

## Taxonomy of *Olearia stuartii* (Asteraceae: Astereae) and allied species

N.S. Lander

Western Australian Herbarium, Department of Conservation and Land Management,  
P.O. Box 104, Como, Western Australia 6152

### Abstract

Lander, N.S. Taxonomy of *Olearia stuartii* (Asteraceae: Astereae) and allied species. Nuytsia 7 (1): 25-35 (1989). Western Australian specimens hitherto considered as *Olearia stuartii* (F. Muell.) F. Muell. ex Benth. are segregated into three distinct species. One of these is described as new, namely *O. humilis* Lander. Another represents *O. xerophila* (F. Muell.) F. Muell. ex Benth., previously known only from Queensland. *O. stuartii* is recognised as being a species widespread in inland Australia. A related species, *O. gordonii* Lander, is described from southern Queensland. These taxa all fall within *Olearia* sect. *Merismotriche* Benth. within which they form a natural group.

### Introduction

The name *O. stuartii* (F. Muell.) F. Muell. ex Benth. has long been a source of confusion in herbaria, especially in Western Australia where it has been applied to specimens exhibiting a wide range of variation in leaf and flowering-head morphology. Since commencing revisionary studies on the genus *Olearia* in 1984 the present author has recognised three distinct entities present in Western Australia. One of these is identical to a species otherwise known only from Queensland, namely *O. xerophila* (F. Muell.) F. Muell. ex Benth. Another represents a distinct new species, *O. humilis* Lander. The third entity is *O. stuartii* sens. strict., a species widespread in inland Australia.

Stanley & Ross (1986) note, as *Olearia* "sp. 1", an unnamed taxon from southern Queensland. This species, formally described here as *O. gordonii*, is clearly related to *O. xerophila*.

The taxonomy in this paper is based on a study of the gross morphology of all available herbarium specimens examined at, or loaned by, the major Australian and British herbaria and relevant European herbaria, and on field observation of species present in Western Australia. The methods and procedures adopted were those indicated in Lander (1985).

The descriptions of the various trichomes follow the terminology of Ramayya (1962).

**Key to *Olearia stuartii* and its allies**

1. Leaf-venation obscure, apart from midvein; vestiture subglabrous or densely glandular-pubescent with minute, biseriate glandular hairs (scattered conic, biseriate glandular and long, filiform, eglandular hairs may also be present)
  2. Stems and leaves subglabrous. Leaves often fasciculate; margin entire to irregularly serrulate; apex acute, sometimes obtuse, inconspicuously mucronate. Ligulate florets 10-20; ligules 9.6-14.2 mm long. Tubular florets 6.0-8.7 mm long ..... *O. humilis*
  2. Stems and leaves densely glandular. Leaves never fasciculate; margin irregularly and coarsely dentate; apex truncate and dentate. Ray florets 21-64; ligules 5.1-8.8 mm long. Disc florets 3.0-6.0 mm long ..... *O. stuartii*
1. Leaf venation distinctly reticulate, with prominent midvein; vestiture weakly to densely hirsute with long, filiform, eglandular hairs and conic, biseriate, glandular hairs (minute biseriate, glandular hairs also present)
  3. Leaves distinctly petiolate (petiole winged, discrete); lamina elliptic to broadly elliptic, rarely narrowly elliptic, 7-22 mm wide. Ligulate florets > 4/5 the number of disc florets. Achene 2.0-2.2 mm long ..... *O. xerophila*
  3. Leaves indistinctly petiolate (petiole winged, merging into lamina); lamina linear to very narrowly elliptic, 2-8 mm wide. Ligulate florets c. 1/2 the number of disc florets. Achene 2.7-4.0 mm long ..... *O. gordonii*

***Olearia humilis* Lander, sp. nov. (Figure 1)**

*Olearia stuartii* arte affinis a qua vestimento subglabro, marginibus folii integris vel irregulariter serrulatis, flosculis ligulatis paucioribus (ad 20) et ligulis longioribus (ad 14.2 mm), et flosculis tubularibus longioribus (ad 8.7 mm) differt.

*Typus:* 3 km S of 'Atley' turnoff on Sandstone - Paynes Find road, 28°14' S, 119° 06' E, 25 Aug. 1986, P.S. Short 2563 (holo: PERTH; iso: MEL; K).

*Erect shrub* to 1 m high, spindly, slightly glutinous. *Vestiture* of stems, leaves and outer involucre bracts subglabrous with minute, biseriate, capitate, glandular hairs and occasional, conic, biseriate, capitate, glandular hairs and long, filiform, eglandular hairs. *Leaves* alternate, sessile, often fasciculate; lamina narrowly obovate or linear, often somewhat falcate, 20-30 x 1-3 mm, concolorous, green; venation obscure apart from midvein; base very narrowly cuneate; margin recurved, entire to irregularly serrulate; apex acute, sometimes obtuse, inconspicuously mucronate. *Heads* solitary, terminal, pendunculate, radiate, 15-30 mm diameter; disc 8-15 mm diameter. *Peduncle* to 40 mm long with several leaf-like bracts merging into those of the involucre. *Involucre* broadly campanulate; bracts 4-seriate, 2.5-7.0 x 0.4-2.0 mm; *outer bracts* very narrowly triangular, slightly carinate; stereome green; margin narrowly membranous, fimbriate; apex acute or acuminate; *inner bracts* narrowly ovate, flat; stereome green, glabrous; margin broadly membranous, fimbriate; apex acute or acuminate. *Receptacle* flat. *Ray florets* 10-20, uniseriate, female, 13.6-18.3 mm long; tube with scattered, long, biseriate, eglandular hairs; ligule narrowly ovate, 9.6-14.2 x 1.6-3.2 mm, purple, glabrous, acute or obtuse and minutely 3-lobed or more or less deeply 2-cleft; staminodes sometimes present; stylar arms more or less filiform, 1.1-1.8 mm

