

A new species and a new combination of *Asclepias* (Asclepiadaceae) in southern Africa

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ABSTRACT

A new species is described: *Asclepias gordon-grayae* A. Nicholas, sp. nov. and a new combination is made: *Asclepias compressidens* (N.E. Br.) A. Nicholas, comb. nov.

UITTREKSEL

'n Nuwe spesie word beskryf: *Asclepias gordon-grayae* A. Nicholas, sp. nov. en 'n nuwe kombinasie word gemaak: *Asclepias compressidens* (N.E.Br.) A. Nicholas, comb. nov.

1. *Asclepias gordon-grayae* A. Nicholas, sp. nov. *A. pateni* N.E. Br. et *A. praemorsae* Schltr. affinis; differt a *A. praemorsa* appendicibus antherae brevibus et a *A. pateni* margine supero coronae prope extremum distale fisso.

Herba perennis. *Caudex* profundus, lignosus. *Caulis* unicus, erectus, gracilis, pubescens. *Folia* expansa, anguste lanceolata ad linearia, 34–128 × 2,25–(35) mm. *Inflorescentia* umbellata, ad nodos et terminalis, semi-pendens. *Flores* rosei ad eburnei. *Corolla* expansa usque ascendens, lobis ovatis, basi connatis. *Corona* cucullata-saccata, appendicibus proximalibus dentatis, subfalcatis, extremo distali coronae brevissimo et obtuso, sinus coronae saccati, carina coronae rotundata. *Appendices* antherae ovatae usque ellipticae, 1,0–1,4 × 0,5–1,0 mm. *Apex styli* truncatus. *Pollinia* hemitrullata usque hemipyriiformes, 0,68–0,92 × 0,40–0,52 mm. *Fructus* fusiformis, apice rostrato.

TYPE.—2832 (Mtubatuba): (–AB) Natal, Zululand, St Lucia, Eastern Shores State Forest, Simbonvini vlei, 20 m (65 ft) alt., March 1982, *Nicholas 1285* (PRE, holo.; CPF, K, NH, MO).

Perennial herb with woody, semi-swollen, deep-seated underground organs. *Stem* single, erect, 240–750 mm high. *Leaves* spreading, narrowly lanceolate to linear, occasionally upper leaves falcate, 34–128 × 2–25 (–35) mm, apex acute to acuminate, base minutely auriculate to minutely hastate; petiole 0,6–1,3 (–2,0) mm long. *Inflorescence* umbelliform, semipendulous, axillary and terminal, 1–4 per plant, 4–6 (–9)-flowered; peduncles 7–14 (–24) mm long. *Flowers* 6–14 × 4,5–8,0 mm, pink or pale pink to cream; pedicel 7–20 mm long. *Sepals* lanceolate, occasionally triangular or narrowly ovate, 2,2–3,4 × (0,7–)1,4–2,1 mm. *Corolla* spreading to ascending; petals connate at base, ovate, apex acute, 6,4–7,7 × 3,2–4,9 mm, white, cream or pink in centre and near apex, margins white to pale pink, abaxial surface glabrous, margins minutely scabrous. *Corona lobes* fused to staminal tube 0,3–0,5 mm above

corolla, saccate or cyathiform, 1,3–2,6 × 2,3–3,3 mm, white to cream with pink keel. Upper proximal ends extended into 2 long, dentate, subfalcate appendages 1,5–2,8 × 0,4–0,8 mm, level with style apex, 2 tooth- or wing-like flaps present below appendages on proximal margin. Upper margin oblique to style apex, proximal end usually higher than distal end, which is sometimes raised into a short, blunt projection deeply cleft at apex, cleft running a short distance along rounded keel. *Staminal column* 2–3 mm high; alar fissure 1,2–2,0 mm long; anther wings curvirostrate, 1,2–2,0 × 0,5–0,9 mm; anther appendages ovate to elliptic, 1,0–1,4 × 0,5–1,0 mm, membranous, white, decumbent on style apex. *Style apex* truncate, 1,5–3,0 mm wide. *Pollinia* hemitrulloid to hemipyriiform, 0,68–0,92 × 0,5–0,52 mm; translator arms 0,2–0,32 mm long; corpusculum 0,28–0,4 × 0,5–0,52 mm. *Fruits* fusiform, ±65 × ±10 mm, puberulous. Figure 1.

