

THREE SUBSPECIES OF *EUCOMIS AUTUMNALIS*\*

Within the genus *Eucomis* L'Hérit. there is a group of plants of problematic circumscription. These plants vary in height from 200–500 mm and are a homogeneous green in colour. As a result, the different taxa of this group have never been clearly defined and various names such as *E. autumnalis* (Mill.) Chitt., *E. albomarginata* Barnes, *E. amaryllidifolia* Baker, *E. clavata* Baker, *E. macrophylla* hort., *E. regia* sensu Ait., *E. robusta* Baker and *E. undulata* Ait. have been assigned to them.

In an unpublished monograph of the genus (Reyneke, 1972), it was concluded that the group consisted of only three taxa, all varieties of *E. autumnalis*, namely var. *autumnalis*, var. *amaryllidifolia* and var. *clavata*. In this note the three taxa are published as subspecies, since they occupy fairly distinct geographical areas.

***Eucomis autumnalis* (Mill.) Chitt.** in Royal Hort. Soc. Dict. Gard. 2: 787 (1951). Type: apparently none preserved; neotype: eastern Cape, *Flanagan* 2590 (BOL; NBG, PRE, isoneo.).

Bulb pyriform with dark brown or red-brown membranous tunics. *Leaves* plain green, without a purple colour, usually linear, sometimes lanceolate or ovate; with a distinct midrib; margin undulate; cuticle on margin dentate or crenate. *Inflorescence* a homogeneous green raceme with 50–125 flowers. *Peduncle* cylindrical or clavate. *Scape* 60–200 mm long. *Bracts* linear, shorter than the flowers except for those situated at the apex which are longer. *Coma* with 10–45 sterile bracts, usually pendulous over the inflorescence; bracts oblong, linear or ovate, margin undulate, cuticle on margin undulate and/or dentate. *Pedicele* erecto-patent, 3–9 mm long. *Flowers* 50–125; white, yellow-green or light green immediately after anthesis, older flowers green. *Perianth* with 6 segments lanceolate to ovate, persistent. *Stamens* 6, arising from the base of perianth, the filaments triangular-acuminate, their broad bases fused below to form a cup 3–4 mm high. *Gynoeceum* white or yellow-green in young stage, green when older; style cylindrical; stigma simple; ovary with three lateral indentations. *Capsule* trilocular; pericarp membranous, fleshy or hard, opaque with 2 distinct layers. *Flowering period* December to February.

*Eucomis autumnalis* is usually found in open grassland, but also in sheltered places e.g. in rock crevices, under trees and shrubs and even in swamps.

The morphology of the peduncle, whether clavate or cylindrical, is a distinctive character which does not change in different habitats and is used to distinguish between the three subspecies. A cylindrical scape is characteristic of the subsp. *autumnalis*, while the subsp. *amaryllidifolia* and *clavata* both have clavate scapes (Fig. 9).

## Key to the subspecies

- Leaves linear 15–40 mm broad and 130–300 mm long, margin undulate; peduncle clavate; perianth segments 6–10 mm long; capsule papery. . . (b) subsp. *amaryllidifolia*
- Leaves ovate to lanceolate, seldom linear, 40–130 mm broad, 150–550 mm long, margin undulate; peduncle cylindrical or clavate; perianth segments 10–16 mm long;
  - Peduncle clavate; capsule with a hard double-layered pericarp. . . . . (c) subsp. *clavata*
  - Peduncle cylindrical; capsule with a thin, sometimes inflated, pericarp. . . . . (a) subsp. *autumnalis*

(a) subsp. *autumnalis*

*Fritillaria autumnalis* Mill., Gard. Dict. ed. 8 (1768); *Eucomis autumnalis* (Mill.) Chitt. in Royal Hort. Soc. Dict. Gard. 2: 787 (1951).

*F. longifolia* Hill in Hill's Hort. Kew. ed. 2, 354, t.15 (1769); Vitman, Sum. Pl. 2: 299 (1789–1792).

*Eucomis undulata* Ait., Hort. Kew. ed. 1, 1: 433 (1789); Don, Hort. Cant. ed. 2, 40 (1796); Willd., Sp. Pl. 2: 93 (1799); Gawler in Curtis's bot. Mag. 27: t.1083 (1808); Willd., Enum. 364 (1809); Ait., Hort. Kew. ed. 2, 146 (1811); Don, Hort. Cant. ed. 6, 86 (1811); Trattinick, Thes. Bot. t.53 (1819); Thunb., Fl. Cap. ed. 2, 317 (1823); Hook., Cat. Pl. R. Bot. Gard. 1: 26 (1825); Spreng., L. Syst. Veg. 2: 76 (1825); Roem. & Schult., Syst. Veg. 7: 622–623 (1829); Kunth, Enum. Pl. 4: 302 (1843); Baker in J. Linn. Soc. (Bot.) 13: 225 (1873); Nicholson, Illus. Dict. Gard. 1: 538 (1885); Engler & Prantl, Pflanzenfam. 2: 67, fig. 47 (1888); Bak. in Fl. Cap. 6: 476–477 (1897); Engler & Drude, Veg. der Erde, 2: 301, fig. 203 (1908); Pole Evans in Flower. Pl. S. Afr. 6: t.220 (1926); Grey, Hardy Bulbs 3: 236 (1938); Batten & Bokelmann, Wild Flow. E. Cape Prov. 12 (1966); Gledhill, East Cape Wild Fl. 72 (1969). *Ornithogalum undulatum* (Ait.) Thunb., Prodr. 1, 62 (1794). *Basilaea undulata* (Ait.) Mirb., Hist. Nat. Pl. 8: 339 (1802–1806). Type: specimen in BM.

