

Miscellaneous Notes on Australian Plants. 3.
Craspedia, *Gnaphalium*, *Epacris*, *Tasmannia*,
Colobanthus and *Deyeuxia*

M. Gray

Herbarium Australiense, CSIRO, P.O. Box 1600, Canberra City, A.C.T. 2601.

Abstract

Gray, M. Miscellaneous notes on Australian plants. 3. *Craspedia*, *Gnaphalium*, *Epacris*, *Tasmannia*, *Colobanthus* and *Deyeuxia*. *Contrib. Herb. Aust.* 26: 1–11, 1976. *Gnaphalium fordianum*, *Colobanthus nivicola* and *Deyeuxia affinis* are described as new, and the new combination *Tasmannia xerophila* is made. *Epacris heteronema* var. *glacialis* F. Muell. is raised to specific rank, and lectotypes are chosen for the following: *Craspedia leucantha* F. Muell., *Epacris heteronema* var. *glacialis* F. Muell. and *Colobanthus pulvinatus* F. Muell.

COMPOSITAE

CRASPEDIA Forst. f.

Craspedia leucantha F. Muell., Hook. J. Bot. Kew Gard. Misc. 7: 236. 1855.

Lectotype: Springs of the Mungyang Mountains, Dr Ferd. Mueller (MEL 64337).

In a letter to Sir William Hooker written from Buchan River and dated 22 January 1855 (*op. cit.*), Mueller described his journey to the Mt Kosciusko area, and referred to his discovery of many new and interesting alpine plants, among which was ‘... a smooth *Craspedia* (*C. leucantha*) with white flowers and sphacelate scales’. This very brief diagnosis, in my opinion, adequately characterizes a distinctive white-flowered species of *Craspedia* with bright green, almost glabrous, leaves, found in the Kosciusko area; the only other white-flowered *Craspedia* known to me from the area is a small undescribed species with ± silvery-pannose leaves, which Mueller referred to on herbarium labels as ‘*Craspedia richea* Cass. var. *pygmaea*’.

In the National Herbarium, Melbourne, there is a suite of five specimens, variously labelled in Mueller’s handwriting under the names *Craspedia richea* Cass. var. *leucantha* F. Muell., and *Craspedia leucantha* F. Muell. The three specimens under the varietal name are dated January (18) 55, whereas the two specimens specifically named *C. leucantha* are undated; however, I have little doubt that all of the specimens were collected at about the same time. I have therefore chosen as lectotype the best of the five specimens, and one of the two specifically identified as *Craspedia leucantha* by Mueller, namely, MEL 64337.

Loosely tufted perennial herb ±10–50 cm high from a short branched ascending rootstock; flowering stems glabrous or with microscopic glandular – septate hairs

proximally, loosely cottony above, usually with dried brown remains of old leaves at the base; basal leaves green, narrowly oblanceolate to narrowly obovate-spathulate, acute or obtuse with a small blunt callous tip, the blade $\pm 1-12 \times 0.3-2.5$ cm, gradually narrowed to a petiole shorter or longer than the blade, appearing glabrous but with variable microscopic glandular-septate hairs and sometimes with inconspicuous cottony hairs on the margins; cauline leaves similar to the basal but becoming smaller in size and sessile up the stem to grade into stem-clasping bracts; compound head $\pm 1-2.5$ cm diameter at maturity; bracts of the general involucre broadly ovate with very broad brown to blackish scarious margins, the stereome \pm woolly towards the base; capitula 5-8-flowered; corolla whitish; achenes narrowly turbinate, $3-3.5 \times \pm 1.2$ mm, densely antrorsely hairy; pappus bristles plumose, $\pm 4-5$ mm long.

Distribution

Alpine tract of the Kosciusko area, N.S.W.

