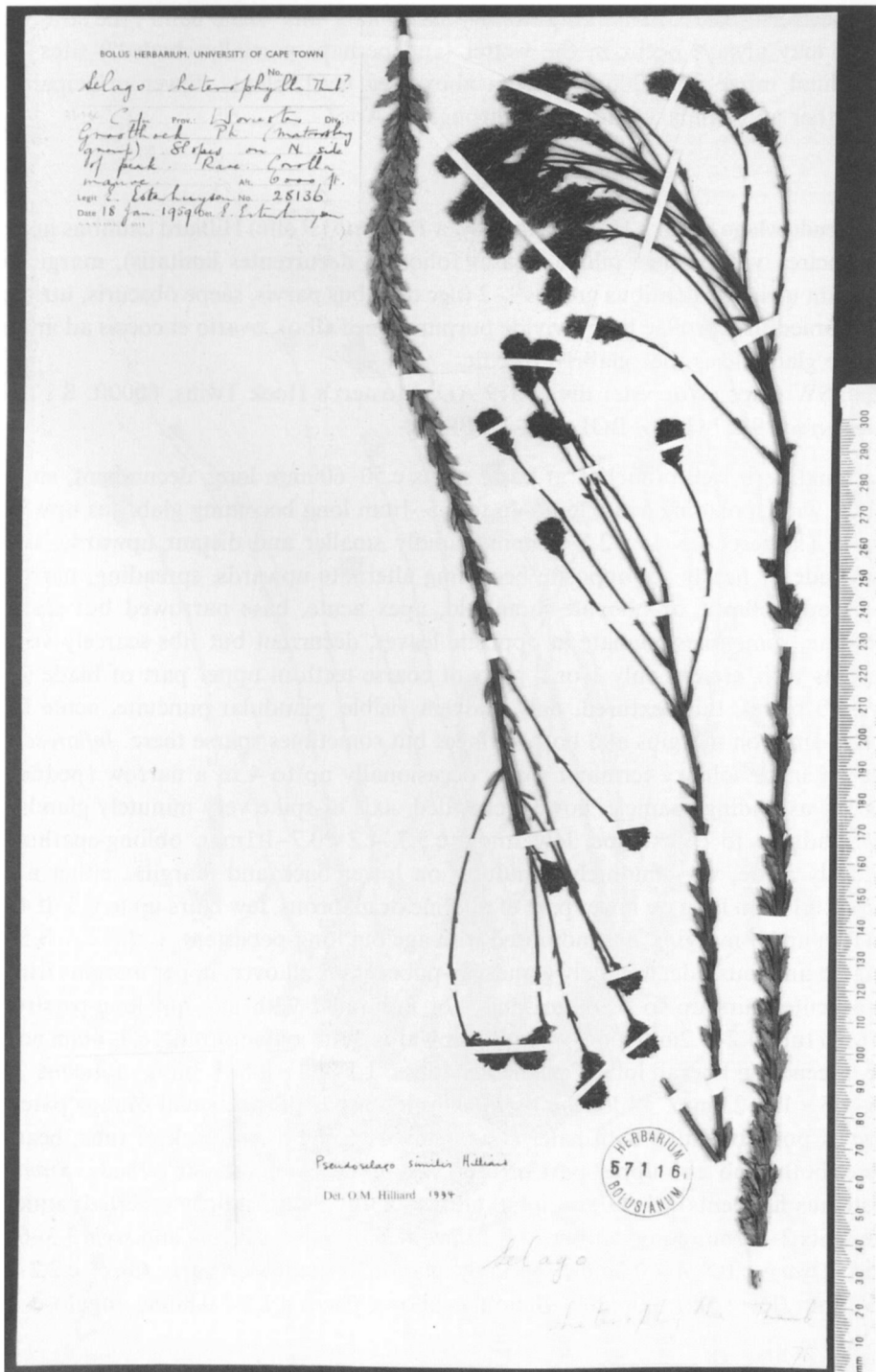


FIG. 30. *Pseudoselago similis* (Esterhuysen 28136, BOL); straggling plant.

has been recorded, from 'swamp' to 'dry sandy flats' and 'shale band'; the straggling plants may always occur in the wetter (and perhaps partially shaded?) sites. The altitudinal range is c.1200 to 2100m above sea level; plants flower principally in December and January, tailing off through to April.

25. *Pseudoselago prolixa* Hilliard, sp. nov. a *P. humili* (Rolfe) Hilliard caulibus inferne circumcirca villosis (nec pilis ad bases foliorum decurrentes limitatis), marginibus foliorum utrinque dentibus grossis 1–2 (nec dentibus parvis, saepe obscuris, utrinque ad 5) praeditis, corollae limbo vivide purpureo (nec albo), ovario et coccis ad apicem minute glandulosis (nec glabris) recedit.

