

Reinstatement of *Pigea* Ging., an earlier generic name for the spade flowers previously included in *Afrohybanthus* Flicker (Violaceae)

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Summary

Forster, P.I. (2021). Reinstatement of *Pigea* Ging., an earlier generic name for the spade flowers previously included in *Afrohybanthus* Flicker (Violaceae). *Austrobaileya* 11: 26–33. *Pigea* Ging. is a validly published, earlier generic name for the species assigned to *Afrohybanthus* Flicker. New combinations or changes in status into *Pigea* are made for 28 species (*P. adpressa* (E.M.Benn.) P.I.Forst., *P. aurantiaca* (F.Muell. ex Benth.) P.I.Forst., *P. bennettiae* (R.L.Barrett) P.I.Forst., *P. buxifolia* (Vent.) P.I.Forst., *P. caffra* (Sond.) P.I.Forst., *P. curvifolia* (E.M.Benn.) P.I.Forst., *P. cymulosa* (C.A.Gardner) P.I.Forst., *P. danguyana* (H.Perrier) P.I.Forst., *P. debilissima* (F.Muell.) P.I.Forst., *P. decaryana* (H.Perrier) P.I.Forst., *P. densifolia* (Engl.) P.I.Forst., *P. enneasperma* (L.) P.I.Forst., *P. epacroides* (C.A.Gardner) P.I.Forst., *P. fasciculata* (Grey-Wilson) P.I.Forst., *P. indica* (S.K.Kamble & Patil) P.I.Forst., *P. latifolia* (De Wild.) P.I.Forst., *P. nyassensis* (Engl.) P.I.Forst., *P. pseudodanguyana* (Grey-Wilson) P.I.Forst., *P. puberula* (M.G.Gilbert) P.I.Forst., *P. ramosissima* (Thwaites) P.I.Forst., *P. serrata* (Engl.) P.I.Forst., *P. stellarioides* (Domin) P.I.Forst., *P. travancorica* (Bedd.) P.I.Forst., *P. tsavoensis* (Grey-Wilson) P.I.Forst., *P. vatsavayae* (C.S.Reddy) P.I.Forst., *P. verbi-divini* (Everaarts) P.I.Forst., *P. vernonii* (F.Muell.) P.I.Forst., *P. volubilis* (E.M.Benn.) P.I.Forst.) and one subspecies (*P. vernonii* subsp. *scabra* (E.M.Benn.) P.I.Forst.) and a complete species nomenclator is provided for the reinstated genus that encompasses 31 species.

Key Words: Violaceae; *Afrohybanthus*; *Clelandia*; *Hybanthus*; *Pigea*; *Pigea adpressa*; *Pigea aurantiaca*; *Pigea bennettiae*; *Pigea buxifolia*; *Pigea caffra*; *Pigea calycina*; *Pigea curvifolia*; *Pigea cymulosa*; *Pigea danguyana*; *Pigea debilissima*; *Pigea decaryana*; *Pigea densifolia*; *Pigea enneasperma*; *Pigea epacroides*; *Pigea fasciculata*; *Pigea floribunda*; *Pigea indica*; *Pigea latifolia*; *Pigea monopetalata*; *Pigea nyassensis*; *Pigea pseudodanguyana*; *Pigea puberula*; *Pigea ramosissima*; *Pigea serrata*; *Pigea stellarioides*; *Pigea travancorica*; *Pigea tsavoensis*; *Pigea vatsavayae*; *Pigea vernonii*; *Pigea vernonii* subsp. *scabra*; *Pigea volubilis*; *Vlamingia*; Africa flora; Australia flora; India flora; Madagascar flora; Malesia flora; New Guinea flora; taxonomy; new combination

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Introduction

The Australian species of Violaceous ‘spade flower’ that were formerly included in *Hybanthus* Jacq. (Bennett 1972; George 1982; Forster 1993) were reclassified into a new genus *Afrohybanthus* Flicker based on molecular analyses (Wahlert *et al.* 2014) with *A. enneaspermus* (L.) Flicker as the type species (Flicker & Ballard 2015). *Afrohybanthus* was somewhat an unfortunate choice of generic name, given that the species included in it occur on three continents

(Africa, Asia (Indian subcontinent) and Australia). The new generic grouping has been widely accepted and several additional species have been described or combined into it (Kamble *et al.* 2016; Deshmukh 2017; Messina 2020) since the initial transfer of names (Flicker & Ballard 2015).