NEW SOUTH WALES (Mt Kosciusko area): above Lake Albina, white-flowered, *E. Dahl*, 22.ii.1970 (GAUBA); eastern slope of Mt Clarke, edge of *Plantago* snow bed, *D. N. McVean*, 28.i.1965 (CANB); Munyang Mountains, snowy plains around Mt Kosciusko (Coskiusko), 6000 ft, corollae albae!, *F. Mueller*, i.(18)55 (MEL 64336); in locis fontanis frigidissimis montium Munyang Mountains, 5-6000 ft elevationi, corolla alba, *F. Mueller*, i.(18)55 (MEL 64338); in locis udis uliginosis ad fontis per montis Munyang Mountains, altitudin 5-6000 ft, capitula hemisphaerica, folia glabra saturati viridia, nitidula, *F. Mueller*, i.(18)55 (MEL 64339); springs of the Munyang Mountains, *F. Mueller* (MEL 64340); below Etheridge, tall alpine herbfield, *M. Parris*, 25.iii.1972 (knph*); c. 2/3 of the way down from the summit of Mt Clarke, $36^{\circ}26'S$., $148^{\circ}17'E$., flower-heads white, leaves bright shining green, in a colony with a yellow-flowered *Craspedia* with which it does not intergrade, growing with *Richea continentis* and *Ranunculus anemoneus*, only seen on Mt Clarke according to *D. Wimbush*, c. 6500 ft altitude, *M. D. Tindale 4058* and *D. Wimbush*, 19.i.1975 (NSW, CANB); below Mueller's Peak-Mt Northcote saddle, creek bank from Mt Northcote to small feldmark on moraine, steep grassland on creek bank, *C. Totterdell 63*, 15.ii.1970 (CANB); small gully on southern slope of Mt Northcote, 'Railway Moraine', *Poa-Celmisia*, steep slope of creek bank, *C. Totterdell 134*, 22.ii.1970 (CANB, NSW, MEL, CHR); head of Carruther's Ck, west bank of creek below Soil Conservation hut beyond large snow drift towards track crossing, sod tussock grassland on creek bank, some rocks, *C. Totterdell 306*, 17.iii.1972 (CANB, MEL); southern slope of Mt Clarke, *D. J. Wimbush (Kos) 20*, 15.i.1961 (knph); Etheridge, on sides of wet areas below snow drift, with *Brachycome nivalis* and adjoining short alpine herbfield communities, *D. J. Wimbush*, 30.i.1973 (CANB).

This species is remarkably variable in size, having the capacity to flower in a quite dwarfed state. The smallest specimen I have seen is about 7 cm high with the mature heads about 1 cm in diameter, with specimens showing all gradations to quite robust plants to 50 cm or more high with heads 2.5 cm in diameter. It is found on the margins of wet flushes, springs and small creeks below semi-permanent snow patches and snow drifts.

GNAPHALIUM L.

G. fordianum M. Gray, sp. nov.

Species nova *G. argentifolio* N. Wakef. affinis sed habitu magis robusto et omnibus partibus majoribus, involucre $\pm 7-8$ mm longo, phyllariis interioribus $\pm 6-7$ mm longis, acheniis 1.2-1.4 mm longis, et pappo 5-5.5 mm longo.

* This abbreviation is used throughout the paper to refer to the Kosciusko National Park Herbarium, Waste Point via Cooma, N.S.W., which is not listed in Index Herbariorum.

Holotypus: Seaman's Hut to Rawson's Pass, Kosciusko area, N.S.W., *M. Gray* 6130 and *C. Totterdell*, 8.ii.1968 (CANB; Isotypes: NSW, CHR).

Perennial herb, loosely tufted or more frequently creeping and rooting at the base and forming leafy patches up to 15 cm or more in diameter; flowering stems lanuginose, leafy, erect or ascending, ± 3 –15 cm high, often elongating and becoming rather weak at maturity, with dried brown remains of old leaves at the base; leaves narrowly oblanceolate to obovate-spathulate, the blade ± 1.5 –3 \times 0.5–1 cm, silvery-pannose, the midrib conspicuous on the underside, the apex with a glabrous, often curved, mucronulate tip; petiole shorter than the blade, slightly expanded and glabrescent towards the base; capitula ± 5 –15, ovoid-cylindrical, at first congested in a terminal bracteate cluster, the branches and peduncles usually elongating at maturity to form a \pm open paniculate inflorescence; involucre ± 7 –8 mm long, woolly at the base; phyllaries shining, the outer ovate with woolly hairs on the short stereome at the base, the inner glabrous, narrowly elliptic to narrowly oblanceolate, obtuse or subacute, 6–7 mm long, the lamina stramineous at maturity, \pm tinged with red around the apex of the greenish stereome; hermaphrodite florets ± 3 –13 with ± 35 –36 female florets per capitulum; achenes 1.2–1.4 \times 0.3–0.4 mm, slightly flattened, densely micro-papillate; pappus bristles 5–5.5 mm long, connate in a ring and ciliate at the base. (Fig. 1.)