NATAL.—2831 (Nkandla): Ngoye Forest Reserve (–DC), *Gordon-Gray 6191* (NU), *Hilliard 2699* (NH, NU), *Huntley 624* (NU), *Nicholas 1074* (NU), *Stewart 2155* (NU), *Stirton 466* (PRE), *Strey 6106* (NH, NU), *Wood 5678* (NH), *10823* (BOL, SAM). 2832 (Mtubatuba): St Lucia (–AB), *Cawood 141* (CPF), *Nicholas 1285* (CPF, K, MO, NH, PRE); St Lucia (–AD), *Crundall s.n.* (PRE 51584), *Pooley 1819* (NU). 2930 (Stanger): Gingindlovu (–BA), *Wood 10828* (SAM).

*Asclepias gordon-grayae*** is endemic to coastal Zululand where it grows in boggy situations. This species has been named in honour of Professor K. D. Gordon-Gray who has collected extensively (particularly in Natal) and who for many years lectured in taxonomy at the University of Natal, Pietermaritzburg. Professor Gordon-Gray has through her many publications and her teaching of taxonomy made a positive contribution to the knowledge of the southern African flora. *A. gordon-grayae* has in the past been confused with *A. patens* N.E.Br. with which it has many affinities. Vegetatively

** In Nicholas (1982) the manuscript name *A. gracilicaulis* was used (in reference to the long, thin, wavy stem of this species). This name was never validly published and has been dropped here in favour of the name *A. gordon-grayae*.

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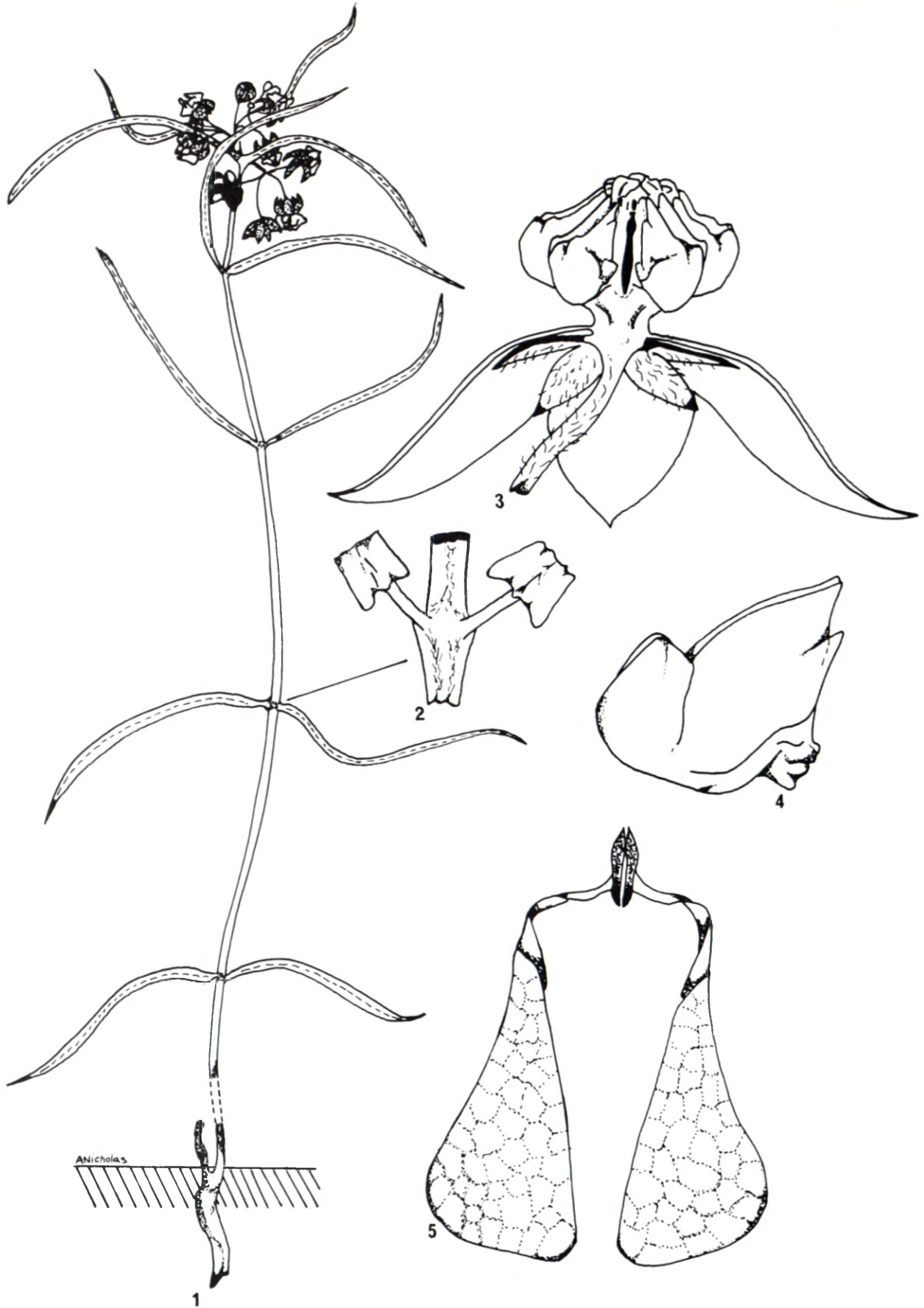


