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## Fungi on pohutukawa and other *Metrosideros* species in New Zealand

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**Abstract** An annotated list is presented of all fungi known to be associated with indigenous species of *Metrosideros* in New Zealand. This includes information on 209 species of fungi, with records taken from the literature, as well as unpublished information associated with specimens held in Herbarium PDD and in Herbarium NZFRI(M). There are relatively few primary pathogens or other fungi specifically associated with *Metrosideros*. Some secondary pathogens may play a role in dieback of *Metrosideros* spp., especially following possum browsing. Many wood-rotting basidiomycetes and other saprobes are included. A few endophytic fungi have been isolated from symptomless leaves. Some non-specific vesicular-arbuscular mycorrhizal fungi are listed, but mushroom-like fungi are rarely recorded as *Metrosideros* does not form endotrophic mycorrhizal associations.

**Keywords** pathogens; saprobes; checklist; *Metrosideros*

### INTRODUCTION

The genus *Metrosideros* (Myrtaceae) consists of 50–60 species, which grow as shrubs, trees, or woody lianas. The genus occurs in South Africa, Celebes, Moluccas, New Guinea, Australia, New Zealand,

and Polynesia. There are 12 endemic species and one endemic variety in New Zealand (Allan 1961; Connor & Edgar 1987). Some are an important and striking component of the flora including the well known New Zealand icon *M. excelsa* (pohutukawa or New Zealand Christmas tree), the strangling hemi-epiphyte *M. robusta* (northern rata), and *M. umbellata* (southern rata).

Most of the species have a restricted distribution. For example, *M. kermadecensis* grows naturally only in the Kermadec Islands, and *M. bartlettii*, a tree which was not described until 1986, is found only in a restricted area in Northland. *M. excelsa*, which is typically a coastal plant, is found naturally in the Three Kings Islands and southwards to Poverty Bay and Urenui, although it is widely planted and reproduces further south. A few species have been introduced for ornamental purposes.

### BIOLOGICAL ASSOCIATIONS OF FUNGI REPORTED FROM *METROSIDEROS*

Most of the fungi reported from *Metrosideros* spp. are saprobes, forming their fruiting bodies on dead leaf or woody tissue. Some of these fungi have been reported only from *Metrosideros*, and they may be host-specific. The widespread root-rotting pathogen *Phytophthora cinnamomi* has been reported on *Metrosideros*, as have several fungi which cause leaf spots. One of these, an undescribed *Leptomelanconium* sp., is widespread and common on pohutukawa. Although levels of infection can be high on individual trees, its effect on plant vigour is not known. Rata and southern rata are being severely damaged by possums in some localities (Payton 1988; Cowan et al. 1997). Payton (1988) noted that once the canopy has been opened by possum browsing, dieback continues even with no further browsing. This dieback is likely to be caused in part by fungal pathogens. Situations such as this, with trees damaged and under stress, may allow fungi which are normally benign or which cause low amounts of disease to become serious pathogens. Possible

changes in the ecology and pathogenicity of natural fungal populations of *Metrosideros* spp. following possum damage have yet to be investigated.

The lower surfaces of pohutukawa leaves often have a well developed tomentum of leaf hairs. This tomentum is typically heavily infected by several fungi, including *Meliolina novae-zealandiae* which develops large, black colonies on the underside of the leaves. The undersides of these leaves are often grazed by fungal feeding mites. Although *M. novae-zealandiae* is probably a mild pathogen, the biological relationship between these fungi, their host tree, and the mites and insects feeding on them has not been investigated.

Fruit-bodies of typical ectotrophic mycorrhizal fungi are not found associated with *Metrosideros* spp., although other genera within the family Myrtaceae (e.g., *Eucalyptus*, *Kunzea*, *Leptospermum*) are typically ectomycorrhizal. Except for *Nothofagus* and *Leptospermum/Kunzea* communities, most vascular plants in New Zealand presumably contain vesicular-arbuscular Endogonaceae as the only important mycorrhizal symbionts. These mycorrhizae are seldom host specific. The mycorrhizal status of *Metrosideros* in New Zealand has been investigated only for *M. umbellata*, which forms mycorrhizae with various Endogonaceae including *Acaulospora laevis*, *Glomus pallidus*, *G. cf. macrocarpus* var. *macrocarpus*, and a "fine endophyte" (Hall 1977). Wardle (1971) noted mycorrhizal roots in plants of *M. umbellata* growing in sand at Omihi, North Canterbury.

As with all other plants investigated, apparently healthy, symptomless leaves of pohutukawa and other *Metrosideros* species contain endophytic fungi at high frequencies (P. R. Johnston unpubl. data). In pohutukawa, the endophytes associated with the upper surface of the leaves are distinct from those associated with the lower surface. Most of the fungi isolated from the lower surface are generalists, commonly isolated as endophytes from a range of other host species, as well as being common on dead and dying plant tissue and bark. Isolations from the upper surface are dominated by two species of undetermined fungi which may be specific to pohutukawa. They are possibly members of the ascomycete family Sclerotiniaceae, perhaps two of the cup-fungi which have been reported fruiting on fallen leaves of pohutukawa. Isolations of leaf endophytes from *M. scandens* revealed a different set of species to those found on pohutukawa; a *Colletotrichum* sp. and a *Cryptosporiopsis* sp. are the two fungi most frequently isolated.

This survey of published and herbarium records of fungi on *Metrosideros* species in New Zealand was carried out to provide an account of the fungal biodiversity associated with *Metrosideros*, and to pin-point any potentially pathogenic relationships. All specimens held in PDD and NZFRI(M) are listed. Where there are published records of a fungus occurring on *Metrosideros* spp. in New Zealand, then details are given after a long dash (—) immediately following each species name and literature citation. New Zealand distribution is assigned to geographical areas as defined by Crosby et al. (1998).

### FUNGI RECORDED ON *METROSIDEROS* SPP. IN NEW ZEALAND

This study lists 209 species of fungi which have been found associated with indigenous species of *Metrosideros* in New Zealand. Fungi have been recorded on all native species except *M. carminea* W.R.B.Oliv., *M. colensoi* Hook.f., and *M. colensoi* var. *pendens* (Colenso) Kirk. There are no records of fungi on introduced species. The fungi are listed under separate broad taxonomic groups following Hawksworth et al. (1995): Ascomycota, Basidiomycota, Myxomycota, Oomycota, Zygomycota, and the Mitosporic Fungi. Within the Basidiomycota, separate lists are provided for Agaricales, Aphyllophorales, and Auriculariales. Lichenised fungi are not included.

Herbarium abbreviations follow Holmgren et al. (1990).

The *Metrosideros* species are abbreviated as follows: MAL = *Metrosideros albiflora* Sol. ex Gaertn.; MBA = *M. bartlettii* J.W.Dawson; MDI = *M. diffusa* (Forst.f.) Smith; MEX = *M. excelsa* Sol. ex Gaertn.; MFU = *M. fulgens* Sol. ex Gaertn.; MKE = *M. kermadecensis* W.R.B.Oliv.; MPA = *M. parkinsonii* Buchanan; MPE = *M. perforata* (Forst & G.Forst.) A.Rich.; MRO = *M. robusta* A.Cunn.; MSP = *Metrosideros* sp.; MUM = *M. umbellata* Cav.

### ASCOMYCOTA

*Acrogenotheca elegans* (L.R.Fraser) Cif. & Bat., *Saccardo* 2: 52, 1963. — Hughes 1967.

MDI. A sooty mould common on many hosts in New Zealand. (Taupo: PDD 21036.)

*Asterina sublibera* Berk., in Hook.f., *Fl. Nov.-Zel.* 2: 208, 1855. — Berkeley 1855.

MDI. On leaves.

*Bisporella citrina* (Batsch) Korf & S.E.Carp., *Mycotaxon* 1: 58, 1974.

MRO. A saprobe, common on fallen twigs and wood of many plants. (Coromandel: PDD 21864; Westland: PDD 19396.)

*Bisporella claroflava* (Grev.) Lizon & Korf, *Mycotaxon* 54: 474, 1995.

MSP. Common on many hosts, especially in the north of the country. A saprobe on fallen wood and palm fronds. Often associated with a *Bloxamia* anamorph. (Wanganui: PDD 46157.)

*Bisporella* sp.

MEX. On fallen leaves. Known from a single collection, it is distinct from the common and widespread species *B. claroflava* and *B. citrina*. (Coromandel: PDD 56854.)

*Botryosphaeria* sp.

MSP. Associated with a leaf edge necrosis. (Hawke's Bay: NZFRI(M) 3647.)

*Calyculosphaeria* sp.

MEX. Large, dark ascomata forming in fissures on bark. (Auckland: PDD 57080.)

*Chaetosphaeria novae-zelandiae* S.Hughes & Shoemaker, *New Zealand J. Bot.* 3: 138, 1965. — Hughes 1965a.

MRO. Common on dead wood of many plants throughout the country; associated with a *Catenularia* anamorph. (Auckland: PDD 21603 (type).)

*Chaetosphaeria* sp.

MRO. A saprobe on decorticated wood. (Auckland: PDD 23011.)

*Chaetothrium strigosum* L.R.Fraser, *Proc. Linn. Soc. New South Wales* 60: 288, 1935.

MUM. A saprobe on decorticated wood. (Coromandel: PDD 18478.)

*Chlorociboria aeruginascens* (Nyl.) Kan. ex C.S.Ramamurthi, Korf & L.R.Batra, *Mycologia* 49: 858, 1958.

MRO. A saprobe with ascomata developing on decorticated wood which the fungus stains green. Common on a range of hosts from Taupo southwards. (Westland: PDD 14352.)

*Coccomyces globosus* P.R.Johnst., *New Zealand J. Bot.* 24: 99, 1986. — Johnston 1986, 1992.

MFU, MRO, MUM. Common on fallen leaves of *M. fulgens* and *M. umbellata*, rare on *M. robusta*. In New Zealand this species is common also on fallen leaves of *Weinmannia* and *Nestegis* spp. Known also

in Australia. (Auckland: PDD 43034, 44646; Coromandel: PDD 45360, 45361; Nelson: PDD 57125; Westland: PDD 57572; Southland: PDD 57540.)

*Coccomyces limitatus* (Berk. & M.A.Curtis) Sacc., *Syll. Fung.* 8: 747, 1889. — Johnston 1986, 1992. MFU, MKE. Widespread and common on fallen leaves of many trees throughout the northern half of New Zealand. Known also from Australia, tropical Asia, and Central America. (Kermadec Islands: PDD 54665; Auckland: PDD 45196; Coromandel: PDD 45362, 46176.)

*Coccomyces radiatus* Sherwood, *Occas. Pap. Farlow Herb. Cryptog. Bot.* 15: 84, 1980. — Johnston 1986, 1992.

MFU. Widespread and common on fallen leaves of many trees throughout the northern half of New Zealand. Also known from Australia, tropical Asia, and Central America. (Coromandel: PDD 45363.)

*Cryphonectria radicalis* (Schwein.) M.E.Barr, *Mycol. Mem.* 7: 144, 1978.