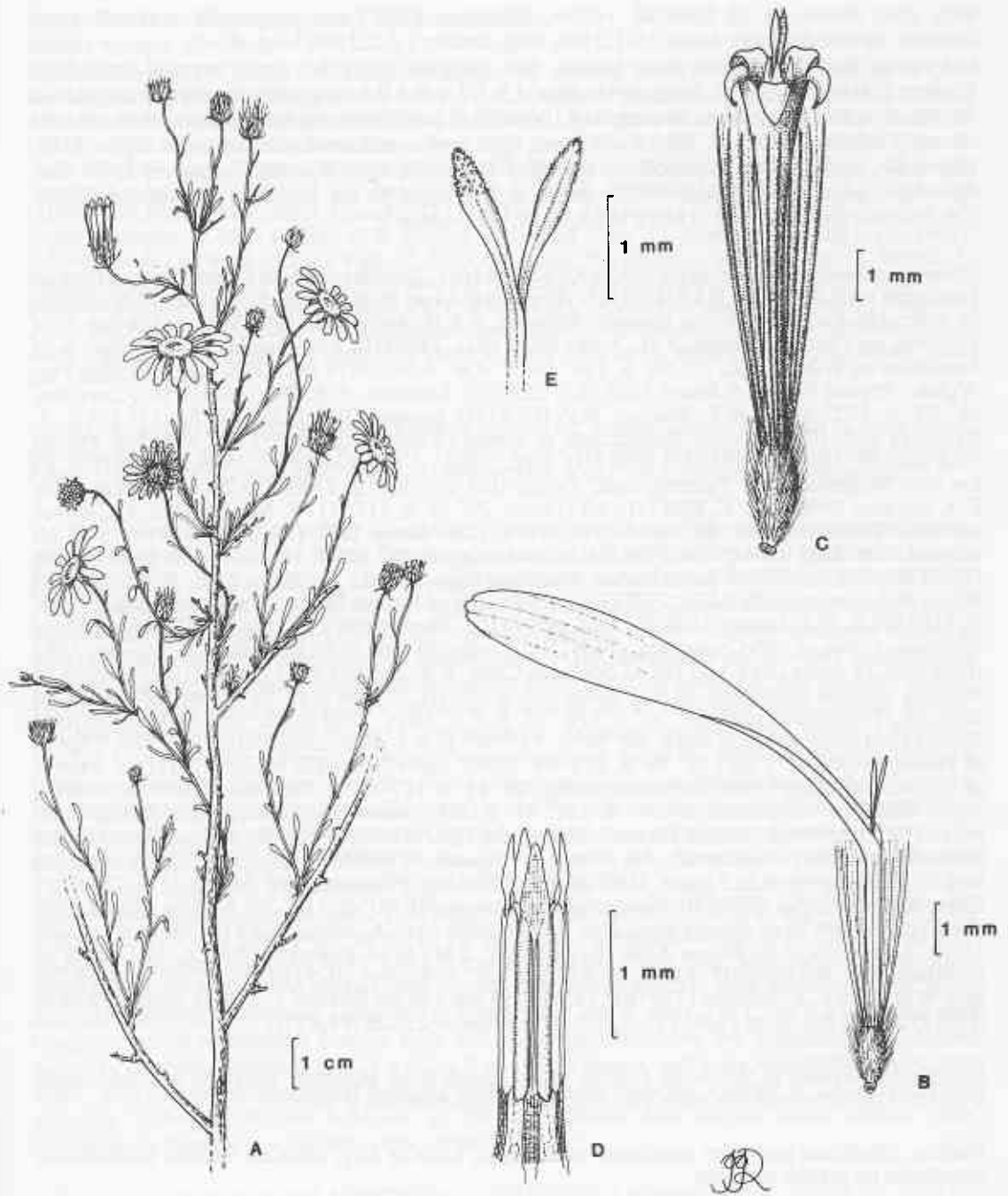


Figure 1. *Olearia humilis*. A - Habit. B - Ray floret. C - Disc floret. D - Anthers. E - Stylar arms. Drawn from P.S. Short 2563 (holo: PERT11).

long. *Disc florets* 21-30, bisexual, yellow, buccinate, 6.0-8.7 mm long, with scattered, long, biseriate, eglandular hairs; lobes 0.9-1.2 mm long; anthers 1.6-2.2 mm long, shortly acute or obtuse and shorter than the filament collar basally, with narrowly triangular, acute, terminal appendage; filament collar 0.4-0.6 mm long; stylar arms 1.0-1.7 x 0.3-0.4 mm, with narrowly triangular or spatulate apical appendages bearing long, botuliform papillae above the stigmatic lines. *Achene* narrowly obovoid, flattened, 1.8-2.2 x 0.7 mm, light brown, sericeous with appressed duplex hairs; base acute, with oblique carpodium; margin  $\pm$  thickened; apex truncate. *Pappus* of 21-33 free, uniseriate, minutely barbellate bristles more or less equal to the length of the tubular florets. *Chromosome number*,  $n = 9$  (Turner 1970; Short, pers. comm.).

