

STONEA

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Stonea R.H.Zander, *Phytologia* 65: 431 (1989); named for Ilma G. Stone (1913–2001), who was the first to describe what later became the type species of this monotypic genus.

Type: *S. oleaginosa* (I.G.Stone) R.H.Zander

Probably dioecious. Plants minute, rosulate. Stems simple, very short, composed of large thin-walled oil-filled cells; central strand absent. Rhizoids colourless. Leaves contracted, incurved when dry, weakly spreading and flatter when wet, with a depressed area below the apex. Costa reddish brown, strong in distal leaves, weak to absent and pale in lower stem leaves, usually papillose on abaxial and adaxial surfaces; in section with a poorly developed abaxial stereid band, poorly-developed. Laminal KOH colour reaction red. Sporophytes not known.

This endemic monotypic genus is characterised by its minute size, pale fleshy stems and rosette of weak-nerved, obovate, outer leaves. The inner leaves are modified to form thick, red, glossy, oil-rich propagules.

References

- Catcheside, D.G. (1980), *Mosses of South Australia* 167–169.
- Jolley, H. & Hodda, M. (2009), Nematode galls on a tiny moss, *Australas. Bryol. Newslett.* 56: 2–3.
- Stone, I.G. (1978), *Tortula oleaginosa*, a new moss from Australia. *J. Bryol.* 10: 117–124.
- Zander, R. H. (1989), Seven new genera in Pottiaceae (Musci) and a lectotype for *Syntrichia*, *Phytologia* 65: 424–436.
- Zander, R.H. (1993), Genera of the Pottiaceae: mosses of harsh environments, *Bull. Buffalo Soc. Nat. Sci.* 32: 1–378.

Stonea oleaginosa (I.G.Stone) R.H.Zander, *Phytologia* 65: 431 (1989)

Tortula oleaginosa I.G.Stone, *J. Bryol.* 10: 117 (1978). T: Murray Valley Highway, near Boundary Bend, Vic., 19 July 1969, I.G.Stone 1552; holo: MEL; iso: BM, MELU.

Illustrations: I.G.Stone, *op. cit.* 118, fig. 1; 120, fig. 2; 122, fig. 3, as *T. oleaginosa*; D.G.Catcheside, *op. cit.* 169, fig. 84, as *T. oleaginosa*; H.Jolley & M.Hodda, *op. cit.* 2, figs 1, 2.

Plants c. 1 mm tall, pale yellowish green, becoming reddish brown above. Lower stem pale, fleshy, clavate; upper stem bearing several whorls of leaves; innermost leaves acting as deciduous propagules. Rhizoids a dense flocculent mass at the base of the stem. Leaves obovate or suborbicular, 300–500 µm long; upper lamina cucullate, obtuse or rounded at the apex, with or without an apiculus; costa subpercurrent to percurrent; margin plane, entire, crenulate towards the apex. Upper laminal cells quadrate to short-oblong, 10–20 µm wide, thick-walled, variably papillose; lower laminal cells smaller, smooth, transparent. Leaves of deciduous propagules rich in oil, with the costa greatly enlarged, occupying most of the lamina. Archegonia c. 250 µm long, axillary, naked.

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Occurs in semi-arid areas of W.A., S.A., N.S.W. and Vic.; usually in the soil crust on red sandy loam or on thin soil on rocky outcrops, in mallee or saltbush country.

W.A.: 5 miles [c. 8 km] S of Billabong (Wannoo) Roadhouse, *I.G.Stone 23520* (MEL); Wannoo Roadhouse, *I.G.Stone 8018* (MEL); S of Yarringa HS, *I.G.Stone 23510, 23511, 23514* (MEL); S of Billabong Roadhouse, *I.G.Stone 23520, 23526* (MEL); The Loop, Murchison Gorge, *I.G.Stone 6184* (MEL); L. Cowan, *I.G.Stone 5116, 5123* (MEL); *loc. id.*, *G.H.Bell 132* (AD); 88 km W of Eucla, *I.G.Stone 6126* (MEL); Madura Pass, *I.G.Stone 5108* (MEL); 93.6 km SE of Paynes Find on road to Cleary, *G.H.Bell 212* (AD); Kalgoorlie College field station, c. 2 km N of Kalgoorlie Airport, *D.J.Eldridge 3403* (UNSW); Lesmurdie Falls, *I.G.Stone 6216* (MEL); Norseman, *I.G.Stone 6129* (MEL); Salmon Gums, *G.H.Bell 486* (AD).

