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The Pluchea tetranthera complex (Compositae, Plucheeae) from Australia

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SUSANNE HUNGER

The *Pluchea tetranthera* complex *(Compositae, Plucheeae)* from Australia

Abstract

Hunger, S.: The *Pluchea tetranthera* complex *(Compositae, Plucheeae)* from Australia. – Willdenowia 26: 273–282. 1996. – ISSN 0511–9618.

The Australian taxon commonly treated as *Pluchea tetranthera* is revised and shown to represent a complex of three closely related endemic species, i. e. *Pluchea tetranthera, P. ferdinandi-muelleri* and *P. dunlopii. P. dunlopii* is described as a species new to science. A key to the three species, illustrations, descriptions and a distribution map are given and their chromosome numbers (2n = 10) are presented for the first time.

Introduction

The genus *Pluchea* Cass. is distributed in the tropical and subtropical regions of Australia, the Old and the New World. Anderberg (1989) in his reclassification of the tribe *Inuleae* Cass. came to the conclusion that the majority of the genera included by Merxmüller & al. (1977) in the so-called *Pluchea* group must be treated as a group separate from the *Inuleae* sensu stricto; it has therefore been elevated to the rank of a tribe and named *Plucheeae* (Benth.) A. Anderb. The members of this tribe can normally be recognized by their multi-rowed imbricate involucral bracts, epaleate receptacles, their style branches with sweeping hairs reaching far below the bifurcation of the style, their uniseriate pappus bristles and their lack of oxalate crystals in the epidermis cells of the achene. The tribe *Plucheeae* comprises 28 genera while the name-giving genus represents the largest with c. 80 species (Bremer 1994). *Pluchea* in its present circumscription, however, is heterogenous and clearly not monophyletic (Anderberg 1991: 164), which makes a detailed investigation and a redefinition of this genus necessary.

The present paper, being part of a revision of *Pluchea* in the Old World and Australia, deals with the endemic Australian taxon known as *P. tetranthera* F. Muell. (1859), which is distributed throughout the greater parts of Australia. As mentioned in some Australian floras (e. g. Jessop 1981: 397, Wheeler 1992: 949) *P. tetranthera* is a very variable species and further investigation may be desirable. On the basis of own field studies and investigation of copious herbarium material this *P. tetranthera* was found to represent actually a complex of three closely related species, i. e. *P. tetranthera, P. dunlopii* and *P. ferdinandi-muelleri*. The second species is described as new to science. The third species was formerly treated as *P. tetranthera* var. *tomentosa* Benth. (1867) and *P. tetranthera* var. *cinerea* W. Fitzg. (1918); later *P. tetranthera* var. *tomentosa* was raised to species rank by Domin (1930) and named *P. ferdinandi-muelleri* after the botanist

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Ferdinand von Mueller (1825–1896), a name, however, not mentioned in any of the major Australian floras (e. g. Cunningham & al. 1981, Harden 1992, Jessop 1981, Jessop & Toelken 1986). The three species occur sympatrically throughout NW and Central Australia while *P. dunlopii* is also found further east. Analysis of root tip tissue (using the standard methode described by Vogt & Oberprieler 1993) of plants raised from achenes collected during a field trip in Western Australia in 1995 revealed identical chromosome numbers for all three species.

Key to species of the *Pluchea tetranthera* complex

1. Indumentum of simple uniseriate multicellular hairs, leaves pilose or tomentose 2
– Indumentum not as above, leaves densely glandular, generally vernicose 1. *P. tetranthera*
2. Leaves (0.7)1.0–2.5(3.0) cm long, pilose, lobes of disc florets non-glandular, or very seldom sparsely glandular, not hairy . . . . . 2. *P. dunlopii*
– Leaves (1.5)2.5–4.0(5.5) cm long, tomentose, lobes of disc florets glandular and often hairy . . . . . 3. *P. ferdinandi-muelleri*

1. *Pluchea tetranthera* F. Muell., Rep. Babb. Exped.: 12. 1859. – Fig. 2.
Lectotype (designated here): [Northern Territory], fluvium Victoria, 9.1855, *F. Mueller* (MEL 1621092!)

Note: No type was designated by Mueller and he only gave the unprecise location: "Throughout the greater portion of the tropical interior of Australia". As a lectotype a specimen collected by Mueller himself is chosen which has already been annotated as type material.