Distribution

Alpine and subalpine tracts of the Kosciusko area, N.S.W., as far north as Mt Jagungal, the Bogong High Plains and Lake Mountain in Victoria, and Pine Lake, Central Plateau, Tasmania.

NEW SOUTH WALES: Mt Jagungal, 14.5 miles ENE. of Khancoban, tufted herb, hairy grey leaves, in exposed areas near summit, in association with *Ewartia* sp., *Podocarpus lawrencei*, *Acaena anserinifolia*, *Stellaria pungens*, etc., altitude 2029 m, *J. Pickard and R. Coveny* 2808, 14.iii.1970 (NSW, MEL). (Mt Kosciusko area): Perisher, *C. E. Chadwick*, ii.1948 (NSW); Mt Kosciusko, *J. Kretschmann*, xii.1893 (NSW); Mt Kosciusko area, *D. N. McVean*, ii.1967 (CANB); summit of the Mungyang Mountains, on springs, 5–6000 ft, *Mueller* (MEL 49313); Kosciusko, *C. Skottsberg*, 9.iii.1949 (NSW); extreme SE. end of Perisher Valley, 5700 ft altitude, in meadow, *J. Thompson* 305, 19.i.1970 (NSW); Snowy R. between Guthega Dam and Spencers Ck, 1680 m altitude, on flat above river in grassland, *J. Thompson* 1016, 29.i.1971 (NSW); upper Snowy R. below road bridge, altitude 1920 m, in bare patch in grassland, *J. Thompson* 1428, 22.i.1972 (NSW); Spencers Ck, altitude 1765 m, between tussocks of *Poa* on hillside, *J. Thompson* 1679, 21.i.1973 (NSW); Snowy R. above Guthega Dam, altitude 1620 m, among rocks of river bank, *J. Thompson* 1747, 26.i.1973 (NSW); Guthega R., altitude 1600 m, in sphagnum on steep bank, *J. Thompson* 2017, 30.i.1974 (NSW); slope below Seaman's Hut, shrub heath near pole track, *C. Totterdell* 64, 15.ii.1970 (CANB); Lake Albina, south bank of lake, on creek bank, humus soil above sandy beach, *C. Totterdell* 232, 7.iv.1971 (CANB); Etheridge spur towards Mt Northcote, tall alpine herbfield, *C. Totterdell* 289 and *A. B. Costin*, 25.ii.1972 (CANB); 18 chains E. of Gungartan Trig, growing in broken *Poa* tussock and *Rumex*, *D. J. Wimbush*, 23.ii.1962 (CANB, knph).

VICTORIA (Bogong High Plains area): Watchbed Creek above Rocky Valley Dam, Fall's Ck area, wet flat along stream above timber, altitude 5500 ft, *K. I. Beamish* 1429, 15.i.1972 (CANB); Strawberry Saddle, Snow gum woodland, leaves silvery, involucre glossy pale green with a brownish tinge, *L. A. Craven* 1831, 25.i.1970 (CANB); above Rocky Valley (c. 10 miles S. of Bogong), various patches in contour trenches in swamp, c. 5000 ft altitude, this and 'A' (of same date) grew in separate 'wallow holes' or 'contour trenches' in this swamp and did not appear to mingle in this area, *N. C. Ford*, 14.i.1959 (NSW); SW. of Wilkinson Memorial Hut, altitude c. 1710 m, in colony on gently sloping ground, rocky open position, *T. B. Muir* 659,

18.i.1959 (MEL); near Wallace's Hut, altitude 1650 m, forming mat in open position near creek, *T. B. Muir 670*, 19.i.1959 (MEL, NSW). Echo Flat, Lake Mountain, 37°28'S., 145°53'E., altitude c 1500 m, alpine bog in frost hollow, *N. S. Lander 250*, 8.iv.1973 (NSW).

TASMANIA: Pine Lake, Central Plateau, *J. Somerville*, 9.i.1960 (HO).



Fig. 1. *Gnaphalium fordianum*.

Wakefield (1957) pointed out that some variation existed in his concept of *G. argentifolium* as follows: '... the Bogong material is taller (up to 13 cm high), the involucre bracts longer (to 6 mm), and the achenes sometimes a little pubescent'. Examination of a range of material from the Kosciusko area, N.S.W., Victoria and

Tasmania, has shown that this larger form mentioned by Wakefield is specifically distinct from *G. argentifolium*. I am very pleased to have the opportunity of naming it in honour of Miss Neridah C. Ford, formerly of the N.S.W. National Herbarium, whose annotations and sorting of the specimens in that herbarium indicate that she was the first to recognize the distinctiveness of this taxon.