*Other specimens examined.* WESTERN AUSTRALIAN: 25 miles (40 km) E from Paynes Find on Sandstone road, *R. Aitken* HA9 (PERTH); 40 miles (64 km) N of Wubin, *K.M. Allan* 73 (PERTH); 54 miles (86 km) NW of Cue towards 'Mileura', *T.E.H. Aplin* 2526 (PERTH); c. 128 km N of Mullewa on Carnarvon road, *A.M. Ashby* 2529 (AD, PERTH); c. 4-5 miles (6.4-8.0 km) S of Sandstone on Wiluna road, 27° 59' S, 118° 18' E, *A.M. Ashby* 4819 (AD, PERTH); 210 Mile Peg, Wubin - Paynes Find, *J.S. Beard* 2610 (KP, PERTH); Laverton, *W.E. Blackall* 419 (K); Laverton, 28° 22' S, 122° 24' E, *W.E. Blackall* 3856 (PERTH); teutonic [Bore], 28° 22' S, 121° 10' E, *R. Cumming* 1229 (PERTH); Mt Magnet road, *H. Demarz* 2396 (KP, PERTH); 247 Mile Peg, Paynes Find road, *H. Demarz* 4355 (KP, PERTH); s.loc., s.dat., *J. Drummond* s.n. (MEL1543767); c. 45 km N of Mullewa on Mt Tallering road, *J. Galbraith* 420 (MEL); 2 miles (3.2 km) S of Laverton, *C.A. Gardner* 2466 (BM, K, PERTH); Mt Gibson, 29° 36' S, 117° 11' E, Nov. 1952, *C.A. Gardner* s.n. (PERTH); 'Anketell', 28° 02' S, 118° 51' E, *J.W. Green* 1631 (PERTH); 109 km S of Mt Magnet, *R.M. King* 9594 (NSW, PERTH, US); Mt Magnet, 28° 04' S, 11° 51' E, *J.R. Knox* 660926 (PERTH); 18.4 km SW of 'Lake Barlee' turnoff on Paynes Find - Sandstone road, 28° 58' S, 118° 40' E, *N.S. Lander* 1398 (MEL, PERTH); 31.6 km NE of Paynes Find on Sandstone road, 29° 16' S, 118° 00' E, *N.S. Lander* 1403 (K, MEL, PERTH); 'Thundelarra', 28° 54' S, 117° 08' E, SE of Mullewa, s. dat., *E. McCrumm* s.n. (PERTH); 5 miles (8 km) N of Latham, *K.R. Newbey* 2083 (PERTH); 23 miles (36.8 km) NE of Southern Cross, *K.R. Newbey* 2533 (PERTH); 20.9 km S of Menzies towards Kalgoorlie, *M.E. Phillips* 608 (PERTH); 0.7 km E of Sandstone - Paynes Find road, on 'Youinmery' road, 28° 34' S, 118° 54' E, *P.S. Short* 2565 (MEL, PERTH); 39 km from Paynes Find along road to Cleary, 29° 30' S, 117° 46' E, *P.S. Short* 2586 (MEL, PERTH); 7 km N of Pindar on road to 'Yuin', 28° 26' S, 115° 49' E, *P.S. Short* 2885 (AD, MEL, PERTH); c. 9 km N of Paynes Find along Great Northern Highway, 29° 11' S, 117° 42' E, *P.S. Short* 2927 (AD, CANB, MEL, PERTH); Mt Gibson, 29° 36' S, 117° 11' E, *B.H. Smith* 719 (CANB, MEL, PERTH); 10 miles (16 km) NW of 'Albion Downs', *N.H. Speck* 1460 (CANB, PERTH); Paynes Find - Fields Find - Warne River - Sandstone - Mt Gibson, *K. Stewart* 13 (PERTH), 14 (PERTH); 35 miles (56 km) N of Mullewa, *B.L. Turner* 5360J (MEL, PERTH); Wilgiemia, 26° 56' S, 117° 42' E, *F. Uther-Baker* 4074/63 (PERTH); Koolyanobbing Range, 30° 50' S, 119° 33' E, *P.G. Wilson* 6152 (PERTH); 24 km W of Paynes Find, *P.G. Wilson* 8646 (AD, K, MEL, PERTH); Mt Jackson, 30° 15' S, 11° 16' E, *P.G. Wilson* 8790 (K, PERTH); 2 km N of Evanston Mine, c. 140 km N of Bullfinch, *P.G. Wilson* 8803 (AD, K, PERTH); s. loc., *E. Wittwer* 1025 (KP, PERTH); 15 miles (24 km) W of Agnew, *E. Wittwer* 1339 (KP, PERTH); 8 km S of Mt Jackson, *C.E. & D. Woolcock* 2424 (PERTH); 14.5 km SE of Paynes Find, *C.E. & D. Woolcock* 2428 (PERTH).

*Distribution.* Found in the Avon District of the South-West Botanical Province and the Austin District of the Eremaean Botanical Province of Western Australia (Figure 3).

*Habitat.* Shrubland and open woodland on red sand, loam or clay, often on lateritic breakaways, sometimes on granite outcrops.

*Flowering period.* July to November.

*Conservation status.* This species is widespread and well collected, occurring in a variety of habitats in areas unlikely to experience changes in land use. It is not considered rare or threatened.

*Etymology.* The specific epithet draws attention to the small stature of plants of this taxon.

*Notes.* This is the *Olearia* "sp. nov." of Turner (1970).

***Olearia stuartii*** (F. Muell.) F. Muell. ex Benth., Fl. Austral. 3: 481 (1867); A.J. Ewart & O.B. Davies, Fl. Northern Territory 274-5 (1917); C.A. Gardner, Enum. Pl. Austral. Occ. 131 (1931); J.M. Black, Fl. South Australia, edn 2, 4: 872 (1965); J.S. Beard, Western Austral. Pl., edn 2, 135 (1970); G.M. Chippendale, Proc. Linn. Soc. New South Wales 96: 264 (1971); B.J. Grieve & W.E. Blackall, How to know Western Austral. Wildfl. 4: 788 (1975); J.P. Jessup, Vasc. Pl. South Australia, edn 2, 67 (1984); J.W. Green, Census Vasc. Pl. Western Australia, edn 2, 168 & 264 (1985); J.P. Jessop, Fl. Central Australia 377 (1981); D.A. Cooke in J.P. Jessup & H.R. Toelken, Fl. South Australia 3: 1484 (1986); C.R. Dunlop, Checklist Vasc. Pl. Northern Territory 12 (1987); S.J. Forbes & J.H. Ross, Census Vasc. Pl. Victoria, edn 2, 39 (1988). — *Aster stuartii* (F. Muell.) F. Muell., Fragm. 5: 76-77 (1865); R. Tate, Fl. Extratrop. South Australia 114 & 237 (1890); F. Mueller, Second Syst. Census Austral. Pl. 1: 132 (1889). — *Eurybia stuartii* F. Muell., Fragm. 1: 202 (1859). *Type citation*: "In regionibus interioribus boreali-occidentalibus coloniae South Australia. J. Macd. Stuart." *Types*: NW interior, South Australia, anno 1859, J. McDouall Stuart s.n. (holo: MEL; iso K).