Shrub up to 1 m high with erect branches, densely glandular, the whole plant vernicose; glands sessile. Leaves (1.5)2.0–4.0(5.0) cm long, (0.3)0.5–1.0(1.8) cm wide, linear-lanceolate to obovate, dentate, sessile, covered with dotlike sessile glands, base attenuate or scarcely prolonged into a petiole, apex acute to apiculate. Capitula (6.5)7.0–8.0(8.5) mm long, narrow campanulate, sessile or short pedunculated, numerous, homo- or heterogamous, forming a loose to dense corymbose panicle; marginal florets female, 0–100; disc florets hermaphroditic, 3–30(40). Peduncles 0.2–1.0(1.2) mm long, with 0–2(3) bracts reaching the capitulum; bracts 2.0–6.0(6.5) mm long, 0.3–0.6(1.0) mm wide, lanceolate to linear, glandular, vernicose. Involucral bracts in 5–6(7) rows, outer involucral bracts densely glandular, vernicose, 1.4–2.7 mm long, 0.7–1.0(1.2) mm wide, lanceolate-acute, margin scarious, slightly fimbriate; inner involucral bracts scarious, 5.4–6.4(6.8) mm long, 0.2–0.4 mm wide, linear-acute. Receptaculum slightly concave, verrucose, (1.0)1.3–2.0 mm in diameter. Marginal florets 4.6–6.0(6.2) mm long, 3(4)-lobed. Disc florets (4.8)5.0–6.0 mm long, 4(5)-lobed, lobes glandular, corolla white; style branches with sweeping hairs reaching far below the bifurcation; anthers tailed, 2.2–2.5(2.6) mm long, basal appendages 0.5–0.7(0.8) mm long, apical appendages obtuse, filament collar cells swollen. Achenes glabrous to sparsely hairy, terete to subangular; achenes of marginal florets 0.7–0.9 mm long, 0.2–0.3 mm in diameter, narrow at base, indistinctly 2–4(?)-ribbed, with small ring-shaped carpopodium; achenes of disc florets often vestigial. Pappus (3.0)3.8–5.0 mm long, of 20–25(28) free barbellate bristles with appressed teeth, in one row.

Chromosome number: 2n = 10

Flowering and fruiting period: (August) September to November.

Distribution and ecology
Pluchea tetranthera is restricted to NW Australia and occurs in the Pilbara and the Kimberleys, on Barrow Island off the NW coast, and in the Northern Territory where the only collecting sites are in the northwest around Tanami (Fig. 1). It has been found on swampy grounds, salt marshes, flood plains, and cattle ground on red clayey loam.

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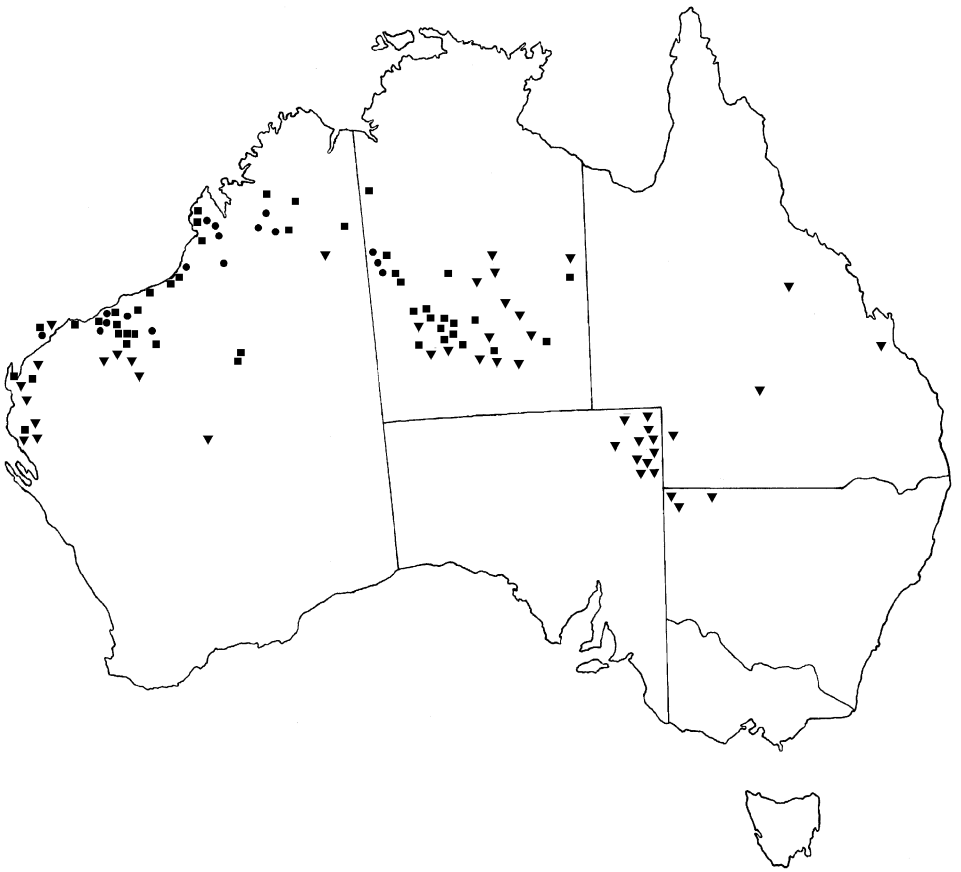


Fig. 1. Distribution of *Pluchea tetranthera* (●), *P. dunlopii* (▼), and *P. ferdinandi-muelleri* (■).