MEX. Saprobic on several hardwood trees in Europe, North America, and Japan. Several collections are deposited in PDD as this species, on wood and roots of *M. excelsa*, and from dead and living roots of other host trees. The morphologically similar *Endothia metrosideri* (Roane & Fosberg) M.E.Barr, associated with recently dead *M. polymorpha* trees in Hawaii, is a different fungus. (Auckland: PDD 5166, 28479; Coromandel: PDD 5141; Stewart Island: PDD 28480, 28481.)

*Cudoniella acicularis* (Bull.) J.Schröt., in Cohn, *Krypt.-Fl. Schlesien* 3: 21, 1893.

MSP. A saprobe on decorticated wood. Several specimens in PDD on other hosts are referred to *Cudoniella* sp.; the genus remains to be treated in detail for New Zealand. (Auckland: PDD 28551.)

*Daldinia concentrica* (Bolton) Ces. & De Not., *Comm. Soc. Crittogam. Ital. Milan* 1: 197, 1863. — McKenzie 1992.

MEX, MKE. Forms large, black fruiting bodies (cramp balls) on fallen wood of many trees in New Zealand. Cosmopolitan in distribution. (Kermadec Islands: PDD 54733; Northland: PDD 28779.)

*Diatrype princeps* Penz. & Sacc., *Malpighia* 11: 501, 1897.

MEX. On bark of fallen branches. Originally described from Java, this species has been also reported from *Metrosideros* in Hawaii (Stevens 1925). (Auckland: PDD 28718, 28719; Coromandel: PDD 28478, 28717.)

*Dothiorella* sp. — Hosking & Hutcheson 1993.

MEX. Associated with a wilting of newly expanding shoots. Most wilting was because of damage by larvae of the weevil *Neomycta rubida* Broun and the tortricid moth *Ctenopseustis obliquana* (Walker). However, isolations made from shoots in which the wilt was not immediately attributable to insect damage consistently yielded the fungus. Shoot wilt may contribute to the decline of specific, very old trees which are also under severe pressure from possums.

*Euantennaria caulicola* S.Hughes, *New Zealand J. Bot.* 12: 324, 1974. — Hughes 1974.

MFU. A sooty mould common on a wide range of plants throughout New Zealand. Also known from Australia and Chile.

*Euantennaria novae-zelandiae* S.Hughes, *New Zealand J. Bot.* 12: 313, 1974.

MSP. A sooty mould found on a wide range of plants throughout New Zealand. (Westland: PDD 24553.)

*Hymenoscyphus* sp. — McKenzie 1992.

MEX, MKE. Small, yellow discomycete found on fallen leaves and flower parts. (Kermadec Islands: PDD 54668; Auckland: PDD 65058; Coromandel: PDD 63195.) Other *Hymenoscyphus* spp. have been found on fallen leaves of *M. umbellata*, each collection appearing to represent a distinct species. (Westland: PDD 50162; Mid Canterbury: PDD 64861, 64863.)

*Hypocrea coprosma* Dingley, *Trans. & Proc. Roy. Soc. New Zealand* 79: 328, 1952.

MUM, MRO. A saprobe, found throughout New Zealand on fallen wood of a wide range of plants. (Auckland: PDD 14688, 14689.)

*Hypoxyton archeri* Berk., in Hook.f., *Fl. Tasman.* 2: 280, 1859.

MEX, MUM, MRO. Forming fruiting bodies on wood and bark of many trees throughout New Zealand. Originally described from Tasmania; Miller (1961) reports the same species from tropical America. (Northland: PDD 16210; Auckland: PDD 16209, 20814; Westland: PDD 16211; Stewart Island: PDD 16212.)

*Hypoxyton truncatum* (Schwein.) J.H.Mill., *Trans. Brit. Mycol. Soc.* 17: 130, 1932.

MEX, MRO. Many specimens have been filed under this name in PDD, from a wide range of hosts from throughout the North Island. The New Zealand specimens need re-assessing following Ju & Rogers (1996), who treated *H. truncatum* in a more narrow sense than Miller (1961). (Northland: PDD 26047, PDD 40949; Auckland: PDD 23576, 234579.)

*Hysterium* sp.

MEX. A saprobe on bark of fallen branch and decorticated wood. (Northland: PDD 46718; Coromandel: PDD 45383, 46767.)

*Kretzschmaria deusta* (Hoffm.) P.Martin, *J. S. African Bot.* 36: 80, 1970.

MSP. Rogers et al. (1998) noted that *K. deusta* is distributed mainly in north temperate regions. New Zealand specimens attributed to this species have not been critically evaluated. (Buller: PDD 50095.)

*Lanzia berggrenii* var. *metrosideri* (Dennis) Spooner, *Biblioth. Mycologica* 116: 377, 1987. — Dennis 1961 as *Helotium metrosideri*, 1964 as *Hymenoscyphus metrosideri*; Spooner 1987.

MFU, MRO, MUM. A discomycete common throughout the country on fallen leaves of *M. fulgens* and *M. umbellata*, with a single collection on *M. robusta*. (Northland: PDD 42063, 60160; Auckland: PDD 19040, 19379, 32700; Coromandel: PDD 46259; Taranaki: PDD 50156; Wanganui: PDD 45598; Wellington: PDD 68704; Nelson: PDD 55500, 58101, 68702; Buller: PDD 64820, 68701; Westland: PDD 57560; Marlborough Sounds: PDD 68703; Mid Canterbury: PDD 64860; Stewart Island: PDD 57534, 57697.)

*Lanzia* sp.

MEX. A large, red discomycete on fallen leaves; distinct from *L. berggrenii* var. *metrosideri*. Macroscopically similar discomycetes occur on fallen leaves of two other trees, *Griselinia lucida* and *Coprosma* sp., but the species on each host are microscopically distinct. (Northland: PDD 54113; Auckland: PDD 65059, 66899; Coromandel: PDD 63187, 65041; Westland: PDD 57536.)

*Lasiosphaeria depilata* Fuckel, *Symb. Mycol. Nachr.* 2: 27, 1873. — Rossman 1977.

MRO. *Lasiosphaeria* spp. are common throughout New Zealand on fallen wood of many trees. The genus has not been treated critically for New Zealand, and most collections in PDD are unidentified to the species level. (Auckland: PDD 39504.)

*Lasiosphaeria raciborskii* (Penz. & Sacc.) G.C.Carroll & Munk, *Mycologia* 56: 91, 1964.

MRO. See notes under *L. depilata*. (Waikato: PDD 47542.)

*Lophiostoma* sp.

MRO. A saprobe on fallen bark. (Waikato: PDD 47541.)

*Lophodermium agathidis* Minter & Hettige, *New Zealand J. Bot.* 21: 39, 1983. — Johnston 1989, 1992.

MEX, MFU, MRO, MUM. Commonly found on fallen leaves of *M. fulgens* and *M. umbellata*, rarely on *M. excelsa* and *M. robusta*. Also known from the leaves of other woody plants in New Zealand, Australia, tropical America, and tropical Asia. (Auckland: PDD 43035, 43064, 43256, 43261, 43275, 45556, 45558, 46645, 49372; Coromandel: PDD 46177, 46377, 46893, 49371, 55279, 55386; Waikato: PDD 49373; Wanganui: PDD 48168; Buller: PDD 49374; Westland: PDD 57573.)

*Lophodermium brunneolum* P.R.Johnst., *New Zealand J. Bot.* 27: 251, 1989.

MUM. *L. brunneolum* was reported as common on fallen leaves of *Dracophyllum* spp. and *Knightia excelsa* by Johnston (1989), however, as noted by Johnston (1994), collections on these two species differ slightly in ascospore morphology, and probably represent distinct species. The single, small collection known from *M. umbellata* leaves has ascospores matching those of the form found on *K. excelsa*. (Westland: PDD 57541.)

*Lophodermium mahuianum* P.R.Johnst., *New Zealand J. Bot.* 27: 259, 1989. — Johnston 1992.

MUM. This widespread species is found on fallen leaves of many plants throughout the country. Also widespread in Australia, this fungus was originally described from Tasmanian material under the name *Colpoma eucalypti* Rodway. The placing of *L. mahuianum* in synonymy with a recombined *Colpoma eucalypti* has been proposed (Johnston in press). (Nelson: PDD 55273.)

*Lophodermium minus* (Tehon) P.R.Johnst., *Sydowia* 41: 174, 1989. — Johnston 1989 as *L. multi-matricum*, 1992.

MFU, MRO, MSP. Common on fallen leaves of many plants throughout the country. (Auckland: PDD 40011, 43257, 43260, 43263, 66410; Nelson: PDD 57126; Buller: PDD 46143.)

*Meliolina metrosideri* S.Hughes, *Mycol. Pap.* 166: 104, 1993. — Hughes 1993.

MUM. A mild pathogen, causing circular, sooty blotches on the upper leaf surface. (Westland: PDD 17250 (type), 68425.)

*Meliolina novae-zealandiae* Hansf., *Proc. Linn. Soc. New South Wales* 79: 99, 1954. — Hansford 1954; Hughes 1993.

MEX, MKE, MRO. Causes large sooty blotches on the undersides of leaves. The fungus enters the leaves through stomata; hyphae grow intercellularly through the host tissue, but little damage appears to be caused to the leaf. McKenzie (1992) reported the collection on *M. kermadecensis* as *M. sydowiana*, but

this macroscopically and biologically similar fungus is distinguished by its slightly larger ascospores. The report of this species on *M. umbellata* (Brien & Dingley 1959; Hughes 1993, PDD 18495) is based on a misidentified host. This fungus has also been recorded in Hawaii on *M. collina* (Goos & Anderson 1972) and on *M. collina* ssp. *polymorpha* (Raabe et al. 1981). (Kermadec Islands: PDD 54799; Northland: PDD 26067, 28427, 28428; Auckland: PDD 12088 (type), 26005, 26080, 28580, 40707, 63866, 66898, 68428; Coromandel: PDD 18482, 18495; Bay of Plenty: PDD 62603.)

*Metacapnodium fraseriae* (S.Hughes) S.Hughes, *Mycologia* 68: 782, 1976.

MEX. A sooty mould found on bark, presumably in association with a scale insect. *M. fraseriae* is known from a wide range of hosts, most commonly from the North Island. (Auckland: PDD 41452.)

*Mycosphaerella metrosideri* F.Stevens & P.A.Young, *Bernice P. Bishop Mus. Bul.* 19: 104, 1925.

MEX. Causing distinct, round spots on the upper leaf surface, pale in the centre with a broad, red-brown, slightly raised margin. Small black perithecia become erumpent in groups of four or five across the central part of the spot. First described from *M. polymorpha* from Hawaii. (Auckland: PDD 24762, 24763, 28099, 67041.)

*Nectria aureofulva* Cooke & Ellis, *Grevillea* 7: 8, 1878.

MSP. A saprobe found on the dead tissue of many plants throughout the country. (Westland: PDD 50050.)

*Nectria* cf. *flavo-viridis* (Fuckel) Wollenw., *Sonderabdruck aus Angewandte Botanik* 8: 186, 1926.

MRO. A saprobe on bark. (Auckland: PDD 41444.)

*Nectria grammicosporopsis* Samuels, *Brittonia* 40: 318, 1988. — Samuels 1988.