S.A.: 17.7 km E of W.A. border on Eyre Hwy, *G.H.Bell 515* (AD); Murrawijinie Caves, Nullarbor Natl Park, *N.N.Donner 7199* (CANB); Bunbinyunna Range, *J.A.Curnow 5877B* (CANB); Wilpena road, 21 km N of Hawker, *J.A.Curnow 5874B* (CANB); Yalata to Penong, *I.G.Stone 23650, 23651* (MEL); Drakes Nob, *J.A.Curnow 5868A* (CANB); Port Germein, *I.G.Stone 6055, 6057* (MEL); E of Tailem Bend, *I.G.Stone 23696, 23704* (MEL); 4 km SW of Mindarie on road to Karoonda, *G.H.Bell 543* (AD); Wyola Lakes, Great Victoria Desert, *D.E.Symon H4* (AD); Maralinga Village, *D.J.Eldridge 3507* (UNSW); Parachilna Ck, 25 Aug. 1984, *G.A.M.Scott s.n.* (MELU); Parachilna Gorge, Flinders Ra., *D.G.Catcheside 78.314* (AD); Wilpena Pound, 27 Aug. 1984, *G.A.M.Scott s.n.* (MELU); between Yalata and Penong, *I.G.Stone 23650, 23651* (MEL); 153 km E of Nullarbor, *I.G.Stone 6098* (MEL); Yunta, Koonamore Stn, *L.D.Williams 4750, 4751, 4758* (AD); between Ardrossan and Maitland, *I.G.Stone 6036* (MEL).

N.S.W.: Pooncarie, *I.G.Stone 11521, 11558* (MEL); 2 km S of Pooncarie, *I.G.Stone 11521, 11525, 11640* (MEL); Gap Creek Paddock, 3 km S of Fowlers Gap, *D.J.Eldridge BSCS 845* (NSW); 20 km N of Wilcannia, *I.G.Stone 11567* (MEL); 30 km N of Wilcannia, *I.G.Stone 11582* (MEL); 19.5 km N of Pooncarie on Menindee–Wentworth road, *G.H.Bell 823* (AD); 30.3 km SW of Annalara HS turnoff, 41.6 km NW of Wilcannia, *D.J.Eldridge BSCS 502* (NSW); Barrier Hwy, 20 km E of Cobar, *D.J.Eldridge BSCS 725* (NSW); 60 km NE of Broken Hill on the road to White Cliffs, *D.J.Eldridge BSCS 743* (NSW); Barrier Hwy, 9 km E of Emmdale, *D.J.Eldridge BSCS 232* (NSW); 10.5 km S of Broken Hill, foothills of the Barrier Ra., *D.J.Eldridge BSCS 207* (NSW); 1.3 km N of Nanda Tanks, 40 km NE of Pooncarie on the Pooncarie Loop Rd, *D.J.Eldridge BSCS 816* (NSW); 4.3 km SW of Nymagee on the Gilgunnia road, *D.J.Eldridge BSCS 629* (NSW); 5.7 km E of Manara Siding, on Broken Hill–Parkes railway line, *D.J.Eldridge BSCS 813* (NSW); 10 km SW of ‘Harriedale’ on ‘Loch Lily’ road, W of Silver City Hwy, S of Broken Hill, *D.J.Eldridge BSCS 1052* (NSW); 8 km SW of ‘Karinga’ HS, c. 70 km SW of Ivanhoe on the ‘Clarebank’–‘Baymore’ road, *D.J.Eldridge BSCS 113* (NSW); 2 km S of Pooncarie, *I.G.Stone 11521, 11525, 11640* (MEL); 214 km from Broken Hill on the road to Wentworth, *I.G.Stone 8262, 8265, 8266, 8292, 8297, 8308, 8311, 10145* (MEL); lakebed, Lake Mungo, 3 km E of Lunette off the tourist road, c. 120 km NW of Mildura, *D.J.Eldridge BSCS 905* (NSW); 1.8 km from the ‘Mungo’–‘Joulmie’ road, adjacent to ‘Mungo’–‘Joulmie’ boundary, c. 100 km NE of Mildura, *D.J.Eldridge BSCS 868* (NSW); N of Wentworth, *I.G.Stone 5233, 5235, 5236, 11509* (MEL); Wentworth to Milpara, *I.G.Stone 8256, 8251, 8257, 8259, 9546* (MEL); 30 km along the Renmark road N of Wentworth, *D.J.Eldridge BSCS 682* (NSW); Euston, *I.G.Stone 5227* (MEL); MacCullochs Ra., 31 km W of Emmdale Roadhouse on Barrier Hwy, *G.H.Bell 819* (AD); Yanco Glen, *I.G.Stone 5239* (MEL); Barrier Hwy, SW of Broken Hill, 2 Aug. 2003, *J.E.Plaza* (NSW); Kincheha Natl Park, 4 km N of rangers station on lunette of Emu L., *D.J.Eldridge BSCS 197* (UNSW); 9.5 km W of Roto on the Trida–Roto road, *D.J.Eldridge BSCS 1316* (UNSW); 19 km N of Pooncarie on Menindee–Wentworth Road, *G.H.Bell 821* (AD); Jim Barren Experimental Area, c. 8 km SE of Oxley, *D.J.Eldridge BSCS 3* (UNSW); Tchelery Experimental Area, c. 9 km NE of Tchelery HSD, *D.J.Eldridge BSCS 20* (NSW); Paradise Experimental Area, *D.J.Eldridge BSCS 953* (NSW); ‘North Bundy’ HS, c. 70 km SW of Hay, *D.J.Eldridge BSCS 917* (NSW).