Type: SW Cape, Worcester div., 3319 AD, Mostert's Hoek Twins, 6000ft, 8 i 1944, *Esterhuysen* 9827 (holo. BOL; iso. K, PRE).

Perennial herb well branched at base, stems c.50–600mm long, decumbent, simple, villous with spreading acute hairs up to 0.5–1mm long becoming glabrous upwards. *Leaves* (largest) 4.5–14 × 2.5–6.5mm, rapidly smaller and distant upwards, upper part nude or nearly so, opposite becoming alternate upwards, spreading, narrowly to broadly elliptic or obovate-rhomboid, apex acute, base narrowed but scarcely petiolate, sometimes connate in opposite leaves, decurrent but ribs scarcely visible, margins with usually only 1 or 2 pairs of coarse teeth in upper part of blade (very rarely 3 pairs), thin-textured, only midvein visible, glandular-punctate, acute hairs to 0.5–1mm on margins and both surfaces but sometimes sparse there. *Inflorescence* often a small solitary terminal spike, occasionally up to 4 in a narrow (peduncles sharply ascending) panicle, flowers crowded, axis of spike very minutely glandular. *Bract* adnate to calyx tube, lowermost c.3.7–4.2 × 0.7–1.1mm, oblong-spathulate, abruptly acute, very minutely glandular on lower back and margins, either a few hairs c.0.15mm long on lower part of midline or glabrous, few hairs up to 0.3–0.4mm long on upper margins, not indurated with age but long-persistent. *Calyx* c.3–3.5mm long on anticous side, minutely glandular-puberulous all over, upper margins fringed with acute hairs up to 0.25mm long, not indurated with age but long-persistent. *Corolla* tube 4.2–6.2mm long, widening upwards, limb zygomorphic, c.4–6mm across the ascending lateral lobes, posticous lobes 1.5–2.3 × 0.8–1.3mm, anticous lobe 2.5–5.5 × 1.1–2.8mm, all lobes oblong-elliptic, bright purple, small orange patch at base of posticous lobe with paler zone below running down back of tube, bearded there, both limb and upper part of tube very minutely glandular outside. *Stamens*: posticous filaments 1.5–1.7mm long, anthers 0.7–0.8mm, shortly exerted, anticous filaments 2–3.2mm long, anthers 0.7–1mm, well exerted. *Stigma* and *style* 3.3–6mm long. *Ovary* c.0.8–1 × 0.3mm, minutely glandular in upper part. *Cocci* c.2.2–3 × 0.8–1mm (few seen), minutely glandular above. *Seeds* c.1.5 × 0.8mm, rugulose.

Additional specimens. CAPE. 3319 AC, Waboomsrivier, iv 1946, *Stokoe* sub SAM 64781 (SAM). 3419 AD, Waaihoek Mt, 5000ft, 15 xii 1942, *Esterhuysen* 8298 (BOL); *ibid.*,