MSP. A saprobe found on bark of fallen branches of several woody plants. Known only from New Zealand. Associated with a *Clonostachys* anamorph. (Westland: PDD 50054.)

*Nectria illudens* Berk., in Hook.f., *Fl. Nov.-Zel.* 2: 203, 1855. — Samuels & Brayford 1994.

MSP. A saprobe found on fallen wood of many species. Common in the North Island but with few records from the South Island. (Westland: PDD 50049.)

*Nectria lucida* Höhn., *Sitzungsber. Kaiserl. Akad. Wiss., Math.-Naturwiss. Cl., Abt. I*, 118: 298, 1909.

MSP. Found fruiting on the bark of trees, *N. lucida* is a species complex widespread in the tropics (Samuels et al. 1990). The specimen on *Metrosideros* sp. is annotated by G. J. Samuels as having unusually large ascospores. (Southland: PDD 50037.)

*Nectria radicolica* var. *coprosmae* (Dingley) Samuels & Brayford, *Mycol. Res.* 94: 438, 1990. — Samuels & Brayford 1990.

MSP. On bark, known from a wide range of woody plants from New Zealand. (Westland: PDD 47767.)

*Nectria westlandica* Dingley, *Trans. & Proc. Roy. Soc. New Zealand* 79: 201, 1951.

MRO. A saprobe found on many plants throughout the country. (Auckland: PDD 41421.)

*Nitschka acanthostroma* (Mont.) Nannf., *Svensk Bot. Tidskr.* 69: 58, 1975.

MRO. Several specimens associated with *Hypoxylon stromata* have been filed under this name in PDD. (Auckland: PDD 21964.)

*Phacidium* sp.

MSP. A saprobe on fallen leaves, associated with a *Ceuthospora* anamorph. (Taranaki: PDD 43824.)

*Plectania platensis* (Speg.) Rifai, *Verh. Kon. Ned. Akad. Wetensch., Afd. Natuurk., Tweede Sect.* 57(3): 29, 1968. — McKenzie 1992.

MKE. A black cup fungus saprobic on dead wood. The fungus has been recorded from South America, Europe, Africa, and Australia, but previously always on *Eucalyptus* spp. It is distinguished from the widespread and common *P. rhytida* by its smaller ascospores. (Kermadec Islands: PDD 54737.)

*Plectania rhytida* (Berk.) Nannf. & Korf, in Korf, *Mycologia* 49: 110, 1957. — Rifai 1968.

MEX. Common on litter and fallen wood in the North Island of New Zealand, this species is also known from tropical Asia and Madagascar.

*Poculum* sp.

MRO. A pale yellow discomycete associated with stromatic zone lines on fallen leaves. Macroscopically similar to the widespread tropical species *Poculum crocatum* (Mont.) Dumont and *Dicephalospora rufocornea* (Berk. & Broome) Spooner, this collection appears to be distinct microscopically, based on descriptions provided by Spooner (1987). (Northland: PDD 63501.)

*Propolis emarginata* (Cooke & Masee) Sherwood, *Mycotaxon* 5: 323, 1977. — Johnston 1986; McKenzie 1992.

MEX, MFU, MKE, MRO, MSP. An immersed discomycete forming fruiting bodies on fallen leaves.

Common on *Eucalyptus* leaves in Australia and North and South America, in New Zealand this species is known only from *Metrosideros*. It is common on *M. excelsa*, *M. kermadecensis*, and *M. robusta*, rare on the other species. (Kermadec Islands: PDD 54664, 54666; Northland: PDD 48163, 53849, 54117; Auckland: PDD 43951, 43952, 43953, 43954, 43955, 43958, 49151; Coromandel: PDD 40728, 45364, 46194, 46775, 48768, 55293, 55341, 55344; Taranaki: PDD 43957; Wanganui: PDD 45587; Wellington: PDD 67458; Nelson: PDD 43956, 57159; Buller: PDD 46961.)

*Rosellinia* sp.

MRO. Common as a saprobe on fallen wood throughout the country, *Rosellinia* remains to be studied critically for New Zealand. (Coromandel: PDD 21817.)

*Scorias spongiosa* (Schwein) Fr., *Syst. Mycol.* 3: 291, 1832. — Oliver 1911.

MKE. Sooty mould. A tropical and subtropical species known in New Zealand only from Kermadec Islands. (Kermadec Islands: PDD 16759.)

*Scutellinia colensoi* (Masee) Le Gal ex Rifai, *Verh. Kon. Ned. Akad. Wetensch., Afd. Natuurk., Tweede Sect.* 57(3): 116, 1968.

MRO. Common on litter of many plants throughout the country. Known also from Australia and Madagascar (Rifai 1968). (Auckland: PDD 28508.)

*Scutellinia totaramuiensis* J. Moravec, *Mycotaxon* 58: 233, 1996. — Moravec 1996.

MSP. Found on moist clay-sand soil on a path through a seaside forest of *Metrosideros* sp. (Nelson: BRNM (type).)

*Sorokina* sp.

MEX. Common as a saprobe on bark and fallen wood of many hosts throughout the country, this genus remains unstudied for New Zealand. (Coromandel: PDD 45384.)

*Torrendiella* sp. — Spooner 1987; McKenzie 1992 as *T. eucalypti* (Berk.) Spooner.

MEX, MFU, MKE, MRO, MSP, MUM. Discomycetes with black setae on the receptacle, *Torrendiella* spp. are common on fallen leaves of many plants throughout New Zealand. All leaf-inhabiting collections from New Zealand and Australia were treated by Spooner (1987) as *T. eucalypti*, however, the genus is much more diverse than this in Australasia, with many morphologically and culturally distinct, host-specific forms recognisable. Although still to be treated critically, the *Metrosideros*-inhabiting species from New Zealand

are macroscopically more robust than the *Acacia*-inhabiting *T. eucalypti*, and they also differ microscopically and in culture. *Torrendiella* spp. have been reported as leaf endophytes of *Eucalyptus* spp. (Cabral 1985 as *Zoellneria eucalypti*) and *Kunzea ericoides* (Johnston 1998), and these fungi will probably be found also associated with green leaves of *Metrosideros* spp. in New Zealand. (Kermadec Islands: PDD 54660, 54667; Auckland: PDD 43948, 62636; Coromandel: PDD 49783, 49784, 49785, 54786, 55342; Wellington: PDD 68711; Nelson: PDD 55502, 64253, 66352; Buller: PDD 64244; Marlborough Sounds: PDD 68710; Mid Canterbury: PDD 64926; Southland: PDD 57722.)

*Trichopelthea asiatica* Bat., C.A.A.Costa & Cif., *Publ. Inst. Micol. Univers. Recife* 90: 13, 1957. — Hughes 1965b.

MAL, MFU. A sooty mould very common throughout New Zealand, and also known from Australia and Chile.

*Tubeufia helicoma* (W.Phillips & Plowr.) Piroz., *Mycol. Pap.* 129: 30, 1972. — McKenzie 1992.

anamorph *Helicosporium pannosum* (Berk. & M.A. Curtis) R.T. Moore, *Mycologia* 49: 582, 1957.

MKE. A saprobe on fallen leaves. Occurs throughout New Zealand on dead wood and leaves. (Kermadec Islands: PDD 54770, 54771.)

## BASIDIOMYCOTA

### AGARICALES

*Anthracophyllum archeri* (Berk.) Pegler, *Austral. J. Bot.* 13: 324, 1965. — Segedin 1994.

MBA. Mushrooms gregarious to caespitose on fallen twigs of various trees in indigenous forest. Recorded only from the North Island. (Auckland: PDD 60845.)

*Armillaria limonea* (G.Stev.) Boesew., *New Zealand J. Agric. Res.* 20: 585, 1977. — MacKenzie & Shaw 1977.

MRO. This indigenous, pathogenic species is a major cause of death of *Pinus radiata* in New Zealand. The fungus was found sporulating on a rata stump on the Mamaku Plateau.

*Armillaria ?novae-zelandiae* (G.Stev.) Herink, *Symposium o Václavce Obecné Armillaria mellea*: 43, 1973. — McKenzie 1992.

MKE. This indigenous, pathogenic species is widespread in New Zealand on many woody hosts. It is

a major cause of death of *Pinus radiata* in New Zealand. (Kermadec Islands: PDD 54731.)

*Collopus subviscosus* (G.Stev.) E.Horak, *New Zealand J. Bot.* 9: 456, 1971.

MEX. Fruit-body a pale greyish fawn, fragile mushroom, 3–6 cm high with a viscid, hemispherical cap 5–10 mm diam. Fruiting singly or in groups on standing or fallen timber. (Auckland: PDD 28329.)

*Gymnopilus junonius* (Fr.) P.D.Orton, *Trans. Brit. Mycol. Soc.* 43: 176, 1960.

MEX. Mushrooms golden tawny, 5–12 cm tall, with an expanded cap 5–15 cm diam., found in dense clusters at the base of trees or on stumps or logs. Commonly found on exotic trees in the Auckland region. (Auckland: PDD 66266.)

*Mycena parsonsii* G.Stev., *Kew Bull.* 16: 56, 1964. — Segedin 1991.

MEX. Mushrooms pinkish fawn or darker reddish brown, drying vinaceous grey brown, 0.5–5 cm tall, with a broadly conic or convex cap 0.2–2 cm diam., gregarious and caespitose on dead wood, especially that of *Kunzea ericoides*, *Leptospermum scoparium*, and *Dacrycarpus dacrydioides*. (Auckland: PDD 29277.)

*Mycena veronicae* G.Stev., *Kew Bull.* 19: 55, 1964.

MEX. Mushrooms pale olive fawn to whitish with a fawn tint, fragile, 1–2 cm tall, with a hemispherical to planoconvex cap 3–15 mm diam., on fallen wood. (Auckland: PDD 29309.)

*Neohygrocybe innata* E.Horak, *Beih. Nova Hedwigia* 43: 126, 1973. — Horak 1973.

MUM. Mushrooms light brown, 3–6 cm tall with a planoconvex or expanded cap 2–4.5 cm diam., growing amongst litter of *Metrosideros umbellata*, *Dacrydium cupressinum*, etc. (Westland: PDD 27076 (type).)

*Panellus pusillus* (Pers. Ex Lév.) Burds. & O.K.Mill., *Beih. Nova Hedwigia* 51: 85, 1975. — Oliver 1911 as *Favolus rhipidium* (Berk.) Cooke; Cunningham 1965 as *Dictyopanus rhipidium* (Berk.) Pat.; McKenzie 1992.

MKE. Polypore bracket fungus with white, cream, or pale yellow basidiocarps 3–8 mm wide to 1.5 mm thick. On dead wood, associated with a white rot. In mainland New Zealand known only in Northland. Although with a polypore appearance, the species is considered to belong amongst the agaric mushrooms of the Tricholomataceae. (Kermadec Islands: PDD 17288, 39249, 55029, 55045.)



## APHYLLOPHORALES

*Aleurodiscus mirabilis* (Berk. & M.A.Curtis) Höhn., *Sitzungsber. Kaiserl. Akad. Wiss., Math.-Naturwiss. Cl., Abt. 1*, 118: 818, 1909. — Cunningham 1963. MRO, MSP. A saprobe forming white to cream crusts on bark of dead branches, beginning as small separate basidiocarps; these later grow together to form linear areas with crevices evident at the junction between adjacent basidiocarps. (Auckland: PDD 4192; Coromandel: PDD 14661.)