FIGURE 1.—*Asclepias gordon-grayae*. 1, flowering plant, $\times 0.25$, *Edwards s.n.* (BOL); 2, node showing bifariously arranged hairs and leaf bases, $\times 4$, *Gordon-Gray 6191* (NU); 3, flower, $\times 7$, *Stewart 2155* (NU); 4, corona lobe, side view, $\times 3$, *Stewart 2155* (NU); 5, pollinarium, $\times 130$, *Stewart 2155* (NU).

tell these two species apart. However, there are marked differences in flower colour, corona lobe size and shape, anther appendage size and shape and pollinia width (Figure 2; Table 1). There are also differences in distribution (Figure 3) and in habitat preference. The number, degree and consistency of these and other differences are diagnostically important and help separate *A. gordon-grayae* from its two closest relatives: *A. patens* and *A. praemorsa* Schltr. (Figures 2, 4 & 5; Table 1). *A. gordon-grayae* may be found growing at altitudes between 30

and 900 metres and flowers between September and April, with a peak period in December.

KEY TO ASCLEPIAS GORDON-GRAYAE AND ITS CLOSEST ALLIES

- 1a Anther appendages 1,7–2,5 × 1,0–1,6 mm *A. praemorsa*
- 1b Anther appendages 0,5–1,4 × 0,5–1,0 mm:
 - 2a Upper coronal edge entire; southern Natal and Transkei
 - *A. patens*
 - 2b Upper coronal edge cleft near the distal end; Zululand only
 - *A. gordon-grayae*