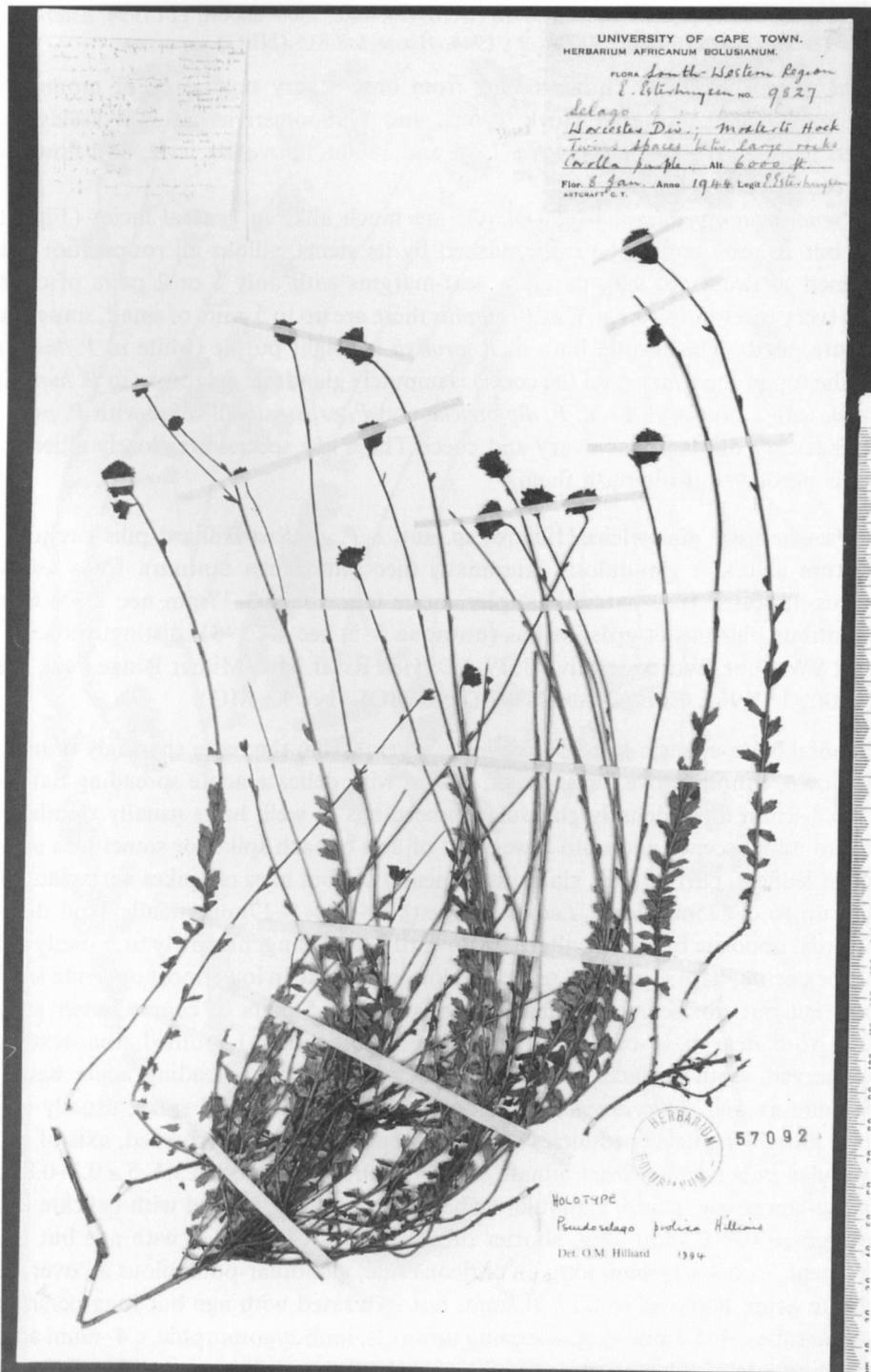


FIG. 31. *Pseudoselago prolixa* (holotype, Esterhuysen 9827, BOL).

5500–6000ft, 15 i 1961, *Esterhuysen* 28728 (BOL, K); *ibid.*, 5500–6000ft, 12 i 1954, *Esterhuysen* 22581 (BOL, K, MO); *ibid.*, 5000ft, 9 i 1944, *Wasserfall* 815 (NBG).

Pseudoselago prolixa is known to me from only a very small area of mountains, Waaihoek Peak, Mostert's Hoek Twins, and Waboomsrivier near Walseley (not traced precisely), growing between 1525 and 1800m above sea level, and flowering between December and April.

Pseudoselago prolixa and *P. humilis* are much alike in general facies (Figs 28, 31), but *P. prolixa* may be distinguished by its stems, villous all round (not hairs confined to decurrent leaf-margins), leaf-margins with only 1 or 2 pairs of coarse teeth (very rarely a third pair); in *P. humilis* there are up to 5 pairs of small, sometimes obscure, teeth. The corolla limb in *P. prolixa* is bright purple (white in *P. humilis*) and the top of the ovary (and the cocci) is minutely glandular (glabrous in *P. humilis*). *Pseudoselago similis*, *P. bella*, *P. diplotricha* and *P. prostrata* all share with *P. prolixa* the character of glandular ovary and cocci. These five species are closely allied and care is needed to distinguish them.

26. *Pseudoselago diplotricha* Hilliard, sp. nov. a *P. prolixa* Hilliard pilis caulium et foliorum acutis et glandulosis intermixtis (nec pilis acutis tantum), foliis ascendentibus appressis (nec patentibus) plerumque latioribus (5–17mm nec 2.5–6.6mm) et dentibus pluribus et grossioribus (utrinque 3–5, nec 1–2(–3)) distinguenda.
Type: SW Cape, Worcester div., 3319 AD, Hex River Mts, Milner Ridge Peak area, c.5000ft, 1 i 1961, *Esterhuysen* 28707 (holo. BOL; iso. K, MO).

