



*Phytotaxa* 120 (1): 1–194 (2013)  
www.mapress.com/phytotaxa/  
Copyright © 2013 Magnolia Press

Monograph

ISSN 1179-3155 (print edition)  
**PHYTOTAXA**  
ISSN 1179-3163 (online edition)



<http://dx.doi.org/10.11646/phytotaxa.120.1.1>

# PHYTOTAXA

120

## **The lichen genera *Aspiciliopsis*, and *Placopsis* (*Trapeliales*: *Trapeliaceae*: *Ascomycota*) in New Zealand**

DAVID J. GALLOWAY

*Landcare Research New Zealand Ltd, Private Bag 1930, Dunedin 9054, New Zealand*  
*e-mail: Gallowayd@LandcareResearch.co.nz*



Magnolia Press  
Auckland, New Zealand

*Accepted by Thorsten Lumbsch: 8 Apr. 2013; published: 5 August 2013*

David J. Galloway

**The lichen genera *Aspiciliopsis*, and *Placopsis* (*Trapeliales: Trapeliaceae: Ascomycota*) in New Zealand**  
(*Phytotaxa* 120)

194 pp.; 30 cm.

5 August 2013

ISBN 978-1-77557-232-9 (paperback)

ISBN 978-1-77557-233-6 (Online edition)

FIRST PUBLISHED IN 2013 BY

Magnolia Press

P.O. Box 41-383

Auckland 1346

New Zealand

e-mail: [magnolia@mapress.com](mailto:magnolia@mapress.com)

<http://www.mapress.com/phytotaxa/>

© 2013 Magnolia Press

All rights reserved.

No part of this publication may be reproduced, stored, transmitted or disseminated, in any form, or by any means, without prior written permission from the publisher, to whom all requests to reproduce copyright material should be directed in writing.

This authorization does not extend to any other kind of copying, by any means, in any form, and for any purpose other than private research use.

ISSN 1179-3155 (Print edition)

ISSN 1179-3163 (Online edition)

## Table of contents

Abstract .....	4
Introduction .....	4
<i>Placopsis</i> in New Zealand: an historical Synopsis .....	6
Methods .....	12
Morphology and anatomy .....	12
Morphology .....	12
Thallus .....	12
Cephalodia .....	12
Isidia .....	13
Maculae .....	13
Papillae .....	13
Pseudocyphellae .....	13
Pruina .....	14
Punctate depressions .....	14
Soredia .....	14
Ascomata .....	14
Conidiomata .....	15
Anatomy .....	15
Thallus .....	15
Ascomata .....	16
Chemistry .....	16
Lichenicolous fungi .....	17
Ecology .....	17
Biogeographical notes .....	20
Conservation status .....	22
Key to <i>Aspiciliopsis macrophthalma</i> and species of <i>Placopsis</i> in New Zealand .....	22
<i>Aspiciliopsis</i> (Müll.Arg.) M.Choisy .....	25
<i>Aspiciliopsis macrophthalma</i> (Hook.f. & Taylor) B. de Lesd. ....	25
<i>Placopsis</i> (Nyl.) Linds. ....	30
The Species .....	30
<i>Placopsis ampliata</i> (I.M.Lamb) D.J.Galloway .....	30
<i>Placopsis argillacea</i> (C. Knight) Malcolm & Vězda .....	33
<i>Placopsis aspicilioides</i> D.J.Galloway .....	37
<i>Placopsis bicolor</i> (Tuck.) B. de Lesd. ....	41
<i>Placopsis brevilobata</i> (Zahlbr.) I.M. Lamb .....	44
<i>Placopsis campbelliana</i> Imshaug ex D.J.Galloway <i>sp. nov.</i> Fig. 12. MycoBank No.: MB 516035 .....	48
<i>Placopsis centrifuga</i> D.J.Galloway .....	51
<i>Placopsis clavifera</i> (I.M. Lamb) D.J. Galloway .....	54
<i>Placopsis cribellans</i> (Nyl.) Räsänen .....	59
<i>Placopsis dennanensis</i> (Zahlbr.) I.M.Lamb ex D.J.Galloway .....	64
<i>Placopsis durietziorum</i> D.J.Galloway .....	67
<i>Placopsis dusenii</i> I.M.Lamb .....	70
<i>Placopsis elixii</i> D.J.Galloway .....	73
<i>Placopsis erosa</i> D.J.Galloway <i>sp. nov.</i> Fig. 20. MycoBank No.: MB 516036 .....	77
<i>Placopsis fuscidula</i> I.M.Lamb ex Räsänen .....	81
<i>Placopsis fusciduloides</i> D.J.Galloway .....	85
<i>Placopsis gelida</i> (L.) Linds. ....	89
<i>Placopsis gelidioides</i> Du Rietz ex I.M. Lamb .....	94
<i>Placopsis hertelii</i> D.J. Galloway .....	97
<i>Placopsis illita</i> (C. Knight) I.M. Lamb .....	101
<i>Placopsis lambii</i> Hertel & V.Wirth .....	105
<i>Placopsis lateritioides</i> I.M. Lamb .....	109
<i>Placopsis macrospora</i> D.J.Galloway .....	112
<i>Placopsis microphylla</i> (I.M. Lamb) D.J. Galloway .....	115
<i>Placopsis murrayi</i> D.J.Galloway .....	119
<i>Placopsis perrugosa</i> (Nyl.) Nyl. ....	124
<i>Placopsis polycarpa</i> D.J.Galloway .....	135