Through the courtesy of Dr D. M. Churchill, Director and Government Botanist, National Herbarium, Melbourne, I have been able to examine the lectotype of *G. argentifolium*, i.e. MEL 49311. The latter species is consistently smaller in all its parts than *G. fordianum* and the two species may be distinguished by the following key:

- 1a. Involucre $\pm 5-6$ mm long, the inner phyllaries 4–5 mm long; achenes 0.8–1.1 mm long; pappus bristles 3–4 mm long *G. argentifolium*
 1b. Involucre $\pm 7-8$ mm long, the inner phyllaries 6–7 mm long; achenes 1.2–1.4 mm long; pappus bristles 5–5.5 mm long *G. fordianum*

The achenes of both species are densely micropapillate, as reported by Drury (1972) for species in his Group IV. In addition, the achenes of *G. argentifolium* have sparse microscopic antrorsely appressed finger-like hairs, these latter being apparently absent from the achenes of *G. fordianum*.

G. fordianum is usually found on slopes near rivers and creeks, often colonizing bare patches in tall alpine herbfield and sod-tussock grassland.

EPACRIDACEAE

EPACRIS Cav.

Epacris glacialis (F. Muell.) M. Gray, stat. et comb. nov.

Epacris heteronema var. *glacialis* F. Muell., Fragm. 6: 71. 1867, *basionym*.

There are three specimens in the National Herbarium, Melbourne, which bear the name '*Epacris heteronema* Labill. var. *glacialis*' in Mueller's handwriting, namely, MEL 64342, 64343 and 64347. Of these, the first is sterile and can be excluded from consideration for selection of a lectotype, as Mueller referred to flowers in his diagnosis. In the absence of anything to specifically link either of the other two specimens to the diagnosis, I have chosen the latter as lectotype because it is the best specimen.

Lectotype of *Epacris heteronema* var. *glacialis* F. Muell., Fragm. 6: 71. 1867: Mungyang Mountains, locis turfosis, 6000 ft, *Ferd. Mueller*, Jan. (18)55 (MEL 64347).

The above information, in Mueller's handwriting, is derived from two small pieces of paper pasted on the sheet. In addition, there is the official label of the Botanical Museum of Melbourne with the following data, also in Mueller's hand: '*Epacris petrophila* J. Hook., Mungyang Mountains'. This latter label has the pencilled initial 'B' on the inturned top left hand corner, and the determination: '*Epacris* sp. [aff. *E. serpyllifolia* R. Br.]' by J. H. Willis, 20.xii.1967.

Prostrate to decumbent shrub $\pm 5-30$ cm high, with wiry stems freely rooting towards the base; branchlets obscurely puberulent, soon glabrescent; leaves coriaceous, subsessile or very shortly petiolate, $\pm 2-3.5 \times 1.5-2.5$ mm, rhomboid to obovate-rhomboid or broadly so, obtuse, flat or slightly concave above, keeled distally on the underside, the keel \pm thickened at the slightly upturned apex, the margins

scaberulous in the upper half and sometimes also proximally; flowers solitary and sessile in the upper axils, forming small clusters at the ends of the branchlets; bracts reddish-brown, fimbriolate, the lower broadly ovate, the upper ovate-elliptic, obtuse; sepals $\pm 3.5\text{--}4.5 \times 1.5\text{--}2$ mm, ovate-elliptic to elliptic, obtuse, fimbriolate, tinged with reddish-brown distally; corolla white, ± 1 cm diameter, thickened in the throat, the tube $\pm 3\text{--}4$ mm long, shorter than or subequal to the calyx, the lobes $\pm 3\text{--}4 \times 2\text{--}2.5$ mm, broadly ovate, the margins \pm incurved towards the obtuse or rounded apex; anthers 1-1.5 mm long, shortly exerted on filaments 1-1.5 mm long; pollen grains papillate; style $\pm 1\text{--}1.5$ mm long, extending about halfway up the corolla tube; ovary ± 0.9 mm long, subtended by five small truncate scales ± 0.3 mm long. (Fig. 2.)

Distribution

Alpine and subalpine tracts of the Kosciusko area of N.S.W. and the Bogong High Plains area of Victoria.