Additional specimens examined

WESTERN AUSTRALIA: Mallina Yandeyarra road, near Mallina Station, 20° 52′S, 118° 05′E, 20.9.1995, *Hunger & Kilian 3780* (B, PERTH, etc.); Yale River West Picnic Area, 20° 43′S, 118° 16′E, 20.9.1995, *Hunger & Kilian 3786* (B, PERTH, etc.); North West Coastal Hwy, c. 3 km E of Yale River West Bridge, 20° 40′S, 118° 19′E, 20.9.1995, *Hunger & Kilian 3794* (B, PERTH, etc.); Great Northern Hwy, c. 38 km S from junction with North West Coastal Hwy, 20° 54′S, 118° 35′E, 20.9.1995, *Hunger & Kilian 3797* (B, PERTH, etc.); 10 miles N of Nullagine [21° 45′S, 120° 06′E], 26.10.1973, *H. Demarz 4752* (PERTH 759244); 10 km NE of Nita Downs, 19° 01′S, 121° 45′E, 8.10.1984, *P. R. Foulkes 15* (PERTH 533130); W. Dampier Peninsula, 17° 40′S, 122° 12′E, 8.10.1984, *P. R. Foulkes 14* (PERTH 533122); SE of Broome, 18° 28′S, 123° 03′E, 17.8.1976, *K. F. Kenneally 5709* (CANB 289673, PERTH 533106); R2. Edgar Range Site, SE of Broome, 18° 49′S, 123° 17′E, 7.8.1976, *K. F. Kenneally 5525* (CANB 289723, K, PERTH 533092); McLarty Hills, 19° 30′S, 123° 30′E, 6.8.1977, *A. S. George 14671* (PERTH 533645); 16 miles N of Noonkanbah Station [18° 33′S, 124° 51′E], 13.9.1959, *M. Lazarides 6529* (AD 96120021, CANB 85547, K, PERTH 759252); 76 miles W of Margaret River, SSE of Fitzroy Crossing, [18° 13′S, c. 125° 33′E], 1.8.1965, *A. C. Beanglehole 11150* (PERTH 533076); Gogo Station [18° 17′S, 125° 35′E], 5.10.1952, *K. Fitzgerald* (PERTH 532835); 81–97 km NW of Tanami, 19° 02′S, 128° 05′E, 8.1971, *C. H. Gittins 2398* (K).

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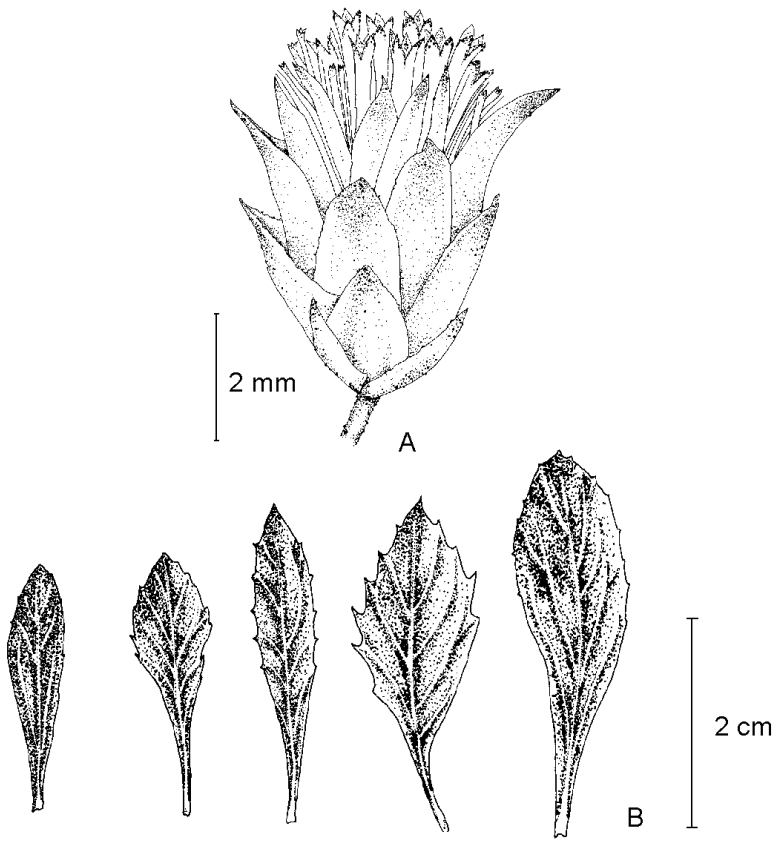


Fig. 2. *Pluchea tetranthera* – A: capitulum, B: leaves. – From *Hunger & Kilian 3797.*

Northern Territory: 114,2 km WNW Tanami [19° 20′S, 129° 00′E], 13.9.1971, *C. R. Dunlop 2337* (CANB 220520); South of Mongrel Downs Station, 20° 56′S, 129° 24′E, 5.8.1976, *P. K. Latz 6565* (AD 97733017).

2. *Pluchea dunlopii* Hunger, **sp. nova** – Fig. 3.
Holotypus: Western Australia, Munjina Roy Hill Rd, between Marillana Homestead and Roy Hill Homestead, c. 100 km SSW of Nullagine, 22.9.1995, *Hunger & Kilian 3910* (PERTH; isotypi: B, MEL, K).