One Queensland species, *Hybanthus monopetalus* (Schult.) Domin did not have a combination in *Afrohybanthus*, there being no mention of it in the molecular analyses of the group (Wahlert *et al.* 2014) or in Flicker

& Ballard (2015). In preparing to make such a combination, a check was made of earlier names for this species; however, this revealed three older validly published generic names, the oldest of which is *Pigea* Ging.

Gingins de la Sarraz (1823) named and defined *Pigea* in his ‘*Violacearum Generum Conspectus*’ as “*Stamina distincta. Nectarotheca antice (nec postice) producta. Lobis antherarum apice in setas productis*” with that in bold pertaining only to *Pigea*. This is effectively valid publication of the generic name *Pigea* based on Art. 38.2 (especially Example 5) of the *International Code of Nomenclature...* (ICN) (Turland *et al.* 2018). His *t.* 2, fig. 4 shows a flowering shoot tip and floral dissection and relates to the caption (Gingins 1823: 27), *viz.* “*Developpement du genre Pigea (analyse, d’apres nature sur le sec, du Pigea filiformis – de l’herb. De C.)*”. As only *P. filiformis* is mentioned it is automatically the type species of the genus. The species *P. filiformis* can be considered as validly published by Gingins de la Sarraz (1823) even though there is no accompanying description, as the genus at the time was monotypic (Art. 38.5 of the ICN), the genus name is validly published with a diagnosis and there is an accompanying analysis, in this instance a detailed illustration (Art. 38.8 & Art. 38.9, the latter being the most pertinent here, as Art. 38.8 may not strictly apply as the caption given above is hardly an explanation).

This account of *Pigea* was expanded by De Candolle (1824) with four species listed (*P. banksiana* Ging. mss., *P. calycina* DC. mss., *P. filiformis* DC. mss., *P. monopetala* Ging. mss.; these equating to *P. banksiana* Ging. ex DC., *P. calycina* DC., *P. filiformis* Ging. and *P. monopetala* (Schult.) Ging. ex DC. respectively); although no type species as such was listed. Bennett (1972) gave “Type: *P. filiformis* Ging. in DC.” and George (1982) “Type: *P. filiformis* DC.”. The account in the *Prodromus [A.P. de Candolle]* gives the impression that authorship is solely by A.P. de Candolle with Gingins de la Sarraz acknowledged in a footnote at the start and then at the bottom of p. 316. It may have been

the case that De Candolle based much of the account from an unpublished manuscript of Gingins de la Sarraz; however, we will probably never know for sure.

The name *Pigea filiformis* Ging. is a taxonomic synonym of *P. monopetala* (Schult.) Ging. ex DC. (= *Hybanthus monopetalus* (Schult.) Domin) (Bennett 1972; George 1982). The name *Pigea banksiana* Ging. ex DC. is a taxonomic synonym of *Afrohybanthus enneaspermus* (L.) Flicker (= *Hybanthus enneaspermus* (L.) F.Muell.; *Viola enneasperma* L.) (Bennett 1972; George 1982), the type of the recently described genus *Afrohybanthus*. *Pigea calycina* (as *Hybanthus calycinus* (DC.) F.Muell.) and *P. monopetala* (as *Hybanthus monopetalus*) are both recognised species (George 1982), but neither was mentioned by Flicker & Ballard (2015).

Pigea is an earlier name for what has been described as *Afrohybanthus*, as are *Clelandia* J.M.Black and *Vlamingia* de Vriese. The use of *Pigea* was recommended by Wahlert *et al.* (2014) for *c.* 10 species in Australia, New Caledonia and other parts [not defined] of the South Pacific; however, this was ignored by Flicker & Ballard (2015). The required new combinations of names are provided below for the reinstated genus that covers species in Africa, the Indian subcontinent, Malesia and Australia. I have not included the three species named in *Hybanthus* from New Caledonia (*H. austrocaledonicus* (Viell.) Melch. [= *Ionidium austrocaledonicum* Viell.], *H. caledonicus* (Turcz.) Cretz. [= *Alsodeia caledonica* Turcz.] and *H. micranthus* Guillaumin) as these are woody shrubs and require sequencing to infer their generic placement.