*E. regia* sensu auct. sequent.: Ait., Hort. Kew. 1: 433 (1789); Soland. in Salisb. Prodr. 218 (1796), as *Eucomea regia*; Don, Hort. Cant. ed. 2, 40 (1796); Willd., Sp. Pl. 2: 93 (1799); Red., Liliac. 4: t.175 (1807); Ait., Hort. Kew. ed. 2, 2: 245 (1811); Roem. & Schult., Syst. Veg. 7: 623 (1829); Kunth, Enum. Pl. 4: 302 (1843); non L'Héritier. *Basilaea regia* sensu Mirb., Hist. Nat. Pl. 8: 339 (1802–1806).

*Basilaea coronata* Lam., Encycl. 1: 382 (1789); Lam., Encycl. 1: 590 (1810); Poiret, Encycl. suppl. 1, 590 (1810–1811); Lam., Tabl. Encycl. t.239, fig. 2 (1823).

*Eucomis clavata* sensu Van der Spuy, Die Groot Veldblommeboek 175 (1971), non Baker.

Bulb pyriform. *Leaves* linear to ovate, 60–130 mm broad and 150–550 mm long, margin undulate. *Inflorescence* 40–55 mm in diameter with 70–110 compactly arranged flowers. *Peduncle* cylindrical, sometimes slightly clavate, 60–200 (300) mm long. *Scape* 60–200 mm long. *Coma* 70–150 mm in diameter, 10–45 bracts; bracts oblong, 30–70 mm long and 20–40 mm broad and 4–5 mm in diameter. *Perianth segments* 10–13 mm long. *Capsule* with membranous pericarp. Figs 9 & 10.

Subsp. *autumnalis* usually grows as single plants in open grassland, on mountain slopes and forest margins of Malawi, Rhodesia, northern Transvaal and the eastern Cape.

MALAWI.—1234 (Kota Kota): Kota Kota (–CC), Benson 89 (PRE).

RHODESIA.—1832 (Umtali): Inyanga (–BA), Juliesdale, Rutherford-Smith 505 (PRE), World's View (–BA), Plowes 2680 (PRE). 1932 (Melsetter): Umtali, Vumba Mountain (–BA), Obermeyer 2138 (PRE), Castle Beacon (–BA), Farrar 4041 (PRE), Plowes 2240 (PRE).

TRANSVAAL.—2330 (Tzaneen): Duiwelskloof (–CA), Westfalia Estate, Scheepers 297 (PRE), 2427 (Thabazimbi): Kransberg (–BC), farm Groothoek, Codd 6314 (PRE). 2529 (Witbank): Loskop Dam (–AD), Theron 1769 (PRE & PRU).

CAPE.—3024 (De Aar): Hondeblafriver (–BC), "Horses Grave", Burchell 2701 (K). 3029 (Kokstad): Cedarville (–AC), Mzonyani, Bandert 111 (GRA). 3224 (Graaff-Reinet): Sneeuberg (–AA), Burke, s.n. (K). 3225 (Somerset East): Cradock Bergkwagga Park (–AB), Muller 660 (PRE). 3227 (Stutterheim): Moordenaarskop (–BD) near Komga, Flanagan 2590 (BOL, NBG & PRE). 3325 (Port Elizabeth): Uitenhage (–CD), Ecklon & Zeyher 102 (K).

No specimen was apparently preserved at the time of the original description of this plant, which was grown in England by Miller from seeds which were sent to him from the Cape of Good Hope therefore, in the absence of a figure, a neotype, *Flanagan* 2590, is selected.

Within subsp. *autumnalis*, originally described from the eastern Cape, two forms may be distinguished, namely plants with a southern distribution

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FIG. 9.—Drawings of 1, *Eucomis autumnalis* subsp. *autumnalis*; 2, subsp. *amaryllidifolia*; 3, subsp. *clavata*.

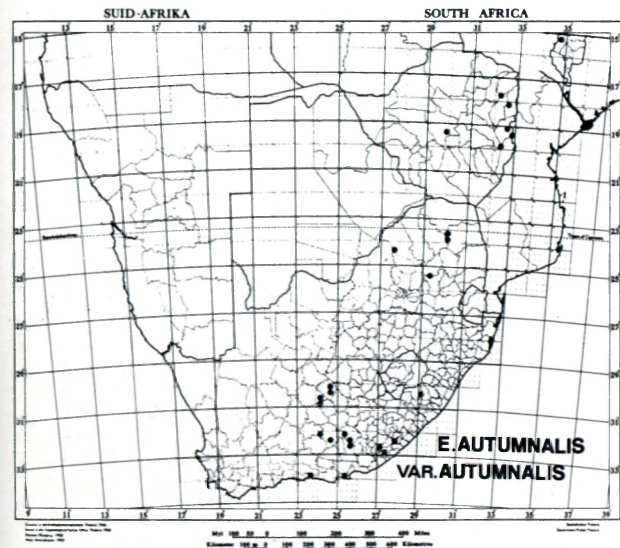


FIG. 10.—The known distribution of *Eucomis autumnalis* subsp. *autumnalis*.