Perennial herb, stems c.150–750mm long, several from the base, sparingly branched low down, simple above, decumbent, villous with delicate acute spreading hairs up to c.0.8–1mm long, densely glandular-puberulous as well, hairs usually running up stem to inflorescence and onto lower part of axis of each spike, or sometimes upper, almost leafless, part of stem glabrous or nearly so, but axes of spikes with glandular hairs up to c.0.25mm long. *Leaves* (largest) 10–30 × 5–17mm, smaller and distant upwards, opposite becoming alternate upwards, ascending, narrowly to broadly elliptic, apex acute, base somewhat narrowed, often connate in lowermost opposite leaves, decurrent but ribs scarcely visible, margins with 3–5 pairs of coarse rather jagged teeth from near base of blade, largest teeth sometimes 1-toothed, thin-textured, triplinerved, both surfaces densely glandular-pubescent, spreading acute hairs to 0.8–1mm as well. *Inflorescence* occasionally a solitary terminal spike, usually up to 8 in a narrow panicle (peduncles sharply ascending), flowers crowded, axis of spike glandular-puberulous. *Bract* adnate to calyx tube, lowermost c.3.4–5 × 0.7–0.8mm, oblong-lanceolate, acute, glandular-puberulous, margins fringed with delicate acute hairs up to 0.4–0.5mm long, shorter on midline, not indurated with age but long-persistent. *Calyx* c.3–4mm long on anticous side, glandular-puberulous all over, also delicate acute hairs up to 0.25–0.3mm, not indurated with age but long-persistent. *Corolla* tube c.4–5.2mm long, widening upwards, limb zygomorphic, c.4–6mm across ascending lateral lobes, posticous lobes 2–2.5 × 1–1.5mm, anticous lobe 2.4–3.3 × 1.3–1.8mm, all lobes oblong-elliptic, bright purple or mauve, orange patch at base

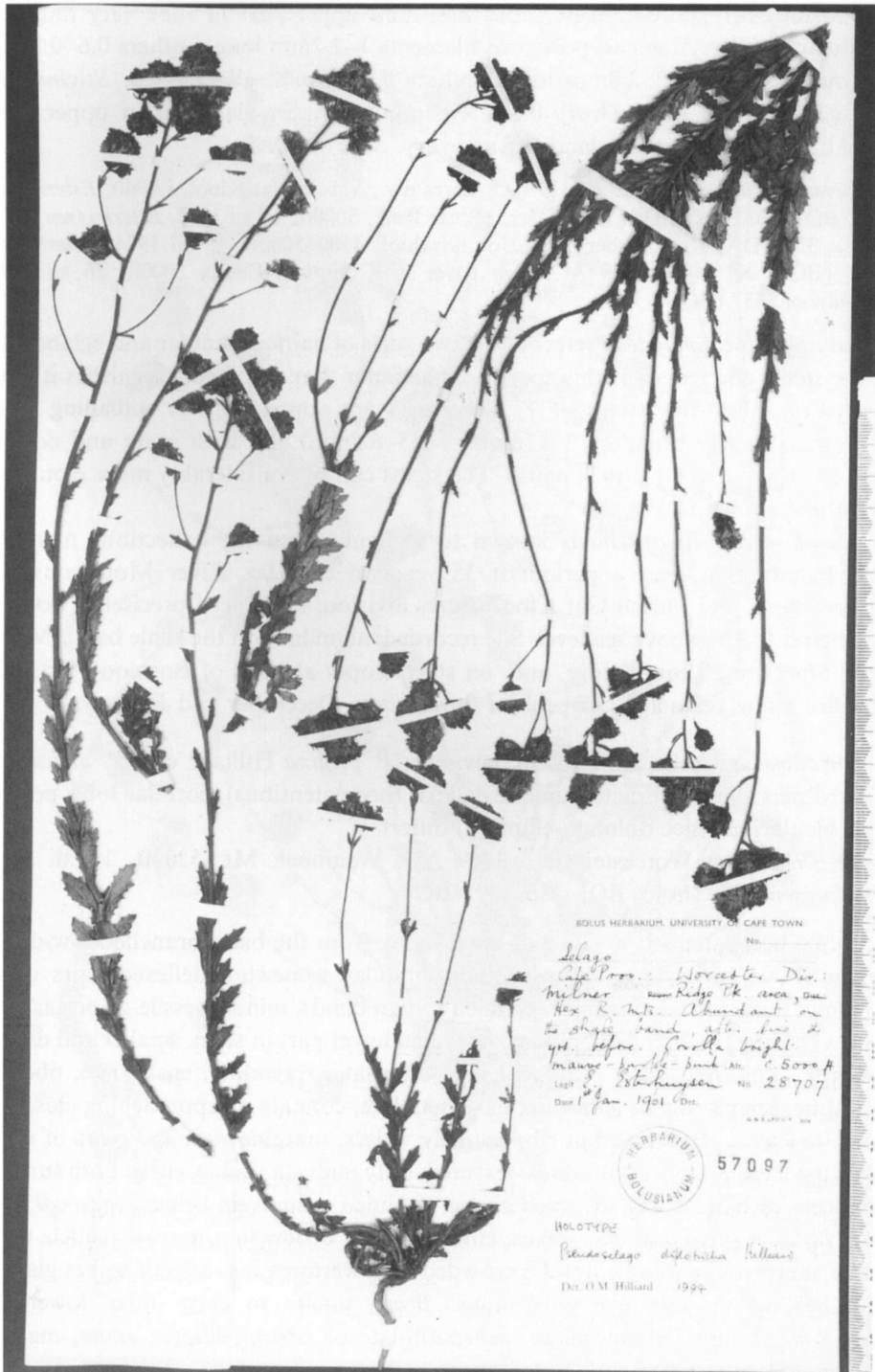


FIG. 32. *Pseudoselago diplotricha* (holotype, Esterhuysen 28707, BOL).