*Aleurodiscus* sp.

MEX. Members of this genus form broadly cup-shaped or dish-shaped basidiocarps, sometimes adjacent ones coalescing, growing saprobially on dead branches. (Coromandel: PDD 56729.)

*Aleurodiscus zealandicus* (Cooke & W.Phillips) G.Cunn., *Proc. Linn. Soc. New South Wales* 77: 298, 1953. — Cunningham 1963.

MEX, MUM. Basidiocarps dish-shaped, waxy, 2–7 mm diam., salmon pink, scattered on bark of dead branches, presumably saprobic. (Auckland: PDD 4516; Coromandel: PDD 16883, 24765; Westland: PDD 14670.)

*Antrodia vaillantii* (DC.: Fr.) Ryvarde, *Norweg. J. Bot.* 20: 8, 1973.

MRO. This saprobe causes a brown wood rot of fallen branches and trunks as well as worked timber. Basidiocarps are thin, fragile, white, poroid crusts, typically 4–6 × 3–4 cm across, 2–3 mm thick. (Taranaki: PDD 5980.)

*Antrodia hunua* (G.Cunn.) Ryvarde, *Prelim. Polypore Fl. E. Africa*: 257, 1980. — Cunningham 1965 as *Poria hunua* G.Cunn.

MRO. A saprobic polypore forming white to cream or pale yellow, crust-like basidiocarps, measuring about 8–15 × 4–8 cm, on decorticated decayed fallen branches and trunks. Wood rot white. (Auckland: PDD 6480, 6697.)

*Antrodia rata* (G.Cunn.) P.K.Buchanan & Ryvarde, *Mycotaxon* 31: 25, 1988. — Cunningham 1965 as *Poria rata* G.Cunn.

MRO. Basidiocarps are perennial crusts, to 8 cm across and 25 mm thick, with each successive layer of tubes receding and separated by a black line. Pores are light brown and tiny with a resinous appearance. Saprobic and causing a white rot on decorticated and decayed fallen branches. (Bay of Plenty: PDD 7753; Rangitikei: PDD 3868.)

*Antrodia romellii* (Donk) Niemelä, *Karstenia* 22: 11, 1982. — Cunningham 1965 as *Poria byssina* (Pers.) Romell.

MEX. Basidiocarps are white, 2–2.5 mm thick crusts on bark and decorticated fallen branches and trunks of several native hosts, associated with a white rot. (Coromandel: PDD 5308.)

*Antrodia* sp. — McKenzie 1992.

MKE. This record is based on a single collection containing a somewhat deformed, yellow-brown, poroid basidiocarp, 3.5 cm across, with a reflexed portion weakly concentrically zonate (Kermadec Islands: PDD 59469.)

*Antrodia* sp. — Cunningham 1965 as *Poria undata* (Pers.) Quél., sensu G.Cunn.

MRO. Basidiocarps are perennial, white or cream crusts with tiny resinous pores. On drying they become firm and cartilaginous. Associated with a white pocket wood rot of fallen branches. *Poria undata* sensu G.Cunn. is not conspecific with *Rigidoporus undatus* (Pers.) Donk. (Northland: PDD 6521, 6629; Auckland: PDD 6719; Taranaki: PDD 6005.)

*Antrodia zonata* (Berk.) Ryvarde, *Bol. Soc. Argent. Bot.* 28: 228, 1992. — Cunningham 1965 as *Irpex zonatus* Berk.

MEX, MRO. Basidiocarps are pileate, 1–3 cm wide, ochraceous to bay and concentrically zoned on the upper surface, poroid to toothed on the underside, on bark or decorticated wood of fallen branches. The fungus is a saprobe, causing a white rot on several native hosts. (Auckland: PDD 17661; Coromandel: PDD 17534.)

*Asterostroma persimile* Wakef., *Bull. Misc. Inform.*: 372, 1915. — Cunningham 1963.

MRO. Occurring on bark or decorticated wood of dead branches, forming loosely attached, thin, tan to ochre crusts, to 10 × 6 cm. Delicately pruinose when fertile due to projecting sterile elements. (Auckland: PDD 15393.)

*Athelia scutellaris* (Berk. & M.A.Curtis) Gilb., *Fungi that Decay Ponderosa Pine*: 42, 1974. — Cunningham 1963 as *Corticium scutellare* Berk. & M.A.Curtis.

MFU. Causing a saprobic white rot of dead branches and stems, and fruiting to produce a thin, cream to pale buff crust, to 10 × 3 cm, which becomes finely creviced. Common on a broad range of hosts. (Westland: PDD 13750.)

*Botryobasidium subcoronatum* (Höhn. & Litsch.) Donk, *Meded. Ned. Mycol. Ver.* 18–20: 117, 1931. — Cunningham 1963 as *Pellicularia subcoronata* (Höhn. & Litsch.) Rogers.

MRO, MSP. Basidiocarps of *Botryobasidium* resemble moulds, with very thin and sparse development. *B. subcoronatum* has a cream to pale ochre

basidiocarp with minute tufts of basidia and associated hyphal elements, covering areas to 20 × 5 cm. (Auckland: PDD 12445, 16967.)

*Botryobasidium vagum* (Berk. & M.A.Curtis) D.P.Rogers, *Univ. Iowa Stud. Nat. Hist.* 17: 17, 1935. — Cunningham 1963 as *Pellicularia vaga* (Berk. & M.A.Curtis) D.P.Rogers.

MEX. The fruit-body consists of a thin, cream or pale ochre film, to 20 × 4 cm, easily separable from the substrate. It occurs on bark or decorticated wood of several native hosts. (Auckland: PDD 17041.)

*Ceraceomyces cerebrosus* (G.Cunn.) Stalpers & P.K.Buchanan, *New Zealand J. Bot.* 29: 333, 1991. — Cunningham 1963 as *Peniophora cerebrosa* G.Cunn.

MRO, MUM. Forming basidiocarps of thin, creviced, cream to ochre, somewhat chalky crusts on dead branches. Annual or perennial, and covering irregular areas to 20 × 7 cm. Saprobic on a broad range of hosts. (Auckland: PDD 11274; Southland: PDD 17490.)

*Ceraceomyces variicolor* (G.Cunn.) Stalpers, *New Zealand J. Bot.* 23: 310, 1985. — Cunningham 1963 as *Corticium variicolor* G.Cunn.

MFU. The basidiocarp is a thin crust to 20 × 5 cm with scattered outlying islands. As the name suggests, colour varies considerably from cream to bright yellow, salmon pink, and yellowish green, or sometimes brick red where chewed by insects. (Westland: PDD 15425.)

*Ceriporiopsis lowei* Rajchenb., *Nordic J. Bot.* 7: 564, 1987. — Cunningham 1965 as *Poria hyalina* (Berk.) Cooke.

MEX. This polypore fruits on decayed fallen branches and trunks of several hardwood hosts, associated with a white rot. The fruit-body is a white to honey yellow membranous crust with pores appearing glassy. (Auckland: PDD 6733; Coromandel: PDD 5994.)

*Columnodontia columellifera* (G.Cunn.) Jülich, *Persoonia* 10: 327, 1979. — Cunningham 1959 as *Odontia columellifera* G.Cunn.

MEX. A saprobe forming pale tan to pale brown effused basidiocarps with crowded, short spines, on bark and decorticated wood of dead branches and stems of various native hosts. (Auckland: PDD 18100.)

*Columnodontia lutea* (G.Cunn.) Jülich, *Persoonia* 10: 327, 1979. — Cunningham 1959 as *Odontia lutea* G.Cunn.

MRO. Basidiocarps are thin, waxy, golden yellow

crusts, mostly to 10 × 3 cm, sometimes to 30 × 10 cm, bearing short dome-shaped spines. Invertebrates readily consume the hymenial layer. Saprobic on fallen branches and trunks of several hosts. (Northland: PDD 17930; Bay of Plenty: PDD 17926.)

*Coniophora arida* var. *suffocata* (Peck) Ginns, *Opera Bot.* 61: 24, 1982.

MEX. Forming a thin membranous, yellow-brown crust on dead branches, and causing a brown rot. (Hawke's Bay: NZFRI(M) 3789.)

*Cyclomyces tabacinus* (Mont.) Pat., *Essai Tax. Hyménomyc.*: 98, 1900. — Cunningham 1948a as *Inonotus tabacinus* (Mont.) P.Karst., 1965 as *I. tabacinus*; Gilmour 1966 as *I. tabacinus*.

MEX, MRO, MSP. This common, cosmopolitan polypore is a saprobe, causing a white rot, on bark or decorticated wood of dead upright trunks and stumps. It produces annual to biennial bracket basidiocarps, 1–8 cm wide, 1–5 cm radius, and 0.5–2 mm thick. The upper surface is brown, silky, and shining with concentric sulcate bands. (Auckland: PDD 6072, 6450, 28442; Coromandel: PDD 4416, 5021, 6079, 6080; Bay of Plenty: PDD 52409, 52449.)

*Dendrothele corniculata* (G.Cunn.) Stalpers, *New Zealand J. Bot.* 23: 304, 1985. — Cunningham 1963 as *Corticium corniculatum* G.Cunn.

MRO, MSP. A saprobe causing decay of dead branches of several host species. Basidiocarps are annual to biennial, thin, chalky, white to cream crusts, creviced and with diffuse margins. (Northland: PDD 14147; Coromandel: PDD 13693; Westland: PDD 12602, 13758, 13801.)

*Elmerina* sp.

MUM. Forming fan-shaped pilei with the lower surface bearing a combination of wavy thin lamellae and irregular pores. White when fresh and then somewhat fleshy, drying to reddish brown and resinous-hard. On dead wood. (Auckland Islands: PDD 63494.)

*Epithele* sp.

MUM. Forming a very thin, white to pale coloured membranous crust, characterised by tiny upright fascicles of hyphae. Saprobic on decorticated wood. (Bay of Plenty: NZFRI(M) 2035.)

*Ganoderma* cf. *applanatum* (Pers.) Pat., *Bull. Soc. Mycol. France* 5: 67, 1889. — Cunningham 1948b as *Fomes applanatus* (Pers.) Gillet, *F. mastoporus* (Lév.) Cooke, *F. mastoporus* f. *rugosus* G.Cunn., and *Ganoderma mastoporum* (Lév.) Pat., 1965 as

*Elfvigia applanata* (Pers. ex Wallr.) P.Karst. and *E. mastopora* (Lév.) Imazeki; Gilmour 1966 as *F. applanatus* and *F. mastoporus*.

MKE, MRO. Polypore bracket fungus. Associated with a white heart rot of living trees. Large fruitbodies up to 16 cm diam. and 6 cm thick on dead standing and fallen trunks. Widespread and common in New Zealand on many woody hosts. (Kermadec Islands: PDD 59463, 59464; Auckland: PDD 5064; Bay of Plenty: NZFRI(M) 1191; Wanganui: PDD 5054, 5055; Wellington: PDD 2133, 2136.)