NEW SOUTH WALES (Mt Kosciusko area): Mt Kosciusko, Finley (MEL 64348); Rock Creek between Perisher Gap and Pipers Gap, altitude 5650 ft, low plant on grassy creek bank, leaves purplish-red, *J. Garden*, 16.iv.1953 (NSW); The Paralyser, towards the Paralyser-Perisher saddle, 6200 ft in swamp. *J. Garden*, 10.i.1956 (NSW); near Lake Cootapatamba, at base of small rocks and scrambling over rock surface, *M. Gray* 5706, 15.iii.1965 (CANB); Kangaroo Range, prostrate ascending shrub, stigma included, stamens exerted, above treeline, *M. Gray* 6094 and *C. Totterdell*, 10.i.1968 (CANB, HO); Mt Kosciusko-Lake Albina track, scrambling over rocks, *M. Gray* 6102 and *C. Totterdell*, 16.i.1968 (CANB); Kangaroo Range, between Snowy River and summit road below Kangaroo range, wet stream bank with *Epacris microphylla*, photo voucher, *M. Gray* 6346 and *C. Totterdell*, 19.ii.1969 (CANB); Snowy River bridge to Seaman's Hut, margin of *Oreobolus pumilio* depression in fen area over road from heliport, photo voucher, *M. Gray* 6543 and *C. Totterdell*, 27.i.1972 (CANB); Snowy R. bridge to Seaman's Hut, wet rocks on margin of short alpine herbfield, prostrate over rocks, *M. Gray* 6698 and *C. Totterdell*, 19.i.1973 (CANB); Mt Kosciusko 7328 ft, *T. Harris*, i.1930 (separated from specimen of *E. microphylla*) (NSW); Mt Kosciusko, 6-7000 ft, *R. Helms* 47, ii.1901 (NSW); Rawson Pass, altitude 7000 ft, flowers white, low-growing, common at high altitudes, granite, *L. A. S. Johnson* and *E. F. Constable*, 24.i.1951 (NSW 15588); Blue Lake, *Richea-Baeckea* association, *D. N. McVean* 6601, xii.1966 (CANB); Merritt's Ck, in *Epacris-Kunzea* heath, *D. N. McVean*, xii.1966 (CANB 256808); Mt Kosciusko area, *Sphagnum-Richea* bog, *D. N. McVean*, xii.1966 (CANB, 256807); Mt Clarke, from *Oreobolus pumilio* association, *D. N. McVean* 670, 25.i.1967 (CANB); Mt Clarke, eastern slopes, in short wet grass turf by creek, *D. N. McVean*, 28.i.1967 (CANB 256806); Mt Kosciusko, tree line to 7000 ft, *J. H. Maiden* and *W. Forsyth*, i.1899 (part separated) (NSW); Munyang Mountains, 5-6000 ft, *F. Mueller*, i.1874 (mixed collection with *Epacris microphylla* R. Br.) (MEL 64349); Mt Kosciusko, alpine herbfield, altitude 6500 ft, *M. Mueller* 1143 and 1143a, 30.i.1953 (knph); Blue Lake track, alpine herbfield, altitude 6800 ft, *M. Mueller* 1144, i.1953 (knph); Mt Kosciusko, *C. Skottsberg* and *A. B. Costin*, 10.iii.1949 (NSW); Rawson Pass to Lake Cootapatamba, watercourse area, *C. Totterdell* 211, 14.iii.1971 (CANB); Etheridge Range, eastern slope, short alpine herbfield, prostrate shrub on grassy knolls near extensive snowpatch melt, *C. Totterdell* 260, 14.xii.1971 (CANB); north-east slopes of Mt Carruthers, rocky outcrop near *Drapetes tasmanicus*, not far from Soil Conservation hut, *C. Totterdell* 399, 19.xii.1973 (CANB); The Chalet at Charlotte's Pass, c. 6300 ft, at edge of a rill, growing with *Epacris trophila* and *Seseli algens*, *J. H. Willis*, 4.ii.1946 (MEL 64350).

VICTORIA (Bogong High Plains area): Pretty Valley, altitude 5500 ft, prostrate shrub 4-6 in. high, corolla white, *Helen I. Aston* 179, 27.xii.1958 (MEL); near Cope Hut, bog in gully, very low spreading shrub, leaves dull mid-green above, paler below, flowers white with purple anthers, *L. A. Craven* 1912 and *K. L. Gunn*, 21.xii.1970 (CANB); Bogong High Plains, *T. Henshall*, SYD 267/10, 4.i.1967 (NSW); Bogong Range at the elevation of 6000 ft, (*F. Mueller*?) (MEL 64341); Mitta Mitta, along rivulets of the Bogong Range, *F. Mueller* (MEL 64342); sources of the Mitta Mitta, 6000 ft, *F. Mueller* (MEL 64343); Rocky Knobs at head of Rocky Valley, gravelly soakages and along banks of miniature streams above the State Electricity Commission soil conservation sample plot, c. 5500 ft, *J. H. Willis*, 11.i.1947 (MEL 64344).