Frutex. Rami et folia pilosa, glandulifera glandulis sessilibus. Folia (0.7)1–2.5(3.0) cm longa et 0.5–1.5 cm lata, obovata, dentata, basin versus attenuata vel leviter in petiolum protracta, apice acuto vel obtuso vel aliquam truncato. Rami capitulis in corymbis terminalibus dispositis. Capitula (5.6)6.0–7.0(7.6) mm longa, heterogama, flosculis marginalibus femineis 60–100, disci flosculis hermaphroditis 3–6(8). Involucri bracteae pluriseriatae, imbricatae; bracteae exteriores 2- vel 3-seriatae, herbaceae, pilosae, glandulosae, vix vernicosae, (1.6)1.8–2.4 mm longae et 0.5–1.0 mm latae; bracteae interiores scariosae, 5.0–6.0 mm longae et 0.3–0.6 mm latae, plerumque apice purpureo. Flosculi marginales 4.4–5.0 mm longi, 3(4)-lobati; disci flosculi (4.6)5.0–6.0 mm longi, 4(5)-lobati, lobis glabris vel rarissime glandulosis.

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Shrub 1.0 m high with erect branches; pilose, trichomes simple, uniseriate, multicellular, 0.1–0.5 mm long; sparsely to densely glandular, glands sessile; rarely vernicose. Leaves (0.7)1.0–2.5(3.0) cm long, 0.5–1.5 cm wide, obovate, dentate, sessile, pilose, density of non-glandular trichomes increasing towards margin, base attenuate or scarcely prolonged into a petiole, apex acute, obtuse or somehow truncate. Capitula (5.6)6.0–7.0(7.6) mm long, narrow, nearly cylindrical, numerous, sessile or shortly pedunculate, heterogamous, forming a loose to dense corymbose panicle; marginal florets female, 60–100; disc florets hermaphroditic 3–6(7). Peduncles 0.5–5.0(8.0) mm, seldom up to 1.0 cm long, densely pilose, glandular, with 0–2 bracts reaching the capitulum; bracts 1.7–4.5(7.0) mm long, 0.5–1.0 mm wide, lanceolate to linear, pilose, glandular, margin entire, often resembling the outer involucral bracts. Involucral bracts in 5–6(7) rows, the outer 2(3) rows herbaceous, pilose, glandular, slightly vernicose, (1.6)1.8–2.4 mm long, 0.5–1.0 mm wide, lanceolate-acute, margins scarious, slightly fimbriate; median and inner involucral bracts scarious, often with violet coloured tips, 5.0–6.0 mm long, 0.3–0.6 mm wide, linear-acute. Receptaculum slightly concave, verrucose, (1.0)1.2–2.0 mm in diameter. Marginal florets 4.4–5.0 mm long, 3(4)-lobed, lobes non-glandular. Disc florets (4.6)5.0–6.0 mm long, 4(5)-lobed, lobes non-glandular or seldom sparsely glandular; style branches with sweeping hairs reaching far below the bifurcation; corolla and stigmata light purple; anthers tailed, (1.6)1.8–2.0(2.2) mm long, basal appendages (0.3)0.4–0.6 mm long, apical appendages obtuse, filament collar cells swollen. Achenes glabrous to sparsely hairy, terete to subangular, slightly heteromorphic; achenes of marginal florets 0.7–0.9(1.0) mm long, 0.2–0.3 mm in diameter, narrow at the base, indistinctly 2–4(?)-ribbed with a small ring-shaped carpopodium; achenes of disc florets either 0.6–0.8 mm long, 0.15–0.20 mm in diameter, pale, with broad, ring-shaped carpopodium, or often vestigial. Pappus (3.0)4.0–5.0 mm long, of 20–25(28) free, barbellate bristles with appressed teeth, in one row.

Chromosome number: 2n = 10.

Flowering and fruiting period: (August) September to November.

Distribution and ecology

Pluchea dunlopii occurs in N Western Australia, the Eremaean Province, mainly in the Carnarvon and the Pilbara region, and also on Barrow Island off the NW coast (Fig. 1). This is the only species of the *P. tetranthera* complex that is distributed as far as the Lake Eyre Basin in South Australia, the south of New South Wales in the area around Milparinka, and Queensland. It has been found on swampy grounds, salt marshes, flood plains, cattle ground and near river banks on sandy soil and red clayey loam.

Additional specimens examined

Western Australia: C. 30 km SW of Learmonth, Yardie Creek, 22° 24′S, 113° 45′E, 1.10.1995, *Hunger & Kilian 4157* (B, PERTH, etc.); Near Tracking Station, Carnarvon [24° 51′S, 113° 45′E], 28.10.1963, *Fairace & Lullfitz L2813* (PERTH 532967); 12 km S Carnarvon [24° 57′S, 113° 45′E], 5.101984, *H. Demarz 10304* (PERTH 533580); 10 km S Carnarvon [24° 56′S, 113° 45′E], 8.12.1982, *H. Demarz 9516* (PERTH 887765); 72 km E on the Gascoyne Junction road from its junction with the NW Coastal Highway to Carnarvon [24° 50′S, c. 114° 00′E], 21.9.1982, *N. F. Norris 914* (PERTH 533009); 70 km S Bullara turn off [23° 30′S, c. 114° 02′E], 10.8.1976, *Wittwer 1794* (PERTH 533629); 76 km E of Carnarvon, 24° 49′S, 114° 25′E, 27.9.1987, *P. G. Wilson 12673* (CANB 469607, PERTH 864919); Minderoo, Ashburton River [21° 59′S, 115° 04′E], 11.10.1905, *A. Morrison* (PERTH 533637, 532908); Barrow Island, 20° 46′S, 115° 24′E, 10.1980, *R. Buckley 6958* (CANB 341392); Roebourne Wittenoom road, c. 10 km N of Wittenoom, 22° 10′S, 118° 20′E, 24.9.1995, *Hunger & Kilian 3977* (B, PERTH, etc.); c. 12 km by road W of Roy Hill on Wittenoom road, 22° 41′S, 119° 53′E, 17.8.1977, *E. N. S. Jackson 2907* (AD 97744610); 133 km E of Wiluna on the road to Warburton, 26° 34′S, 121° 25′E, 5.9.1984, *P. G. Wilson 11936* (PERTH 533602); Billiluna Station, E Kimberleys, [19° 33′S, 127° 40′E], 1992, *T. Handasyde 33* (PERTH 3171469).