*Gloeocystidiellum corrosum* (G.Cunn.) Stalpers, *New Zealand J. Bot.* 23: 304, 1985. — Cunningham 1963 as *Corticium corrosum* G.Cunn.

MPE, MRO. Forming smooth, waxy, thin, cream to pale yellow crusts, to 30 × 6 cm, which are readily eaten by invertebrates. Saprobic on decorticated wood of several hosts. (Auckland: PDD 13783; Bay of Plenty: PDD 4786; Rangitikei: PDD 12720; Southland: PDD 12946.)

*Gloeocystidiellum porosum* (Berk. & M.A.Curtis) Donk, *Meded. Ned. Mycol. Ver.* 18–20: 156, 1931. — Cunningham 1963 as *Corticium fistulatum* G.Cunn.

MEX. Growing as thin, adherent, white to pale yellow linear areas on bark or decorticated dead wood, to 30 × 3 cm, or irregular areas with outlying islands, presumably saprobic. New Zealand material has also been treated as *Gloeocystidiellum fistulatum* (G.Cunn.) Boidin. (Coromandel: PDD 5037, 5135.)

*Gloeoporus phlebophorus* (Berk.) G.Cunn., *New Zealand Dept. Sci. Indust. Res. Bull.* 164: 110, 1965.

MUM. A saprobic polypore bracket fungus causing a white rot of several hosts. Basidiocarps are small (to 3.5 cm across), brilliant white both on upper pileus surface and on lower pore surface, and attached by a narrow base. Fruiting annually and often in groups. (Stewart Island: PDD 53434.)

*Grandinia australis* Berk., in Hook.f., *Fl. Tasman.* 2: 257, 1859.

MEX. Forming resupinate, cream to pale yellow, tuberculate fruit-bodies, associated with a white rot, on bark and decorticated wood of several angiosperm hosts. (Auckland: PDD 23702.)

*Grandinia* sp.

MRO. An undetermined white rot, corticioid fungus, forming a diffuse, ochre coloured, thin crust with tiny warts, on fallen wood of several hosts. (Northland: PDD 23686; Auckland: PDD 23673.)

*Grifola* sp. — Hood 1992.

MRO, MUM, MSP. A saprobic polypore forming a

large (to 35 cm across), fleshy, multilobed basidiocarp, white when fresh and smelling strongly of almond. Pores are large. The almond smell has also been noted in decay of *Metrosideros robusta* (Hood 1992) and in *M. umbellata* (S. Courtney pers. comm.), and from cultures of the fungus. The species appears to be related to *Grifola frondosa* (Dicks.: Fr.) Gray. (Waikato: PDD 62521.)

*Hericium clathroides* (Fr.) Pers.: Fr., *Syst. Mycol.* 1: 409, 1821. — Cunningham 1958.

MRO. The highly conspicuous basidiocarps consist of a lateral root-like base from which multiple branches develop, clothed in white elongate spines (to 9 mm long) which typically hang downwards. The fungus fruits from a well decayed white rot of standing or fallen trunks of several hosts. It is reportedly edible, and is commonly known as "fungus icicles". (Waikato: PDD 60458.)

*Hymenochaete dissimilis* G.Cunn., *Trans. Roy. Soc. New Zealand* 85: 44, 1957. — Cunningham 1957, 1963.

MEX, MRO. Causing a white pocket rot and fruiting on bark or decorticated wood as an adherent, brown, perennial crust of irregular outline 3–15 × 3–5 cm, deeply and irregularly creviced. Also recorded on several other native hosts. (Auckland: PDD 7967; Bay of Plenty: PDD 16591, 16592.)

*Hymenochaete minuscula* G.Cunn., *Trans. Roy. Soc. New Zealand* 85: 48, 1957. — Cunningham 1957, 1963.

MEX. The fruit-body is a membranous, adherent, olivaceous to umber crust, with a blistered appearance, on bark of dead branches and associated with a white pocket rot. Also recorded on *Kunzea ericoides* and *Leptospermum scoparium* in New Zealand, and more recently reported from Brazil. (Auckland: PDD 11242, 11805 (type), 16603, 16996, 17030, 24572.)

*Hymenochaete mougeotii* (Fr.) Cooke, *Grevillea* 8: 147, 1880. — Cunningham, 1957, 1963.

MEX. Readily recognised by the closely adherent, thin, scarlet to bright red basidiocarps with a white, fibrillose margin. At first colonies are small, to 5 mm diam., later merging to form areas 10–35 × 2–5 cm. First reported from Europe and UK, this species is common in Australasia on a wide range of hosts, fruiting on bark and decorticated branches and stems and associated with a white rot. (Coromandel: PDD 7154.)

*Hymenochaete rhabbarbarina* (Berk.) Cooke, *Grevillea* 8: 148, 1880. — Cunningham 1963.

MRO, MSP. The fungus fruits on dead trunks and

- branches of a range of hosts, causing a white rot. Basidiocarps begin as scattered colonies, 2–5 mm diam., which merge to form a yellow-brown to cinnamon crust covering areas to 15 × 5 cm. Very fine brown setae protrude from the hymenial surface. (Auckland: PDD 17038, 18432.)
- Hymenochaete semistupposa* Petch, *Ann. Roy. Bot. Gard. (Peradeniya)* 9: 278, 1925. — Cunningham 1957, 1963.)
- MEX, MRO, MSP. An uncommon species locally, in New Zealand recorded only on *Metrosideros*, but known also from Australia, South Africa, and Sri Lanka. Colonies are adherent, thin, seal-brown to chocolate coloured, 3–6 × 2–3 cm, on decorticated wood of dead branches and trunks, associated with a white pocket rot. (Auckland: PDD 4526, 7968; Coromandel: PDD 5895.)
- Hymenochaete tasmanica* Masee, *J. Linn. Soc., Bot.* 27: 105, 1890. — Cunningham 1957, 1963.
- MEX. Basidiocarps begin as adherent, reddish brown colonies 2–10 mm diam., and coalesce to form irregular, ferruginous to pale umber areas, to 10 × 5 cm. Reported from Australasia on bark and decorticated wood of dead branches and trunks of several hosts, associated with a white pocket rot. (Coromandel: PDD 7422.)
- Hymenochaete villosa* (Lév.) Bres., *Ann. Mycol.* 8: 588, 1910. — Cunningham 1957, 1963.
- MEX, MRO. Characterised by its thin pileate (bracket) basidiocarps, with a coarsely tomentose, concentrically banded upper surface and a lower surface ferruginous becoming date-brown with a plum-coloured bloom, 3–7 cm long, 2–5 cm radius. Reported from Asia and Australasia, locally from a broad range of hosts. It causes a coarse pocket rot on dead branches and stems. (Northland: PDD 53511, 62086; Auckland: PDD 7152, 11804, 12531; Coromandel: PDD 5010, 50489.)
- Hyphodontia sambuci* (Pers.) J.Erikss., *Symb. Bot. Upsal. XVI. 1*: 104, 1958. — Cunningham 1963 as *Peniophora sambuci* (Pers.) Burt.
- MEX. This saprobe fruits on bark and decorticated wood of dead branches of many hosts, forming membranous, white, adherent crusts, 5–15 × 2–6 cm. (Auckland: PDD 7902.)
- Intextomyces contiguus* (P.Karst.) J.Erikss. & Ryvarden, *Corticaceae N. Eur.* 4: 737, 1976. — Cunningham 1963 as *Corticium contiguum* P.Karst.
- MRO. Basidiocarps are membranous, white to cream, adherent crusts, up to 24 × 2 cm, with numerous outlying islands. In New Zealand, only recorded on bark of dead branches of *Brachyglottis*, *Leptospermum*, and *Metrosideros*. (Northland: PDD 14155).
- Irpicondon?* sp.
- MUM. Record based on a single collection of a pale yellow-brown, thin, irpicoid (somewhat toothed) basidiocarp, on fallen rata. (Stewart Island: PDD 53443.)
- Lenzites vespacea* (Pers.) Ryvarden, *Norweg. J. Bot.* 19: 232, 1972. — Cunningham 1965 as *Daedalea aspera* Klotzsch; McKenzie 1992.
- MKE. Polypore bracket fungus, characterised by unguulate to applanate, brown, concentrically sulcate basidiocarps, 2–6 cm across, 2–5 cm radius, and 1–3 cm thick. Causing a white rot on standing dead trunks and stumps. The only other known host in New Zealand is *Pinus radiata*. (Kermadec Islands: PDD 55048.)
- Meruliopsis corium* (Fr.) Ginns, *Canad. J. Bot.* 54: 126, 1976. — Cunningham 1963 as *Merulius corium* (Fr.) Fr.
- MFU, MSP. Fruiting on dead branches of a broad range of hosts. Basidiocarps are typically effused-reflexed pilei, white with fine hairs on the upper surface, flesh-pink, glistening, and vaguely porose on the lower fertile surface. (Westland: PDD 15639, 15640.)
- Meruliopsis taxicola* (Pers.) Bondartsev, in Parmasto, *Izv. Akad. Nauk Éstonsk. S.S.R., Ser. Biol.* 8: 274, 1959. — Cunningham 1950 as *Merulius ravenelii* Berk., 1963 as *M. ravenelii*.
- MEX. Saprobic on decorticated, fallen branches of several native hosts, fruiting as a reddish brown, loosely attached crust with a poroid to reticulate fertile surface. (Auckland: PDD 7739; Coromandel: PDD 6843.)
- Odontia oblongospora* G.Cunn., *Trans. Roy. Soc. New Zealand* 86: 95, 1959. — Cunningham 1959.
- MEX. Basidiocarps are cream, resupinate, 3–8 × 1.5–3 cm, bearing spines 2–3 mm long, on decayed decorticated wood of several native hosts. (Auckland: PDD 17984, 17985, 17987.)
- Odontia oleifera* G.Cunn., *Trans. Roy. Soc. New Zealand* 86: 102, 1959.
- MEX. The species is saprobic on bark and decorticated wood of dead branches of several hosts, forming cream to pale brown, resupinate crusts bearing tan to pale reddish brown spines to 4 mm long. (Bay of Plenty: PDD 47845.)
- Odontia stratosata* G.Cunn., *Trans. Roy. Soc. New Zealand* 86: 78, 1959. — Cunningham 1959.

MEX. Recorded on bark and decorticated wood of dead branches and stems of a broad range of hosts, forming resupinate, white to cream crusts with minute dome-shaped spines. (Auckland: PDD 18069.)

*Parvobasidium lianacola* (G.Cunn.) Stalpers, *New Zealand J. Bot.* 23: 307, 1985. — Cunningham 1963 as *Corticium lianacolum* G.Cunn.

MFU. Basidiocarps are cream to pale olivaceous brown, chalky, brittle, thin crusts which form small irregular elliptical colonies, to 20 mm long. These sometimes merge to cover about 15 × 2 cm. Even to minutely warted. Known only from the collections on *Metrosideros fulgens*. (Rangitikei: PDD 17438, 17439; Wanganui: PDD 17437.)

*Peniophora cinerea* (Fr.) Cooke, *Grevillea* 8: 20, 1879. — Cunningham 1955, 1963.

