

**Cladonia polydactyla** (Floerke) Spreng. (Synonym *C. flabelliformis* (Flk.) Vain.)

This species is more common than existing records indicate:

— **f. tubaeformis** Flk.

Longwood Range (6903); Cobb R., Nelson (7271); Cascade Creek (4490); Awarua Bay (8160); Tophouse (3028); Ruahine Range (4593).

— **f. scabriuscula** (Del.).

Kuriwao, Southland (8015); Tophouse (4723); Mihiwaka, Dunedin (553a); Rotorua (K2, D.S.I.R.); Homer Tunnel (4425).

— **f. intertexta** Vain.

Wairau Valley (4290); Cascade Creek (4431).

**Cladonia murrayi** sp nov.

TYPE. New Zealand; lodged in herbarium Botany Division D.S.I.R., Lincoln, N.Z.

DESCRIPTION. Plantae dense caespitosae. Thallus primarius persistens, squamis caespitosis majusculis, 2–3cm longis, 1–1.5cm latis, basi emoriente, multo palmate pinnateque ramosis, summis laciniiis rigidus, ad 1cm longis, lobatis, aliquando tuberculosus, apicis saepe reflexis, subtus albis ad vasi aureis, superne pallido-glauciscentibus, esorediosis, K + flavescens; P + flavescens dein rubra.

Pseudo-podetia 3–20mm longa, simplicia aut irregulariter ramosa, cortica vel ecorticata, apotheciis terminata, cortice areolato vel isidivideo-squamuloso. Apothecia coccinea, ± globosa, .5–1mm diam., solitaria vel aggregata, sporis oblongis ( $10.5\text{--}12\mu \times 3\mu$ ). Spermagonia non visa.

Primary thalli 2–3cm long, 1–1.5cm wide, erect, palmately and pinnately divided, and aggregated into dense cushions 4–10cm in diameter, dying at base, only the upper laciniae remaining alive. Terminal laciniae .5–1cm long, narrow, lobulate, somewhat tuberculate, thick, with ultimate lobes ± reflexed, white below merging into orange-brown at the base; grey-green, glaucescent, or whitish above. Medulla white, also turning golden at base. Algal layer disintegrating with age into close or distant areoles or into isidioid squamules; cortex hyaline, uneven, ± 25μ thick; algae 8–12μ diam., probably *Trebouxia*. Spermagonia not seen. Apothecia globular or sub-globular, scarlet above, often brown at the base, .5–1mm diam., sometimes single, more often in aggregates at tips of pseudo-podetia formed by podetia-like extensions of the primary thallus, lacking a central canal, but dividing into separate or agglutinate slender fibres, each terminated by the apothecia. The hypothecium is very thin or almost absent; hymenium about 45μ high, ± interspersed with red granules (K + crimson), paraphyses conglutinate, simple, 2μ diam., with inflated tips; asci about 40μ × 8μ.

DISTRIBUTION. Secretary Island, in Doubtful Sound, West Otago, in moss at an altitude of 1,000 metres.

This distinct species is distinguished from all other members of the *Cocciferae* in New Zealand in its formation of dense cushions and in bearing the apothecia on podetia-like extensions of the ultimate laciniae. The cushions are so compact as to exclude light, causing the death of the lower portions of the thalli, which thus form an amorphous mass from which it is difficult to isolate the individual squamae. This species was discovered by the late Dr James Murray, of Otago University, for whom it is named.

**Cladonia cocciferae** (L.) Willd.

Though not a common species, the following forms have been noted:

— **var. stemmatina** Ach.

Near Taupo (L.209a); Kaiangaroa Plains (L.210).

— **f. grandis** Kremp.

Ohakune (J.E.A. A.504); Taupo (K.W.A. L.209).

— **f. phyllocoma** Flk.

Awarua Bay (8087); Black Gully, Blue Mts, Otago (9000).

— **f. asotea** Ach.

Awarua Bay (8164).