Vic.: Hattah Lakes, *O.B.Lawson [I.G.Stone 9358]* (MEL); Boundary Bend, *I.G.Stone 1376, 1449B, 1591, 1376, 1372, 1508* (MEL); 52 miles [84 km] from Swan Hill, *I.G.Stone 1371* (MEL); Hopetoun–Patchewollock road, 23 Aug. 1980, *G.A.M.Scott* (MELU); 52 miles [84 km] from Swan Hill, *I.G.Stone 1371* (MEL); Hopetoun–Patchewollock road, 23 Aug. 1980, *G.A.M.Scott s.n.* (MELU); Boundary Bend, *I.G.Stone 1376* (MEL); Waterloo Cemetery, *H.M.Jolley 289* (MEL); N of Serpentine, *I.G.Stone 5210* (MEL); Brim Cemetery, *H.M.Jolley 234, 236, 304* (MEL); Wycheproof, *W.W.Watts 467* (NSW); Beulah, *A.C.Beaglehole 57327* (MEL); *loc. id.*, *H.M.Jolley 255* (MEL); Beulah Cemetery, *H.M.Jolley 214, 218* (MEL); Kenmare Cemetery, *H.M.Jolley 225* (MEL); Tyrrell Ck, *W.W.Watts Vict 534* (NSW); Wyperfeld Natl Park, Aug. 1977, *G.A.M.Scott s.n.* (MELU); Nyah, *H.M.Jolley 77* (MEL); *loc. id.*, *I.G.Stone 1503* (MEL); S of Boundary Bend, *H.M.Jolley 78* (MEL); Hattah Lakes Natl Park, *A.C.Beaglehole 57233* (MEL); 42 miles [67.6 km] N of Swan Hill, *I.G.Stone 1714* (MEL); Chalka Ck, Hattah, 23 Aug. 1980, *G.A.M.Scott s.n.* (MELU); Yatpool, *A.C.Beaglehole 57341* (MEL); Lake Danaher Bushland Reserve, *H.M.Jolley 177* (MEL); Rosebery East, *H.M.Jolley 191* (MEL).

Stone (1978) considered the possibility that her *Tortula oleaginoso* might be referable to an undescribed genus but, pending an examination of the sporophyte, she assigned it to *Tortula* due to its vegetative propagules. Zander (1989) described *Stonea*, with some similarities to

Syntrichia, in spite of the absence of male plants and sporophytes. During the current investigation, an immature sporophyte was observed in a collection by I.G.Stone (8265) from New South Wales. Initial observations of the sporophyte indicate an elongate seta and a narrowly conical calyptra c. 100 µm long. Pending the collection of mature sporophytes, this species is retained in *Stonea*.

Nematode galls were observed at the apices of several stems. The galls, resembling cleistocarpous capsules, were found to contain nematodes (Jolley & Hodda, 2009) representing an undescribed species of *Nothanguina* (Hodda, pers. comm. 2009).

Plants are very small and highly inconspicuous as they blend with sand grains of the substratum.