of posticous lip, bearded there, both limb and upper part of tube very minutely glandular outside. *Stamens*: posticous filaments 1–2.2mm long, anthers 0.6–0.8mm, anticous filaments 1.2–2.8mm long, anthers 0.6–0.7mm, all exerted. *Stigma and style* c.3.2–5.5mm long. *Ovary* 0.8–1 × 0.3mm, minutely glandular in upper part. *Cocci* c.1.8–2 × 0.8–1mm, glandular as ovary. *Seeds* not ripe.

Additional specimens. CAPE. c.3319 AC, Ceres div., Valsch Gat Kloof, i 1940, *Esterhuysen* 1764 (BOL). 3319 AD, Hex River Mts, Milner Peak, 5000ft, 16 xii 1948, *Esterhuysen* 14888 (BOL). 3319 DA, Keeromsberg, head of Boskloof, 4500–5000ft, 15 xii 1974, *Esterhuysen* 33728 (BOL, K, MO). 3319 AC, Hex River Mts, Sentinel Camp, 5000ft, 26 xii 1942, *Esterhuysen* 8437 (BOL).

The trivial name *diplotricha* refers to the two sorts of hairs, glandular and eglandular, on the stems and leaves of this species, a character that readily distinguishes it from *P. prolixa*. Also, the leaves of *P. diplotricha* are appressed, not spreading as in *P. prolixa*, mostly broader (5–17mm vs. 2.5–6.5mm) and with more and coarser teeth (3–5 pairs, not 1–2(–3) pairs). The stems can be considerably more elongated than those shown in Fig. 32.

Pseudoselago diplotricha is known to me only from the collections made by Miss Esterhuysen over a period of 35 years in the Hex River Mountains, the Keeromsberg, and Valsch Gat Kloof (Ceres division, not traced precisely), between c.1370 and 1525m above sea level. She recorded 'abundant on the shale band [Milner Peak] after fire 2 years before' and 'on steep slopes at head of Boskloof, S aspect, after fire a few years ago', at peak of flowering in December and January.

27. *Pseudoselago bella* Hilliard, sp. nov. et a *P. prolixa* Hilliard et a *P. diplotricha* Hilliard pilis caulium bractearumque deflexis (nec patentibus), corollae lobis posticis suborbicularibus (nec oblongo-ellipticis) differt.

Type: SW Cape, Worcester div., 3319 AD, Waaihoek Mt, 5500ft, 16 xii 1942, *Esterhuysen* 8325 (holo. BOL; iso. K, NBG).

Perennial herb, stems c.70–300mm long, many from the base, branched low down, simple above, sprawling, villous with eglandular somewhat deflexed hairs up to 0.6–1mm long, hairs sometimes confined to two bands, minute sessile glands as well. *Leaves* (largest) 4–20 × 2–8.5mm, crowded on lower part of stem, smaller and distant upwards, opposite, upper reduced leaves alternate, spreading, spatulate, obovate or elliptic, apex acute or subacute, base petiolate, connate or approaching closely in opposite leaves, decurrent but ribs scarcely visible, margins with 2–3 pairs of sharp or obtuse teeth in upper half, thick-textured, only midvein visible, either both surfaces pubescent or hairs thinly scattered above, confined to midvein below, up to c.0.8mm long. *Inflorescence*: terminal spikes, either solitary or few in a narrow panicle (peduncles sharply ascending), flowers crowded or lowermost lax, axes of spikes glandular-pubescent or glandular-puberulous. *Bract* adnate to calyx tube, lowermost 3.5–6 × 0.8–1.4mm, oblanceolate, subspathulate or oblong-elliptic, acute, margins with acute hairs up to 0.5–1.2mm long, usually many on backs, lowermost retrorse, some minute glandular hairs up to 0.1mm long as well, not indurated with age but