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Fig. 3. *Pluchea dunlopii* – A: flowering branch (scale bar = 2 cm), B: capitulum (scale bar = 2 mm), C: leaves (scale bar = 2 cm). – From *Hunger & Kilian 3910*.

Northern Territory: Cockatoo Creek c. 255 km NW of Alice Springs [22° 20′S, 131° 30′E], 13.8.1931, *J. B. Cleland* (AD 95835052); Haast's Bluff Reserve [23° 20′S, c. 131° 56′E], 5.9.1957, *J. B. Cleland* (AD 966060477); Mount Chapple Bore c. 135 km NW of Alice Springs

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[23° 17′S, 132° 57′E], 31.8.1951, *J. B. Cleland* (AD 95835053); Numagalong H/S [20° 49′S, 133° 33′E], 26.8.1965, *D. Nelson & Swinbourne* (AD 96550466); Macdonnell Ranges, 23° 38′S, 133° 50′E, 19.10.1979, *D. J. Nelson 2486* (BM 21074, G); C.S.I.R.O. Field Station, Alice Springs, 23° 46′S, 133° 52′E, 5.8.1980, *D. J. Nelson 24499* (CANB 469612); Ooraminna carvings area C.S., 24° 00′S, 133° 57′E, 16.10.1975, *P. K. Latz 6318* (AD 98343178); Stuart Highway between Wauchope and Tennant Creek, 20° 13′S, 134° 13′E, 13.8.1978, *W. R. Barker 2789* (AD 97921059); Bonny Creek 80,47 km S of Tennant Creek (Bonny Creek is 19° 33′S, 134° 14′E), 23.8.1966, *N. Walker* (AD 97817428); Tomahawk Swamp, Mt Skinner Station [22° 08′S, 134° 32′E], 14.7.1971, *D. J. Nelson 2127* (AD 97152259, CANB 220565); Ringwood Station, 23° 54′S, 134° 59′E, 4.10.1973, *P. K. Latz 4439* (CANB 469615); c. 255 km NE of Alice Springs [22° 25′S, 135° 08′E], 30.8.1933, *E. H. Isling* (AD 97413207, 97413246); NW Simpson Desert, 23° 33′S, 136° 16′E, 2.11.1973, *P. K. Latz 4424* (AD 97615069, CANB 469605); on Barkly Hwy 70 km NW of Barrys Caves, 20° 20′S, 137° 35′E, 1.9.1981, *T. & J. Whaite 3927* (MO 4332475).
New South Wales: W shore of Fort Grey basin (Pinaroo "Lake") 29° 05′S, 141° 12′E, 8.9.1981, *W. Greuter 18559* (B); "Waka", SE of Fort Grey, 29° 16′S, 141° 21′E, 1.11.1972, *P. L. Milthorpe 887* (AD 97450109); c. 65 km W of Wanaaring along the Tibooburra road, 29° 43′S, 143° 26′E, 30.10.1986, *P. S. Short 3008* (AD 98707423).
South Australia: Near Kalladeina Bore, 27° 42′S, 139° 07′E, 2.10.1989, *H. M. Lee 540* (AD 99110390); 64 km S of Birdsville, 26° 25′S, 139° 33′E, 25.8.1975, *J. Z. Weber 4646* (AD 97537272); 15 km NW Moomba, 28° 01′S, 140° 05′E, 4.9.1987, *J. Reid 1202* (AD 98742077); Coopers Creek, c. 85 km NW of Innamincka 27° 8′–10′S, 148° 08′E [writing error, it must be 140° 08′], 20.8.1975, *J. Z. Weber 4602* (AD 97539217, W); S of Coongie Lake, 27° 11′S, 140° 09′E, 21.8.1975, *N. N. Donner 5242* (AD 97541004); Random site 41,2 km E Cuttaberrie Lake, 27° 17′S, 140° 15′E, 10.9.1987, *J. Reid 1155* (AD 98742068); Merty Merty flood plain, S of Innamincka, halfway on Strzelecki Creek [27° 40′S, c. 140° 20′E], 25.5.1957, from *S. A. Pastoral Board 157* (AD 97636328); Big Lake Moonba, 28° 20′S, 140° 21′E, 30.9.1983, *L. Alexander 2223* (AD 98516253); Mudcarnie Well, 26° 52′S, 140° 35′E, 7.11.1983, *L. Alexander 2385* (AD 98439320); Coongie sandhills, 27° 05′S, 140° 36′E, 16.10.1986, *P. E. Conrick 1957* (AD 98647410); Innamincka, 27° 44′S, 140° 46′E, 19.9.1959, from *S. A. Pastoral Board* (AD 97629334, 97906020), 17.10.1963 (AD 97629598), 18.10.1963, (AD 97916049, 98025121); 19.9.1959, *J. Reid* (AD 96051004, 98671529), 15.10.1963 (AD 98671531); No. 1 Bore track from Innamincka, 19.9.1959, *W. S. Reid* (AD 96139080); 30 km E of Toolache Waterhole, 28° 15′S, 140° 53′E, 11.5.1988, *Reid & Gillen 6* (AD 98829330); 7 km NNE of Candradecka Dam., 27° 13′S, 140° 52′E, 1.6.1976, *L. D. Williams 8284* (AD 98424800); c. 30 km E of Cordillo Downs, c. 4 km W of Arrabury Homestead, 26° 46′S, 140° 59′E, 28.8.1975, *N. N. Donner 5288* (AD 97540306).
Queensland: 70 km NE of Nappa Merrie HS, 27° 15′S, 141° 36′E, 12.9.1984, *F. J. Badman 1531* (AD 98447096); 14,5 km S of Listowel Valley turn off on Blackall to Adavale road [25° 30′S, c. 145° 06′E], 23.9.1984, *M. E. Ballingall 1601* (AD 98522102, CANB 373143); Belyando R., near "Moray Downs" Station, [21° 57′S, 146° 38′E], 3.8.1964, *L. G. Adams 1226* (CANB 152195); Rockhampton [23° 22′S, 150° 32′E], *Thozet* (K), *F. Mueller* (C).