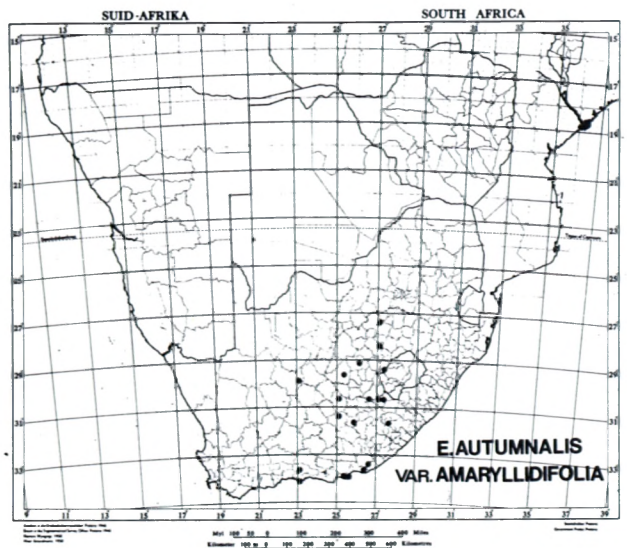


FIG. 11.—The known distribution of *Eucomis autumnalis* subsp. *amaryllidifolia*.

from the eastern Cape showing affinity with subsp. *clavata* in growth and leaf forms, and those with a northern distribution from Malawi, Rhodesia and the northern Transvaal showing affinity with *E. pallidiflora* Bak. except in stature. These two forms could possibly be regarded as distinct subspecies, but there are so many intermediates that such a distinction would be tenuous.

(b) subsp. *amaryllidifolia* (Bak.) Reyneke, stat. nov.

*E. amaryllidifolia* Bak. in Gard. Chron. 2, 10: 492 (1878); Nicholson, Illus. Dict. Gard. 1: 537 (1885); Bak. in Fl. Cap. 6: 477 (1897); Grey, Hardy Bulbs 3: 232 (1938); Chitt. in Royal Hort. Soc. Dict. Gard. 2: 787 (1951). Type: Eastern Cape Bosberg, MacOwan 1907 (K, holo.!; GRA, iso.).

Small plants not more than 350 mm high. *Bulb* pyriform. *Leaves* linear, 130–300 (500) mm long, 15–40 mm broad, margin undulate. *Inflorescence* 25–40 mm diam. with 30–50 compactly arranged flowers. *Peduncle* clavate, 60–130 (230) mm long. *Scape* 30–70 mm long. *Coma* with 13–20 bracts; bracts lanceolate, 24–80 mm long, 20–35 mm diam. *Pedice* 2–5 mm long. *Perianth* segments 6–8 mm long, 4 mm diam. *Gynoeceum* with yellow ovary and white style just after anthesis. *Capsule* with transparent membranous pericarp which is often slightly inflated. Figs 9 & 11.

Subsp. *amaryllidifolia* usually grows in groups between rocks on mountain slopes of the western Orange Free State and eastern Cape Province.

O.F.S.—2727 (Kroonstad): Valsrivier (–AC), *Pont* 415 (PRE). 2827 (Senekal): “Bell’s Pass” (–AC) *Reyneke* 318 (PRU). 2925 (Jagersfontein): Fauresmith, koppie in southern part of Botanical Reserve (–CB), *Verdoorn* s.n., 2209 (PRE), *Reyneke* 107 (PRU). 2927 (Maseru): Kommissiepoort (–AD), *Tylden* s.n. (NBG).

CAPE.—2823 (Griekwastad): Griekwastad (–CC), Karreefontein, *Wilman* 2147 (GRA). 3026 (Aliwal North): Aliwal North (–DA), Elandshoek, *Bolus* 270 (BOL). 3125 (Steynsburg): Grootfontein College of Agriculture (–AC), *Theron* 1057 (PRE), Hofmeyer (–DB), False Karoo, *Acocks* 16336 (PRE). 3323 (Willowmore): Uniondale Poort (–CA), *Acocks* 20325 (PRE). 3326 (Grahamstown): Grahamstown (–BC), *Cherry* 941 (GRA), *Dyer* 420 (GRA & PRE).

(c) subsp. *clavata* (Bak.) Reyneke, stat. nov.

*E. clavata* Bak. in Saunders’s Ref. Bot. 4: t.238 (1871); Lucas & Pike, Wild Flow. Witwatersrand (1971). Type: Orange Free State, *Cooper* 1196 (K, holo.!; NU, iso.).

*E. regia* sensu auct. sequent: Bak. in J. Linn. Soc. (Bot.) 13: 225 (1873); Bak. in Fl. Cap. 6: 477–478 (1897); Turrill in Gard. Chron. 8: 75 (1921); Grey, Hardy Bulbs 3: 236 (1938); Chitt. in Royal Hort. Soc. Dict. Gard. 2: 787 (1951); Pam in J. Royal Hort. Soc. 69: 164 (1951); non L’Héritier.

*E. macrophylla* hort., Bak. in J. Linn. Soc. (Bot.) 13: 225 (1873).