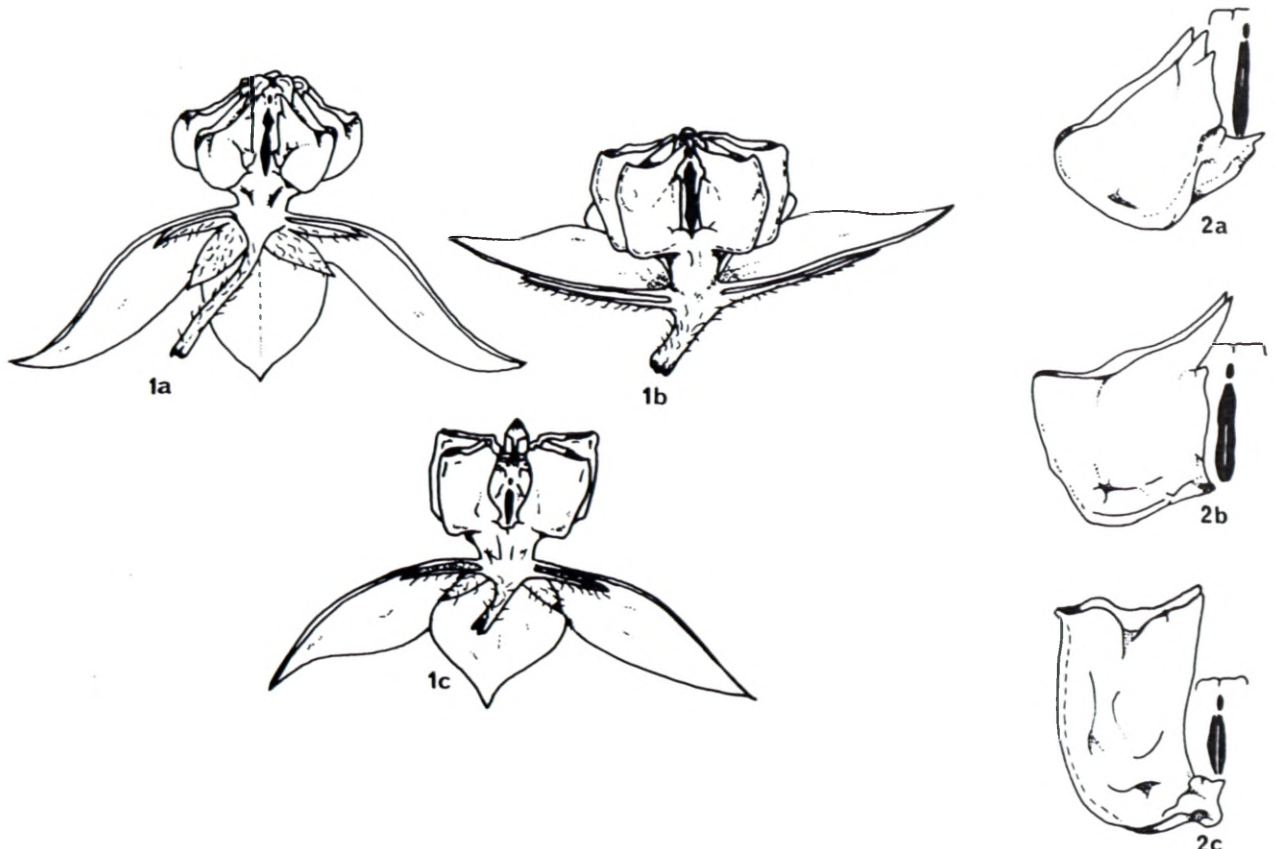


FIGURE 2.—A comparison of the flowers of: 1a, *Asclepias gordon-grayae*, × 5, Stewart 2155 (NU); 1b, *A. patens* × 9,5, Moss 470 (J); 1c, *A. praemorsa* × 8, Strey 6902 (NH). A comparison of the corona lobes of: 2a, *A. gordon-grayae*, × 4, Strey 6106 (NU); 2b, *A. patens* × 10, Gordon-Gray 961 (NU); 2c, *A. praemorsa* × 14, Wood 1162 (NH).

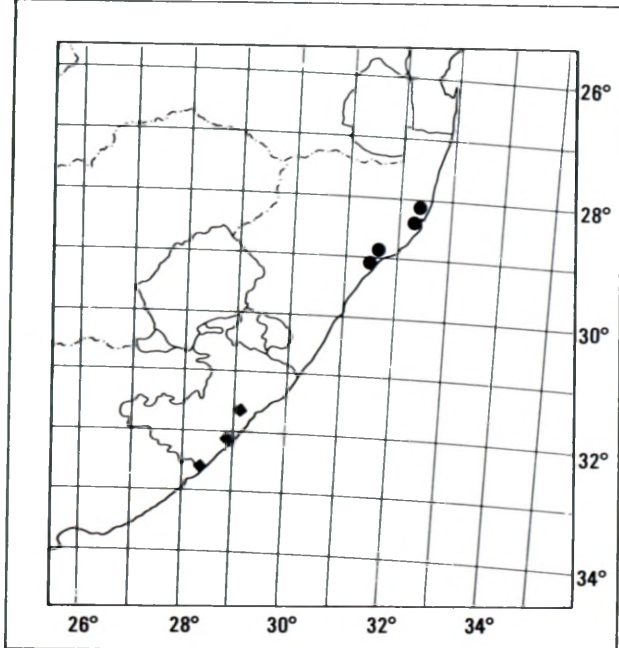


FIGURE 3.—Map showing comparative distribution of *Asclepias gordon-grayae*, ● and *A. patens*, ◆.

2. *Asclepias compressidens* (N.E.Br.) A. Nicholas, comb. et stat. nov.

Asclepias navicularis (E. Mey.) Schltr. var. *compressidens* N.E.Br.: 683 (1908). Type: Cape, 3225 (Somerset East): Cradock (–BA), Cooper 1284 (K, lecto.!; PRE!).