Epacris glacialis has been confused with *E. serpyllifolia* R.Br. in the Australian literature, although Mrs J. Thompson had sorted the collections in the N.S.W. National Herbarium and firmly indicated for many years her belief that this taxon represented a species distinct from the latter.



Fig. 2. *Epacris glacialis*.

It is readily distinguished from *E. serpyllifolia* by the obtuse, differently shaped leaves, the blunt, differently coloured bracts and sepals, the exserted anthers, and particularly in the papillate pollen grains, those of *E. serpyllifolia* being smooth. The warted pollen grains recorded for '*Epacris serpyllifolia*' by Matthews (1965) were presumably from specimens of *E. glacialis*.

In the Kosciusko area of N.S.W., *E. glacialis* is very common in wet sites, often forming extensive communities, e.g. on the margins of bogs and fens, along the banks of creeks, and in wet stony areas in short alpine herbfield and sod tussock grassland.

WINTERACEAE

TASMANNIA R. Br. ex DC.

T. xerophila (Parment.) M. Gray, comb. nov.

Drimys xerophila Parment., Bull. Sc. Fr. et Belg. 27: 225, 229. 1896, *basionym*.

Ehrendorfer *et al.* (1968) demonstrated the desirability of separating *Drimys* sect. *Tasmannia* (R. Br.) F. Muell. from the neotropic *Drimys* s.str., and according it 'at least' generic rank.

Smith (1969), in making the necessary combinations in *Tasmannia*, did not refer to the paper by Willis (1957), who had seen Parmentier's type of *Drimys xerophila* and correlated it with the dipetalous plant which is common in the montane to alpine tracts of the Australian Alps and associated ranges as far north as the A.C.T.

The synonymy of the above species [to which may be added: *Tasmannia vickeriana* (A. C. Sm.) A. C. Sm., Taxon 18: 287. 1969], is given in Willis (1957) and in Vink (1970), the latter under *D. piperita* Hook. f. entity 39. 'xerophila'.

CARYOPHYLLACEAE

COLOBANTHUS Bartl.

C. pulvinatus F. Muell., Trans. Phil. Soc. Vict. 1: 101. 1855.

Lectotype: Highest summits of the Mynyang Mountains, 6000–6500 ft (MEL 64319).

The above specimen, designated 'Type' in the National Herbarium of Victoria (MEL), is the best of a suite of four undated specimens collected by Mueller on his trip to Mt Kosciusko in December 1854–January 1855. The selection of the above lectotype is necessary to enable publication of the following new species, also from the Kosciusko alpine tract.

C. nivicola M. Gray, sp. nov.

Species nova *C. pulvinato* F. Muell. affinis sed foliis minus rigidis, suberectis, angustioribus, margine et costa abaxialiter non vel vix incrassata, apice aciculari plerumque brevioribus, 0.4–0.7 mm longo, et seminibus parvioribus, $\pm 0.5\text{--}0.6 \times 0.3\text{--}0.5$ mm.

Holotypus: Twynam–Carruthers saddle, Mt Kosciusko area, N.S.W., north-west slope of Carruther's Creek, near Soil Conservation hut, large snowpatch area with *Coprosma-Colobanthus* fieldmark, *C. Totterdell* 367, 15.ii.1973 (CANB).

Compact glabrous cushion plant about 2–10(–15) cm diameter; leaves closely imbricate, suberect, the blade narrowly subulate, $\pm 2.5\text{--}5 \times 0.5\text{--}0.8$ mm, excluding the 0.4–0.7 mm acicular tip; flowers solitary, terminal, subsessile, the peduncles elongating to about 1 cm in fruit; sepals 5 (occasionally 4 or 6), ovate-triangular,

acute, 1.5–3 × 0.8–1.3 mm in the fruiting stage, subequal to or shortly overtopping the opened capsule; petals 0; stamens 5, alternate with the sepals, the filaments ±1 mm long; anthers 0.3–0.4 mm long; styles 5; capsule ovoid, ±2 × 1.5 mm, 5- (occasionally 4- or 6-) valved; seeds red-brown, shining, ±0.5–0.6 × 0.3–0.5 mm.