MEX, MPE, MSP. The name denotes a cosmopolitan species complex. In New Zealand, basidiocarps are perennial, grey (tinged violet or pink), tuberculate crusts consisting of small colonies or these coalescing to form areas to 20 × 1–3 cm. Very common on a wide range of hosts, fruiting on bark or decorticated wood of dead branches. (Auckland: PDD 13789; Westland: PDD 13757; Stewart Island: PDD 13544.)

*Peniophora crustosa* Cooke, *Grevillea* 8: 56, 1879. — Cunningham 1955, 1963.

MEX. Basidiocarps are perennial, consisting of waxy, fawn to reddish brown or ochre, adherent crusts, 8–15 × 3–5 cm, with scattered outlying islands. Recorded on bark and decorticated dead wood of a wide range of hosts. (Auckland: PDD 4422, 15452.)

*Perenniporia ochroleuca* (Berk.) Ryvardeen, *Norweg. J. Bot.* 19: 233, 1972. — Cunningham 1965 as *Heterobasidium ochroleucum* (Berk.) G.Cunn.

MEX. Characterised by distinctive unguulate to triquetrous, ochre or bay-coloured, corky, poroid basidiocarps, 1–7 cm wide, 0.5–4 cm radius, 1–1.5 cm thick, solitary or imbricate on decorticated fallen trunks and branches, or on stumps of a few hosts including *Eucalyptus* spp. and *Podocarpus totara*. New Zealand specimens may belong in *P. ochroleuca* var. *brevispora* Corner. (Auckland: PDD 57454; Bay of Plenty: PDD 52437, 52438.)

*Phanerochaete sordida* (P.Karst.) J.Erikss. & Ryvardeen, *Corticaceae N. Eur.* 5: 1023, 1978. — Cunningham 1963 as *Peniophora cremea* (Bres.) Sacc. & Syd.

MEX, MSP. A saprobe on bark or decorticated wood of dead branches of a broad range of hosts, devel-

oping membranous, cream, resupinate crusts, 3–20 × 1–4 cm. (Auckland: PDD 13678; Westland: PDD 11512.)

*Phellinus gilvus* (Schwein.) Pat., *Essai Taxon. Hyménom.*: 97, 1900. — Cunningham 1965.

MEX. A polypore forming annual or perennial, appanate, conchate, or effused-reflexed, yellowish brown to chestnut pilei, 3–11 cm wide, 1–5 cm radius, 0.5–2 cm thick, sometimes in groups (imbricate). It fruits on bark of fallen branches and trunks of many hosts, and is associated with a white rot. In North America reported to cause a heart rot of living hardwood trees. (Northland: PDD 7082.)

*Phellinus inermis* (Ellis & Everh.) G.Cunn., *New Zealand Dept. Sci. Industr. Res. Bull.* 164: 234, 1965. — Cunningham 1948c as *Fuscoporia inermis* (Ellis & Everh.) G.Cunn., 1965.

MEX, MRO. Basidiocarps are perennial, pileate to resupinate, often imbricate, with the pore surface ferruginous to chocolate coloured, associated with a white rot, on bark or decorticated wood of fallen branches of several hardwood hosts. (Coromandel: PDD 5498; Rangitikei: PDD 5500.)

*Phellinus kamahi* (G.Cunn.) P.K.Buchanan & Ryvardeen, *Mycotaxon* 31: 15, 1988. — Cunningham 1965 as *Fuscoporia kamahi* G.Cunn.

MUM. Basidiocarps annual to perennial when successive layers recede from margin; typically resupinate or occasionally with very weakly reflexed parts, mostly elongate-elliptical, 13–19 × 2.5–10 cm, but extending to 1.25 m long. Pore surface yellow-brown to brown, with receding margin, sometimes with outlying islands. Causing a white rot on a broad range of indigenous hosts, though apparently not common on *Metrosideros*. (Westland: PDD 5502.)

*Phellinus laevigatus* (Fr.) Bourdot & Galzin, *Hymen. France*: 624, 1928.

MRO. A polypore fungus forming large crust-like, biennial to perennial basidiocarps, 5–50 × 3–5 cm, 3–5 mm thick. The pore surface, of very small pores, is even and brown with yellow margins. Causing a white rot of fallen branches and trunks of several hosts, and distributed widely in temperate regions of both hemispheres. (Wairarapa: NZFRI(M) 1307.)

*Phellinus pachyphloeus* Pat., *Essai Tax. Hyménomyc.*: 97, 1900. — Cunningham 1965.

MPE, MRO, MUM. Forming perennial, woody-hard, solitary, broadly attached and typically unguulate basidiocarps, 6–15 cm wide, 5–11 cm radius, 1–3 cm thick. Upper surface brown and concentrically sulcate and ridged, pore surface reddish brown. Sometimes resupinate. Causing a white rot of fallen

logs and branches of several indigenous hosts. (Northland: PDD 6652; Auckland: PDD 6730; Southland: PDD 17326; Stewart Island: PDD 13461.)

*Phellinus robustus* (P.Karst.) Bourdot & Galzin, *Bull. Soc. Mycol. France* 41: 188, 1925.

MEX. The name denotes a complex of species. In New Zealand abundant on hardwood hosts, forming perennial, unguulate to applanate, fulvous to umber pilei. It causes a white rot of heartwood of living or dead trees. (Auckland: PDD 28866, 57459.)

*Phellinus senex* (Nees & Mont.) Imazeki, *Bull. Gov. Forest Exp. Sta.* 57: 115, 1952. — Cunningham 1965 as *Fomes senex* (Nees & Mont.) Cooke; Gilmour 1966 as *F. senex*; Hood 1992.

MEX, MKE, MRO. Basidiocarps are annual or perennial, often imbricate, applanate brackets, concentrically zoned in fulvous, ferruginous, and chestnut, on bark or decorticated wood or dead standing or fallen trunks. Recorded from dead standing and fallen trunks of several indigenous hosts, causing a white rot. Appears to be the most common species of *Phellinus* on *Metrosideros*. (Kermadec Islands: PDD 26137, 26138; Northland: PDD 53512; Auckland: PDD 4574, 4875, 5744, 6413; Bay of Plenty: PDD 4878, 4880, 4883, 4885, 4888, 28504; Taupo: NZFRI(M) 1227; Wellington: PDD 523, 2132, 3801, 17389.)

*Phellinus wahlbergii* (Fr.) D.A.Reid, *Contr. Bolus Herb.* 7: 97, 1975. — Cunningham 1948b as *Fomes setulosus* Lloyd, sensu G.Cunn. and *F. uncatus* G.Cunn., 1965 as *P. zealandicus* (Cooke) G.Cunn. and *P. setulosus* (Lloyd) Imazeki; Gilmour 1966 as *F. setulosus* and *F. zealandicus* Cooke; McKenzie 1992.

MEX, MKE, MRO, MUM. Causing a white rot of several hardwood hosts, less often on conifers. Fruits on bark of standing and fallen dead trunks, forming perennial, solitary or frequently imbricate, applanate, chestnut to umber pilei. (Kermadec Islands: NZFRI(M) 1251, PDD 59465; Auckland: PDD 40354, 57461; Bay of Plenty: NZFRI(M) 1246, 1247, 1252, 3482, 3483, PDD 52455; Wellington: NZFRI(M) 1253, 1254.)

*Phlebia* sp. — Cunningham 1963 as *Corticium lividum* Pers.: Fr.

MEX. Basidiocarps thin, at first white, later becoming bluish grey or reddish brown, adherent to bark or decorticated dead branches, covering linear areas to 20 × 3 cm. Saprobic on a broad range of hosts. (Auckland: PDD 17060.)

*Phlebiella tulasnelloidea* (Höhn. & Litsch.) Oberw., *Biblioth. Mycol.* 61: 343, 1977. — Cunningham 1963 as *Corticium tulasnelloideum* Höhn. & Litsch. MRO. Forming a diffuse, cobweb-like film as a basidiocarp on bark and decorticated wood of a broad range of mostly indigenous hosts. Basidiocarp grey to bluish grey and irregularly granular. (Westland: PDD 15423.)

*Polyporus arcularius* Batsch: Fr., *Syst. Mycol.* 1: 342, 1821. — Cunningham 1965.

MEX, MRO. This cosmopolitan polypore fruits on fallen twigs or branches of many native hosts, causing a white rot. Basidiocarps solitary or in groups, centrally stipitate with an orbicular, chestnut to umber cap, 1–2.5 cm diam. (Northland: PDD 54489; Coromandel: PDD 7878; Bay of Plenty: PDD 52423.)

*Porothelium poriaeforme* (Pers.) W.B.Cooke, *Mycologia* 49: 688, 1957. — Cunningham 1963 as *Stromatoscypha poriaeformis* (Pers.: Fr.) G.Cunn. MPE. This fungus is similar in appearance to a lichen, with a base of grey hyphae supporting crowded cup-shaped, grey basidiocarps, each 200–350 µm diam., forming colonies 1–2 cm diam. Only recorded on *Metrosideros* and *Coprosma* in New Zealand. (Stewart Island: PDD 12963.)

*Postia brunnea* Rajchenb. & P.K.Buchanan, *Austral. Syst. Bot.* 9: 877, 1996. — Cunningham 1965 as *Grifola campyla* (Berk.) G.Cunn.

MRO. Basidiocarps of this polypore fungus are compound with several imbricate pilei or numerous pilei arising from a common base. Individual pilei are fan-shaped, brown on upper surface, with a white pore surface. Causing a brown rot on wood of several hosts. (Bay of Plenty: PDD 20252 (type), 20253, 20254.)

*Postia lactea* (Fr.) P.Karst., *Rev. Mycol. (Toulouse)* 3: 17, 1881. — Cunningham 1965 as *Tyromyces lacteus* (Fr.) Murrill.

MEX. Fruit-bodies are soft, fragile, white pilei, sometimes mostly resupinate, 3–5 cm wide, 1–2 cm radius, 1–2 cm thick. The species is known only in New Zealand on *M. excelsa* and *Pinus radiata*. It causes a powdery brown rot of fallen decorticated logs. (Auckland: PDD 5536.)

*Pseudolagarobasidium calcareum* (Cooke & Masee) Sheng H.Wu, *Acta Bot. Fenn.* 142: 112, 1990. — Cunningham 1959 as *Odontia calcarea* (Cooke & Masee) G.Cunn.

MEX. Forming a thin, pale brown crust, 15 × 5 cm, with short spines, on bark or decorticated wood of dead branches, associated with a pocket rot on a

broad range of hosts. (Auckland: PDD 17821, 17822; Coromandel: PDD 7367.)

*Pterula* sp.

MRO. A coral fungus, with a finely branched, pale brown (when dry) basidiocarp to 5.5 cm tall. (Auckland: PDD 63209.)

*Pycnoporus coccineus* (Fr.) Bondartsev & Singer, *Ann. Mycol.* 39: 59, 1941. — Cunningham 1948d as *Coriolus cinnabarinus* (Jacq.) G.Cunn., 1965 as *Trametes cinnabarina* (Jacq.) Fr.

MEX, MSP. Readily recognisable by its bright orange poroid brackets, 3–20 cm wide, 2–8 cm radius, fruiting on bark and decorticated wood of fallen and standing trunks, branches, and exposed roots of many native and introduced hosts, associated with a white rot. (Auckland: PDD 48537, 65451; Bay of Plenty: PDD 5117.)