*E. robusta* Bak. in Fl. Cap. 6: 477 (1897); Grey, Hardy Bulbs 3: 236 (1938); Chitt. in Royal Hort. Soc. Dict. Gard. 2: 787 (1951). Type: Natal near Koenigsberg, cultivated specimen introduced by Dammann & Co. of Naples, 1894 (BOL, holo.).

*E. albomarginata* Barnes in S.A. Gdng Country Life 20: 115 (1930); Grey, Hardy Bulbs 3: 231 (1938). Type: Orange Free State, Clarens, *De Leeuw* s.n. sub NBG 1876/26 (BOL; holo.!; NBG, iso.).

*E. undulata* sensu Letty, Wild Flow. Transv. 28 (1962); Trauseld, Wild Flow. Natal Drakensberg 25 (1969).



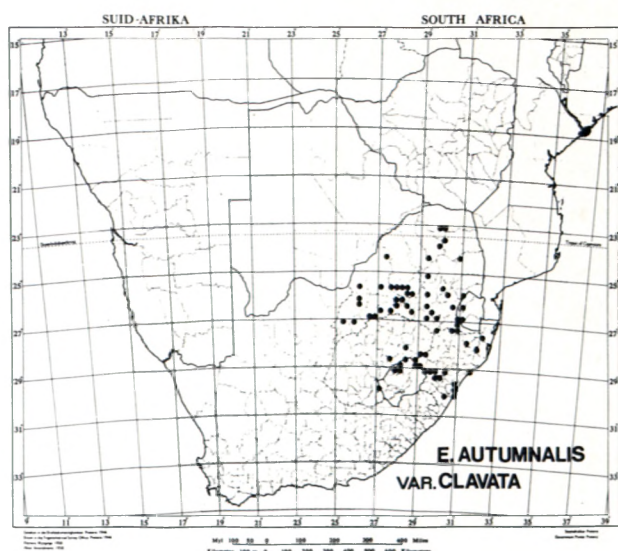


FIG. 12.—The known distribution of *Eucomis autumnalis* subsp. *clavata*.

Bulb dome-shaped. *Leaves* lanceolate to ovate, sometimes linear, 150–450 (600) mm long, 60–130 mm broad, margin undulate; cuticle on leaf-margin dentate. *Inflorescence* 50–70 mm diam., 50–125 flowers which are exceptionally compactly arranged. *Peduncle* mostly clavate, 70–120 (230) mm long. *Scape* 70–130 mm long. *Coma* 130–180 mm diam., pendulous over inflorescence, 15–30 sterile bracts; coma bracts ovate, 50–80 mm long, 30–50 mm diam. *Pedicel* 3–8 (10) mm long. *Perianth* segments 12–17 mm long, 5–6 mm diam. *Capsule* with hard opaque pericarp in which two layers can be distinguished. Figs 9 & 12.

Subsp. *clavata* usually grows in groups in open grassland and marshes. Recorded from Botswana, Transvaal, Orange Free State, Swaziland and Natal.

**BOTSWANA.**—2525 (Mafeking): Lobatsi (–BA), *Watt & Breyer-Brandwijk* 1886 (PRE).

**TRANSVAAL.**—2429 (Zebediela): Zebediela (–AD), summit of mountain, *Reyneke* 101 (PRU). 2430 (Pilgrim's Rest): Mariepskop (–BD), *Reyneke* 100 (PRU), Bedford foot-path, *Van der Schijff* 4689, 6254 (PRE & PRU). 2526 (Zeerust): Zeerust (–CA), *Jenkins* 11691 (PRE). 2528 (Pretoria): Pretoria (–CA), Pretoria University Experimental farm, *Codd* 3692 (PRE); 14 miles south east of Pretoria (–CD), *Codd* 6214a (PRE). 2530 (Lydenburg): Belfast Forest Reserve (–CA), *Reyneke* 92 (PRU). 2531 (Komatipoort): Louw's Creek (–CC), *Brayshaw* 170 (NU). 2626 (Klerksdorp): Lichtenburg (–AA), *Hesse* 1599 (PRE). 2628 (Johannesburg): Johannesburg (–AA), *Holden* 28053 (PRE). 2630 (Carolina): The Gem (–BC), *Walker* 1212 (PRE). 2730 (Vryheid): near Piet Retief (–BB), *Compton* 22335 (NBG).

**O.F.S.**—2827 (Senekal): Rosendal (–BD), Rhebokkop, *Goossens* 1883 (PRE). 2828 (Bethlehem): 6 miles south east of Bethlehem (–AB), *Scheepers* 1883 (PRE).

**SWAZILAND.**—2631 (Mbabane): Utukula rocks (–AC), *Compton* 24782, 24865 (NBG). 2632 (Bela Vista): Lebombo mountains (–CC), *Strey* 4661 (NH & PRE).

