

Studies in the Ericoideae (Ericaceae). VII. The placing of the genus *Philippia* into synonymy under *Erica*; the southern African species

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The inclusion of the genus *Philippia* Klotzsch within *Erica* L. is formalized for the region covered by the Flora of southern Africa. A total of 15 species is dealt with involving six new combinations, *Erica elsieana* (E.G.H. Oliver) E.G.H. Oliver, *Erica esteriana* E.G.H. Oliver subsp. *swartbergensis* (E.G.H. Oliver) E.G.H. Oliver, *Erica evansii* (N.E. Br.) E.G.H. Oliver, *Erica notholeana* (E.G.H. Oliver) E.G.H. Oliver, *Erica procaviana* (E.G.H. Oliver) E.G.H. Oliver, *Erica similis* (S. Moore) E.G.H. Oliver, six new names, *Erica altiphila* E.G.H. Oliver, *Erica dracomontana* E.G.H. Oliver, *Erica esteriana* E.G.H. Oliver, *Erica exleeana* E.G.H. Oliver, *Erica madida* E.G.H. Oliver, *Erica petricola* E.G.H. Oliver and four alterations to synonymy, *Erica caespitosa* Hilliard & Burt (= *Philippia tristis* H. Bol.), *Erica lasciva* Salisb. (= *Erica accommodata* Klotzsch var. *ebracteata* H. Bol. and = *Philippia stokoei* L. Guthrie), *Erica peltata* Andr. (= *Philippia pallida* L. Guthrie), *Erica tristis* Bartl. (= *Philippia chamissonis* Klotzsch and *Philippia absinthoides* (Thunb.) E.G.H. Oliver).

Die insluiting van die genus *Philippia* Klotzsch onder *Erica* L., vir die gebied wat deur die Flora van Suider-Afrika gedek word, is gefinaliseer. 'n Totaal van 15 spesies wat ses nuwe kombinasies insluit, word behandel, *Erica elsieana* (E.G.H. Oliver) E.G.H. Oliver, *Erica esteriana* E.G.H. Oliver subsp. *swartbergensis* (E.G.H. Oliver) E.G.H. Oliver, *Erica evansii* (N.E. Br.) E.G.H. Oliver, *Erica notholeana* (E.G.H. Oliver) E.G.H. Oliver, *Erica procaviana* (E.G.H. Oliver) E.G.H. Oliver, *Erica similis* (S. Moore) E.G.H. Oliver, ses nuwe name, *Erica altiphila* E.G.H. Oliver, *Erica dracomontana* E.G.H. Oliver, *Erica esteriana* E.G.H. Oliver, *Erica exleeana* E.G.H. Oliver, *Erica madida* E.G.H. Oliver, *Erica petricola* E.G.H. Oliver en vier veranderings tot sinonimie, *Erica caespitosa* Hilliard & Burt (= *Philippia tristis* H. Bol.), *Erica lasciva* Salisb. (= *Erica accommodata* Klotzsch var. *ebracteata* H. Bol. and = *Philippia stokoei* L. Guthrie), *Erica peltata* Andr. (= *Philippia pallida* L. Guthrie), *Erica tristis* Bartl. (= *Philippia chamissonis* Klotzsch and *Philippia absinthoides* (Thunb.) E.G.H. Oliver).

Keywords: Bract, bracteoles, *Erica*, Ericaceae, Ericoideae, *Philippia*, polyphyletic, recaulescence, southern Africa, taxonomy

Introduction

In a forthcoming paper (Oliver 1988) the generic relationship between *Erica* and *Philippia* in southern Africa will be discussed in detail. The only distinction between the two lay in the degree of recaulescence of the bract with the pedicel which in the fully recaulescent condition then produced the zygomorphic or unequal calyx.

