WORKING PAPER

Macrofungi of British Columbia: Requirements for Inventory

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BRITISH COLUMBIA

Ministry of Forests Research Program

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S. Redhead

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Prepared by
Scott Redhead
Agriculture and Agri-food Canada
Eastern Cereal and Oilseed Research Centre (ECORC)
960 Carling Avenue
Ottawa, Ontario, Canada
K1A 0C6
for
B.C. Ministry of Forests
Research Branch
31 Bastion Square
Victoria, B.C. V8W 3E7
and
B.C. Ministry of Environment, Lands and Parks
Wildlife Branch
780 Blanshard Street
Victoria, BC V8V 1X4

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B.C. Ministry of Forests
Forestry Division Services Branch
Production Resources
595 Pandora Avenue, 1st Floor
Victoria, BC V8W 3E7

PREFACE

In recent years, global changes in the environment (e.g., acid rain, depletion of the ozone layer, global warming) and increasing rates of resource extraction (e.g., forest harvesting, conversion of wildlands to agriculture and residential development) have raised serious ethical and utilitarian concerns over the disappearance of **entire** ecosystems, species, and the genetic diversity of animal and plant populations. Numerous articles, focusing on the maintenance of biodiversity at the ecosystem, species, and genetic levels, are prevalent in both the scientific and popular literature (e.g., Harris 1984; Westman 1990; Hansen et al. 1991; Chaplin et al. 1992; Kimmens 1992; Pielou 1992; Pimental et al. 1992; Wilson 1992; Fenger et al. 1993). Yet, despite the documentation of the flora and fauna for many parts of the world, particularly temperate regions, large gaps exist in our knowledge. Of particular concern is the lack of basic information, such as regional species checklists, for many groups of organisms, including bryophytes (mosses, liverworts, and hornworts), lichens, and fungi. Unfortunately, these organisms are more at risk than their larger counterparts, the vascular plants, because they are not maintained in botanical gardens and, once their habitat disappears, these organisms become extinct.

Fortunately, many areas of British Columbia have not been altered to the same extent as other regions in North America, such as California, where almost half of the crustose lichens collected in the early part of the century have not been found since that time because so much of the land has been irrevocably changed by residential and agricultural development and air pollution (Hale and Cole 1988). Alternatively, there has been so little adequate documentation of the bryophytes, lichens, and macrofungi of British Columbia that we have little notion of the extent to which these groups have been affected by human activities.

This is one of three reports that outline what is known about bryophytes (Ryan 1996), lichens (Goward 1995), and macrofungi (this report) in British Columbia. They provide a preliminary list of species that are rare or endangered, and provide a set of recommendations regarding future inventory requirements for each of these groups.

Our knowledge is the most incomplete for macrofungi: less than 1% of the macrofungi flora of British Columbia have been examined in systematic studies; hence, it is not possible to provide more than a rudimentary list of rare species for British Columbia. Obviously, there is a need for basic field work, including general floristic studies identifying and describing undocumented species in all regions of the province.

British Columbia, Canada's most westerly province, has a bounty of biological diversity. Its mountains, lakes and rivers, rainforests, wetlands and arid grasslands, and long, rugged coast provide habitats for more species of living organisms than are found anywhere else in Canada. However, this very diversity means that there is much to be discovered about these organisms—their distribution, abundance, habitat requirements, and interrelationships with their environments. Increasing our knowledge of this biodiversity will help us with the complex task of sustainably managing our land and waters.

In 1992 the Provincial Government initiated a co-operative biodiversity research program with funding from the Corporate Resource Inventory Initiative; the British Columbia Ministries of Forests (Research Branch); Environment, Lands and Parks (Wildlife and Habitat Protection branches); and Tourism and Culture, (Royal British Columbia Museum); and the Forest Resource Development Agreement (FRDA II). One goal of this research program is to extend information to scientists, resource managers, and the public through biodiversity publications. These publications are intended to increase awareness and understanding of biodiversity, promote the concepts and importance of conserving biodiversity, and communicate provincial government initiatives related to biodiversity. We hope that they will be used as tools for the conservation of British Columbia's rich, living legacy.