Type information has been omitted from this account as it is primarily covered in Bennett (1972), George (1982), Grey-Wilson (1986), Flicker & Ballard (2015) or in subsequent cited publications. There remains considerable research and decision making in typification of some names and current global conditions preclude easy searching of European herbaria for possible types that are not currently imaged and available via JSTOR

Global Plants. Typification of some Australian taxa will be dealt with in a subsequent paper. The *status quo* in terms of recognised species is largely maintained (cf. George 1982; Flicker & Ballard 2015), with a handful of subsequent additions.

Taxonomy

Pigea Ging., *Mém. Soc. Phys. Genève* 2(1): 27–28, t. 2, fig. 4 (1823).

Type: *Pigea filiformis* Ging. [= *Pigea monopetala* (Schult.) Ging. ex DC.]

Vlamingia de Vriese, *Pl. Preiss. [J.G.C. Lehmann]* 1: 398 (1845), **syn. nov.**
Type: *Vlamingia australasica* de Vriese [= *Pigea calycina* DC.]

Clelandia J.M.Black, *Trans. & Proc. Roy. Soc. S. Austral.* 56: 46 (1932), **syn. nov.** **Type:** *Clelandia convallis* [= *Pigea floribunda* Lindl.]

Afrohybanthus Flicker, *Phytotaxa* 230: 43–44 (2015), **syn. nov.** **Type:** *Viola enneasperma* L. [= *Pigea enneasperma* (L.) P.I.Forst.]

Flicker & Ballard (2015) can be referred to for a generic description. The generic descriptions for *Hybanthus* of both Bennett (1972) and George (1982) are also adequate for the Australian species included below.

Etymology: The word *pigea* is thought to be based on the Greek *pygia* meaning buttocks. This naming was perhaps an illusion by Gingins de la Sarraz to the form of the stamens in *P. monopetala*; however, this cannot be corroborated. An alternative explanation is that the word *pigea* is based upon the French word *piger* and is the third person singular form of that word. The word *piger* is derived from *pigeō* (annoyance, reluctance); however, any obvious relationship to its possible use for the generic name remains obscure.

1. Pigea adpressa (E.M.Benn.) P.I.Forst., **comb. et stat. nov.**

Hybanthus floribundus subsp. *adpressus* E.M.Benn., *Nuytsia* 1: 233 (1972).

Distribution: Australia.

Note: This taxon is elevated to species rank based on the distinct character states outlined by Bennett (1972) in her key to subspecies when classified under *Hybanthus floribundus*. Bennett (1972) did not indicate the presence of populations that were intermediate between her three subspecies. This hypothesis that the three previously recognised subspecies of *H. floribundus* are deserved of species rank should be tested with modern population genetics analyses.

2. Pigea aurantiaca (F.Muell. ex Benth.) P.I.Forst., **comb. nov.**

Ionidium aurantiacum F.Muell. ex Benth., *Fl. Austral.* 1: 102 (1863); *Hybanthus aurantiacus* (F.Muell. ex Benth.) F.Muell., *Pl. N.W. Australia* 5 (1881); *Hybanthus enneaspermus* var. *aurantiacus* (F.Muell. ex Benth.) F.Muell., *Pl. Indig. Shark Bay* 6 (1883).

Hybanthus miniatus F.Muell. & Tate, *nom. inval., pro syn., Trans. & Proc. Royal Soc. S. Australia* 19: 83 (1895).

Hybanthus elegans Domin, *Biblioth. Bot.* 89: 430, t. 30 (1928).

Distribution: Australia.

3. Pigea bennettiae (R.L.Barrett) P.I.Forst., **comb. nov.**

Hybanthus bennettiae R.L.Barrett, *Nuytsia* 26: 81 (2015); *Afrohybanthus bennettiae* (R.L.Barrett) Messina, *Muelleria* 39: 15 (2020).

Distribution: Australia.