Erica was distinguished by having a single bract, placed anywhere on the pedicel in varying degrees of recaulescence, but free from the calyx, two bracteoles (prophylls) and a calyx consisting of four more or less equal segments or lobes (Figure 1a–c). *Philippia*, on the other hand, possessed flowers with a fully recaulescent bract, which takes over the position of the abaxial sepal and in the process loses the two bracteoles, and only three more or less equal sepals (Figure 1e). The problem, however, arose with material exhibiting a free, partially recaulescent bract with or without the presence of the abaxial sepal and with no bracteoles — the intermediate ericoid/philippoid condition (Figure 1d).

Depending on the combination of characters found in the

flowers examined, one could identify some material as either belonging to *Erica* or *Philippia*. This led to the anomalous situation of material clearly belonging to the same species being located in herbaria under two or even three species in two separate genera, e.g. *E. peltata* Andr. and *P. pallida* L. Guthrie; *E. caespitosa* Hilliard & Burt and *P. tristis* H. Bol.; *E. lasciva* Salisb., *E. accommodata* Klotzsch var. *ebracteata* H. Bol. and *P. stokoei* L. Guthrie.

Investigations within *Erica* revealed several additional species which possess flowers with the intermediate condition, i.e. *E. dissimulans* Hilliard & Burt, *E. inops* H. Bol., *E. ebracteata* H. Bol., *E. anomala* Hilliard & Burt. The following ratios of flowers were found:

E. dissimulans: 2% ericoid, 98% intermediate and 0% philippoid,

E. inops: <1% ericoid, 50% intermediate and 50% philippoid,

E. ebracteata: 11% ericoid, 46% intermediate and 60% philippoid,

E. anomala: 0% ericoid, 40% intermediate and 60%

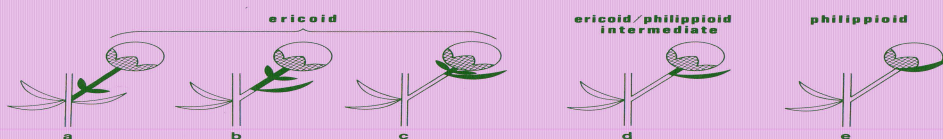


Figure 1 Series of diagrams showing the stages in the recaulescence of the bract up the pedicel in the Ericoideae from axial (on the left) to totally recaulescent and forming part of the calyx (on the right). The condition in *Erica* is represented by the first three and that in *Philippia* in the last diagram. The problematic species mentioned in the text exhibit the intermediate condition shown in the fourth diagram.

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philipoid,
E. peltata: 22% ericoid, 38% intermediate and 40% philipoid.

Of the eight species analyzed in detail, *E. dissimulans* and *E. hispidula* L. tend towards the ericoid condition, *E. anomala* towards the philipoid condition whereas five species, *P. tristis*/*E. caespitosa*, *E. inops*, *E. ebracteata*, *E. peltata*/*P. pallida*, *P. stokoei*/*E. lasciva*, have ratios which make it impossible to place them in either genus.

This, however, reflects anomalies in only seven out of the 640 species of *Erica* and three of the 15 species of *Philippia* in southern Africa. A similar situation of anomalies exists within both genera in west and east tropical Africa and in *Philippia* in the Mascarene Islands, but in these regions the total number of species in each genus is considerably smaller.

Conclusion

It is postulated (Oliver 1988) that the genus *Philippia*, as currently construed, is of polyphyletic origin, with tropical and southern African species having arisen from different ancestral ericoid stock. Within southern Africa the relationships of the species lie with species in three different sections of *Erica*. This fact alone would cast doubt on the validity of the genus. It was therefore decided to reduce the genus *Philippia* to synonymy under *Erica* for inclusion in the Flora of southern Africa. This decision is formalized in this paper by providing the name changes and synonymy for the southern African species.