<i>Placopsis pruinosa</i> D.J.Galloway .....	138
<i>Placopsis rhodocarpa</i> (Nyl.) Nyl.....	141
<i>Placopsis rhodophthalma</i> (Müll.Arg.) Räsänen .....	145
<i>Placopsis salazina</i> I.M.Lamb .....	150
<i>Placopsis stenophylla</i> (Hue) I.M.Lamb .....	154
<i>Placopsis subscribellans</i> (I.M.Lamb) D.J. Galloway .....	157
<i>Placopsis subgelida</i> (Nyl.) Nyl. ....	161
<i>Placopsis subparellina</i> Nyl. ....	165
<i>Placopsis tararuana</i> (Zahlbr.) D.J. Galloway .....	169
<i>Placopsis trachyderma</i> (Kremp.) P. James .....	173
<i>Placopsis venosa</i> Imshaug ex D.J.Galloway .....	177
Excluded, synonymous or doubtful names .....	180
Acknowledgements .....	181
References .....	182

## Abstract

*Aspiciliopsis macrophthalma* and 38 species of *Placopsis* are recognized in the New Zealand mycobiota. *Placopsis campbelliana*, and *P. erosa* are newly described. A key to species is given, together with details of synonymy and typification, descriptions of all taxa, their chemistry, distribution, ecology and biogeographical affinities. Lichenicolous fungi parasitising species of *Placopsis* are recorded. The importance of *Placopsis* as a fast-growing and active nitrogen-fixer in natural ecosystems is noted as well as the role of certain species in processes of soil consolidation and natural environmental repair processes. The utility of some species for lichenometric studies in recently deglaciated environments of the Southern Hemisphere is also noted.

**Key words:** New Zealand lichens, biogeography, chemistry, lichenicolous fungi, environmental restoration, lichenometry, nitrogen fixation

## Introduction

The name *Placopsis* was first established, at the rank of subgenus, by William Nylander for the taxa *Squamaria gelida* (L.) Hook. [sic.] and *S. rhodocarpa* Nyl., in an account of lichens from the Bolivian Andes collected by D. Mandon (Nylander 1861: 376). Earlier, Nylander included taxa now recognised in *Placopsis*, in the genera *Lecanora* and *Squamaria* (Nylander 1855, 1858). Subsequently, he was unsure of the correct status of *Placopsis* either as an independent genus or as a subgenus of *Lecanora*, and it was in this latter category that he placed it in later publications on New Zealand lichens (Nylander 1865, 1866). The Scottish lichenologist, William Lauder Lindsay (1829–1880), however, was the first to record *Placopsis* as an independent genus when he reported “*Placopsis gelida* L. and *P. perrugosa* Nyl.” in a list of lichens that he collected in Otago in 1861 (Lindsay 1866a: 353). As a commentary to his account of *P. gelida* from Otago, Lindsay stated “...*Placopsis* is the latest secession from *Squamaria* or *Lecanora*, as *Parmeliopsis* is from *Parmelia*. I cannot agree with Nylander as to the necessity for such dissociation, preferring to regard them as groups of an old genus rather than themselves the types of new genera. The passage genera between *Parmelia* and *Lecanora* appear to me to be unnecessarily numerous (especially *Pyxine*, *Psoroma*, *Pannaria*, *Coccocarpia*, *Amphiloma*, *Squamaria*, *Placodium*, *Placopsis*, which, I think, might be reduced, and united, with great advantage to classification)...” (Lindsay 1866b: 536). Fortunately, Lindsay did not persist with his somewhat confused ideas of lichen classification, even though it was a topic that exercised his mind a good deal in the mid to late 1860s, and was one on which he later intended to elaborate in a projected, but never published, textbook of lichenology [This work, entitled “I. Outlines of Lichenology” and “II. Lichenologica Britannica” was advertised *in extenso* on the back cover of Lindsay’s book “Contributions to New Zealand Botany” (Lindsay 1868)]. Nylander also later used *Placopsis* as a genus in Krempelhuber (1868), and in his final treatment of New Zealand lichens (Nylander 1888b: 56–58), though in his contemporaneous account of the lichens of Fuegia and Patagonia (Nylander 1888a), he lists