**NATAL.**—2729 (Volksrust): Charlestown (–BD), *Smith* 5755 (PRE). 2730 (Vryheid): Mooihoek (–AC), *Devenish* 403 (PRE); near Grootspuit (–BC), *Strey* 8058 (NH & PRE). 2828 (Bethlehem): Royal Natal National Park, Mont-aux-Sources (–DB), *Pardoe* s.n. (PRE). 2829 (Harrismith): Van Reenen (–AD), *Bews* 616 (NU), Van Reenen's Pass, *Schweickerdt* 952 (PRE); Cathedral Peak Forest Station (–CC), *Killick* 1250, 1264, 1294 (PRE), *Reyneke* 50 (PRU). 2930 (Pietermaritzburg): Rietvlei (–AB), Greenwich Farm, *Fry* 5730 (PRE). 3030 (Port Shepstone): between Ixopo and Umzinto (–AB), *Werdermann & Oberdieck* 1209 (PRE).

**LESOTHO.**—2828 (Bethlehem): Butha Buthe (–CC), *Jacot Guillarmod* 2140 (RUH), Leribe (–CC), *Phillips* 1227, 549 (NBG). 2927 (Maseru): Mafeteng (–CC), *Watt & Breyer-Brandwijk* 2411 (PRE).

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## MYRTACEAE

### THE IDENTITY OF *EUGENIA WOODII*

Ever since *Eugenia woodii* Dümmer (1912) was described, some doubt has existed as to whether it is a distinct species. In his original diagnosis Dümmer distinguished *E. woodii* from *E. zuluensis* Dümmer by its broadly elliptic or obovate leaves with the midrib impressed above (prominently raised in *E. zuluensis*) and the hypanthium covered with white appressed hairs. He also noted that the ultimate branchlets were slightly sericeous towards their apices, while the axillary and apical buds were appressedly pubescent.

Engler and Von Brehmer (1917) included *E. woodii* in their enumeration of African Myrtaceae, but did not mention some of the outstanding features of this species. In fact, they described the branches and the hypanthium as being glabrous, a character not found on any of three specimens of the syntype, *Wood* 132, investigated by the present author (Fig. 13).

Examination of the material of *Eugenia* in the National Herbarium, Pretoria and the Natal Herbarium, Durban, revealed that almost all the specimens of *E. woodii* were misidentified. Most material was placed under *E. natalitia* Sond., but

some specimens from the Transvaal were not identified to species. Three specimens in the National Herbarium, however, were correctly identified as *E. woodii* by Dr G. J. H. Amshoff of Wageningen in 1960 or 1961 and have apparently escaped the attention of subsequent workers. Dr Amshoff was obviously aware of the correct identity of *E. woodii*, as she had previously referred to the characteristically 2–3-flowered "pedicels" of this species in one of her papers (Amshoff, 1958).

The confusion of *E. woodii* with *E. natalitia* probably arose because of the superficial resemblance in leaf shape. Because of the undue emphasis placed upon leaf shape, the taxonomic significance of the pubescence and other characters of *E. woodii* was apparently either ignored or treated as trivial in nature. This probably led to the inability to distinguish between the two species, and the subsequent incorporation of *E. woodii* as a synonym under *E. natalitia* by Palmer & Pitman (1973). This concept was taken one step further by White (1977), who also added *E. zuluensis* as a synonym and at the same time reduced *E. natalitia* to the





FIG. 13.—*Eugenia woodii*. Part of the syntype, Wood 132 (BM), showing the densely pubescent hypanthia (A) and characteristically 3-flowered cymules (B).

status of subspecies, viz. *E. capensis* (Eckl. & Zeyh.) Sond. subsp. *natalitia* (Sond.) F. White.

The present study has shown that *E. woodii* is a very distinct species, which is not closely related to *E. natalitia*. The comparative anatomy (Van Wyk, 1978) and external morphology revealed additional distinguishing characters which had hitherto been overlooked. Some of these are now included in Table 1, which will enable one to distinguish most specimens of *E. natalitia* and *E. woodii*.

It must be emphasized that morphological characters in the genus *Eugenia* are extremely variable. Taxonomic conclusions must therefore be based on as many different characters as possible. The most reliable characters that can be used to distinguish between the two species are the nature of the disc in bisexual flowers, the degree of pubescence of the hypanthium, the nature of the seeds and the position of the first-formed periderm in the stem. By using the phloroglucinol/hydrochloric acid test on freehand sections of fresh or rehydrated material, the nature of the periderm can be ascertained quickly and easily.

Although *E. woodii* shows some similarity to *E. zuluensis* Dümmer, *E. albanensis* Sond., *E. zeyheri* Harv. and *E. pusilla* N.E. Br., it seems to be more closely related to the recently described *E. erythrophylla* Strey from southern Natal and Transkei, with which it is sometimes confused. However, *E. erythrophylla* differs from *E. woodii* in its more coriaceous and often larger leaves and the much larger flowers, which are usually shorter pedicellate and not aggregated in 3-flowered cymules. The young leaves of *E. erythrophylla* are often densely whitish pilose on both sides with the upper surface of the lamina

usually becoming glabrous before the lower; the reverse is found in *E. woodii*. The pubescence on the hypanthium of *E. erythrophylla* also tends to be denser and more spreading than that of *E. woodii*.

The following amplified description of *E. woodii* is based on the more abundant material now at hand.

***Eugenia woodii*** Dümmer in Gdnrs' Chron. ser.3, 52: 192 (1912); Engl. & Von Brehmer in Bot. Jb. 54: 333 (1917); Von Breitenbach in Indig. Trees S. Afr. 4: 845 (1965). Syntypes: Natal, without precise locality, Gerrard 1643 (K!); between bushes near Durban, Wood 132 (K!; BM!; PRE!).