4. Pigea buxifolia (Vent.) P.I.Forst., **comb. nov.**

Ionidium buxifolium Vent., *Jard. Malmaison*: sub pl. 27 (1803); *Viola buxifolia* (Vent.) Juss., in Poir., *Encycl. [J. Lamarck & al.]* 8: 646 (1808); *Hybanthus buxifolius* (Vent.) Baill., *Bull., Soc. Linn.* 1: 584 (1886); *Afrohybanthus buxifolius* (Vent.) Flicker, *Phytotaxa* 230: 44 (2015).

Distribution: Madagascar.

5. *Pigea caffra* (Sond.) P.I.Forst., comb. nov.

Ionidium caffrum Sond., *Linnaea* 23: 13 (1850); *Hybanthus caffra* (Sond.) Engl., *Bot. Jahrb. Syst.* 55: 400 (1919); *Hybanthus enneaspermus* var. *caffra* (Sond.) Robson, *Bol. Soc. Brot. Ser. 2a*, 32: 169 (1958); *Afrohybanthus caffra* (Sond.) Flicker, *Phytotaxa* 230: 44 (2015).

Distribution: African continent.

6. *Pigea calycina* DC., Prodr. [A.P. de Candolle] 1: 307 (1824).

Solea calycina (DC.) Spreng., *Syst. Veg. Edn. 16 [Sprengel]* 1: 804 (1824); *Hybanthus calycinus* (DC.) F.Muell., *Fragm.* 10: 81 (1876); *Ionidium calycinum* (DC.) Steud., *Nomencl. Bot. [Steudel]*, ed. 2, 1: 813 (1840); *Calceolaria calycina* (DC.) Benth., *Prodr. [A.P. de Candolle]* 10: 211 (1846); *Calceolaria calycina* (DC.) Kuntze, *nom. illeg., nom. superfl.*, *Revis. Gen. Pl.* 1: 41 (1891).

Pigea glauca Endl., *Enum. Pl. [Endlicher]* 5 (1837); *Ionidium glaucum* (End.) Steud., *Nomencl. Bot. [Steudel]*, ed. 2, 1: 813 (1840).

Vlamingia australasiaca de Vriese, *Pl. Preiss. [J.G.C. Lehmann]* 1(3): 399 (1845).

Distribution: Australia.

7. *Pigea curvifolia* (E.M.Benn.) P.I.Forst., comb. et stat. nov.

Hybanthus floribundus subsp. *curvifolius* E.M.Benn., *Nuytsia* 1: 234 (1972).

Distribution: Australia.

Note: This taxon is elevated to species rank based on the distinct character states outlined by Bennett (1972) in her key to subspecies when classified under *Hybanthus floribundus*. Bennett (1972) did not indicate the presence of populations that were intermediate between her three subspecies.

8. *Pigea cymulosa* (C.A.Gardner) P.I.Forst., comb. nov.

Hybanthus cymulosus C.A.Gardner, *J. Roy. Soc. Western Australia* 22: 125 (1936).

Distribution: Australia.

9. *Pigea danguyana* (H.Perrier) P.I.Forst., comb. nov.

Hybanthus danguyanus H.Perrier, *Mém. Inst. Sci. Madagascar, Sér. B. Biol. Vég.* 2: 313 (1949); *Afrohybanthus danguyanus* (H.Perrier) Flicker, *Phytotaxa* 230: 45 (2015).

Distribution: Madagascar.

10. *Pigea debilissima* (F.Muell.) P.I.Forst., comb. nov.

Hybanthus debilissimus F.Muell., *Fragm.* 11: 4 (1878); *Ionidium debilissimum* F.Muell., *nom. inval., pro syn.*, *Fragm.* 11: 4 (1878); *Calceolaria debilissima* (F.Muell.) Kuntze, *Revis. Gen. Pl.* 1: 41 (1891).

Distribution: Australia.

11. *Pigea decaryana* (H.Perrier) P.I.Forst., comb. nov.

Hybanthus decaryanus H.Perrier, *Mém. Inst. Sci. Madagascar, Sér. B. Biol. Vég.* 2: 313 (1949); *Afrohybanthus decaryanus* (H.Perrier) Flicker, *Phytotaxa* 230: 46 (2015).

Distribution: Madagascar.