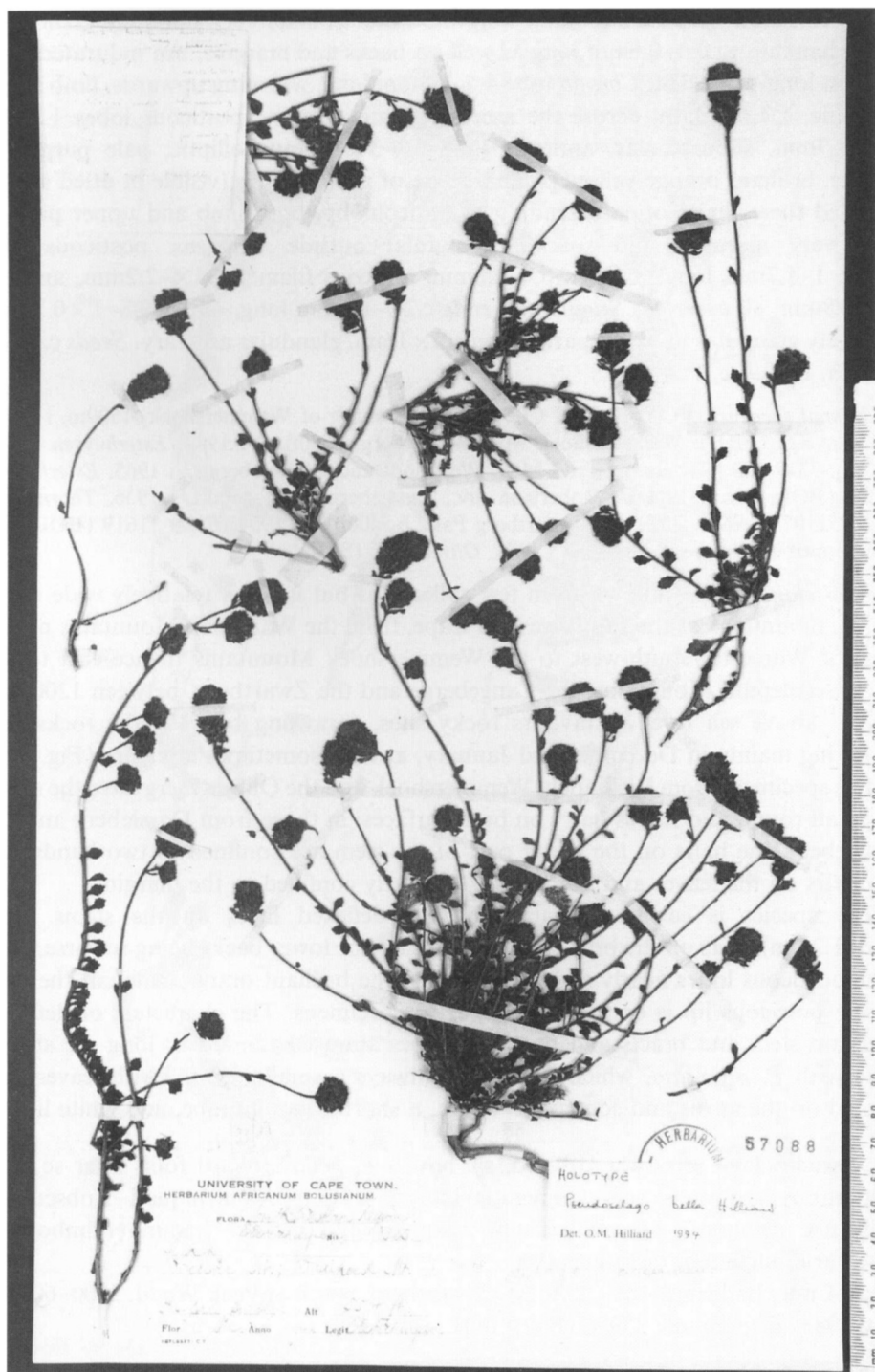


FIG. 33. *Pseudoselago bella* (holotype, Esterhuysen 8325, BOL).

long-persistent. *Calyx* c.2.8–4mm long on anticous side, very minutely glandular, acute hairs up to 0.4–0.6mm long as well on backs and margins, not indurated with age but long-persistent. *Corolla* tube 4.5–7.5mm long, widening upwards, limb zygomorphic, c.3.3–5.3mm across the ascending lateral lobes, posticous lobes 1.3–2.1 × 1–1.7mm, suborbicular, anticous lobe 1.8–3 × 1–2mm, elliptic, pale purple or mauve, brilliant orange/yellow patch at base of posticous lip (visible in dried state), bearded there, hairs often extending to anticous lip, both limb and upper part of tube very minutely and sparsely glandular outside. *Stamens*: posticous filaments 1–1.7mm long, anthers 0.4–0.8mm, anticous filaments 1.4–2.2mm, anthers 0.4–0.8mm, all exserted. *Stigma* and *style* c.2.7–6.7mm long. *Ovary* 0.8–1 × 0.3mm, minutely glandular in upper part. *Cocci* c.2 × 1mm, glandular as ovary. *Seeds* c.1.5 × 0.8mm, rugulose.

