

# *Geranium caespitosum* E.James

Geraniaceae

**Syn.:** *G. atropurpureum* A.Heller, *G. coweni* Rydb., *G. eremophilum* Wooton & Standl., *G. fremontii* Torr. ex A.Gray, *G. marginale* Rydb., *G. parryi* A.Heller, *G. pattersonii* Rydb., *G. thermale* Rydb., *G. toquimense* N.H.Holmgren & A.H.Holmgren

**Description:** Perennial herbs, 30–50 cm tall, cespitose, pubescent, stems erect, often divaricately branched, leaves palmatifid to -sect, margins incised, or lobed, flowers light pink to purple, 3–4 cm across, in axillary cymes.

**Distribution:** W North America (N Mexico, Arizona, Colorado, Nevada, New Mexico, Texas, Utah, Wyoming).

**Habitat:** Damp understory of coniferous forests, canyons, along streams.



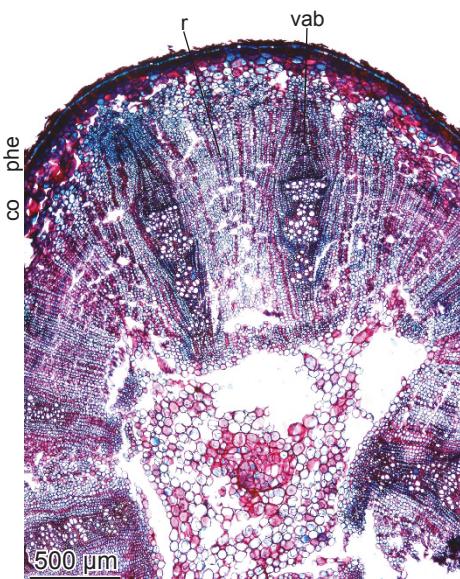
Steve O'Kane

Rhizome with a diameter of 7 mm. Xylem to bark ratio 1:1. Rings distinct. Maximal 4 rings. Mean ring width 0.3 mm. Analyzed: 1 individual.

## Xylem

### Transverse section

Semi-ring-porous. Ring boundaries marked by a difference in latewood (10–20 µm) and earlywood (35–45 µm) vessel diameters. Vessel outline angular. Vessels lignified, solitary and in small groups. Fibers thin- to thick-walled. Parenchyma paratracheal. Crystals absent. Shape of vascular bundles remaining over several years.



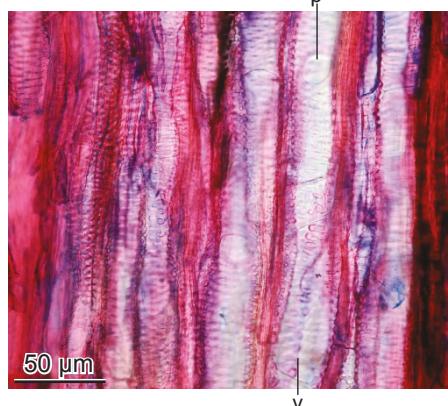
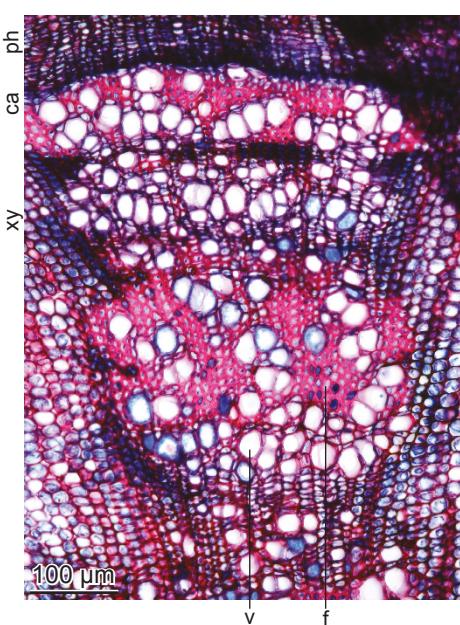
### Tangential section

Rays absent within vascular bundles. Rays >10-seriate between vascular bundles, confluent with the axial tissue.



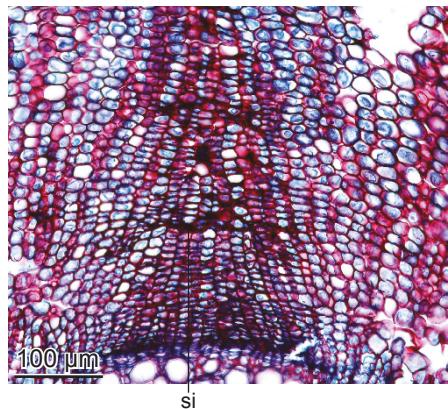
### Radial section

Perforation plates simple. Intervessel pits round. Vessel length 60–100 µm.



## Bark

Sieve elements and parenchyma uniform. Sclerenchyma absent. Phellem cells rectangular, in tangential rows.



## Pith

Polygonal.



Features according to IAWA and Crivellaro and Schweingruber 2015

Xylem 1 - 4 - 9 - 12 - 13 - 22 - 40.2 - 50.2 - 52.3 - 61 - 70 - 79.1 - 99 - 99.1 - 100.1 - 100.2 - 105