12. *Pigea densifolia* (Engl.) P.I.Forst., comb. nov.

Hybanthus densifolius Engl., *Bot. Jahrb. Syst.* 55: 398 (1919); *Afrohybanthus densifolius* (Engl.) Flicker, *Phytotaxa* 230: 47 (2015).

Distribution: African continent (Namibia).

13. *Pigea enneasperma* (L.) P.I.Forst., comb. nov.

Viola enneasperma L., *Sp. Pl.* 2: 927 (1753); *Ionidium enneaspermum* (L.) Vent., *Jard. Malmaison* 1(5): sub. pl. 27 (1803); *Hybanthus enneaspermus* (L.) F.Muell., *Fragm.* 10: 81 (1876); *Hybanthus enneaspermus* var. *enneaspermus*, F.Muell., *Pl. Indig. Shark Bay* 6 (1883); *Calceolaria enneasperma* (L.) Kuntze, *Rev. Gen. Pl.* 1: 41 (1891); *Hybanthus enneaspermus* f. *enneaspermus*, Domin, *Biblioth. Bot.* 89: 429 (1928); *Hybanthus enneaspermus* subsp. *enneaspermus*, E.M.Benn., *Nuytsia* 1: 228 (1972); *Afrohybanthus enneaspermus* (L.) Flicker, *Phytotaxa* 230: 47 (2015).

#*Viola suffruticosa* L., *Sp. Pl.* 937 (1753); *Ionidium suffruticosum* (L.) Schult., *Syst. Veg., Edn. 15 bis [Roemer & Schultes]* 5: 394 (1819).

#*Viola linifolia* Juss., in Poir., *Encyc. [J. Lamarck & al.]* 8: 647 (1808); *Ionidium linifolium* (Juss.) Schult., *Syst. Veg., Edn. 15 bis [Roemer & Schultes]* 55: 392 (1819).

#*Viola thesiifolia* Juss., in Poir., *Encycl. [J. Lamarck & al.]* 8: 649 (1808); *Ionidium thesiifolium* (Juss.) Schult., *Syst. Veg., Edn. 15 bis [Roemer & Schultes]* 5: 398 (1819).

Pigea banksiana Ging. ex DC., *Prodr. [A.P. de Candolle]* 1: 307 (1824); *Ionidium banksianum* (Ging. ex DC.) Steud., *Nomencl. Bot. [Steudel], ed. 2, 1(7):* 813 (1840); *Hybanthus enneaspermus* var. *banksianus* (Ging. ex DC.) Domin, *Biblioth. Bot.* 89: 429 (1928).

#*Ionidium hexaspermum* Dalz., *Hooker's J. Bot. Kew Gard. Misc.* 4: 342 (1852).

#*Ionidium aethiopicum* Turcz., *Bull. Soc. Imp. Naturalistes Moscou* 27(2): 339 (1854).

#*Ionidium hirtum* Klotsch, *Naturw. Reise Mossambique [Peters]* 6(Bot. 1): 148 (1861); *Ionidium enneaspermum* var. *hirtum* (Klotzsch) Oliv., *Fl. Trop. Afr.* 1: 106 (1868); *Hybanthus hirtus* (Klotzsch) Engl., *Bot. Jahrb. Syst.* 55: 399 (1919).

Hybanthus enneaspermus f. *angustifolius* Domin, *Biblioth. Bot.* 89: 429 (1928).

Distribution: African continent, Australia, Malesia (New Guinea, Philippines), Indian subcontinent (India, Sri Lanka).

Notes: As presently circumscribed, this widespread 'species' is highly variable. Grey-Wilson (1981, 1986) recognised eight varieties in tropical East Africa, although five of them were recognised at species rank by Flicker & Ballard (2015) and this is followed here. A very extensive species synonymy was given by Tennant (1963) under *Hybanthus enneaspermus* but was not followed by Grey-Wilson (1981, 1986) in her account of the genus in the *Flora of Tropical East Africa (FTEA)*. None of these synonymous names (from areas outside of the FTEA geographic

scope) were listed in synonymy of Grey-Wilson's varieties, and none were referred to by Flicker & Ballard (2015), so it is as yet unclear whether some may be synonymous with the five taxa they raised to species rank. Some names given in synonymy by Flicker & Ballard (2015) are referred with caution (indicated # above) as I have not examined the types.