Distribution

Endemic to the alpine tract of the Mt Kosciusko area, N.S.W.

NEW SOUTH WALES (Mt Kosciusko area): Mt Kosciusko summit, *Barlow 1819*, 2.iii.1954 (knph); 1 mile NNE. of Mt Kosciusko summit, beside track to Mt Twynam, forming mat on moist sandy soil below snowpatch, in area of alpine herbfield on granite slope, altitude 2500 m, *B. G. Briggs 2625*, 23.iii.1969 (CANB, NSW); Mt Kosciusko, below snow patch near summit, *M. Gray 4812*, 4.iii.1970 (CANB, NSW); near Blue Lake, wet area near stream, cushion plant, *M. Gray 6152 and C. Totterdell*, 7.ii.1968 (CANB); above Blue Lake, wet area below semi-permanent snow patch, photo voucher, mixed collection, *C. pulvinatus* removed as 6155a, *M. Gray 6155 and C. Totterdell*, 7.ii.1968 (CANB); Mt Kosciusko, below semi-permanent snow patch near summit, forming small cushions, *M. Gray 6157 and C. Totterdell*, 8.ii.1968 (CANB, NSW); Blue Lake, margins of stream flowing into lake, small bright green cushions, mixed collection, some *C. pulvinatus* removed as 6161A, *M. Gray 6161 and C. Totterdell*, 7.ii.1968 (CANB); Mt Kosciusko district, *C. Skottsberg and A. B. Costin*, 10.iii.1949 (NSW); upper Blue Lake, stream bank from snow melt, flat peaty ground, *C. Totterdell 23*, 3.ii.1970 (CANB); Blue Lake, in gravelly patch below tall alpine herbfield area, appears to be recolonizing bare patch, common locally in this habitat, *C. Totterdell 231*, 21.iii.1971 (CANB).

C. nivicola can be distinguished from *C. pulvinatus* by the following key:

- 1a. Leaves very stiff and ± spreading, with acicular pungent tips 0.5–)1–1.5(–2) mm long, the margins and the midrib on the underside thickened and very conspicuous in dried specimens; seeds ±0.7–0.8 × 0.4–0.5 mm *C. pulvinatus*
- 1b. Leaves softer, narrower, sub-erect, with acicular tips 0.4–0.7 mm long, the margins and the midrib on the underside not or scarcely thickened; seeds ±0.5–0.6 × 0.3–0.5 mm
..... *C. nivicola*

C. nivicola is the characteristic cushion plant of the *Coprosma-Colobanthus* fieldmark alliance which is found in the late-lying snowdrift areas on the leeward slopes of the Main Range. It is also found on bare areas in short alpine herbfield where the cushions often coalesce to form moss-like mats or carpets, and is an effective colonizer of eroded areas in damp sites in tall alpine herbfield (Totterdell and Nebauer 1973). *C. pulvinatus*, on the other hand, is mainly found on the cold, dry, wind-exposed ridges, particularly in the *Epacris-Chionohebe* fieldmark alliance, and also colonizes eroded areas in tall alpine herbfield. Where their habitats adjoin, the two species are sometimes difficult to distinguish in the field.

GRAMINEAE

DEYEUXIA Clar. ex Beauv.

Deyeuxia affinis M. Gray, sp. nov.

Species nova *D. aucklandica* (Hook. f.) Zotov affinis sed differt praecipue spiculis parvioribus 2.8–3.5 mm longis, arista infirmiore brevior vix tortili plus minusve 1–2 mm longa recta vel tantum leviter geniculata et affixa in tertia superiore lemnae, et palea distincte brevior quam lemma.

Holotypus: Mt Kosciusko, N.S.W., at base of small rocks in short alpine herbfield below summit, photo voucher, *M. Gray 6759 and C. Totterdell*, 22.ii.1974 (CANB).