Additional specimens. CAPE. 3319 CC, mountains south of Wemmershoek, 1500m, i 1921, *Andraea* 822 (PRE); Wemmershoek Mts, Winterberg, 5500ft, 2 i 1987, *Esterhuysen* 36452 (BOL). 3319 CD [Rivierzonderend Mts], Wolfkloof and Olifantsberg, 2 i 1965, *Esterhuysen* 30899 (BOL, K). 3319 DD, Robertson div., Dassieberg, 4000–4500ft, i 1936, *Thorne* sub SAM 52107 (SAM). 3322 AC, Zwartberg Pass, c.5400ft, xii 1904, *Bolus* 11619 (BOL, K); *ibid.*, south of Blouberg, 5600ft, 4 i 1974, *Oliver* 5596 (STE).

Pseudoselago bella is known from few collections but it has a relatively wide range on the mountains of the south-western Cape, from the Waaihoek Mountains north-west of Worcester south-west to the Wemmershoek Mountains thence east to the Rivierzonderend Mountains, the Langeberge and the Zwartberg, between 1200 and 1700m above sea level. It favours rocky sites, sprawling between the rocks and flowering mainly in December and January, at least sometimes after fire (Fig. 33).

The specimens from Waaihoek, Wemmershoek and the Olifantsberg have the stems hairy all round and leaves hairy on both surfaces; in those from Dassieberg and the Zwartberg, the hairs on the upper part of the stem are confined to two bands and the hairs on the leaves and bracts may be nearly confined to the margins.

The species is easily recognized by the deflexed hairs on the stems, long (0.5–1.2mm) hairs on the bracts, any present on the lower backs being retrorse, limb with posticous lobes nearly as broad as long; the brilliant orange patch at the base of the posticous lip is conspicuous in dried specimens. The characters of deflexed hairs on stem and bracts and posticous lobes almost as broad as long are shared only with *P. prostrata*, which is possibly always a smaller plant, with leaves well spaced on the stems and sometimes entire, a shorter corolla tube, and white limb.

28. *Pseudoselago prostrata* Hilliard, sp. nov. a *P. bella* Hilliard foliis inter se bene distantibus (nec basin versus aggregatis) integris vel dentibus utrinque 1–2 obscuriusculis (nec utrinque 2–3), corollae tubo 3–4mm longo (nec 4.5–7.5mm) et limbo albo (nec varie purpureo) distinguenda.

Type: Cape, Ladismith div., 3321 AD, Swartberg, south of Peak Wood, 5800–6000ft, 8 iv 1983, *Esterhuysen* 35916 (holo. BOL, iso. MO).

Herb, probably perennial, stems c.40–100mm long, many from crown of woody taproot, sparingly branched low down, prostrate, villous with acute, slightly deflexed,