*Olearia megalodonta* F. Muell. ex C. Gardner, Enum. Pl. Austral. Occid. 131 (1931), nom. inval., pro syn. — *Aster megalodontus* F. Muell., Fragm. 8: 244 (1874). *Type citation*: "In monte Olgae; E. Giles." *Type*: Mt Olga, Northern Territory, anno 1873/4, s. dat. [W.E.P.] Giles s.n. (holo: MEL).

*Erect shrub* to 0.3 (1.0) m high, spreading, glutinous, unpleasantly aromatic. *Vestiture* of stems, leaves and outer involucre bracts densely glandular-pubescent with minute, biseriate, capitate, glandular hairs, conic, biseriate, capitate, glandular hairs and scattered filiform, eglandular hairs. Stems yellowish green or green when young, brown when older. *Leaves* alternate, sessile; lamina narrowly to broadly obovate, 10-28 x 2-8 mm, concolorous, green; venation obscurely reticulate with prominent midvein; base narrowly cuneate; margin flat, irregularly and coarsely dentate; apex truncate and dentate. *Heads* solitary or several in loose, terminal corymbs, pedunculate, radiate, 11-30 mm diameter; disc 5-20 mm diameter. *Peduncle* to 50 mm long, with several narrow, leaf-like bracts merging into those of the involucre. *Involucre* hemispheric; bracts 3-5-seriate, 1.5-7.0 x 0.6-0.8 mm. *Outer involucre bracts* linear or narrowly obovate, slightly carinate; stereome green, apically glandular-hairy, bearing biseriate, capitate glandular hairs and multiseriate, sessile glandular hairs; margin narrowly membranous, fimbriate; apex acute. *Inner involucre bracts* narrowly elliptic, flat; stereome yellowish, apically subglabrous; margin membranous, more or less entire; apex acuminate, sometimes pinkish. *Receptacle* convex. *Ray florets* 21-64, uniseriate, female, 7.0-11.5 mm long; tube with scattered biseriate, eglandular hairs; ligule narrowly elliptic, 5.1-8.8 x 1.0-1.9 mm, blue, mauve or lilac, glabrous, obtuse and minutely 3-lobed apically; stylar arms filiform, 0.9-1.2 mm long. *Disc florets* 20-72, bisexual, yellow, buccinate, 3.0-6.0 mm long, with scattered biseriate, eglandular hairs; lobes 5, triangular, 0.6-1.0 mm long; anthers 1.6-3.3 mm long, shortly acute or obtuse and shorter than the filament collar basally, with narrowly ovate, acute terminal appendage; filament collar 0.3-0.7 mm long; stylar arms 1.0-1.5 x 0.2-0.3 mm, with triangular apical appendages bearing long, botuliform papillae above the stigmatic lines. *Achene* narrowly obovoid, flattened, 2.0-2.3 x 0.5-1.0 mm, light brown, sericeous with duplex hairs; base acute, with oblique carpopodium; margins thickened; apex truncate. *Pappus* of 20-26 uniseriate, minutely barbellate bristles subequal to the disc florets, and several much shorter ones. *Chromosome number*, n = 9 (Short, pers. comm.).

*Selected specimens examined.* NORTHERN TERRITORY: Livingstone Pass, 24° 53' S, 129° 06' E, March 1967, W.H. Butler s.n. (PERTH); Brookes Soak, 22° 06' S, 132° 19' E, Aug. 1931, J.B. Cleland s.n. (AD); Curtain Springs, 25° 31' S, 131° 53' E, T.S. Henshall 112 (DNA); 2 km N of Jervois Dam Mine, 'Jervois', 22° 37' S, 136° 15' E, B.W. Strong 756 (DNA).

SOUTH AUSTRALIA: Mt Mounden, 26° 40' S, 129° 12' E, W.R. Barker 3140 (AD); Mt Finke, 30° 55' S, 134° 01' E, R. Bates 274 (AD); Mt Morris, 26° 09' S, 131° 05' E, H. Eichler 17461

(AD); 'Evelyn Downs', 28° 12' S, 134° 29' E, *E.H. Ising* 3550 (AD).

QUEENSLAND: Honeymah, 40 miles (64 km) SE of Bollon, 28° 01' S, 148° 00' E, *S.L. Everist* 3462 (BRI); Site S169, Warlus VI, 22° 02' S, 142° 02' E, *R.W. Purdie* 1557 (BRI); Ambathala Range, 50 km E of Adavale, 26° --' S, 145° --' E, Sept. 1980, *C. Sandercoe* s.n. (BRI).

WESTERN AUSTRALIA: Mt Nameless, 22° 43' S, 117° 45' E, *K.J. Atkins* HI-770 (PERTH); Gill Pinnacle, Schwerin Mural Crescent, Rawlinson Range, 24° 53' S, 128° 37' E, *A.A. Burbidge* 51/77 (PERTH); Binthabooka Creek, 'Mooka', 24° 58' S, 114° 49' E, *H. Demarz* 235 (KP, PERTH); 16 km E of Cocklebidy, 32° 00' S, 126° 17' E, *G.J. Keighery* 7550 (PERTH).

*Distribution.* The Ashburton, Austin, Carnarvon, Carnegie, Coolgardie, Fortescue, Giles and Helms Districts of the Eremaean Botanical Province of Western Australia, the North-western, Lake Eyre Basin and Gairdner-Torrens Basin Regions of South Australia, the Central North and Central South Botanical Provinces of the Northern Territory and the Bourke, Warrego and Maranoa Pastoral Districts of Queensland (Figure 3).

*Habitat.* Open shrubland or woodland in sandy or silty lithosols on a variety of substrates (including chert, granite, grainstone, gypsum, haematite and sandstone) in crevices on rocky hilltops, scree slopes, gorges or creek beds.

*Flowering period.* Principally June to September, but sporadically throughout the year.