3. *Pluchea ferdinandi-muelleri* Domin in Biblioth. Bot. 22(89, 8): 1217. 1930. – Fig. 4.
Pluchea tetranthera var. *tomentosa* Benth., Flora Austral. 3: 528. 1867 – Holotypus: [Northern Territory], Arnhems Land, *F. Mueller* (MEL 1621093!; isotypus: K)
= *Pluchea tetranthera* var. *cinerea* W. V. Fitzg. in J. Proc. Roy. Soc. Western Australia 3: 222. 1918. – Holotypus: [Western Australia], Isdell River, 9.1905, *W. V. Fitzgerald* (PERTH!, isotypus: BM 21193!).

Shrub up to 1.5 m high with erect branches; densely tomentose, trichomes simple uniseriate multicellular, 0.1–0.5 mm long; glandular, glands sessile. Leaves (1.5)2.5–4.0(5.5) cm long, (0.8)1.0–1.7(2.5) cm wide, oblanceolate to obovate, entire or dentate, sessile, densely tomentose, glandular, base attenuate or prolonged into a petiole, apex acute or obtuse. Capitula

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(6.0)6.5–7.5(8.0) mm long, narrowly campanulate, numerous, sessile or shortly pedunculate, in a loose to dense corymbose panicle, often homogamous with 30–50 hermaphroditic florets, or heterogamous with (3)10–100 female marginal florets and 3–30 hermaphroditic disc florets. Involucre in (5)6–8 rows, the outer involucral bracts sparsely to densely tomentose, glandular, (1.2)1.5–2.0(2.5) mm long, (0.7)0.8–1.1(1.7) mm wide, lanceolate-acute, margin scarious, fimbriate; inner involucral bracts scarious, (4.5)5.0–5.5(6.0) mm long, 0.3–0.6 mm wide, linear-acute. Receptaculum slightly concave, verrucose, (1.2)1.4–2.0 mm in diameter. Marginal florets 4.5–5.7(6.0) mm long, 3(4)-lobed, lobes glandular or non-glandular. Disc florets (4.6)5.0–5.5(5.7) mm long, 4(5)-lobed, lobes glandular and often hairy, style branches with sweeping hairs reaching far below the bifurcation; corolla purple; antheres tailed, (2.2)2.3–2.6 mm long, basal appendages (0.5)0.6–0.7 mm long, apical appendages obtuse, filament collar cells swollen. Achenes glabrous or sparsely to densely hairy, teret to subangular, slightly heteromorphic; achenes of marginal florets (0.6)0.7–0.9(1.0) mm long, 0.2–0.3 mm in diameter, narrow at the base, indistinctly 2–4(?)-ribbed with a small ring-shaped carpopodium; achenes of disc florets either 0.8–1.0 mm long and 0.10–0.20 in diameter, pale, with a broad ring-shaped carpopodium, or often vestigial. Pappus (4.0)4.2–5.5(6.0) mm long, of 20–25(28) free, barbellate bristles with appressed teeth, in one row.

Chromosome number 2n = 10.

Flowering and fruiting period: (August) September to November.