A number of bibliographic errors in relation to the synonymy given by Flicker & Ballard (2015) have been omitted above. Names published by Baillon (1886: 584) appear to be based on the same epithet, but not published by the same author (e.g. *Hybanthus linifolius* (DC.) Baill. based on *Ionidium linifolium* DC., rather than *I. linifolium* (Juss.) Schult.). These errors appear to be based on not referring to the original publications and merely lining up identical epithets that are not necessarily based on the same types. This remains very much a mess in terms of how the names are listed in IPNI and is beyond the scope of the current paper.

In the Australian circumscription, this species has been referred to previously as *Pigea banksiana* (De Candolle 1824), *Hybanthus enneaspermus* (Mueller 1876; Domin 1928; Bennett 1972; George 1982) and *Ionidium suffruticosum* (Bentham 1863; Bailey 1899, 1913).

14. *Pigea epacroides* (C.A.Gardner) P.I.Forst., **comb. nov.**

Ionidium epacroides C.A.Gardner, *J. & Proc. Roy. Soc. Western Australia* 9: 35 (1923); *Hybanthus epacroides* (C.A.Gardner) Melch., *Nat. Pflanzenfam., ed. 2 [Engler & Prantl]* 21: 360 (1925).

Hybanthus bilobus C.A.Gardner, *J. & Proc. Roy. Soc. Western Australia* 9: 86 (1923).

Hybanthus floribundus var. *minutifolius* F.Muell., *Fragm.* 10: 82 (1876).

Distribution: Australia.

Note: *Hybanthus bilobus* was reduced to the synonymy of *H. epacroides* by George (1982) and this is followed here.

15. *Pigea fasciculata* (Grey-Wilson) P.I.Forst., comb. nov.

Hybanthus fasciculatus Grey-Wilson, *Kew Bull.* 36: 110 (1981); *Afrohybanthus fasciculatus* (Grey-Wilson) Flicker, *Phytotaxa* 230: 48 (2015).

Distribution: African continent.

16. *Pigea floribunda* Lindl., in T.Mitch., *Three Exped. Australia [Mitchell]* 2: 164 (1838).

Ionidium floribundum (Lindl.) Walp., *Repert. Bot. Syst.* 2: 767 (1843); *Hybanthus floribundus* (Lindl.) F.Muell., *Fragm.* 10: 81 (1876); *Calceolaria floribunda* (Lindl.) Kuntze, *Revis. Gen. Pl.* 1: 41 (1891), *nom. illeg., non* Kunth (1818); *Hybanthus floribundus* subsp. *floribundus*, E.M.Benn., *Nuytsia* 1: 233 (1972).

Ionidium australasiae Behr, *Linnaea* 20: 629 (1847).

Ionidium multiflorum Turcz., *Bull. Soc. Imp. Naturalistes Moscou* 27: 340 (1854).

Ionidium brevilabre Benth., *Fl. Austral.* 1: 102 (1863); *Hybanthus brevilabris* (Benth.) Domin, *Mem. Soc. Sci. Boheme* 1921–22, No. 2: 74 (1923).

Clelandia convallis J.M.Black, *Trans. & Proc. Roy. Soc. S. Austral.* 56: 46 (1932).

Distribution: Australia.

17. *Pigea indica* (S.K.Kamble & Patil) P.I.Forst., comb. nov.

Afrohybanthus indicus S.K.Kamble & Patil, *Phytotaxa* 252: 69–71 (2016).

Distribution: Indian subcontinent (India).

18. *Pigea latifolia* (De Wild.) P.I.Forst., comb. et stat. nov.

Ionidium enneaspermum var. *latifolium* De Wild., *Pl. Thonn. Congol.* 2: 238 (1911); *Hybanthus enneaspermus* var. *latifolius* (De Wild.) Engl., *Bot. Jahrb. Syst.* 55: 398 (1919); *Hybanthus latifolius* (De Wild.) A.Chev., *Fl. Afrique Occ. Franc.* 1: 228 (1938); *Afrohybanthus latifolius* (De Wild.) Flicker, *Phytotaxa* 230: 48 (2015).