*Typification.* The J. McDouall Stuart specimen at K is from "Mr McDougal [sic] Stuart's journey of 1859" and is annotated by Mueller with an unpublished manuscript name, not *Aster stuartii*; it is therefore considered to be an isotype rather than a syntype of *Aster stuartii*. Mueller (1865 loc. cit.) notes that Stuart collected this species NW of Lake Gairdner, but this locality is not noted on either specimen.

Giles (1889) records visiting Mt Olga and collecting plant specimens in that vicinity in September 1873, during the second of his expeditions. Doubtless, these specimens included the type of *Aster megalodontus*.

*Etymology.* The specific epithet honours the collector of the type of this taxon, the explorer John McDouall Stuart (1815-1866) who made five epic journeys into Central Australia (Stuart 1864).

*Olearia xerophila* (F. Muell.) F. Muell. ex Benth., Fl. Austral. 3: 486-7 (1867); F.M. Bailey, Syn. Queensl. Fl. 243 (1883); F.M. Bailey, Catal. Indig. & Nat. Pl. Queensl. 23 (1890); F.M. Bailey, Queensl. Fl. 3: 808 (1900); F.M. Bailey, Compreh. Catal. Queensl. Pl. 262 (1913). — *Aster xerophilus* (F. Muell.) F. Muell., Fragm. 5: 76 (1865); F. Mueller., Syst. Census Austral. Pl. 1: 78 (1882); F. Mueller, Second Syst. Census Austral. Pl. 1: 132 (1889). — *Eurybia xerophila* F. Muell., Fragm. 1: 51 (1858). *Type citation*: "In collibus sterilioribus ad fluvium Burdekin." *Types*: Barren ridges, Upper Burdekin [River], Queensland, *F. Mueller* s.n. (syn: K, MEL1547173).

*Aster heynei* F. Muell., Fragm. 5: 86 (1865). *Type citation*: "Ad flumen Cape's River. Bowman." *Types*: Cape River, 20° 20' E, 145° 00' S, Queensland, s. dat., [*E.M. Bowman*] 221 & 246 (syn: MEL1547108); Cape River, 20° 20' E, 145° 00' S, Queensland, s. dat., [*E.M.*] *Bowman* s.n. (syn: K).

*Erect subshrub* to 1 m high. *Stems* yellowish brown, sometimes reddish when young, with a grey reticulum when older. *Vestiture* of stems, leaves and outer involucre bracts densely hirsute with long, filiform, eglandular hairs, conic, biseriate, capitate, glandular hairs and minute, biseriate, capitate glandular hairs. *Leaves* alternate, spreading, distinctly petiolate; petiole 5-18 mm long, winged; lamina elliptic to broadly elliptic, rarely narrowly elliptic, 25-65 x 7-22 mm long, concolorous, grey-green; venation distinct, reticulate with prominent mid-rib; base very narrowly cuneate; margin irregularly serrate or double-serrate; apex acute to obtuse. *Heads* in loose, terminal corymbs,

pedunculate, radiate, 20-30 mm in diameter; disc 10-12 mm in diameter. *Peduncle* to 70 mm long, with several filiform, leaf-like bracts merging into those of the involucre. *Involucre* broadly turbinate or hemispheric; bracts 5-seriate, 0.3-1.2 x 3.0-6.2 mm. *Outer involucre bracts* narrowly triangular, slightly carinate; stereome green; margin entire or slightly fimbriate; apex acuminate. *Inner involucre bracts* narrowly linear, flat; stereome pale green, bearing scattered eglandular and glandular hairs apically; margin fimbriate; apex acuminate. *Receptacle* very slightly convex. *Ray florets* 20-50, violet, blue or mauve, female, uniseriate, 10.3-16.0 mm long; tube with scattered, biseriate, eglandular hairs; ligule narrowly elliptic or linear, 7.5-12.0 x 1.5-2.0 mm, glabrous, acute and minutely 3-lobed; stylar arms filiform, 1.3-1.9 mm long. *Disc florets* 25-52, bisexual, narrowly infundibular, 4.5-6.8 mm long, 5-lobed, bearing a few scattered biseriate, eglandular hairs; lobes triangular, 0.6-0.8 mm long; anthers 2.3-3.1 mm long, shortly acute and shorter than the filament collar basally, with narrowly triangular, acute terminal appendages; filament collar 0.4-0.6 mm long; stylar arms 1.3-1.8 x 0.3-0.4 mm, with narrowly elliptic apical appendages bearing long, botuliform papillae above the stigmatic lines. *Achene* obovoid, flattened, 2.0-2.2 x 0.8-0.9 mm; light to dark brown, sericeous with duplex hairs; base acute with prominent central or oblique carpopodium; apex truncate. *Pappus* of 20-30 uniseriate, minutely barbellate bristles 2/3 to more or less equalling the length to the disc florets and several much shorter ones.

*Other specimens examined.* QUEENSLAND: Carnarvon Creek, 25° 00' S, 148° 01' E, G.W. *Althofer* 95 (BRI); 35 km W of Alpha, 23° 38' S, 146° 19' E, E.R. *Anderson* 3844 (BRI); Quittand Hill [obscure locality], *Anonymous* 102 (MEL1547184 pro pte); Gilbert River, s. dat., *Bayles*, 495 (MEL); Woolgar, 19° 04' S, 143° 01' E, Aug. 1914, E.W. *Bick* s.n. (BRI); Jericho, 23° 03' S, 146° 01' E, S.T. *Blake* 6842 (BRI); Poison Creek source, 19° 56' S, 144° 17' E, S.T. *Blake* 8550A (BRI, PERTH); SE of Surat, S.T. *Blake* 21288 (BRI n.v., K); Poison Creek, 80 miles (128 km) N of Hughenden, 19° 50' S, 144° 01' E, L.J. *Brass* 47 (BRI); Baal Gammon Mine, 17° 23' S, 145° 21' E, J. *De Campo* 1293 (BRI, MAREEBA n.v., MEL); 20 km E of Jerricho, 23° 38' S, 146° 18' E, A.D. *Chapman* 1262 (BRI, CANB); Lake Elphinstone, 21° 32' S, 148° 15' E, A. *Dietrich* 1653 (L, MEL); Carnarvon National Park, 24° --' S, 148° --' E, C.H. *Gittins* 342 (BRI); Carnarvon Gorge, 25° --' S, 148° --' E, D.M. *Gordon* 78 (BRI); Devils Sign Post, Carnarvon Ranges, 25° 01' S, 148° 04' E, June 1962, F.D. *Hockings* s.n. (BRI); E of Tambo (24° 53' S, 146° 15' E), W.T. *Jones* 3717 (CANB); Birra, SW of Springsure (24° 07' S, 148° 05' E), Feb. 1961, A. *McLaughlin* s.n. (BRI); range between the [illegible] R[iver] and Burdekin River, s. dat., F. *Mueller* s.n. (MEL1547184 pro pte); Poison Creek, 14 miles (23 km) N of 'Mt Sturgeon', 19° 05' S, 144° 01' E, R.A. *Perry* 3656 (BRI, CANB, DNA, K, L, MEL); Clermont, 22° 04' S, 147° 03' E, A.J. *Peterson* A2 (BRI); 55 km ESE of Aramac, 23° 00' S, 145° 40' E, R.G. *Silcock* 502 (BRI); S of Clarke road, Charters Towers - Lynd Junction, T. & J. *Whaite* 3607 (BRI, NSW n.v.); Enniskillen, 24° 30' S, 146° 00' E, C.T. *White* 12361 (BRI).