For more information contact:

B.C. Ministry of Forests
Research Branch
31 Bastion Square
Victoria, BC V8W 3E7

B.C. Ministry of Environment, Lands and Parks
Wildlife Branch
780 Blanshard Street
Victoria, BC V8V 1X4

Royal British Columbia Museum
675 Belleville Street
Victoria, BC V8W 1X4

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1 INTRODUCTION

Macrofungi are those fungi that form large fructifications visible without the aid of a microscope. This artificial but convenient grouping is here defined to include fungal families or genera where the majority of included species produce fruit bodies greater than 1 cm in diameter. Unlike microfungi, which are made conspicuous by the diseases, decay, and moulding they cause, macrofungi are the ones most likely to be directly observed unaided and by the untrained eye. They are also the most likely either to be indicator or threatened beneficial species. The number of species of macrofungi of British Columbia may well exceed the number of species of vascular plants, but, with a few spectacular exceptions, they are largely inconspicuous or are lumped together in the public's mind as mushrooms, toadstools, conks, puffballs, etc., if differentiated even this far. The loss of any one, again with a few exceptions (e.g., chanterelles or pine mushrooms), would not be viewed with alarm by the populace. In fact, a few are either aggressive plant pathogens or agents of destruction of wood structures, and their eradication or control, like that of weeds, may well be a legitimate goal.

However, macrofungi are extremely important beneficial organisms in British Columbia for several reasons. Excepting tree species in the Cupressaceae (*Chamaecyparis, Calocedrus, Thuja*) and Aceraceae (*Acer*) families, all major timber trees and many ornamentals are symbiotically dependent on ectomycorrhizal fungi, most of which are macrofungi. Elimination of these fungi or a substantial drop in their numbers will lead to loss or deterioration of the trees, have a serious effect on the timber industry, and lead to loss of innumerable wilderness habitats.

Macrofungi, such as morels (*Morchella*), false morels (*Gyromitra esculenta*), pine mushrooms (*Tricholoma magnivelare*), chanterelles (*Cantharellus* spp.), and king boletes (*Boletus edulis*) are now commercially harvested directly from natural habitats, supporting a multimillion-dollar industry.

Aside from the financial benefits of human consumption, mushrooms form a part of the diet for native animals, such as squirrels, voles, and deer. Truffle-like fungi, although very poorly documented from British Columbia, are obligately dependent on animal ingestion and dispersal; even as some of these animals are largely dependent on the fungi as food. Others, through causing wood decay, create essential habitats for a variety of animals either by causing cavitation of trees or logs, or preparing the wood for colonization by insects and, indirectly, by larger animals.

Macrofungi, although by definition visible to the naked eye, are, like all fungi, microorganisms. They interact and compete with all manner of other microorganisms and predators or browsers. Genetically, they generate masses of pharmaceutically active chemicals, such as antibiotics, anticarcinogens, hormones, pheromones, toxins, carcinogens, enzymes, and pigments. Each species presents a unique combination of these features and therefore represents potential benefits.

Fungi (mostly macrofungi) decompose plant matter, particularly woody

tissues. They are necessary for the recycling of both natural and industrial forest waste and dead wood. As a by-product of this ability to degrade complex polymers (lignin and cellulose), some fungi are capable of being used to decontaminate soil or groundwater of some types of pollutants.

Aesthetically, some macrofungi are among the most picturesque, colourful, and delicate formations in nature. A profusion of large mushrooms, coral fungi, and bracket fungi along a woodland trail can turn an area into a wilderness wonderland, worth preserving for the sake of its beauty.

2 STATUS OF KNOWLEDGE IN BRITISH COLUMBIA

Unfortunately, the present state of knowledge of the macrofungal flora, or macromycota, does not easily lend itself to the detailed analysis needed or envisaged for biodiversity preservation legislation. Current data are insufficient for a comparison among most ecoregions or with other regions in Canada or North America. This is not to say that there is a paucity of information; rather, that it is too fragmented and incomplete. For more than 90% of the province, there has been documentation of less than 1% of the macrofungal flora in any systematic study. There are no published monographs, keys, or lists for the bulk of British Columbian macrofungi. Most in the province await documentation, a costly and time-consuming task even without comparing regions. For this report, an effort has been made to bring together published information on several of the major taxa comprising the British Columbia macromycota.

Polypores comprise basidiomycetes, which form a multiporoid fruitbody that is not putrescent (i.e., not a bolete). Although there are additional sources for some species, the recent monograph of the polypores by Gilbertson and Ryvarden (1986–1987) offers a standard for the group. They report 162 species from British Columbia (see Appendix 1), but with few exceptions do not give precise distributional information. Their maps merely indicate the presence within broad political boundaries. More detailed information is available in the form of decay studies, which took place in the 1940s and 1950s, published mainly in the Canadian Research Journal series (Botany) (see Table 1). Polypores constitute the major causal agents of decay and, as such, represent the most documented macromycota under consideration.