Perennial herb with woody, swollen, deep-seated underground organ. *Stems* 1–6 per plant, decumbent. *Leaves* spreading to ascending, linear, occasionally narrowly lanceolate or falcate, 15–85 × (1,5–)2,0–4,5 mm, apex acuminate, base petiolate, occasionally trullate, margins slightly revolute; petiole 1,5–3,0 mm long. *In-florescences* umbelliform, terminal, solitary, erect, 1–3 per plant, 4–9-flowered; peduncles 27–35 mm long. *Flowers* ± 1 × 1,1–1,4 mm, pink to light grey. *Sepals* ascending, lobes lanceolate, 6,6–6,8 × 1,2–2,0 mm. *Corolla* ascending, petals lanceolate to ovate, connate at base, 10,5–11,8 × ± 5 mm, margins slightly revolute, occasionally sinuate, central vein prominent, colour inside lilac-green, outside purple-green, abaxial surface glabrous, adaxial surface canescent. *Corona lobes* arising from base of staminal column, erect, cucullate, saccate, 3,8–4,2 × 1,7–2,0 mm, upper proximal ends forming two obtuse almost triangular shoulders level with middle of anther-wings, proximal margins concave to

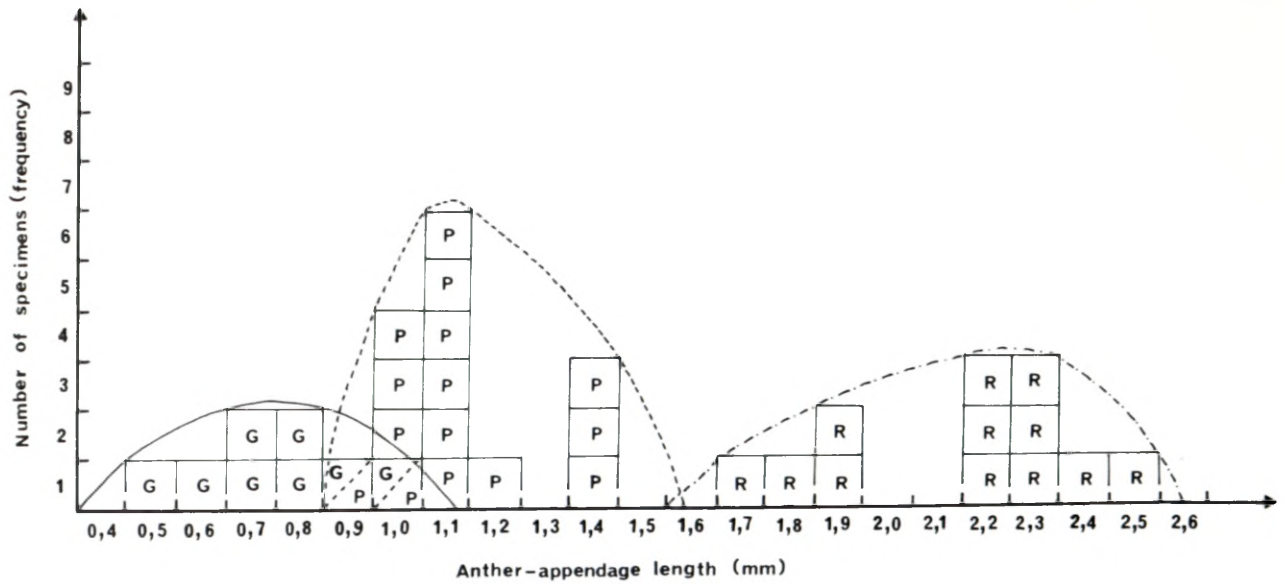


FIGURE 4.—Histographic comparison of anther appendage length in *Asclepias gordon-grayae*, G; *A. patens*, P; and *A. praemorsa*, R.

lobe base and folded to meet, upper margin entire, curving to form a deltoid, obtuse distal lobe end. Keel dipping near upper distal end, convex and narrow at lobe base. Sinus a narrow central channel, 3,8–4,2 mm long, with tongue-like appendage. *Staminal column* 3–4 mm long; alar fissure 1,7–1,8 mm long; anther-wings 1,7–1,8 × ± 0,7 mm, concave near apex with small notch on margin; anther appendages tongue-like, ovate, 1,0–1,3 × 1,1–1,2 mm, decumbent. *Style apex* truncated to slightly conical, 2,3–2,8 mm wide. *Pollinia* clavate to lacrimiform, 1,5–1,6 × ± 0,56 mm; translator arms 0,48–0,56 mm long; corpusculum 0,16–0,24 mm wide. Figure 6.