Distribution: African continent.

19. *Pigea monopetala* (Schult.) Ging. ex DC., *Prodr. [A.P. de Candolle]* 1: 307 (1824).

Ionidium monopetalum Schult., *Syst. Veg., Edn. 15 bis [Roemer & Schultes]* 5: 400 (1819); *Solea monopetala* (Schult.) Spreng., *Syst. Veg. Edn. 16 [Sprengel]* 1: 804 (1824); *Calceolaria monopetala* (Schult.) Hochr. ex Britten, *Bot. Cook Voy.* 7 (1900), *nom. inval., nom. nud.*; *Hybanthus monopetalus* (Schult.) Domin, *Biblioth. Bot.* 89: 430 (1928); *Hybanthus monopetalus* var. *normalis* Domin, *Biblioth. Bot.* 89: 431 (1928), *nom. inval.*

Pigea filiformis Ging., *Mém. Soc. Phys. Genève* 2(1): 27–28, t. 2, fig. 4 (1823); *Ionidium filiforme* (Ging.) F.Muell., *Pl. Vict.* 1: 66 (1862); *Hybanthus filiformis* (Ging.) F.Muell., *Fragm.*, 10: 81 (1876); *Calceolaria filiformis* (Ging.) Kuntze, *Revis. Gen. Pl.* 1: 41 (1891).

Ionidium linearioides C.Presl, *Bot. Bemerk.* 12 (1845).

Hybanthus tatei F.Muell. ex Tate, *Fl. Extratrop. S. Australia* 19 (1890); *Hybanthus tatei* F.Muell., *nom. inval., nom. nud.*, *Trans. Proc. & Rep. Roy. Soc. South Australia* 4: 102 (1882); F.Muell., *Second Syst. Cens. Austral. Pl.* 11 (1889); *Calceolaria tatei* (F.Muell. ex Tate) Kuntze, *Revis. Gen. Pl.* 1: 41 (1891).

Hybanthus monopetalus var. *abbreviatus* Domin, *Biblioth. Bot.* 89: 431 (1928).

Distribution: Australia.

20. *Pigea nyassensis* (Engl.) P.I.Forst., comb. nov.

Ionidium nyassense Engl., *Pflanzenw. Ost-Afr. C* 277 (1895); *Hybanthus nyassensis* (Engl.) Engl., *Bot. Jahrb. Syst.* 55: 400 (1919); *Hybanthus enneaspermus* var. *nyassensis* (Engl.) N.Robson, *Bol. Soc. Brot. Ser. 2A* 32: 168 (1958).

Distribution: African continent.

21. *Pigea pseudodanguyana* (Grey-Wilson) P.I.Forst., comb. et stat. nov.

Hybanthus enneaspermus var. *pseudodanguyanus* Grey-Wilson, *Kew Bull.* 39: 771 (1984); *Afrohybanthus*

pseudodangyanus (Grey-Wilson) Flicker, *Phytotaxa* 230: 48 (2015).

Distribution: African continent.

22. *Pigea puberula* (M.G.Gilbert) P.I.Forst., **comb. nov.**

Hybanthus puberulus M.G.Gilbert, *Nordic J. Bot.* 12: 691 (1992); *Afrohybanthus puberulus* (M.G.Gilbert) U.B.Deshmukh, *NeBio* 8: 260 (2017).

Distribution: African continent.

23. *Pigea ramosissima* (Thwaites) P.I.Forst., **comb. nov.**

Ionidium ramosissimum Thwaites, *Enum. Pl. Zeyl. [Thwaites]* 21 (1858); *Hybanthus ramosissimus* (Thwaites) Melch., *Nat. Pflanzenfam., ed. 2 [Engler & Prantl]* 21: 360 (1925); *Afrohybanthus ramosissimus* (Thwaites) Flicker, *Phytotaxa* 230: 48 (2015).

Distribution: Indian subcontinent (Sri Lanka).

24. *Pigea serrata* (Engl.) P.I.Forst., **comb. et stat. nov.**

Hybanthus enneaspermus var. *serratus* Engl., *Bot. Jahrb. Syst.* 55: 398 (1919); *Afrohybanthus serratus* (Engl.) Flicker, *Phytotaxa* 230: 49 (2015).