Nomenclatural treatment

Erica L., Species Plantarum 1st edn: 352 (1753) et: 167 (1754); Benth.: 613 (1839); Benth.: 590 (1876); Drude: 58 (1897); Guth. & H. Bol.: 4 (1905); Phillips: 459 (1926); Salter: 627 (1950); Phillips: 559 (1951); Verdoorn: 94 (1954); Baker & Oliver: 1xvi (1967); J.H. Ross: 269 (1972); E.G.H. Oliver: 431 (1975); Bond & Goldblatt: 240 (1984); Retief & Herman: 98 (1984); E.G.H. Oliver: 140 (1987).

Philippia Klotzsch: 354 (1834) et: 213 (1838), Benth.: 695 (1839); Benth.: 591 (1876); Drude: 62 (1897); N.E. Br.: 315 (1905); Phillips: 460 (1926); Alm & Fries: 9 (1927); Salter: 657 (1950); Verdoorn: 108 (1954); J.H. Ross: 269 (1972); E.G.H. Oliver: 432 (1975); Bond & Goldblatt: 263 (1984); Retief & Herman: 101 (1984); E.G.H. Oliver: 145 (1987).

Blaeria Phillips: 560 (1951) p.p.

Description

(Only those parts affected by the merger): *Bract* one, axial or partially to totally recaulescent up the pedicel and forming the abaxial lobe of the calyx (see below), never absent; bracteoles 2, rarely 1, occasionally absent. *Calyx* 4-partite or -lobed, actinomorphic to markedly zygomorphic with the abaxial member (bract) completely free from the remaining three or laterally fused to them, (rarely 3-lobed with the bract partially recaulescent).

1. *Erica altiphila* E.G.H. Oliver nom. nov.

Philippia alticola E.G.H. Oliver: 271 (1984), non *E. alticola* Guthrie & Bolus: 217 (1905); Bond & Goldblatt: 263 (1984); E.G.H. Oliver: 145 (1987). Type: Cape Province, Caledon, Jonaskop NW of Genadendal, April 1983, *Oliver 7970* (STE, holo.; BM, BOL, E, K, MO, NBG, NY, P, PRE, S).

2. *Erica caespitosa* Hilliard & Burt in Notes from Royal Botanic Gardens Edinburgh 42,2: 244 (1985); E.G.H. Oliver: 141 (1987). Type: Natal, Underberg distr., 2929CA, Garden Castle Forest Reserve, Pillar Cave Valley, c. 6500 ft, 4.xi.

1977, *Hilliard & Burt 10397* (NU, holo.!; E, K, MO, PRE, S).

P. tristis H. Bol.: 187 (1888), non *E. tristis* Bartl.: 643 (1832); N.E. Br.: 317 (1905); Alm & Fries: 40 (1927); Retief & Herman: 101 (1984); E.G.H. Oliver: 145 (1987). Type: Grassy slopes of Koudeveld Mountains between Graaff-Reinet and Murraysburg (Sneueberg), Dec. 1872, *Bolus 2594* (K, holo.!; BOL!, LD!, W!).

3. *Erica dracomontana* E.G.H. Oliver nom. nov.

P. drakensbergensis E.G.H. Oliver: 550 (1985) non *E. drakensbergensis* Guthrie & Bolus: 166 (1905); E.G.H. Oliver: 145 (1987). Type: Natal Drakensberg, MnWeni Pinnacles, July 1953, *Esterhuysen 21651* (BOL, holo.; K, LD, MO, PRE).

4. *Erica elsieana* (E.G.H. Oliver) E.G.H. Oliver comb. nov.

P. elsieana E.G.H. Oliver: 272 (1984); Bond & Goldblatt: 263 (1984); E.G.H. Oliver: 145 (1987). Type: Cape, Swellendam, Goedgeloof Peak in the Langeberg, *Esterhuysen 24490* (BOL, holo.; BM, E, K, LD, MO, NBG, PRE, S, STE).

5. *Erica esteriana* E.G.H. Oliver nom. nov.