NATAL.—3126 (Queenstown): Queenstown (–DD), *Acocks 17936* (PRE). 3225 (Somerset East): Cradock (–BA), *Cooper 1284* (K, PRE). 3326 (Grahamstown): Alexandria (–CB), *Acocks 17872* (PRE); Southwell (–DA), *Bayliss 4631* (PRE). 3327 (Peddie): near East London (–BB), *Wood 1995* (K).

Although closely allied to *Asclepias navicularis*, *A. compressidens* can be distinguished from it by a number of important characters (Figure 6; Table 2). Also *A. navicularis* has a distribution centred on the coastal region of the eastern Cape, whereas *A. compressidens* may also be found further inland (Figure 7) and at higher altitudes. The specific epithet refers to the compressed tongue-like appendage that lies within the corona lobesinus. *A. compressidens* and *A. disparilis* N.E. Br. possess similar corona lobes, but in *A. disparilis* the distal corona lobe appendage is slightly elongated and there is a transverse shelf-like flap of tissue within the coronal sinus just above the middle point of the lobe; the leaves are also shorter and broader (Table 3). *A. compressidens* is found at an altitude of between 30 to 140 metres and flowers from November to February. It is found growing in grassland and is said to be rare.

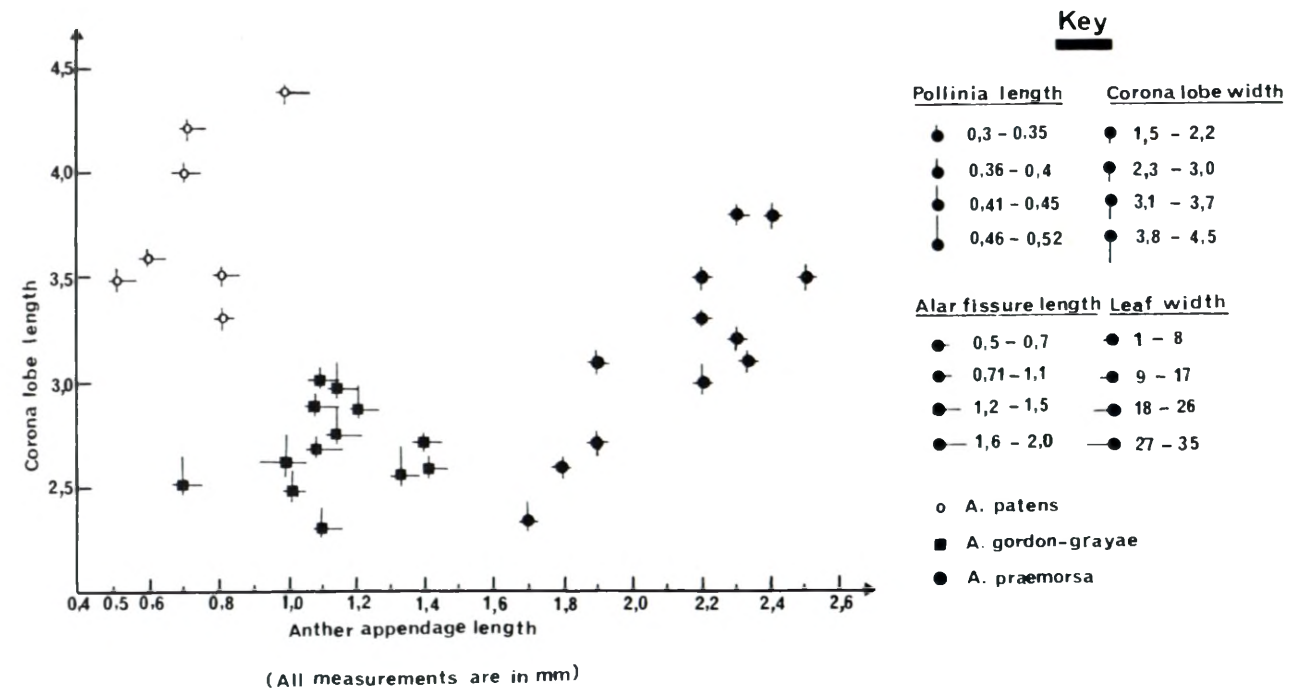


FIGURE 5.—Scatter diagram: a comparison of a number of characteristics in *Asclepias gordon-grayae*, *A. patens* and *A. praemorsa*.