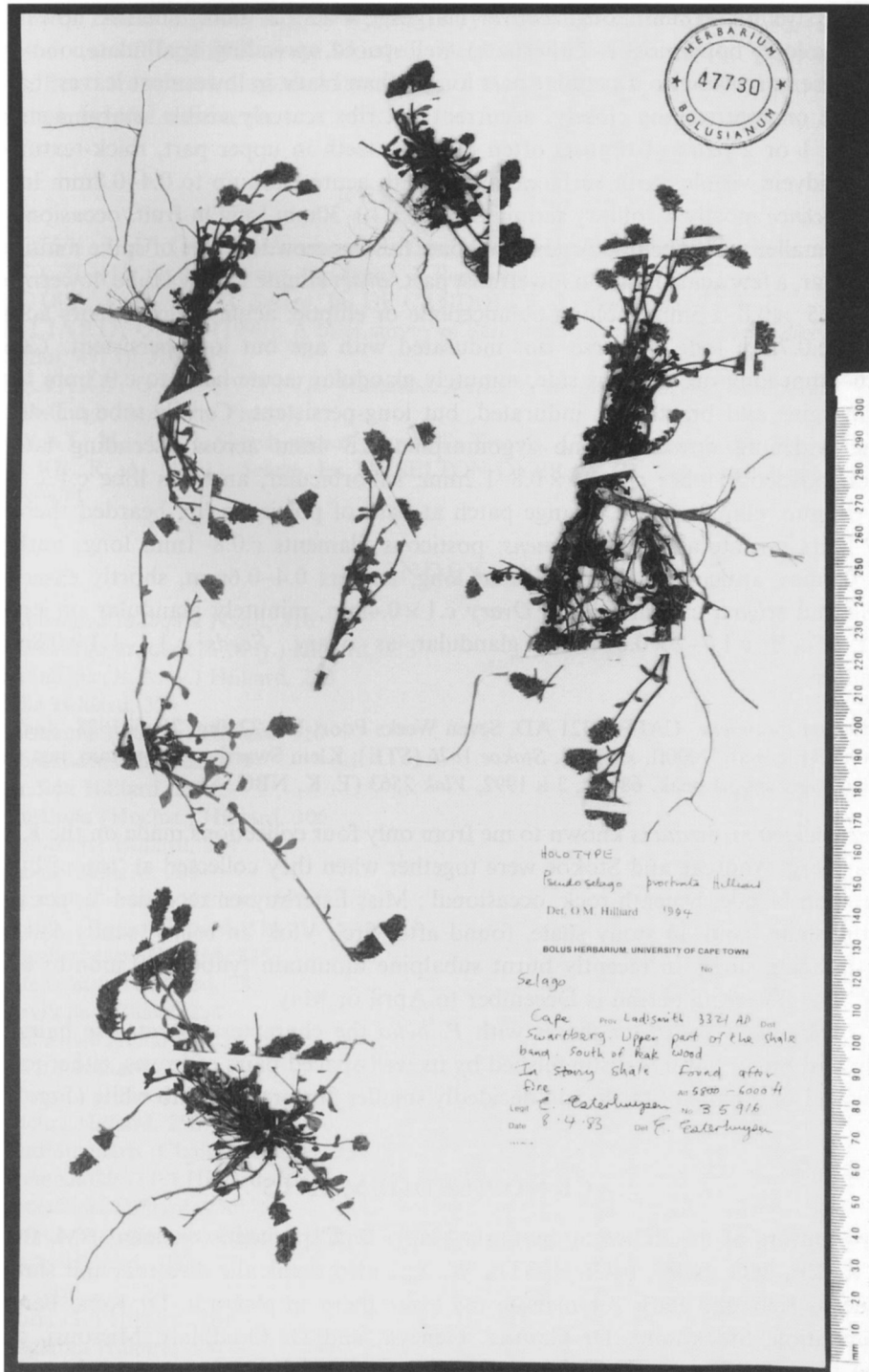


FIG. 34. *Pseudoselago prostrata* (holotype, Esterhuysen 35916, BOL).

hairs up to 0.4–0.8mm long. *Leaves* (largest) 4–12 × 2–4mm, smaller upwards, opposite (only uppermost 1–2 alternate), well spaced, spreading, spathulate, obovate or elliptic narrowing to a petiolar part longer than blade in lowermost leaves, bases connate or approaching closely, decurrent but ribs scarcely visible, margins entire or with 1 or 2 pairs of obtuse, often obscure, teeth in upper part, thick-textured, only midvein visible, both surfaces villous with acute hairs up to 0.4–0.8mm long. *Inflorescence* mostly a solitary terminal spike c.10–30mm long in fruit, occasionally 1 or 2 smaller spikes below the terminal one, flowers crowded, axis of spike minutely glandular, a few acute hairs on lowermost part. *Bract* adnate to calyx tube, lowermost c.3.4–4.5 × 0.8–1.3mm, oblong-oblancheolate or elliptic, acute, villous, hairs acute, up to c.0.7mm long, retrorse, not indurated with age but long-persistent. *Calyx* c.2.6–3mm long on anticous side, minutely glandular, acute hairs to c.0.3mm long on margins and bracts, not indurated, but long-persistent. *Corolla* tube c.3–4mm long, widening upwards, limb zygomorphic, c.3–4mm across ascending lateral lobes, posticous lobes c.1–1.3 × 0.8–1.2mm, suborbicular, anticous lobe c.1.2–2 × 0.7–1.6mm, elliptic, white, orange patch at base of posticous lip, bearded there, a few hairs on lateral lobes. *Stamens*: posticous filaments c.0.8–1mm long, anthers 0.3–0.6mm, anticous filaments c.1mm long, anthers 0.4–0.6mm, shortly exerted. *Style* and *stigma* c.2.5mm long. *Ovary* c.1 × 0.4mm, minutely glandular on upper part. *Cocci* c.1.7–2 × 0.8–1mm, glandular as ovary. *Seeds* c.1.1–1.3 × 0.8mm, rugulose.

Additional specimens. CAPE. 3321 AD, Seven Weeks Poort Mt, 2200m, 26 xii 1928, *Andreae* 1200 (PRE); *ibid.*, 7000ft, xii 1928, *Stokoe* 1876 (STE); Klein Swartberg mountain, just west of Seweweekspoort peak, 6800ft, 3 ii 1992, *Vlok* 2563 (E, K, NBG, S).

Pseudoselago prostrata is known to me from only four collections made on the Klein Zwartberg. *Andreae* and *Stokoe* were together when they collected at ‘top of burnt slopes on N side, beneath rock, occasional’; *Miss Esterhuysen* recorded ‘upper part of the shale band, in stony shale, found after fire’, *Vlok* ‘in rocky, sandy soil, on north-facing slope, in recently burnt subalpine mountain fynbos, 10 months after fire’. The flowering period is December to April or May.

Pseudoselago prostrata shares with *P. bella* the characters of retrorse hairs on stem and bract, but it is distinguished by its well-spaced pairs of leaves, either entire or with 1 or 2 pairs of teeth, and decidedly smaller flowers, the limb white (Fig. 34).

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