*Ramaricium polyporoideum* (Berk. & M.A.Curtis) Ginns, *Bot. Not.* 132: 98, 1979. — Cunningham 1963 as *Corticium polyporoideum* Berk. & M.A.Curtis. MRO. This corticioid fungus forms a membranous, white to tan basidiocarp that is loosely attached to dead branches of several indigenous hosts. Numerous small colonies are often formed, 1–6 cm across. (Auckland: PDD 16968; Rangitikei: PDD 17050; Wairarapa: PDD 39420.)

*Rigidoporus conrescens* (Mont.) Rajchenb., *Bol. Soc. Arg. Bot.* 28: 165, 1992. — Cunningham 1965 as *Tyromyces catervatus* (Berk.) G.Cunn., sensu G.Cunn.

MRO. Basidiocarps of this polypore species are distinctive in typically hanging on the underside of bark (from which they are readily removed). They are attached dorsally by a short extension of the base. Often, several disc-shaped pilei (each 5–15 mm diam.) are confluent, each with its separate stem-like attachment to the substrate. The pileus surface is brown, shiny and radially striate; pore surface is brown with tiny pores. Causing a white rot of several indigenous hosts. (Northland: PDD 20231.)

*Sarcodontia* sp.

MEX. Causing a white rot and fruiting on decorticated wood to form a thin, waxy, pale yellow crust with narrow spines. (Northland: PDD 23654.)

*Scotoderma viride* (Berk.) Jülich, *Proc. K. Ned. Akad. Wet.*, C 77(2): 151, 1974. — Cunningham 1963 as *Coniophora viridis* (Berk.) Sacc.

MUM. Basidiocarps are thin, membranous, ochre to brown or olivaceous brown crusts, 2–18 × 2–3 cm, and occur on dead branches and trunks of *Cupressus*, *Dacrydium*, *Metrosideros*, and *Pinus*. (Southland: PDD 17505.)

*Scytinostroma portentosum* (Berk. & M.A.Curtis) Donk, *Fungus* 26: 20, 1956. — Cunningham 1963. MEX. Forming perennial, cream to pale buff, membranous crusts to 30 × 7 cm, on a broad range of hosts. On bark and decorticated wood of dead branches. (Northland: PDD 7205.)

*Skeletocutis lenis* (P.Karst.) Niemelä, *Karstenia* 31: 23, 1991. — Cunningham 1965 as *Poria lenis* (P.Karst.) Sacc.

MEX. The poroid basidiocarps are white to cream, membranous crusts, to 2 mm thick, on bark and decorticated wood of fallen branches on a broad range of native and introduced hosts. Causing a white wood rot. (Northland: PDD 6708.)

*Skeletocutis novae-zelandiae* (G.Cunn.) P.K.Buchanan & Ryvardeen, *Mycotaxon* 31: 20, 1988. — Cunningham 1947 as *Poria novae-zelandiae* G.Cunn., 1965 as *Chaetoporus novae-zelandiae* (G.Cunn.) G.Cunn.

MSP. Causing a white rot of fallen trunks and branches of *Kunzea*, *Metrosideros*, and *Nothofagus*. Fruiting to form soft and fleshy (when fresh), white, poroid crusts, 6–25 × 3–10 cm, 1–2 mm thick. (Bay of Plenty: PDD 5322 (type).)

*Stereum hirsutum* (Willd.: Fr.) Gray, *Nat. Arr. Brit. Pl.* 1: 653, 1821.

MRO. Basidiocarps are annual or biennial, to 20 cm across, consisting of effused-reflexed pilei to 20 mm radius and broad resupinate areas. Upper surface of pilei concentrically zoned in shades of white, grey, and brown and clothed in hairs; lower fertile surface even, grey to buff. Causing a white rot of dead branches of several, mostly indigenous hosts. (Auckland: PDD 28510.)

*Stereum ostrea* (Blume & Nees: Fr.) Fr., *Epicr. Syst. Mycol.*: 547, 1838. — Cunningham 1956 as *S. lobatum* (Kuntze: Fr.) Fr., 1963 as *Stereum fasciatum* (Schwein.) Fr.

MRO. Conspicuous and distinctly pileate member of the corticioid fungi, with fan-shaped, often confluent pilei, to 14 cm radius, attached to the substrate by a narrow lateral base. Sometimes also with a broad resupinate area. Pilei orange to orange-brown and zoned uppermost, with the fertile lower surface mostly smooth, ochre to brown. Mostly in groups of basidiocarps on dead branches and trunks of a broad range of indigenous hosts. (Gisborne: PDD 6965.)

*Stereum scutellatum* G.Cunn., *Trans. Roy. Soc. New Zealand* 84: 210, 1956. — Cunningham 1956, 1963. MEX, MRO, MUM. Basidiocarps are resupinate, plum to purple crusts, loosely attached to bark of dead branches and trunks, and often with the crust

margin upturned to form a striate, straw-coloured pileus. Apparently confined to *Metrosideros*, apart from one record on *Dracophyllum*. (Northland: PDD 7019; Auckland: PDD 5454, 7017, 7018, 7020, 11196, 14381; Coromandel: PDD 16882, 16950, 16952, 16984; Bay of Plenty: PDD 37808; Westland: PDD 15439, 15440; Stewart Island: PDD 14380.)

*Stereum vellereum* Berk., in Hook.f., *Fl. Nov.-Zel.* 2: 183, 1855. — Cunningham 1956, 1963.

MRO, MSP. Fruiting on dead branches and twigs of a very wide range of indigenous, and a few exotic hosts. Forming broad resupinate areas with reflexed margins or sometimes with solitary pilei broadly attached. Adjacent pilei may coalesce to form elongate fruitings along twigs and branches. Pilei are covered with white or straw-coloured hairs, and the fertile surface is cream, ochre, or grey. (Westland: PDD 14416; Fiordland: PDD 7025.)

*Trametes ?pubescens* (Fr.) Pilát, *Atlas Champ. Eur.* 3: 268, 1939. — McKenzie 1992.

MKE. Polypore bracket fungus. Saprobic on dead wood. Worldwide in distribution, but not known from mainland New Zealand. (Kermadec Islands: PDD 55041, 55044.)

*Tubulicium vermiferum* (Bourdot) Oberw. ex Jülich, *Persoonia* 10: 335, 1979. — Cunningham 1963 as *Tubulicrinis vermifera* (Bourdot) G.Cunn.

MUM. A corticioid fungus forming chalky, annual to biennial, white to cream crusts, to 5 × 1.5 cm. Under a lens, strongly projecting cystidia are visible. Reported on both living and dead stems of several indigenous hosts. (Gisborne: PDD 11482.)

*Tubulicrinis thermometrus* (G.Cunn.) M.P.Christ., *Dansk Bot. Ark.* 19: 132, 1960. — Cunningham 1955 as *Peniophora thermometra* G.Cunn., 1963 as *Tubulicrinis thermometrus* (G.Cunn.) G.Cunn.

MRO. The type specimen is the only known collection of this species. Basidiocarps consist of a thin greyish to whitish film, to 5 × 2 cm, largely invisible to the naked eye when dry, and would be easily overlooked. (Bay of Plenty: PDD 11483 (type).)

*Tyromyces guttulatus* (Peck ex Sacc.) Murrill, *North American Flora* 9: 31, 1907. — Cunningham 1965.

MRO. A polypore fungus with annual, white, bracket sporocarps, fan-shaped or broadly attached, fleshy and soft when fresh. Measuring 3–5 cm wide, 5–8 cm radius, 7–15 mm thick. It has been recorded locally only on *Metrosideros*, *Dacrycarpus*, and *Podocarpus*. Cunningham's (1965) description of

the fungus in New Zealand appears to differ somewhat from published descriptions elsewhere. (Auckland: PDD 6732, 6748; Wellington: PDD 5335, 6591, 6593.)

*Tyromyces merulinus* (Berk.) G.Cunn., *New Zealand Dept. Sci. Industr. Res. Bull.* 164: 138, 1965. — Cunningham 1965.

MRO. Basidiocarps are broadly resupinate, to 30 × 10 cm, sometimes with narrowly reflexed margins, conspicuous due to the brightly coloured (orange, apricot to scarlet) pore surface. Found on fallen logs and branches and on stumps of a broad range of indigenous hosts, causing a white rot. (Bay of Plenty: PDD 5866, 5868.)

*Wrightoporia subrutilans* (Murrill) Ryvarden, *Nordic J. Bot.* 2: 147, 1982.

MEX. Fruiting on bark and decorticated wood of fallen branches and trunks, this polypore has been recorded on *Coriaria*, *Corynocarpus*, and *Kunzea* (Cunningham 1965) and on *Metrosideros*, causing a white rot. Basidiocarps are resupinate, white or cream crusts, 0.5–1 mm thick, with angular pores becoming somewhat tooth-like. (Auckland: PDD 11086.)

*Xylobolus illudens* (Berk.) Boidin, *Rev. Mycol. (Paris)* 23: 341, 1958. — Cunningham 1956 as *Stereum illudens* Berk., 1963 as *S. illudens*.

MRO. A corticioid species with annual to perennial basidiocarps, varying from fan-shaped pilei to broadly resupinate areas with reflexed margins. Pileus surface concentrically zoned with bands of brown hairs; fertile lower surface violaceous to grey. Recorded on dead trunks and branches of many indigenous hosts, and also on power poles and worked timber. (Wanganui: PDD 4502.)

## AURICULARIALES

*Auricularia polytricha* (Mont.) Sacc., *Atti del Reale Istituto veneto di scienze, lettere ed arti. Ser. 6, 3:* 722, 1885. — McKenzie 1992.

MKE. Wood ear fungus. Widespread and common throughout New Zealand on dead wood of many different plants. (Kermadec Islands: PDD 55046.)

*Helicogloea alba* (Burt) Couch, *Mycologia* 41: 435, 1949. — McNabb 1964.

MEX. A jelly fungus, forming pale cream, thin crusts, 0.5–1 mm thick, on bark and wood of several hardwood species. (Coromandel: PDD 5036.)



**OOMYCOTA**

*Phytophthora cinnamomi* Rands, *Meded. Inst. Plantenziekten, Buitenzorg* 54: 41, 1922. — Gilmour 1966.

MEX. Seedling root rot. This fungus is abundant in many New Zealand soils in indigenous and exotic forests and has a wide host range. It generally causes rootlet rot of older trees growing in heavy or poorly drained soils; of little importance where soil conditions are favourable to plant growth. It may cause severe root and collar rot in nurseries.

**ZYGOMYCOTA**

*Acaulospora laevis* Gerd. & Trappe, *Mycol. Mem.* 5: 33, 1974. — Hall 1977.

MUM. This species formed vesicular-arbuscular mycorrhizae with several species of plants including *Kunzea ericoides*, *Leptospermum scoparium*, and *Metrosideros umbellata*.

*Glomus* cf. *macrocarpus* Tul. & C.Tul. var. *macrocarpus*, *Giorn. Bot. Ital.* 2: 63, 1845. — Hall 1977.