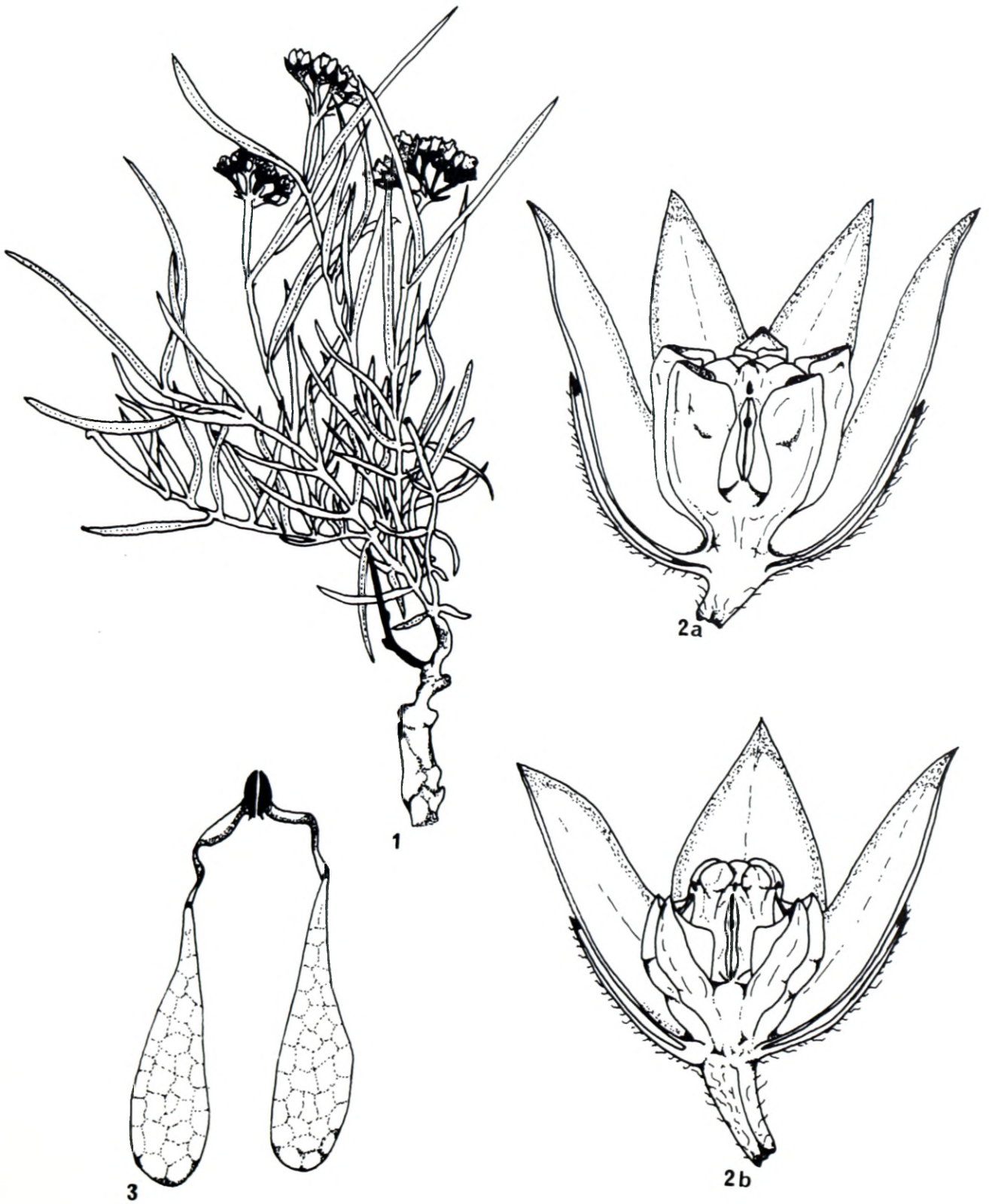


FIGURE 6.—*Asclepias compressidens*. 1, flowering plant, $\times 0,6$, *Acocks 17936* (PRE); 2b, flower, $\times 6,5$, *Rogers 12762a* (BOL); 3, pollinarium, $\times 120$, *Rogers 1276a* (BOL). A comparison of the flowers of: 2a, *A. navicularis* $\times 8$, *Comins 1355* (PRE); 2b, *A. compressidens*, $\times 6,5$, *Rogers 1276a* (BOL).