Distribution and ecology

Pluchea ferdinandi-muelleri occurs throughout Central Australia and also in the Pilbara region and the Kimberleys, N Western Australia (Fig. 1). It has also been found on Barrow Island off the NW coast. It has been found on swampy grounds, salt marshes, flood plains, and cattle grounds on red clayey loam.

Additional specimens examined

Western Australia: Carnarvon [24° 51′S, 113° 45′E], *G. B. Barnett* (PERTH 532797); E of Learmonth airfield, 22° 17′S, 114° 07′E, 8.9.1970, *A. S. George 10345* (PERTH 532991); Barrow Island, 20° 46′S, 115° 24′E, 10.1980, *R. Buckley 6852* (PERTH 532940); between Naroo and Nanutara, Ashburton River [Nanutarra: 22° 32′S, 115° 30′E], 31.10.1905, *A. Morrison* (A, PERTH 532827); Cleaverville track, between Karratha and Roebourne [20° 45′S, c. 117° 00′E], 7.10.1982, *coll. ignot. 335* (CANB 353129, 353130, PERTH 532983); North West Coastal Hwy, c. 7 km E of Whim Creek, 20° 51′S, 117° 59′E, 19.9.1995, *Hunger & Kilian 3762* (B, PERTH, etc.); Peeawah R., NW Coastal Highway [20° 50′S, c. 118° 10′E], 27.8.1960, *A. S. George 1113* (PERTH 532959); Boodarie Station, South Hedland [20° 24′S, 118° 28′E], 22.11.1984, *J. Stretch* (PERTH 533599); 8 miles S from Port Hedland [20° 34′S, 118° 36′E], 7.9.1946, *C. A. Gardner 8060* (PERTH 532851); great Northern Hwy, c. 80 km S of Port Hedland, 21° 07′S, 118° 42′E, 20.9.1995, *Hunger & Kilian 3808* (B, PERTH, etc.); Great Northern Hwy, c. 150 km S of Port Hedland, 21° 38′S, 118° 48′E, 21.9.1995, *Hunger & Kilian 3828* (B, PERTH, etc.); between Hillside and Woodstock Homestead 21° 41′S, 119° 03′E, 21.9.1995, *Hunger & Kilian 3852* (B, PERTH, etc.); near Woodstock Homestead, 21° 44′S, 119° 17′E, 21.9.1995, *Hunger & Kilian 3839* (B, PERTH, etc.); between Hillside and Woodstock Homestead, 21° 48′S, 119° 29′E, 21.9.1995, *Hunger & Kilian 3860* (B, PERTH, etc.); Bamboo Springs road [22° 00′S, 119° 25′E], 27.10.1970, *H. Demarz 2811* (PERTH 533661); 14 miles N of Marble Bar [21° 16′S, 119° 45′E], 9.1971, *R. Mirrington 710912* (PERTH 532843); c. 10 km S of Nullagine, 22° 00′S, 120° 05′E, 21.9.1995, *Hunger & Kilian 3877* (B, PERTH, etc.); Wallal [Wallal Downs: 19° 50′S, 120° 45′E], 9.1922, herb. *M. A. Evershed* (BM 20976); 124 miles SW of Anna Plains, SW of Broome [19° 50′S, 120° 49′E], 9.8.1965, *A. C. Beauglehole 11329* (CANB 343310, PERTH 533068); Mandora Soak, NE of Radi Hills, 19° 45′S, 121° 26′E, 13.8.1983, *N. McKenzie MS-06* (PERTH 859397); Dampier

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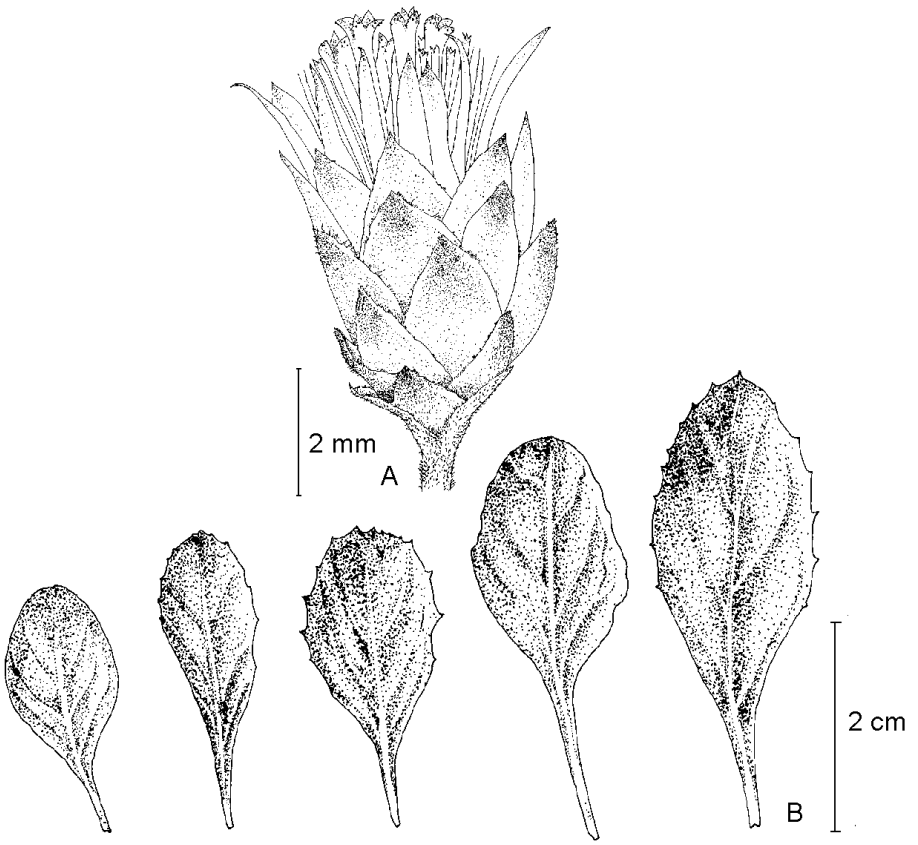


