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A new weed for Western Australia from Torndirrup National Park: *Plecostachys serpyllifolia* (Asteraceae)

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SHORT COMMUNICATION

A good start on listing the flora of Torndirrup National Park was undertaken by G.J. Keighery who produced an unpublished list of 514 species in 1988, including 454 native and 60 naturalised weed species (copy in the Library, Department of Biodiversity, Conservation & Attractions (DBCA)). In April 2020, the DBCA's NatureMap database listed 610 species of plants for the National Park, of which 47 were naturalised weeds. By July 2024, Florabase listed herbarium specimens of 41 naturalised weeds for the National Park (Asteraceae marked with an asterisk): *Aeonium haworthii* Webb & Berthel., *Aira cupaniana* Guss., **Arctotheca calendula* (L.) K.Lewin, **A. populifolia* (P.J.Bergius) Norl., *Bellardia trixago* (L.) All., *B. viscosa* (L.) Fisch. & C.A.Mey., *Briza maxima* L., *B. minor* L., *Carpobrotus edulis* (L.) N.E.Br. subsp. *edulis*, *Centaurium erythraea* Rafn, **Carduus pycnocephalus* L., *Cotoneaster pannosus* Franch., *Crassula natans* var. *minor* (Eckl. & Zeyh.) G.D.Rowley, **Dittrichia graveolens* (L.) Greuter, **D. viscosa* (L.) Greuter, **Erigeron sumatrensis* Retz., **E. canadensis* L., *Erodium botrys* (Cav.) Bertol., *Euphorbia paralias* L., *Freesia leichtlinii* subsp. *alba* x *leichtlinii* subsp. *leichtlinii*, *Gaudium laevigatum* (Gaertn.) Peter G.Wilson, *Heliophila pusilla* L.f., *Hordeum leporinum* Link, **Hypochaeris glabra* L., *Lagurus ovatus* L., **Leontodon saxatilis* Lam., *Lepidium africanum* (Burm.f.) DC., *Lolium* sp., *Lysimachia arvensis* (L.) U.Manns & Anderb., *Pelargonium capitatum* (L.) L'Hér., *Psoralea pinnata* L., *Romulea rosea* (L.) Eckl., *Rumex crispus* L., *Sagina apetala* Ard., **Senecio elegans* L., *Sporobolus africanus* (Poir.) Robyns & Tournay, **Sonchus oleraceus* L., *Trifolium angustifolium* L. var. *angustifolium*, *T. fragiferum* L. var. *fragiferum*, **Ursinia anthemoides* (L.) Poir. subsp. *anthemoides*, *Vulpia fasciculata* (Forssk.) Fritsch. This list includes 12 species of alien Asteraceae.

My own work over three decades surveying granite outcrop flora in Torndirrup National Park has added the following 28 species of unvouchered weeds to the introduced flora list: *Anthoxanthum odoratum* L., *Avena barbata* Link, *Bromus hordeaceus* L., *B. rubens* L., *Centaurium erythraea* Rafn, *Cerastium glomeratum* Thuill., *Cyperus tenellus* L.f., *Disa bracteata* Sw., *Ficinia marginata* (Thunb.) Fourc., *Galium murale* (L.) All., *Gladiolus undulatus* L., *Juncus bufonius* L., *Juncus capitatus* Weigel, *Lampranthus glaucus* (L.) N.E.Br., *Lotus subbiflorus* Lag., *Lysimachia arvensis* (L.) U.Manns & Anderb., *Orobanche minor* Sm., *Petrorhagia dubia* (Raf.) G.López & Romo, *Plantago lanceolata* L., **Pseudognaphalium luteoalbum* (L.) Hilliard & B.L.Burtt, **Sonchus asper* (L.) Hill, *Stenotaphrum secundatum* (Walter) Kuntze, *Trianoptiles solitaria* (C.B.Clarke) Levyns (a new record for Western Australia), *Trifolium dubium* Sibth., *T. glomeratum* L., **Vellereophyton dealbatum* (Thunb.) Hilliard & B.L.Burtt, *Vulpia bromoides* (L.) Gray, *V. myuros* (L.) C.C.Gmel. The additional three species of Asteraceae makes up a total of 15 alien taxa in that family recorded for the National Park.

Additions to the native flora of Torndirrup National Park continue to rise as well. Of special note are completely new species not collected before, such as *Hydrocotyle serendipita* A.J.Perkins, now known

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also from Two Peoples Bay Nature Reserve (Perkins & Dilly 2017), and *Calandrinia* sp. Torndirrup (S.D. Hopper et al. SDH 8712), still known from just a single population in the National Park.