*Eugenia natalitia* sensu Palmer & Pitman in Trees S. Afr. 3: 1669 (1973), pro parte quoad *E. woodii*; sensu Compton in Fl. Swaziland: 396, pro parte quoad Compton 25175.

*Eugenia capensis* (Eckl. & Zeyh.) Sond. subsp. *natalitia* (Sond.) F. White in Kirkia 10: 402 (1977), pro parte quoad *E. woodii*; sensu Coates Palgrave in Trees S. Afr.: 689, pro parte.

Tree up to 20 m high. *Bark* dark brown to grey or whitish, corky and rough, typically flaking off in irregular pieces. *Branchlets* reddish-brown to brown becoming grey when mature, flattened, sparingly to densely covered with appressed hairs, and glabrescent later; buds densely pubescent; internodes (10–) 20–40 (–55) mm long. *Leaves* decussate, rarely in threes, petiolate, lamina conspicuously bronze or pinkish when young, becoming dark green and shiny above, pale whitish green and dull below, initially densely whitish pilose above, usually sparingly pilose to glabrous beneath, soon becoming glabrous with age, usually elliptic to broadly elliptic or obovate to broadly obovate, 35–90 mm long, 20–60 mm wide, with apex bluntly or obtusely cuspidate, tapering from about the middle into the petiole, coriaceous, with revolute margin in dried and fresh leaves; venation pinnately net veined, midrib in dried leaves deeply concave above, strongly elevated below, concave above and prominently elevated below in fresh leaves; primary lateral veins alternate or opposite, (6–) 8–12 (–14) pairs, spreading, raised on both sides in dried leaves, slightly raised or flat on both sides in fresh leaves, fused into a longitudinal lobed marginal vein about 1–4 mm from the margin of the lamina; tertiary veins slightly raised on both sides in dried leaves, obscure in fresh ones; petiole (4–) 5–8 (–10) mm long, ventrally canaliculate and sometimes sparingly covered with appressed hairs. *Inflorescences* rarely short 2–4-flowered racemes mainly on the older wood, flowers usually solitary or in 3-flowered cymules in the axils of bracts or leaves on the first few nodes of the new seasons growth. *Staminate flowers* usually with pedicels (3–) 8–15 (–20) mm long; bracteoles 2, attached at the base of the hypanthium, often absent in the lateral flowers of a 3-flowered cymule, about as long as the hypanthium, c. 0.4–0.8 mm wide, lanceolate, acute, usually densely appressed pubescent, eglandular or with 1–4 glands. *Sepals* 4, subrotund with the apices tending to be acute, 2 large, c. 1.5–2 mm long, c. 2 mm wide, 2 small, c. 1–1.5 mm long, c. 1.5 mm wide, outer surface sparingly to densely pubescent and sparingly gland-dotted, margins usually ciliolate. *Petals* 4, very rarely 5, white to greenish-white or pinkish, usually elliptic, sometimes oblong or more or less oval, c. 4–6 mm long, c. 3–4 mm wide, margins usually ciliolate, eglandular or with a few obscure glands. *Disc* with a central depression, surface even, fleshy and usually densely pubescent. *Stamens* usually 20–30, arising from the disc; filaments of various lengths, c. 3–6 mm long; anthers 2-theous, 1×0.75 mm, all fertile. *Hypanthium* more or less



TABLE 1.—Organographic and anatomical differences between *Eugenia woodii* and *E. natalitia*. Characters regarded as most significant are marked with an asterisk

Character	<i>E. woodii</i>	<i>E. natalitia</i>
Bark	Rough and corky, usually flaking in irregular pieces	Usually smooth or slightly rough, sometimes lightly flaking
Pubescence of apical and axillary buds	Densely pubescent	Very sparingly pubescent or glabrous
Pubescence of the lamina in young leaves	Densely pubescent above, sparingly pubescent and soon becoming glabrous beneath	More or less glabrous on both surfaces
Nature of the abaxial lamina surface in mature leaves	Dull whitish-green; secretory cavities usually obscure	Dull green; usually conspicuously glandular punctate
Inflorescences	Flowers usually solitary or in 3-flowered cymes, rarely in racemes	Flowers usually in short racemes (often fasciculate) or solitary, very rarely in cymes
Shape, length and surface of the bracteoles	Lanceolate, acute, c. as long as the hypanthium, densely pubescent	Deltoid, concave, c. $\frac{1}{4}$ – $\frac{1}{2}$ the length of the hypanthium, sparingly pubescent or glabrous
*Surface of the hypanthium	Densely covered with whitish appressed hairs	Glabrous
Nature of the sepals	Usually more or less acute, slightly concave; margins usually ciliolate	Rounded, prominently concave; margins usually smooth or with a few scattered hairs
Nature of the petals	White or pinkish, eglandular or with a few obscure secretory cavities; margins ciliolate	White, conspicuously dotted with large secretory cavities; margins smooth or with a few scattered hairs
*Nature of the disc in bisexual flowers	Convex, densely pubescent between the stamens	Plane, sparingly pubescent between stamens
Number of stamens in bisexual flowers	Usually 10–20	Usually 30–50
Fruits	Red; flesh cream-coloured	Usually purple, sometimes red; flesh thinner and white
*Seeds	More or less globose; testa thick and woody (c. 1 mm); embryo apparently eglandular	More or less reniform to subreniform; testa thin (c. 0.25 mm) and membranous; embryo conspicuously glandular punctate
*Position of the first-formed periderm in the stem	Subepidermally in the cortex	Deeply seated in the primary external phloem to the inside of the extraxylary ring of fibres