WESTERN AUSTRALIA: East Prong, Mt Tom Price, 22° 45' S, 117° 46' E, July 1980, K.J. *Atkins* s.n. (PERTH); Mt Bruce, 22° 36' S, 118° 09' E, J.S. *Beard* 2918 (PERTH); Wittenoom Gorge, 22° 17' S, 118° 19' E, J.V. *Blockley* 176 (CANB, KP, PERTH); Mt Farquhar, 22° 18' S, 116° 46' E, 17 miles (22.2 km) from Duck Creek Junction, J.V. *Blockley* 25 (KP, PERTH); Dales Gorge, 22° 30' S, 118° 37' E, M.I.H. *Brooker* 2196 (DNA, PERTH); Willy Willy [Creek] crossing, 18° 46' S, 127° 01' E, W.H. *Butler* 1170 (PERTH); Dales Gorge, 22° 30' S, 118° 37' E, G.W. *Dale* 4883 (BRI, NSW, NT, PERTH); 53 miles (85 km) E of Meekatharra on Wiluna road, 26° 27' S, 119° 17' E, A.R. *Fairall* 1865 (KP, PERTH); 50 miles (80 km) W of Wiluna on Meekatharra road, 26° 28' S, 119° 27' E, A.R. *Fairall* 2160 (KP, PERTH); Mt Bruce, 22° 36' S, 118° 09' E, C.A. *Gardner* 3144 (PERTH); s. loc., C.A. *Gardner* 4044 (PERTH); Dales Gorge, 22° 30' S, 118° 20' E, *McGuire* 49 (PERTH); Hamersley Range, s. dat., J.W. *Ripton*, s.n. (MEL); Henry River, Barlee Range, 23° 44' S, 116° 19' E, R.D. *Royce* 6610 (AD, K, NSW); Wittenoom Gorge, 22° 17' S, 118° 19' E, K. *Stewart* 5 (PERTH); Mt Bruce, 22° 30' S, 118° 00' E, A.S. *Weston* 8363 (K, PERTH).

*Distribution.* The Fitzgerald District of the Northern Botanical Province and the Ashburton, Austin and Fortescue Districts of the Eremaean Botanical Province of Western Australia and in the Burke, Cook, Leichhardt, Mitchell, North Kennedy and South Kennedy Pastoral Districts of Queensland (Figure 3).

The Queensland locality Quittand Hill (*Anonymous* 102) is obscure.

*Habitat.* Open shrubland or woodland in colluvial wash or sandy lithosols on rocky ridges or cliff faces.

*Flowering period.* Principally July to September, but sporadically throughout the year.

*Typification.* Since *F. Mueller* s.n. (MEL1547173) and its duplicate at K are annotated by Mueller as *Eurybia xerophila* both specimens are considered to be syntypes. A further specimen, *F. Mueller* s.n. (MEL1547184), from the Burdekin area is annotated merely "*Aster (Olearia)*" and thus is not considered to be a syntype.

The specimen MEL1547108 lacks any indication of the collector but bears collecting numbers and locality. A sheet at K bears Bowman's name and the type locality but no numbers. Both specimens are annotated by Mueller as *Aster heynei* of which they thus appear to be syntypes.

*Notes.* The curious disjunct distribution of this species in Western Australia and Queensland is worthy of note. The enormous distance barrier involved and the presence of an isolated population in the Kimberley Region suggest that this species once had a continuous distribution across northern Australia but has survived subsequent periods of aridity only in comparatively wetter refugial habitats, such as those in the Hamersley Range. It may yet be found in suitable habitats in the intervening region of the Northern Territory.

*Etymology.* The specific epithet draws attention to the dry habitats favoured by this species.

***Olearia gordonii* Lander, sp. nov. (Figure 2)**

*Oleariae xerophilae* arte affinis a qua vestimento leniter hirsuto, foliis 2-8 mm raro ad 22 mm latis linearibus vel peranguste ellipticis, flosculis ligulatis paucioribus, et acheniis longioribus differt.

*Typus:* On the very dry slopes of the "Bendee" ridges between Glenmorgan and Surat; and on the Thomby Range, Queensland, s. dat., *D.M. Gordon* 80 (holo: BRI; iso: PERTH).