Small loosely tufted perennial about (5-)10-20 cm high; culms slender, erect or ascending and often geniculate at the lower nodes, smooth except sometimes antrorsely scaberulous below the inflorescence; leaves $\pm 1-6$ cm long, moderately stiff, folded or the margins slightly inrolled, sharply callus-pointed, smooth and glabrous on the back, hispidulous on the veins of the upper surface, the margins antrorsely scaberulous; sheaths striate, glabrous; ligule membranous, 1-3 mm long, subtruncate, erose and ciliate at the apex; panicle narrow and contracted, linear to narrow-elliptical in outline, $\pm 2-5 \times 0.4-1$ cm, the branches and pedicels antrorsely scabrid; spikelets 2.8-3.5 mm long; glumes subequal or the upper slightly longer, 2.5-3.5 mm long, variably tinged with dark reddish-purple on the back, the upper margins silvery-hyaline, antrorsely scabrid on the keel above, acute, subacute, or with a minute excurrent mucro up to 0.3 mm long; lemma chartaceous becoming hyaline distally, lanceolate in outline, 2.3-2.8 mm long, 5-nerved, smooth towards the base becoming \pm scaberulous especially on the nerves above, subacute or irregularly toothed at the apex; callus ± 0.2 mm long, blunt, densely bearded with long silky hairs, the longest of which are from $\frac{2}{3}$ to subequal in length to the lemma; awn usually shortly exerted, antrorsely scabrid, straight or slightly geniculate, not or scarcely twisted, $\pm 1-2$ mm long, attached in the upper third of the lemma about 0.5-0.8 mm from the apex; palea hyaline, 1.7-2.2 mm long, shorter than the lemma, 2-keeled, subacute or very finely toothed at the apex; rachilla produced into a bristle 0.5-1 mm long, plumose with long hairs up to 2 mm long; anthers $\pm 0.8-1$ mm long; caryopsis narrowly elliptical, about 1.5 mm long.

Distribution

Alpine and sub-alpine tracts of the Mt Kosciusko area, N.S.W., and the Bogong High Plains, Victoria.

NEW SOUTH WALES (Mt Kosciusko area): Mt Clarke, *Oreobolus pumilio* association, *D. N. McVean*, ii.1966 (CANB 256854); lower Spencers Ck, altitude 1710 m, on creek bank, *J. Thompson 1685a*, 22.i.1973 (NSW); Guthega R., altitude 1600 m, in pebbly seepage, *J. Thompson 2015*, 30.i.1974 (NSW); between Guthega Trig and Consett Stephen Pass, Kosciusko National Park, 36°22'S., 148°23'E., altitude 1940 m, little clump, *J. Thompson 2254*, 22.i.1975 (NSW, CANB); flat below Seaman's Hut, below hill, CSIRO transect No. 2, *D. Wimbush*, 18.iii.1959 (CANB 256855, NSW); under Mt Clarke, *D. Wimbush*, 7.iv.1961 (CANB 256856); flat below Seaman's Hut, near runoff from small snowpatch, *D. Wimbush*, 7.iv.1961 (CANB 256857).

VICTORIA: Eastern Bogong High Plains, *S. G. M. Carr*, 15.i.1966 (NSW).

The specific epithet refers to the close affinity of this species with *D. aucklandica* (Hook. f.) Zotov (syn. *D. setifolia* Hook. f.) of New Zealand and Auckland Islands (see Zotov 1965).

Willis (1970, p. 432) recorded this species for Mt Kosciusko and the Bogong High Plains under the provisional name '? *D. setifolia* Hook. f.' and quoted J. W. Vickery's opinion as follows: '*D. setifolia* ... has much in common with the two specimens I have seen from the Australian Alps, but I could not regard it as a perfect match; the spikelets are a little larger and the awn a little longer'.

Through the courtesy of Dr V. D. Zotov of the D.S.I.R., Christchurch, New Zealand, I have been able to examine five specimens of *Deyeuxia aucklandica* showing the range of variation of this species in New Zealand. Although *D. aucklandica* is undoubtedly related to the Australian plant, it tends to be larger, with longer, more lax, slightly narrower leaves, and larger spikelets $\pm 3.5-4.5$ mm long. In addition,

the more robust awn is ± 2.2 – 3.8 mm long (when straightened), and is usually more twisted proximally and more geniculate at maturity than the shorter, weaker awn of *D. affinis*. In *D. aucklandica*, the awn is attached lower on the lemma than in *D. affinis*, generally in the middle third, although sometimes at the upper limit of that segment, whereas in the latter species the awn is attached consistently in the upper third. The palea of *D. aucklandica* is ± 2.2 – 3 mm long and subequal in length to the lemma, whereas that of *D. affinis* is consistently shorter than the lemma.

D. affinis appears to be a rather rare species and, in the Kosciusko area, is found growing in short alpine herbfield, usually adjacent to small rocks or rock outcrops.

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