obconical, c. 1–2 mm long, densely appressed pubescent. *Ovary* aborted; style rudimentary, sometimes split into two, c. 0.5–1 mm long or absent; stigma absent. *Bisexual flowers* with the pedicels, bracteoles, *sepals* and *petals* as in staminate flowers. *Disc* convex with an even surface, fleshy, usually densely pubescent. *Stamens* usually 10–20, resembling those of the staminate flowers. *Hypanthium* obconical, c. 2 mm long, covered with whitish appressed hairs. *Ovary* fused to the lower part of the hypanthium, 2-locular; ovules usually 2 per locule, 1 or 2 developing; style filiform, terete, glabrous or with a few scattered hairs, c. 4–6 mm long; stigma small, somewhat capitate, covered with small papillae. *Fruit* a fleshy berry, at first yellow, becoming bright red when ripe, obovoid to subglobose, c. 15–25 mm diam., glabrescent with persistent calyx lobes at the apex; flesh of pericarp reported to be cream-coloured. *Seed* globose with a smooth surface; testa woody and tough with a fibrous texture, c. 1 mm thick, brownish; embryo with cotyledons partly fused, apparently eglandular but sometimes with a few obscure glands mainly associated with the radicular protuberance. Fig. 14.

*E. woodii* occurs as a tree in forest and associated woodland in Natal, Transvaal and Swaziland probably extending into Mozambique. It is locally common in

some localities, especially the forests of the north and north-eastern Transvaal where it often occurs in association with *E. natalitia* Sond. Flowering takes place mainly from September to November.

For the present I am referring to *E. woodii* all the specimens (mainly from PRE and PRU) cited below. Unfortunately most collections are without bisexual flowers or fruits, therefore these identifications must be considered as tentative. There are indications that a thorough study of the fresh fruits of *E. woodii* may eventually prove that the species can be separated into several infraspecific taxa.

TRANSVAAL.—2229 (Waterpoort): Wylliespoort (–DD), *Van Wyk* 903; 904; 905 (PRU). 2230 (Messina): Entabeni (–CC), *Poynton s.n. sub PRE 50706* (PRE); Tate Vondo Forest Reserve (–CD), *Hemm* 22 (PRE). 2329 (Pietersburg): Lejuma near Louis Trichardt (–AB), *De Winter* 6003A; Hanglip Forest Reserve (–BB), *Poynton s.n. sub PRE 50630* (PRE), *Van Wyk* 907 (PRU). 2430 (Pilgrim's Rest): 10 km from the Ofcolaco-Trichardsdal junction on the road to the Downs (–AA), *Van Wyk* 2168 (PRU); Cyprus Farm (–AB), *Renny* 182; 226; 245 (PRE); *Van Wyk* 2165 (PRU); Welgevonden Forest Reserve (–DB), *Loock s.n. sub PRE 57403* (PRE); Blydepoort Nature Reserve (–DB), *Botha* 1972 (PRU; PUC); *Van Wyk* 825 (PRU); Mariepskop, near Reitz's grave (–DB), *Van der Schijff* 6013 (PRE; PRU); Mariepskop, Blyde River picnic spot (–DB), *Van der Schijff* 6091, 6394A (PRE; PRU); *Van Wyk* 2146; 2150 (PRU); Lothian Forest near Bushbuck Ridge (–DD), *Forest Officer* 35 (PRE). Grid. ref. unknown: Soutpansberg Mountains, *Poynton s.n. sub PRE 50653* (PRE).