*Erect shrub* to 0.6 m high, spreading. *Stems* green when young, brown when older. *Vestiture* of stems, leaves and outer involucre bracts weakly hirsute with long, filiform, eglandular hairs, conic, biseriate, capitate glandular hairs and minute, biseriate, capitate, glandular hairs. *Leaves* alternate, ascending, apparently sessile; petiole winged, merging insensibly into lamina; lamina linear to very narrowly elliptic, 10-75 x 2-8 mm, concolorous, pale green; venation reticulate with prominent midrib; base narrowly cuneate; margin serrate; apex acute. *Heads* in loose, terminal corymbs, pedunculate, radiate, 21-30 mm diameter; disc 7-10 mm diameter. *Peduncle* to 80 mm long, with several filiform, leaf-like bracts merging into those of the involucre. *Involucre* broadly turbinate or hemispheric; bracts 5-seriate, 2.5-6.5 x 0.4-0.8 mm. *Outer involucre bracts* narrowly triangular, slightly carinate; stereome green; margin broadly membranous, entire; apex acuminate. *Inner involucre bracts* narrowly linear, flat; stereome pale green, bearing scattered eglandular and glandular hairs apically; margin fimbriate; apex acuminate. *Receptacle* flat. *Ray florets* 13-33, blue, female, uniseriate, 9.8-11.5 mm long; tube with scattered, biseriate, eglandular hairs; ligule narrowly elliptic, 7.0-10.0 x 0.8-1.2 mm, glabrous, acute and minutely 3-toothed; stylar arms filiform, 1.0-1.5 mm long. *Disc florets* 22-69, bisexual, narrowly infundibular, 3.8-5.5 mm long, bearing a few scattered, biseriate, eglandular hairs; lobes 5, triangular, 0.5-0.8 mm long; anthers 1.6-1.7 mm long, shortly acute or obtuse and shorter than the filament collar basally, with narrowly ovate, acute sterile terminal appendage; filament collar 0.3-0.4 mm long; stylar arms ligulate, 1.0-1.4 x 0.2-0.3 mm long, with triangular apical appendages bearing long, botuliform papillae



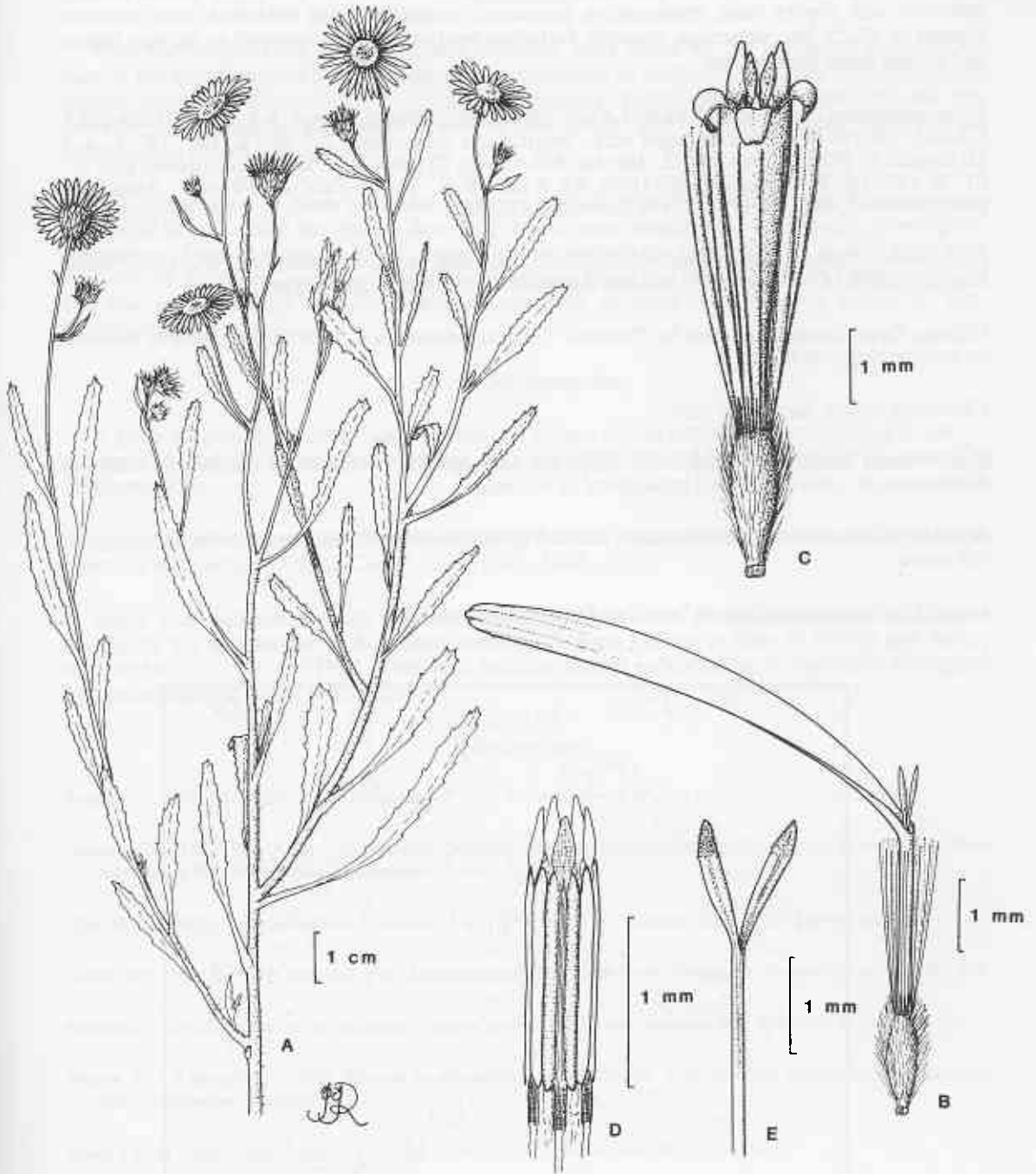


Figure 2. *Olearia gordonii*. A - Habit. B - Ray floret. C - Disc floret. D - Anthers. E - Stylar arms. Drawn from D.M. Gordon 80 (iso: PERTH).

above the stigmatic lines. *Achene* obovoid, flattened, 2.7-4.0 x 0.8-1.4 mm, light brown, densely sericeous with duplex hairs; carpodium prominent, central; margins thickened; apex truncate. *Pappus* of 20-25, free, uniseriate, minutely barbellate bristles more or less equal to the disc florets, and several much shorter ones.

