

I. ON SOIL OR MOSS. SPORES 8 PER ASCUS.

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1. Spores with more than 2 cells or loculi; lumina round, walls thick. Apothecia to 1.0 mm, flat to \pm convex.2

1. Spores with 2 cells.3

2. Sp. about 24-35 x 10-15 μ m. Thallus \pm dark gray-brown, greenish, or sordid yellowish gray, finely granulose or rugulose-verrucose, K-. Apothecial margin thick, \pm persistent. Widespread.R. conradii

2. Sp. 17.5-24.5 x 8.7-11.5 μ m. Thallus ochre to cinnamon-brown, granulose, K-. Apothecial margin thin, soon disappearing. Arizona.R. darrovii
(treated by Sheard as a synonym of R. conradii)

3. Medulla rather bright yellow. Subalpine. Washington. R. sp. (probably undescribed).

3. Medulla white. 4

4. Spores over 25 μ m long. Hymenium about 100 μ m or more high. Apothecia generally about 1 mm wide.5

4. Spores under 25 μ m long. Hymenium 80-85 μ m high (if thallus squamulose-lobate, see Phaeorrhiza). 9

5. Thallus thick, granulose-verrucose to coralloid. Apothecia to 1-1.5 mm. Thallus and apothecia not pruinose. Lower cortex of apothecia \pm indistinct, l-, dark below, not expanded; paraphyses tips to 3.5 μ m; spores 25-32 x 12-17 μ m, Phycia-type. 6

5. Thallus thin or indistinct, finely granulose. 7

6. Thallus brown-red (pale to dark gray or brownish according to Fox & Purvis), coarsely warted, granular, K-; apothecia becoming very convex and immarginate.R. mniaraea

6. Thallus gray or whitish, K+ yellow; apothecia \pm plane.R. mniaraeiza

7. Thallus and apothecial disc white pruinose; amphithecium margin with oxalate crystals, no expanded lower cortex. Apothecia with persistently plane disc and prominent margins. Paraphyses tips to 7 μ m. Spores 25-35(-38) x 11-12(-17) μ m.R. roscida

7. Thallus and apothecia not pruinose; no oxalate crystals. 8

8. Paraphyses coherent. Apothecia to 1.5-2 mm wide; lower cortex expanded, I+ faint blue. Discs persistently plane; margin prominent. Thallus gray-white to brownish gray, K-, P-. Spores \pm *Physcia* type, the apical wall convex inward; with isthmus, 26-35 x 11-14 μ m. Arctic-alpine.*R. turfacea*

8. Paraphyses free. Apothecia under 0.5 mm wide, black, bare, the margin concolorous with disc. Thallus indistinct. Spores 22-30 x 9-15 μ m, polarlocular, with isthmus, walls \pm thick. On *Lycopodium*, New Mexico.*R. lycopodiicola*

9. Thallus pale gray, K+ yellow. Apothecia to 1.5 mm. Spores 20-24 x 10-12(-14) μ m, \pm *Physcia*-type. California to British Columbia.*R. bolanderi*

9. Thallus gray-brown, K-; apothecia under 0.5 mm, marginate at least when young. Hypothecium hyaline. Boreal or Arctic-alpine. 10

10. Spores with hyaline appendages at ends, 22-25 x 8-9 μ m, \pm *Orcularia*-type, walls thickened at apices and septum. Thallus very thin, whitish to gray-brown, K-. Apothecia to 0.5 mm, black-brown, contiguous, margin \pm crenulate. Cortex thin or indistinct, cells 4-5 μ m. Hymenium 80-85 μ m.*R. mucronatulum*

10. Spores without appendages. 11

11. Spores 17-20 x 7-8.5 μ m, wall convex thickened inward. Apothecial margin brown.*R. lecideoides*

11. Spores 20-25 x 8.5-10 μ m, \pm *Orcularia*-type, wall not convex thickened inward. Apothecial margin gray-white. Cortex with cylindrical hyphae.*R. olivaceobrunnea*