P. esterhuyseniae E.G.H. Oliver: 274 (1984), non *E. esterhuyseniae* Compton: 193 (1941); Bond & Goldblatt: 263 (1984); E.G.H. Oliver: 145 (1987). Type: Cape Province, Ceres, Milner Peak in the Hex River Mtns, Nov. 1960, *Esterhuysen 28578* (STE, holo.; BM, BOL, E, G, K, MO, NBG, NY, PRE, S).

5a. *E. esteriana* subsp. *swartbergensis* (E.G.H. Oliver) E.G.H. Oliver comb. nov.

P. esterhuyseniae subsp. *swartbergensis* E.G.H. Oliver: 274 (1984); E.G.H. Oliver: 145 (1987). Type: Cape Province, Prince Albert, Swartberg Mtns., Oct. 1949, *Stokoe in SAM 62522* (SAM, holo.; PRE, STE).

6. *Erica evansii* (N.E. Br.) E.G.H. Oliver comb. nov.

P. evansii N.E. Br.: 316 (1905); Alm & Fries: 39 (1927); J.H. Ross: 269 (1972); R. Ross: 176 (1983); Retief & Herman: 101 (1984); E.G.H. Oliver: 145 (1987). Type: Natal, near Ulundi, *Evans 62* (BOL, holo.!; K!, NH!, PRE!).

7. *Erica exleana* E.G.H. Oliver nom. nov.

P. leeana Klotzsch: 213 (1838), non *E. leeana* Bauer: t. 24 (1796); Benth.: 695 (1839); N.E. Br.: 316 (1905); Alm & Fries: 22 (1927); Salter: 657 (1950); Bond & Goldblatt: 263 (1984); Retief & Herman: 101 (1984); E.G.H. Oliver: 145 (1987). Types: Genadendal, *Drège s.n.* (B†, G-DC!, P!, S!); Hottentots-Holland Mountains, *Drège s.n.* (B†, G-DC!, K!, PRE!); Swartberg at Caledon Hot Springs, *Zeyher & Ecklon s.n.* (B†); Palmiet River at Grietjiesgat, *Zeyher & Ecklon s.n.* (B†, BOL!, E!, C!). Lectotype (chosen here): sine loc. *Ecklon & Zeyher s.n.* determined by Klotzsch (S!; isos. P!, K!).

8. *Erica lasciva* Salisb. in Transactions of the Linnean Society of London 6: 349 (1802); Benth.: 689 (1839); Guthrie & Bolus: 248 (1905); Salter: 652 (1950); Bond & Goldblatt: 252 (1984); Retief & Herman: 99 (1984); E.G.H. Oliver: 143 (1987). Type: Hottentots Holland, *Masson s.n.* (BM).

E. accommodata Klotzsch var. *ebracteata* H. Bol.: 249 (1905) synonym.; Retief & Herman: 98 (1984); E.G.H. Oliver: 140 (1987). Type: Caledon Div., Klein River, 100 ft, *Schlechter 7606* (BOL, holo.!; NBG!, PRE!).

P. stokoei L. Guthrie: 21 (1925) synonym. nov.; Bond & Goldblatt: 264 (1984); Retief & Herman: 101 (1984); E.G.H. Oliver: 145 (1987). Type: foothills of Klein River Mtns, Stanford, Oct. 1922, *Stokoe in BOL 1768* (BOL!).

9. *Erica madida* E.G.H. Oliver nom. nov.

P. irrorata E.G.H. Oliver: 276 (1984), non *E. irrorata* Guthrie & Bolus: 111 (1905); Bond & Goldblatt: 263 (1984); E.G.H. Oliver: 145

(1987). Type: Cape, Ladismith, Rooiberg just east of the main peak, Nov. 1974, *Oliver 5394* (STE, holo.; B, BM, BOL, K, MO, NBG, PRE, S).

10. *Erica notholeeana* (E.G.H. Oliver) E.G.H. Oliver comb. nov.

