4 Plants sprawling, or if erect then less than 250 mm tall; inflorescences of 1–4 spikelets; glumes gaping widely (more than 45°) at maturity.........................6
6 Plants sprawling or trailing, culms herbaceous, lowest nodes bearing leaves with blades; spikelets 4.5–6.5 mm long, glumes usually a little longer than lemmas...........................................

2c. E. setacea subsp. uniflora

6 Plants erect, culms suffrutescent below, lowest nodes usually leafless; spikelets 4–5 mm long; glumes slightly shorter than lemmas...................................................

2d. E. setacea subsp. disticha


Type: Caledon Dist., Gradedenthal, Drège (K, isosyn.; SAM, isosyn.; photo. and fragment in PRE).

Rhizomatous perennial of widely varying size and habit, from delicate plants 100 mm tall to robust suffrutescent plants 450 mm tall. Culms erect or decumbent, branched and creeping at base, bare of leaves below. Leaves with blades erect or spreading, inrolled, folded or flat; ligule a membrane fringed with hairs; sheaths overlapping. Inflorescence an erect raceme held above leaves. Spikelets 1–9, erect, often distichous. Glumes about \( \frac{1}{2} \) length of longest lemma, lower truncate or rounded, upper acute. Flores with sterile lemmas dissimilar; the first a thin scale with 3–5 raised nerves, \( \frac{1}{2}–\frac{2}{3} \) length of second, often appearing to be a third glume; the second hard and thickened, with 7 minutely tubercled nerves, tip canoe-shaped; fertile lemma similar to second sterile lemma, but slightly shorter, broader and with more acute tip. Stamens 6.

(a) subsp. rupestris. Stapf in Fl. Cap. 7: 668 (1900); Chippind. in Meredith, Grasses & Past. S. Afr. 37 (1955).

An uncommon subspecies represented by scattered specimens from Worcester and Caledon eastward along the Swartberg to Prince Albert. It is most abundant and appears in its typical form in the Rivieronsenred mountain of the Caledon and Bredasdorp grids. Along the Swartberg there are intermediates to subsp. tricostata and, as in that subspecies, the smallest plants occur at the extreme east of the range. The folded leaf blades with hooded tips and the broad spikelets separate this subspecies from all other taxa in the group. It grows on mountain slopes among rocks at altitudes of 910 to 1 970 m.

One particularly robust specimen was collected on coastal sand in the Vanrhynsdorp area (Van Breda 4436), north-west of the range of the rest of the easternmost part of the range are small and fine, although with suffrutescent culm bases. All these forms grade gradually into each other. Furthermore, numerous intermediates link this subspecies with the other two, which may be considered extreme forms. In habit it is most like E. setacea subsp. setacea, but that taxon has scale-like overlapping bladeless sheaths on the lower part of the culms, whereas this subspecies has blade-bearing leaves nearly to the culm base. It grows in wet places on mountain slopes and at the base of cliffs, at altitudes of 300–2 030 m.

(c) subsp. dodii (Stapf) Gibbs Russell, comb. et stat. nov.

Ehrharta dodii Stapf in Fl. Cap. 7: 670 (1900); Chippind. in Meredith Grasses & Past. S. Afr. 35 (1955). Type: Cape, rocks on Constantia Berg, Wolley Dod 1961 (k, holo.; BOL, iso.; photo. and fragment in PRE).

This subspecies occurs only immediately around False Bay and northwards to the Hex River mountains. It differs from subsp. tricostata mainly in its smaller size and fewer spikelets, and is connected to that subspecies by intermediates of slightly larger stature and more spikelets. These are found within the range of typical subsp. dodii as well as to the east as far as Montagu. The Hex River mountain form of subsp. tricostata should perhaps be counted among these intermediates.

Because it is reduced, E. rupestris subsp. dodii is difficult to distinguish from the two small subspecies of E. setacea, subsp. uniflora and subsp. disticha, except on spikelet characteristics. In general, E. rupestris subsp. dodii is upright with erect rolled leaf blades, E. setacea subsp. uniflora is sprawling with flat leaf blades, and E. setacea subsp. disticha is upright with spreading rolled or folded leaf blades. However, the habit of each is variable to some extent. This subspecies grows in wet places among rocks and at the bases of cliffs, and at altitudes of 660–1 660 m.

2. Ehrharta setacea Nees, Fl. Afr. Austr. 228 (1841). Type: Cape, in monte tabulari, alt. 3 000 ft, Drège (PRE, isosyn., fragment).

Erect or trailing tufted perennial with creeping rhizomes. Culms decumbent or prostrate, suffrutescent to herbaceous, often bare of leaves below. Leaves with blades erect, recurved or spreading, inrolled, folded or flat; ligule a membrane fringed with hairs. Inflorescence an erect raceme barely to considerably overlapping leaves. Spikelets 1–15, at first erect but spreading at anthesis. Glumes \( \frac{1}{2} \) (rarely only \( \frac{1}{2} \)) as long to longer than lemmas, both acute. Flores as in E. rupestris.

(a) subsp. setacea Stapf in Fl. Cap. 7: 668 (1900); Chippind. in Meredith, Grasses & Past. S. Afr. 37 (1955).

This is the most often collected and the most widespread of the four subspecies of E. setacea, occurring on the Cape Peninsula and as far north-west as Sneeuwkap near Wellington and as far
east as Bredasdorp. In the Klein River Mountains of the Caledon District it is linked to subsp. *uniflora* through intermediates. It grows in damp, peaty or marshy places, in seepage areas in shale or in wet sand from Table Mountain sandstone, at altitudes of 660–1515 m.