Distribution: African continent.

25. *Pigea stellarioides* (Domin) P.I.Forst., **comb. et stat. nov.**

Hybanthus enneaspermus var. *stellarioides* Domin, *Biblioth. Bot.* 89: 429 (1928); *Hybanthus enneaspermus* subsp. *stellarioides* (Domin) E.M.Benn., *Nuytsia* 1: 229 (1972); *Hybanthus stellarioides* (Domin) P.I.Forst., *Muelleria* 8: 18 (1993); *Afrohybanthus stellarioides* (Domin) Flicker, *Phytotaxa* 230: 50 (2015) [in error as (P.Forster) Flicker].

Hybanthus enneaspermus f. *flavus* Domin, *Biblioth. Bot.* 89: 429 (1928).

Hybanthus enneaspermus f. *pubescens* Domin, *Biblioth. Bot.* 89: 429 (1928).

Distribution: Australia, Malesia (New Guinea).

26. *Pigea travancorica* (Bedd.) P.I.Forst., **comb. nov.**

Ionidium travancoricum Bedd., *Icon. Pl. Ind. Or. [Beddome]* 55 (1874); *Afrohybanthus travancoricus* (Bedd.) Flicker, *Phytotaxa* 230: 50 (2015).

Distribution: Indian subcontinent (India).

27. *Pigea tsavoensis* (Grey-Wilson) P.I.Forst., **comb. et stat. nov.**

Hybanthus enneaspermus var. *tsavoensis* Grey-Wilson, *Kew Bull.* 36: 106 (1981); *Afrohybanthus tsavoensis* (Grey-Wilson) Flicker, *Phytotaxa* 230: 51 (2015).

Distribution: African subcontinent.

28. *Pigea vatsavayae* (C.S.Reddy) P.I.Forst., **comb. nov.**

Hybanthus vatsavayae C.S.Reddy, *J. Econ. Taxon. Bot.* 25: 219 (2001); *Afrohybanthus vatsavayae* (as “*vastavayii*”) (C.S.Reddy) U.B.Desmukh, *NeBio* 8: 260 (2017); *A. vatsavayae* (C.S.Reddy) Kottaim, *Int. J. Curr. Res. Biosci. Pl. Biol.* 6(10): 41 (2019), *nom. superfl.*

Distribution: Indian subcontinent (India).

29. *Pigea verbi-divini* (Everaarts) P.I.Forst., **comb. et stat. nov.**

Hybanthus enneaspermus var. *verbi-divini* Everaarts, *Fl. Malesiana* 7: 831 (1971); *Afrohybanthus verbi-divini* (Everaarts) Flicker, *Phytotaxa* 230: 52 (2015).

Distribution: Malesia (Indonesia).

30. *Pigea vernonii* (F.Muell.) P.I.Forst., **comb. nov.**

Ionidium vernonii F.Muell., *Pl. Victoria* 1: 223 (1862); *Hybanthus vernonii* (F.Muell.) F.Muell., *Fragm.* 10: 81 (1876); *Calceolaria vernonii* (F.Muell.) Kuntze, *Revis. Gen. Pl.* 1: 41 (1891); *Hybanthus enneaspermus* var. *vernonii* (F.Muell.) Domin, *Biblioth. Bot.* 89: 428 (1928); *Hybanthus vernonii* subsp. *vernonii*, E.M.Benn., *Nuytsia* 1: 238 (1972).

Distribution: Australia.

Note: I have retained for now the two subspecies recognised by Bennett (1972) as the character states outlined are relatively minor and pertain to indumentum cover and leaf shape. More intensive research is required to determine if these two subspecies are worthy of specific rank.

30a. *Pigea vernonii* subsp. *vernonii*

30b. *Pigea vernonii* subsp. *scabra* (E.M.Benn.) P.I.Forst., **comb. nov.**

Hybanthus vernonii subsp. *scaber* E.M.Benn., *Nuytsia* 1: 240 (1972).

31. *Pigea volubilis* (E.M.Benn.) P.I.Forst., **comb. nov.**

Hybanthus volubilis E.M.Benn., *Nuytsia* 1: 236 (1972).

Distribution: Australia.

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