*Other specimens examined.* QUEENSLAND: SE of Surat, Thomby Range, *S.T. Blake* 21288 (BRI, CANB); 20 km W of Glenmorgan near 'Murilla' on Surat road, 27° 01' S, 149° 02' E, *T.J. McDonald* 57 (BRI); Camp 29, *T.L. Mitchell* 504 (CGE); 12 miles (19.3 km) W of Glenmorgan, 27° 01' S, 149° 03' E, *L. Pedley* 1203 (BRI, K); 8 km SE of 'Yo Yo Park' on Morven - Augathella road, 26° 04' S, 146° 49' E, *R.W. Purdie* 762D (AD, BRI).

*Distribution.* Endemic to southern Queensland, occurring in the Maranoa and Warrego Pastoral Districts, south of 26° S latitude, between Augathella and Glenmorgan (Figure 3).

*Habitat.* Open forest dominated by "Bendee" (*Acacia catenulata* C.T. White) in shallow lithosols on lateritic ridges or hillsides.

*Flowering period.* January to July.

*Conservation status.* Although little collected, this species occurs in a habitat of extensive distribution; it is not considered endangered or vulnerable.

*Etymology.* The specific epithet honours David Morrice Gordon (1899-), the collector of the type of this taxon.

*Notes.* This taxon is the *Olearia* "sp. 1" of Stanley & Ross (1986).

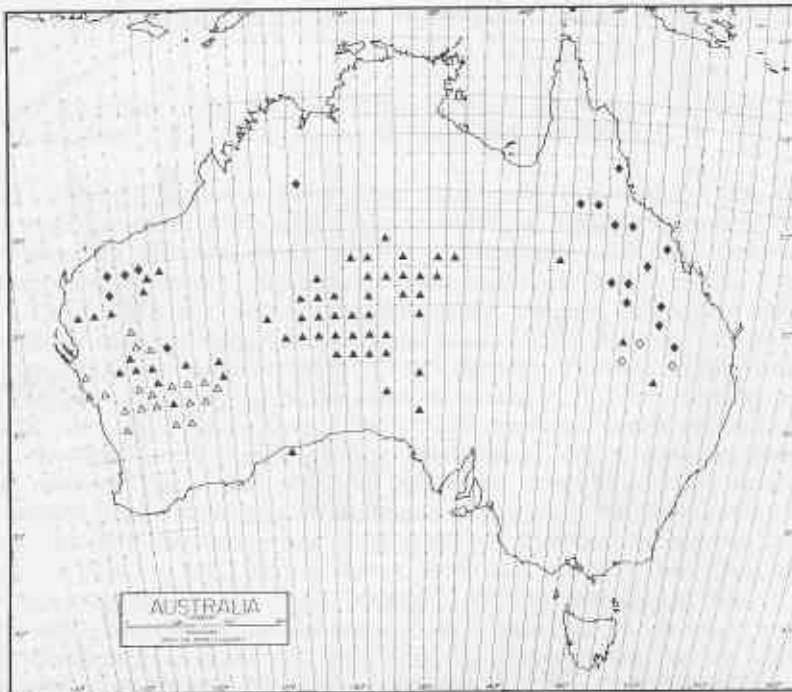


Figure 3. Distribution of *Olearia humilis* (Δ), *O. stuartii* (▲), *O. xerophila* (◆), *O. gordonii* (◈) indicating occurrence in 1° x 1° squares.

## Discussion

With the exception of the multiseriate glandular hairs found on the involucre bracts of *O. stuartii*, the species treated here share the same complement of trichome types. The vestiture of each species comprises a characteristic admixture and frequency of these various trichome types and thus provides an invaluable diagnostic feature to the extent that the species can generally be distinguished on this basis alone.

The combination of these particular trichome types is typical of *Olearia* sect. *Merismotriche* Archer ex Benth. where the species described in this paper would seem best placed, pending the completion of my own studeis in the genus. This necessitates the removal of *O. stuartii* from sect. *Adenotriche* Archer ex Benth. anticipated by Bentham (1867) and first adopted by Gardner (1931). The four species appear to form a natural group with no other close relatives within the sect. *Merismotriche*.

## Acknowledgements

It gives me great pleasure to thank Mr Paul G. Wilson for his constructive criticism of a draft of this paper, Mr M.I.H. Brooker for providing the Latin diagnoses and Mr J.J. Rainbird for providing the illustrations.

I am also grateful to the heads of the following herbaria for the loan of material examined in the course of this study: AD, BRI, CANB, CGE, DNA, MEL, NSW.

Much vital background work towards my ongoing revision of Australian *Olearia* was carried out during my assignment as Australian Botanical Liaison Officer at Kew in 1984/5 and during visits to MEL in 1986 and 1987. This work has been further supported by an Australian Biological Resources Study Grant in 1988 and 1989.

## References

- Bentham, G. (1867 [as 1866]). "Flora Australiensis." Vol. 3. (Lovell Reeve & Co.: London.)
- Gardner, C.A. (1931 [as 1930]). "Enumeratio Plantarum Australiae Occidentalis. A Systematic Census of the Plants occurring in Western Australia." (Government Printer: Perth).
- Giles, W.E.P. (1889). "Australia Twice Traversed." Vol. 1. (Sampson Low, Marston, Searle & Rivington: London.)
- Lander, N.S. (1985 [as 1984]). Revision of the Australian genus *Lawrencia* Hook. (Malvaceae: Malveae). *Nuytsia* 5: 201-271.
- Ramayya, N. (1962). Studies on the trichomes of some Compositae I. General structure. *Bull. Bot. Surv. India* 4: 177-188.
- Stanley, T.D. & Ross, E.M. (1986). "Flora of South-eastern Queensland." Vol. 2, pp. 519-520. (Queensland Department of Primary Industries: Brisbane).
- Stuart, J.McD. (1864). "Exploration in Australia - 1856-1862." (Saunders, Otley & Co.: London.)
- Turner, B.L. (1970). Chromosome numbers in the Compositae. XII. Australian species. *Amer. J. Bot.* 57: 382-389.