Fig. 4. *Pluchea ferdinandi-muelleri* – A: capitulum, B: leaves. – From *Hunger & Kilian 3762*.

Peninsula, 17° 22′S, 122° 09′E, 8.10.1984, *P. R. Foulkes 16* (PERTH 533149); Point Coulomb Nature Reserve, 17° 16′S, 122° 11′E, 8.8.1992, *A. A. Mitchell 2652* (CANB 464431, PERTH 2632667); Roebuck Bay [c. 18° 00′S, 122° 15′E], 1890, *J. Tepper* (PERTH 1625845); little Sandy Desert, 23° 06′S, 123° 20′E, 2.5.1979, *A. S. Mitchell 935* (PERTH 532762); great Sandy Desert, 19° 40′S, 123° 21′E, 10.8.1977, *A. S. George 14745* (PERTH 532916); Nimbi Caves area, Lawford Range, 18° 42′S, 126° 00′E, 3.11.1986, *C. Done 746* (PERTH 2246546); 76 miles W of Margaret River, SSE of Fitzroy Crossing [17° 30′S, c. 126° 45′E], 1.8.1965, *A. C. Beanglehole 11150* (PERTH 533076); Gordon Downs Station [18° 43′S, 128° 33′E], 13.9.1950, *R. D. Royce 3330* (PERTH 533084).

Northern Territory: 71 miles WNW Tanami [19° 35′S, 129° 10′E], 13.9.1971, *C. R. Dunlop 2338* (AD 97422240, 98671532, CANB 237562); 1 km SE Supplejack Station H/S, 19° 21′S, 129° 58′E, 4.10.1978, *D. J. Nelson 2455* (CANB 286733, 286735); c. 25 km by road NW of The Granites, 20° 20′S, 130° 10′E, 20.8.1978, *N. N. Donner 6311* (AD 97849486); the Granites [20° 38′S, 130° 22′E], 8.1936, *J. B. Cleland* (AD 95835057); about 30 m[iles] W Mt Doreen [22° 10′S, 131° 05′E], 24.6.1957, *G. Chippendale* (AD 96549309, PERTH 533726); Mount Palmer [23° 30′S, c. 131° 10′E], 26.8.1956, *J. B. Cleland* (AD 95835058); Mount Liebig [23° 16′S, 131° 18′E], 14.8.1932, *J. B. Cleland* (AD 95835055); Brooke's Soak [22° 00′S, c. 131°

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30′E], 15./16.8.1931, *J. B. Cleland* (AD 95835056); c. 13 km W of Yuendumu [Mission] [22° 20′S, 131° 37′E], 18.8.1951, *J. B. Cleland* (AD 95835054); Mt Wedge Station [23° 50′S, 131° 50′E], 25.8.1957, *J. B. Cleland* (AD 966060476); 8 miles E Haast Bluff Settlement [23° 20′S, 132° 03′E], 24.8.1956, *G. Chippendale* (AD 95910077); 1 mile S of Mt Wedge Station [22° 45′E, 132° 09′E], 29.9.1956, *M. Lazarides 6063* (AD 96003025, CANB 108295, PERTH 533718); 42 miles NW Willowra H.S. [20° 55′S, c. 132° 25′E], 30.7.1958, *G. Chippendale* (AD 966030152, CANB 214955); 35 miles S of Napperby Station [22° 50′S, 132° 35′E], 28.9.1956, *M. Lazarides 6084* (AD 96003023, B, CANB 108296, PERTH 533696); Narwietooma Station, 23° 08′S, 132° 36′E, 30.1.1976, *T. S. Henshall 1205* (CANB 469606); Mt Giles, 23° 39′S, 132° 50′E, 21.9.1976, *P. K. Latz 6629* (CANB 267410, MO 2433988); Prowse's Gap [22° 34′S, 133° 20′E], 1954, *T. R. N. Lothian 382/54* (AD 96218047); Alice Springs, 23° 42′S, 133° 52′E, 1954, *T. R. N. Lothian* (AD 97648051); NW Simpson Desert, 23° 52′S, 136° 28′E, 1.10.1973, *P. K. Latz 4403* (AD 97511104, CANB 469613); 6,1 miles N of Georgina Downs H. S [21° 00′S, c. 137° 39′E], 1.10.1957, *G. Chippendale 3804* (AD 95951155, CANB 70038, PERTH 533688).

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