MUM. This species formed vesicular-arbuscular mycorrhizae in repeated inoculation trials with *Coprosma robusta*, *Weinmannia racemosa*, and *Metrosideros umbellata*.

*Glomus pallidus* I.R.Hall, *Trans. Brit. Mycol. Soc.* 68: 343, 1977. — Hall 1977.

MUM. This species was described as forming vesicular-arbuscular mycorrhizae with *Coprosma robusta*, *Leptospermum scoparium*, *Weinmannia racemosa*, and *Metrosideros umbellata*. (Southland: PDD 35026.)

**MITOSPORIC FUNGI**

*Acrodontium crateriforme* (J.F.H.Beyma) de Hoog, *Stud. Mycol.* 1: 26, 1972. — McKenzie 1992.

MKE. Overgrowing and probably parasitic on *Meliolina novae-zealandiae*. In New Zealand known only from Kermadec Islands; also known from Europe and Indonesia. (Kermadec Islands: PDD 54807.)

*Capnobotrys paucispora* S.Hughes, *New Zealand J. Bot.* 19: 221, 1981. — Hughes 1981.

MDI. Sooty mould on branches, twigs, and leaves. Common throughout New Zealand on several species of native trees. *Capnobotrys* species are the

anamorphs of species of Metacapnodiaceae. (Taupo: PDD 21035 (type).)

*Ceuthospora* sp.

MEX. On dead, fallen leaves. Many species have been described, usually colonising dead or moribund leaf tissue in litter habitats. (Coromandel: PDD 46776.)

*Chaetosticta* sp.

MEX, MKE, MSP (cult.). Hypophyllous on living leaves, forming discrete black colonies or more general black mould-like growth within the leaf tomentum. A similar species also occurs in New Zealand on leaves of *Pittosporum crassifolium* and *Acca sellowiana*. (Northland: PDD 46691, 46693; Auckland: PDD 46690, 49977, 54663, 56807, 65871.)

*Chalara* sp.

MUM. A saprobe on dead, fallen leaves. (Southland: PDD 40683.)

*Chloridium* sp. — McKenzie 1992.

MKE. A saprobe on dead, fallen leaves. (Kermadec Islands: PDD 59366.)

*Circinotrichum* sp.

MSP. A saprobe on dead, fallen leaves. (Northland: PDD 40602.)

*Cladobotryum* sp.

MBA. On outer bark of living tree. Associated with a mushroom fruitbody. (Northland: PDD 60086.)

*Colletotrichum acutatum* J.H. Simmonds, *Queensland Journal of Agricultural and Animal Science* 25: 178A, 1968.

MEX. Isolated as an endophyte from symptomless green leaves. (Northland: PDD 68861.)

*Colletotrichum* sp.

MFU. Isolated as an endophyte from symptomless green leaves. (Auckland: PDD 45657.)

*Conoplea* sp. — McKenzie 1992.

MKE. A saprobe on dead, fallen leaves. (Kermadec Islands: PDD 59372.)

*Cryptophiale orthospora* McKenzie, *Mycotaxon* 49: 309, 1993. — McKenzie 1992 as *Cryptophiale* sp., 1993.

MKE. A saprobe on dead, fallen leaves. Also known on *Elaeocarpus dentatus* in New Zealand, and on *Gahnia* sp. in New Caledonia. (Kermadec Islands: PDD 59365.)

*Cryptosporiopsis* sp.

MSC. Isolated as an endophyte from symptomless green leaves. (Auckland: PDD 68246.)

*Cylindrocladium scoparium* Morgan, *Bot. Gaz. (Crawfordsville)* 17: 191, 1892.

- MEX, MKE. In both specimens the fungus was isolated from leaf spots of seedling plants. Spots circular, 1–2 mm diam., brown with a dark reddish brown border. Worldwide in distribution, *C. scoparium* is very common in New Zealand on a wide range of plants. Commonly causes damping-off and can be isolated from roots and leaves of seedling plants. (Northland: PDD 25226; Auckland: PDD 40129.)
- Cylindrocladium* sp.  
MSP. On dead, fallen leaves. (Coromandel: PDD 40640, 40641.)
- Cytospora metrosideri* Rabenh., *Hedwigia* 17: 115, 1878. — Rabenhorst 1878.  
MSP. On leaves, from Auckland.
- Cytospora* sp.  
MEX. Associated with marginal necrotic areas on leaves. Necrotic areas grey, with a sharply defined reddish border. (Northland: PDD 48613.)
- Dictyochoaeta* sp. — McKenzie 1992.  
MKE. A saprobe on dead, fallen leaves. (Kermadec Islands: PDD 59377.)
- Ellisiopsis gallsiae* Bat. & Nascim., *Anais Soc. Biol. Pernambuco* 14: 21, 1956. — McKenzie 1992.  
MKE. A saprobe on dead, fallen leaves. Widespread in tropical areas. In New Zealand known only from Kermadec Islands. (Kermadec Islands: PDD 54648.)
- Eriomycopsis meliolinae* Hansf., *Proc. Linn. Soc., London* 158: 48, 1947. — Johnston 1999.  
MEX. Overgrowing and parasitic on *Meliolina novae-zealandiae*. *Eriomycopsis* spp. are typically hyperparasitic on *Meliola* and other leaf pathogens. *E. meliolinae* is the only species to have been described from *Meliolina*, and has been previously reported only from Africa. (Northland: PDD 68410; Bay of Plenty: PDD 68409.)
- Fusidium* sp.  
MEX, MSP. On dead, fallen leaves, presumably saprobic. (Auckland: PDD 40660, 40663; Coromandel: PDD 46756.)
- Gyrothrix* sp. — McKenzie 1992.  
MKE. A saprobe on dead, fallen twig. (Kermadec Islands: PDD 59367.)
- Harknessia eucrypta* (Cooke & Masee) Nag Raj & DiCosmo, *Biblioth. Mycol.* 80: 28, 1981.  
MEX. On recently fallen leaves. Originally described from New Zealand on leaves of *Knightia excelsa*. (Auckland: NZFRI(M) 3651; Coromandel: PDD 46770.)
- Harposporium* sp.  
MSP. A saprobe on dead, fallen leaves. (Coromandel: PDD 40699.)
- Leptomelanconium* sp.  
MEX, MSP. Tentatively identified in this genus. Associated with circular, dark reddish brown leaf spots which form a “cuticular plate” up to 6 mm diam. on the upper surface of leaves. Discoloration extends to the lower leaf surface. Very common on pohutukawa. (Northland: PDD 56841; Auckland: PDD 15909, 30158, 30159, 43314, 64252; Coromandel: PDD 55197, 62168, 64236, 64249, 64251; Taranaki: NZFRI(M) s.n.; Wanganui: NZFRI(M) s.n.; Wellington: NZFRI(M) 3538, 3539, 3585, 3593; Dunedin: NZFRI(M) 3556.)
- Olidodendron* sp. — McKenzie 1992.  
MKE. A saprobe on dead, fallen leaves. (Kermadec Islands: PDD 59373.)
- Periconiella* sp.  
MSP. Hypophyllous on living leaves, with conidiophores arising from leaf hairs. (Auckland: PDD 40717.)
- Pestalotia* sp.  
MEX. Isolated as an endophyte from symptomless green leaves. (Northland: PDD 68860.)
- Phialocephala* sp.  
MSP. A saprobe on dead, fallen leaves in stream. (Coromandel: PDD 40722.)
- Phyllosticta* spp.  
MEX. Isolated as an endophyte from symptomless green leaves. (Northland: PDD 68862, 68863, 68864.)
- Pleurotheciopsis* sp. — McKenzie 1992.  
MKE. A saprobe on fallen leaves. (Kermadec Islands: PDD 59374, 59375.)
- Pseudocercospora myrticola* (Speg.) Deighton, *Mycol. Pap.* 140: 148, 1976. — Laundon 1970 as *Cercospora myrticola*; McKenzie 1990.  
MEX, MPA. On nursery plants. Leaf spots angular or irregular up to 5 mm diam., dark reddish brown. Recorded on Myrtaceae (*Blepharocalyx* and *Myrtus*) in South America, Europe, and South Africa. Also isolated from *Feijoa sellowiana* in New Zealand. (Taranaki: NZFRI(M) 2360, PDD 44470, 50614.)
- Ramichloridium* sp. — McKenzie 1992.  
MKE. Overgrowing *Meliolina novae-zealandiae*. (Kermadec Islands: PDD 54825.)
- Satchmopsis* cf. *brasiliensis* B.Sutton & Hodges, *Nova Hedwigia* 26: 3, 1975.  
MEX. On dead, fallen leaves. Known from *Eucalyptus* litter from North, Central, and South America, Hawaii, and Australia. (Auckland: PDD 45581.)

*Septonema* sp. — McKenzie 1992.

MKE. A saprobe on dead, fallen leaves. (Kermadec Islands: PDD 59381.)

*Spiropes* sp. — McKenzie 1992.

MKE. Overgrowing and probably parasitic on *Meliolina novae-zealandiae*. (Kermadec Islands: PDD 54810.)

*Symodiella* sp.

MFU. A saprobe on dead, fallen leaves. (Coromandel: PDD 45292.)

*Triposporium* sp.

MSP. A saprobe on dead, fallen leaves. (Auckland: PDD 40548.)

*Verticicladiella* sp. — McKenzie 1992.

MKE. A saprobe on dead, fallen leaves. (Kermadec Islands: PDD 59378, 59379.)

*Waydora typica* (Rodway) B.Sutton, *Trans. Brit. Mycol. Soc.* 67: 248, 1976.

MEX. On recently fallen leaves; also isolated from a dying twig. Found on *Eucalyptus* spp. in Australia and North and South America. In New Zealand has also been found on *Hebe* sp. and on *Pseudopanax lessonii*, always close to the shoreline. (Northland: PDD 54303; Auckland: PDD 65876; Coromandel: PDD 55379, 55381, 59487, 64984; Bay of Plenty: PDD 59629.)

*Wiesneriomyces* sp. — McKenzie 1992.

MKE. A saprobe on dead, fallen leaves. (Kermadec Islands: PDD 59363, 59376.)

*Zygosporium gibbum* (Sacc., Rouss. & Bomm.) S. Hughes, *Canad. J. Bot.* 36: 825, 1958.

MSP. A saprobe on dead, fallen leaves in stream. *Z. gibbum* is common on plant litter, especially in tropical regions. It has been found in the northern parts of New Zealand on dead leaves of several native plant species. (Coromandel: PDD 40741.)

## MYXOMYCOTA

*Craterium minutum* (Leers) Fr., *Syst. Mycol.* 3: 151, 1829.

MEX. Slime mould found on bark. Also occurs on dead leaves, twigs, and bark of other plants in New Zealand. Common in North America and Europe, and known from other parts of the world. (Bay of Plenty: PDD 28500.)

*Fuligo septica* (L.) F.H.Wigg., *Prim. fl. holsat.*: 112, 1780. — McKenzie 1992.

MKE. Slime mould found on dead wood. (Kermadec Islands: PDD 54594.)

*Trichia favoginea* (Batsch) Pers., *Neues Mag. Bot.* 1: 90, 1794. — McKenzie 1992.

MKE. Slime mould found on dead wood. (Kermadec Islands: PDD 54595.)

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