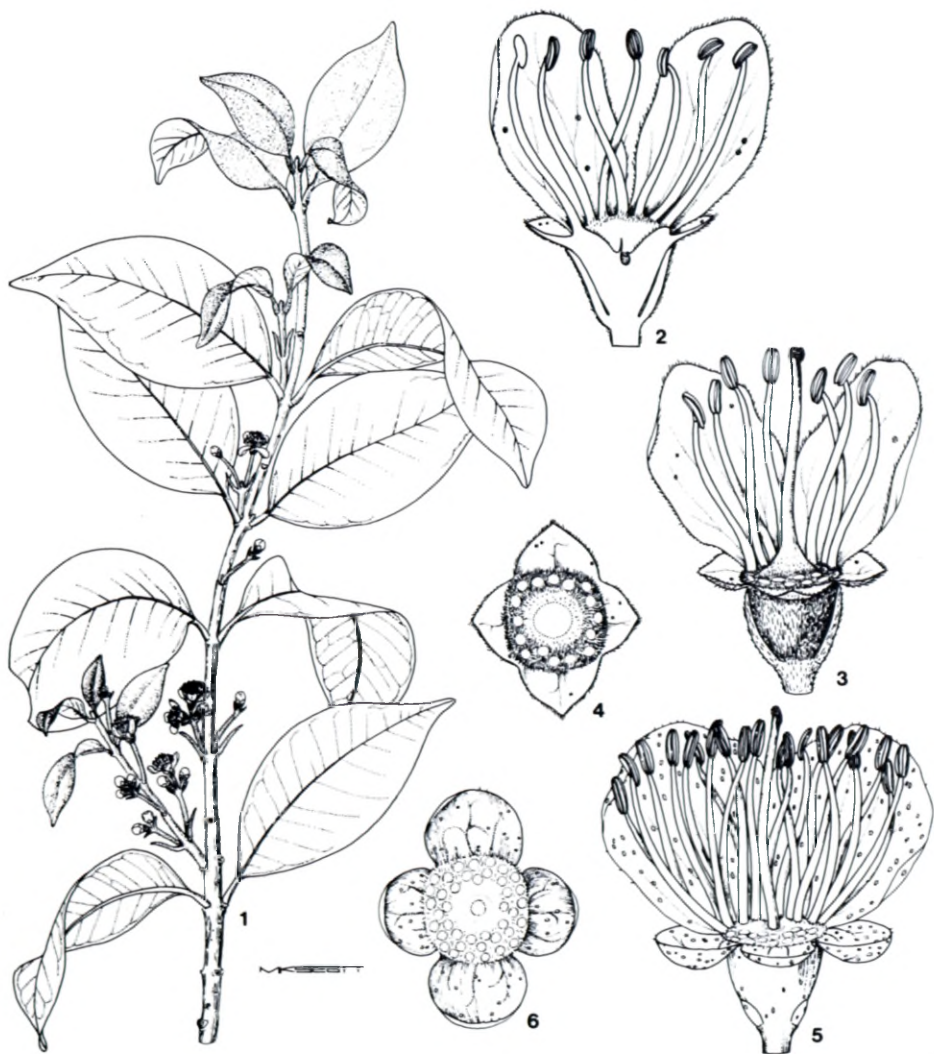


FIG. 14.—*Eugenia woodii* compared with *E. natalitia*. *E. woodii*: 1, leafy twig with male flowers,  $\times 0.5$ ; 2, longitudinal section of male flower,  $\times 6$ ; 3, bisexual flower with front petals and stamens removed,  $\times 6$ ; 4, disc with calyx (other floral parts removed),  $\times 6$ . *E. natalitia*: 5, bisexual flower with front petals and stamens removed,  $\times 6$ ; 6, disc with calyx (other floral parts removed),  $\times 6$ . (1 from Renny 245; 2 from Van Wyk 2146; 3 and 4 from Van Wyk 2416; 5 and 6 from Van Wyk 1119).

SWAZILAND.—2631 (Mbabane): Mbuluzi Falls (–AC), Compton 25175 (PRE); 4 km NE of Mbabane (–AC), Kemp 1048 (PRE); c. 1.5 km NW of Mbabane (–AC), Miller S/138 (PRE); Sibanyone Hill (–CA), Miller S/264 (PRE).

NATAL.—2632 (Bela Vista): Amanzimnyana, 10 km E of Maputa (–DD), De Winter & Vahrmeijer 8605 (PRE), near Kosi Bay Nature Reserve (–DD), Edwards 2553 (PRE), Kosi River (–DD), Moll & Strey 3833 (PRE); N bank of Nswamanzhi River, near Mhlanga Lake (–DD), Tinley 328 (PRE). 2731 (Louwsburg): Sokosoko Forest (–DC), Gerstner 4909 (PRE). 2732 (Ubombo): Gwalaweni Forest (–AA), Botha & Van Wyk 949; 1122 (PRU); Vahrmeijer & Hardy 1672 (PRE); Sibayi Dune Forest (–BC) Sibayi Project 327 (PRE); Venter 5812 (PRU); Ngoboseleni Lake (–DA), Ross & Moll 5074 (NH: PRE). 2831 (Nkandla): emGangado (–BB), Gerstner 5031 (PRE); Eshowe (–CD), Thode A1237 (NH: PRE). 2832 (Mtubatuba): Mapelan Forest (–AD), Venter 5573 (PRU); Banghazi Lake (–BA), Venter 5700 (PRU); Enseleni Nature Reserve near Richards Bay (–CC), Venter 5913; 5914; 6099 (PRU). 2930 (Pietermaritzburg): near Durban (–DD?), Wood 132 (K; BM; PRE); Westville, Palmiet Nature Reserve (–DD), Ward 8207 (PRE). 2931 (Stanger): King Hamlyn's Farm, Darnall (–AD), Moll 3611; 5503 (NH: PRE). 3030 (Port Shepstone): Isipingo Beach (–BB), Ward 1000 (PRE).

LOCALITY UNKNOWN.—Cultivated plants on the campus of the University of Pretoria, Van Wyk 2416; 2419 (PRU).

Over the whole of its distribution range *E. woodii* shows considerable variation in leaf shape and leaves from more northerly plants are often larger than those from the south. Specimens from open woodland also possess smaller and more coriaceous leaves and tend to be more shrubby than their forest counterparts.

The fruits of *E. woodii* are edible and reported to have a pleasant taste. They are preferred to those of *E. natalitia*, which are less fleshy and have a mealy after-taste.

Common names: iJobe (Sw); umBomvane (Z); 'stawatawane (V). However, some of these names are also recorded for *E. zuluensis* and *E. natalitia*.

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