(b) subsp. *scabra* (Staff.) Gibbs Russell, stat. nov.

*Ehrharta setacea* Nees var. *scabra* Stapf in Fl. Cap. 7: 669 (1900). Type: Cape, in a mountain peak near Swellendam, Swellendam Div., *Burchell* 7312 (L, holo.; photo. in PRE).

This subspecies occurs along the Langeberg from the Clock Peaks above Swellendam to Garcia’s Pass, east of the range of the other subspecies. In the Caledon quarter degree square a number of intermediates link it to subsp. *uniflora*, which is also linked in the same area to subsp. *setacea*. The subspcies grows mostly in disturbed places on mountainsides, such as beside paths and in burned clearings, but is has occasionally been collected on rocks and in seepage areas, at altitudes of 350–1212 m.

(c) subsp. *uniflora* (Burch. ex Stapf) Gibbs Russell, comb. et stat. nov.

*Ehrharta uniflora* Burch ex Stapf in Fl. Cap. 7: 670 (1900); Chippind. in Meredith, Grasses & Past. S. Afr. 37 (1955). Type: Cape Flats near Rondebosch, *Burchell* 182 (K, holo.; photo. in PR).

Known only from the Cape Peninsula and Caledon Districts, this subspecies grades into both subsp. *setacea* and subsp. *scabra* in the Caledon District, thus linking the two most widespread and disparate elements in the species. It grows in seepage areas, marshy places and along water-courses, and also at forest margins. It occurs at the lowest altitudes of any taxon in this species group, from 10–500 m.

(d) subsp. *disticha* Gibbs Russell, subsp. nov. a subspecie typica parviori stature ad 250 mm alturn, 1–2 spiculis 4–5 mm longis, glumis hiantibus ad maturitatem differt. A subspecie *uniflora* habitu erecto, culmis basitater sufruticosis desittutis folios, glumis lemmatibus paulo brevioribus differt.

Plant perennial, erect, cushion forming, to 250 mm tall. *Culms* suffrutescent, branched near base, bare of leaves below. *Leaves* profuse, with blades rolled or folded, distichous, usually held at 45° to culm, uncommonly erect, to 30 mm long; ligules membranous, fringed with hairs; sheaths strongly overlapping, with a tuft of hairs at sheath mouth and auricles. *Inflorescence* of 1 or 2 spikelets, 5–10 mm long, barely overtopping leaves. *Spikelets* 4–5 mm long, glumes slightly shorter than lemmas, gaping more than 45° at maturity. *Florets* with sterile lemmas dissimilar, the first a thin scale with 3–5 raised nerves, 1–1 1/2 length of second, often appearing to be a third glume, the second sterile lemma hard and thickened, with 7 minutely tubercled nerves, tip canoce-shaped; fertile lemma similar to second sterile lemma, but slightly shorter, broader and with more acute tip. *Stamens* 6. Mature Caryopse not seen.

**Type.**—Cape 3419 (Caledon): Maanschynkop, Rocklands Peak (—AD), rocky places on upper slopes and along ridge, N. aspect, ± 2500 feet, *Esterhuyzen* 31735 (PRE, holo.; BOL, iso.).

Known only from quarter degree grid square 3419AD, where it grows in dry rocky places on mountain slopes from 580–1225 m. Flowering October—December.

**Cape.**—3419 (Caledon): Babylon’s Tower (—AD), *Esterhuyzen* 33219 (BOL, PRE), 34755 (BOL, PRE); Maanschynkop, Klein River Mts (—AD), *Esterhuyzen* 33647 (BOL, PRE); Vogelgat, south of the Sheling (—AD), *Esterhuyzen* 3559a (BOL), Williams 3086 (NBG, PRE); Fernkloof Nature Reserve (—AD), Williams 2887 (NBG).

This subspecies does not appear to be linked by intermediates to the other subspecies, even though it occurs in the only quarter degree square where intermediates are found between subsp. *uniflora* and both subsp. *setacea* and subsp. *scabra*. However, in subsp. *disticha* the position of the leaf blades is variable even on the same plant. Normally they are held at 45° to the culm as in subsp. *scabra*, but occasionally they are held erect as in subsp. *setacea*.

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**SIMAROUBACEAE**

FLOWERING IN *KIRKIA WILMSII* ENGL.

Some plants, such as cycads, are known to sometimes change sex under stress, e.g. when transplanted or damaged, or when growing under unfavourable conditions. Others, e.g. *Cannabis sativa*, will change sex ratios gradually over the growing season, the sex expression probably being controlled by daylength. However, no record has been found in the literature of a species in which the two sexes alternate a number of times in one flowering season, such as has been recently observed in *Kirkia wilmsii*.

The genus *Kirkia* is a tropical African genus of five species, recently revised by B. Stannard [*Kew Bull.* 35,4 : 829 (1981)]. It is usually placed in the Simaroubaceae, but some consider it to constitute a family on its own, the Kirkiacaeae (Engl.) Tahkt. *K. wilmsii* Engl. is endemic to the Transvaal lowveld, where it is a common tree on rocky hillslopes and in kloofs, occurring on both granitic and dolomitic soils. The leaves are deciduous, and at anthesis the new leaves are still immature. Flowers are produced in axillary panicles in spring.

During 1981 and 1982 observations were made on three trees of this species growing on a rocky, north-facing slope in the Pretoria National Botanical Garden. These three trees were growing outside the natural range of the species, though only by a matter of some kilometres. The nearest naturally-growing