In July 2024, I came across a small stand of softly tomentose intricately branched shrublets lining a powerline service track through Torndirrup which clearly had asteraceous flowers and fruits (Figure 1). On consultation with Neville Walsh, recently retired from the National Herbarium Victoria and shrubby Asteraceae expert, this plant proved to be *Plecostachys serpyllifolia* (P.J.Bergius) Hilliard & B.L.Burtt. The species is well described elsewhere (Hilliard 1983; Viljoen 2012; Walsh 2021).

The genus *Plecostachys* Hilliard & B.L.Burtt comprises two species native to the Cape Floristic Region of South Africa and adjacent Kwazulu-Natal and Mozambique. Both species were originally described in *Gnaphalium* L. as *G. serpyllifolia* P.J.Bergius and *G. polifolium* Thunb. However, the two differ from *Gnaphalium* species in habit and leaf form. They are intricately branched and interwoven twiggy shrubs with numerous small more or less elliptic leaves (Hilliard & Burtt 1981). They also share white-tipped bracts, undivided stereome, achenes with common duplex hairs and scabrid pappus bristles whose bases cohere by patent cilia or are sometimes partly fused (Hilliard & Burtt 1981). Other synonyms of *P. serpyllifolia* include *Helichrysum serpyllifolium* (P.J.Bergius) Less., *Syn. Gen. Compos.*: 277 (1832) [non *Helichrysum serpyllifolium* (Lam.) Pers. (1807)]; and *Gnaphalium orbiculare* Thunb., *Prodr. Pl. Cap.*: 152 (1800) ≡*Helichrysum orbiculare* (Thunb.) Druce, *Rep. Bot. Soc. Exch. Club Brit. Isles* 4: 626 (1917). For example, *H. obiculare* is cited rather than *P. serpyllifolia* in some older articles that document wetland habitat associations for South Africa (e.g. Taylor 1972).

Figure 1. *Plecostachys serpyllifolia*. A – plants *in situ* lining the edge of the powerline track in Torndirrup National Park on 15 July 2024, adjacent dense low heath and sedgeland with *Callistemon glaucus* Sweet (red inflorescence); B – inflorescences in flower and early fruit, with leaves; C – inflorescence in full flower; D – mature fruits, flowers and leaves. Images from *S.D. Hopper* 8718. Photographs by S.D. Hopper.

Plecostachys serpyllifolia (cobweb bush, petite liquorice (Eng.); vaaltee, kooigoed (Afr.)) favours seasonally damp sandy coastal flats in well-drained moist soil and flowers March–May in its native range (Hilliard 1983). As its Afrikaans common name, kooigoed, meaning cow stuff or bedding material, suggests, it was traditionally used by indigenous people to sleep on due to its soft woolly foliage (Viljoen 2012). Vaaltee means bland tea, suggesting that the species was also used for that purpose as well. *Plecostachys serpyllifolia* differs from *Plecostachys polifolia* (Thunb.) Hilliard & B.L.Burtt in having milky white (not yellowish cream) bracts and suborbicular leaves with undulate margins, not ovate leaves (Hilliard 1983; Manning & Goldblatt 2012).

Voucher specimen for *Plecostachys serpyllifolia*: Torndirrup National Park, 350–500 m west of the intersection of Austin Road and MacBride Rd west along powerline service track, 35° 05' 26" S, 117° 55' 29" E, 15 July 2024, *S.D. Hopper* 8718 (PERTH).

Discussion

The confinement of *P. serpyllifolia* to the edges of a regularly maintained track beneath powerlines (Figure 1) through dense heath on seasonally waterlogged soils seems to reflect the regular disturbance of track use. The surrounding habitat is clearly OCBIL in nature – on an old, climatically-buffered and rarely disturbed, infertile landscape (Hopper 2023; Hopper *et al.* 2021). Such landscapes are resilient to weed invasion if disturbance levels are minimal.

The use of *P. serpyllifolia* as a popular foliage ornamental has seen it grown elsewhere in Mediterranean climate regions. It has naturalised in California, Victoria, New South Wales, the Azores, Scilly Islands, Chile, Portugal and Spain (GBIF 2024). Its naturalisation in Torndirrup National Park likely occurred as a garden escape. Other plants that have recently become naturalised at nearby Goode Beach are good indicators of this behaviour such as *Felicia echinata* (Thunb.) Nees on the primary coastal dunes and *Kennedia lateritia* F.Muell. on the granitic slopes of Karrakatta Road (Hopper, unpublished). As *P. serpyllifolia* is quite confined within Torndirrup National Park to 150 m of powerline track, with *c.* 200 adult plants, its early eradication should be attempted. Also, future surveys of coastal vegetation along the south coast of Western Australia should be vigilant and aware that *P. serpylliflora* is a significant potential invasive.

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