P. notholeeana E.G.H. Oliver: 277 (1984); Bond & Goldblatt: 263 (1984); E.G.H. Oliver: 145 (1987). Type: Cape, Caledon, Kogelberg Reserve, slopes near Wynand Louwsbos, June 1983, *Oliver 7984* (STE, holo.; B, BM, BOL, E, G, K, MO, NBG, NY, P, PRE, S, W).

11. *Erica peltata* Andr., The Heathery t. 276 (1812); Benth.: 691 (1839); Guthrie & Bolus: 289 (1905); Bond & Goldblatt: 263 (1984); Retief & Herman: 100 (1984); E.G.H. Oliver: 144 (1987). Type: Andr. t. 276 (1812).

P. pallida L. Guthrie: 180 (1923) *synon. nov.*; Retief & Herman: 101 (1984); E.G.H. Oliver: 145 (1987). Type: Kampscheberg, Riversdale, Jan. 1923, *Muir 2542* (BOL, holo.; PRE!).

12. *Erica petricola* E.G.H. Oliver nom. nov.

P. petrophila E.G.H. Oliver: 280 (1984), non *E. petrophila* L. Bol.: 133 (1923); Bond & Goldblatt: 263 (1984); E.G.H. Oliver: 145 (1987). Type: Cape, Worcester, upper north slopes of Jonaskop, Dec. 1979, *Oliver 7571* (STE, holo.; K, MO, NBG, PRE).

13. *Erica procaviana* (E.G.H. Oliver) E.G.H. Oliver comb. nov.

P. procaviana E.G.H. Oliver: 281 (1984); Bond & Goldblatt: 263 (1984); E.G.H. Oliver: 145 (1987). Type: Cape, Robertson, Dassieshoek Peak, Sept. 1961, *Esterhuysen 29119* (BOL, holo.; B, BM, C, E, G, GRA, K, MEL, MO, NH, NU, NY, P, PRE, S, STE, UPS, W, Z).

14. *Erica simii* (S. Moore) E.G.H. Oliver comb. nov.

P. simii S. Moore: 128 (1911); Verdoorn: 108 (1954); R. Ross: 176 (1983); Retief & Herman: 101 (1984); E.G.H. Oliver: 145 (1987). Types: Bajon Magenga da Costa, Moçambique, Aug. 1908, *Sim in Bolus 5688* (BM, BOL!); Melsetter, Oct., *Swynnerton 612* (BM). Lectotype (R. Ross, 1983): *Sim in Bolus 5688* (BM).

P. pallidiflora Alm & Fries: 40 (1927) p.p.

15. *Erica tristis* Bartl. in *Linnaea* 7: 643 (1832), Benth.: 691 (1839). Type: Caledon Baths, *Ecklon s.n.* (B, holo.†; BOL! K!). Lectotype (chosen here): *Ecklon s.n.* (BOL!).

E. virgata Thunb. var. δ Thunb.: 19 (1785) *sine nomen*. Type: *Thunberg 9251* (UPS!).

E. absinthoides Thunb.: 349 (1823), non L.: 66 (1767). *P. absinthoides* (Thunb.) E.G.H. Oliver: 270 (1984); Bond & Goldblatt: 263 (1984); E.G.H. Oliver: 145 (1987). Type: as for var. δ above.

Philippia chamissonis Klotzsch: 356 (1834), non *E. chamissonis* Klotzsch ex Benth.: 685 (1839); Klotzsch: 213 (1838); Benth.: 695 (1839); Rach: 788 (1853); N.E. Br.: 317 (1905); Alm & Fries: 24 (1927); Salter: 657 (1950); Retief & Herman: 101 (1984). Type: Cape of Good Hope, *Chamisso s.n.* (B, holo.†; E!, G!, LD!, P!).

E. cupressifolia Wendl. ex Klotzsch: 213 (1838) *nom. in synonym.*

E. passerina Klotzsch: 213 (1838) *nom. in synonym.*

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