TABLE 1.—A comparison of the differences separating *Asclepias gordon-grayae*, *A. patens* and *A. praemorsa*

Character	<i>A. gordon-grayae</i>	<i>A. patens</i>	<i>A. praemorsa</i>
Leaf width	2–25(–35) mm	1–9(–11) mm	1–3 mm
Corona lobe upper margin	May have a distinct dip near the distal end oblique to the style apex	Entire, undulating, slightly oblique to the style apex	Entire, truncated, level with the style apex
Corona: relationship to style apex	Proximal appendages tooth-like reaching, but not projecting over, the style apex	Proximal appendages tooth-like, projecting over the style apex	No true proximal appendages, corona higher than the style apex, but not projecting over it
Corona lobe (height)	1,3–2,6 mm	2,4–3,4 mm	2,2–3,8 mm
Corona lobe (width)	2,3–3,3 mm	3,0–4,4 mm	1,8–2,8 mm
Alar fissure (length)	1,2–2 mm	1,0–1,7 mm	0,6–1,1 mm
Anther appendage (shape)	Ovate to elliptic	Triangular to widely ovate	Oblong or strap-like
Anther appendage (length)	1,0–1,4 mm	0,5–1 mm	1,7–2,5 mm
Pollinia (length)	0,68–0,92 mm	0,8–0,92 mm	0,56–0,68 mm
Pollinia (width)	0,4–0,52 mm	0,32–0,4 mm	0,32–0,48 mm
Habitat	Mountain plateau marsh lands and boggy vleis	Grasslands on mountain slopes	Mountain grasslands on Table Mountain sandstone
Distribution	Zululand–Ngoye to St Lucia	Transkei–Kentani to Port St Johns	Transkei and southern Natal–Umtata to Pinetown

TABLE 2.—The main diagnostic differences between *Asclepias compressidens* and *A. navicularis*



Character	<i>A. compressidens</i>	<i>A. navicularis</i>
Corona lobe shape		
Level of corona lobe in relation to the style apex	Shorter than the style apex	Level with the style apex
Proximal corona lobe end in relation to the distal end	Lower than the distal end of the lobe	Level with the distal end of the lobe
Corona lobe sinus	Tongue-like flap inside	Transverse flap-like shelf inside
Anther-wing (outer edge)	Squared	Round
Notch on anther-wing margin	Near the top	Near the base
Pollinia	Claviform or lacrimiform	± Rectangular

TABLE 3.—The main diagnostic differences found between *Asclepias compressidens* and *A. disparilis*

Character	<i>A. compressidens</i>	<i>A. disparilis</i>
Leaf length	15–18 mm	12–37 mm
Leaf width	2–4,5 mm	3–9 mm
Distal appendage of corona lobe	Not produced	Slightly produced
Corona lobe sinus	Tongue-like projection	Transverse shelf-like flap

KEY TO ASCLEPIAS COMPRESSIDENS AND ITS CLOSEST ALLIES

- 1a Corona lobe sinus without transverse flap of tissue near apex, compressed tongue-like appendage present *A. compressidens*
- 1b Corona lobe sinus with transverse flap of tissue near apex, no compressed tongue-like appendage present:
 - 2a Upper distal corona lobe edge level with style apex; leaf width at lamina base 1–5 mm *A. navicularis*
 - 2b Upper distal corona lobe edge level with middle of anther-wing (not level with style apex) leaf width at lamina base 3–9 mm *A. disparilis*

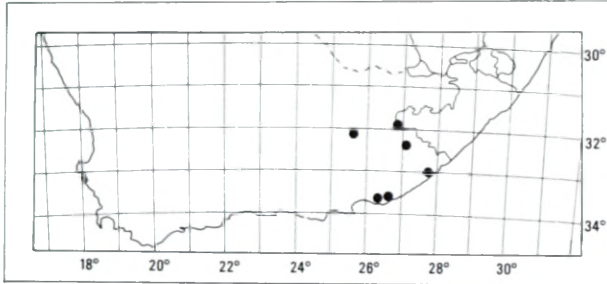


FIGURE 7.—Distribution of *Asclepias compressidens*.

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