Other major taxonomic groups that decay wood are the nonpolypore aphyllophorales. This is a heterogeneous assemblage of species, the data on which are scattered in hundreds of publications. A compilation of pertinent data on distribution and hosts of all recognized North American taxa has been prepared by Ginns and Lefebvre (1993) for Agriculture Canada. With their permission, all 364 British Columbia species were tabulated from their draft (see Appendix 2). They surveyed 662 references continent-wide to come up with this information. Again, detailed information on occurrence within the province is largely lacking.

There is no accurate listing of mushrooms or agaricales and boletes for Canada. The most comprehensive treatment in Canada is the one for

TABLE 1 *Evaluation of mycological studies by zones*

Biogeographic zones	Major or critical macrofungal studies	Topics of note	Comments on degree of study
General	Redhead 1989	Biogeographic patterns	n/a
	Thomas 1958	Echinodontium	
	Ogawa 1979, 1981	Tricholoma	
	Bandoni and Szczawinski 1964, 1976	Mushrooms	
	Schalkwijk-Barendsen 1991a,b	Mushrooms	
Alpine Tundra	none		<1%
Spruce-Willow-Birch	none		<1%
Boreal White and Black Spruce	none		<1%
Sub-boreal Pine-Spruce	none		<1%
Sub-boreal Spruce	Thomas and Podmore 1953	Decay of black cottonwood	ca. <5%
	Bier et al. 1948	Decay of fir	
Mountain Hemlock	none		<1%
Engelmann Spruce-Subalpine Fir	none		<1%
Montane Spruce	none		<1%
Bunchgrass	Schalkwijk-Barendsen 1991a,b	*Battarrea stevenii*, *Podaxis pistillaris*	<1%
Ponderosa Pine	none		<1%
Interior Douglas-fir	none		<1%
Coastal Douglas-fir	Hardy 1947	Mushrooms	ca. 5%
Interior Cedar-Hemlock	Foster et al. 1954	Decay of western hemlock (upper Columbia region)	ca. 5%
	Foster et al. 1958	Decay of western hemlock and amabilis fir (Kitimat region)	
	Buckland 1946	Decay of cedar	
	Redhead 1984	*Mycena tubarioides*	
	Berthier and Redhead 1982	*Typhula mycophaga*	
Coastal Western Hemlock (Queen Charlotte Islands)	Foster and Foster 1951	Decay of western hemlock	<5%
	Bier et al. 1946	Decay of Sitka spruce	
	Buckland 1946	Decay of cedar	
	Redhead and Reid 1983	*Stereopsis humphreyi*	
Coastal Western Hemlock (Vancouver Island)	Buckland et al. 1949	Decay of western hemlock and fir	ca. 5%
	Buckland 1946	Decay of cedar	
	Hardy 1947	Mushrooms	
	Redhead and Norvell 1993	*Phaeocollybia carmanahensis*	
	Redhead 1988	*Xeromphalina campanelloides*	
	Gilbertson and Ryvarden 1986–1987	*Polyporoletus sublividus*	
Coastal Western Hemlock (Mainland)	Buckland 1946	Decay of cedar	ca. 10%
	Davidson 1930	Agaricales	
	Unpublished information in newsletters of Vancouver Mycological Society	Mainly agarics and other macrofungi in south-western B.C. mainland	

Quebec by Pomerleau (1980). In Pomerleau's publication, 70 species of *Cortinarius* are documented. *Cortinarius* is the largest genus of agarics, with well over 1000 species anticipated in North America. Pomerleau's treatment is very incomplete, however. In the 1970s, Dr. J. Ammirati (University of Washington), the North American expert on *Cortinarius*, was a member of a field expedition to boreal Quebec; he collected more than 100 species in a 3-week period in one forest zone. A similar number could be expected in the northeastern boreal corner of British Columbia alone. Yet for the entire province of British Columbia, only 21 species have been documented.

Agriculture Canada has been developing a comprehensive database on all published reports of agarics, boletes, and chanterelles in Canada. From this database, 488 species were listed for British Columbia (see Appendix 3) from 222 references (see References). As noted for *Cortinarius* above, this is a very incomplete inventory. A reasonable estimate of the number of species in this group would be between 1500 and 2000.

Additionally, there are less numerous groups of macrofungi, such as gasteromycetes (puffballs, birdsnest fungi, false truffles, stinkhorns), hydnoid fungi (e.g., *Hydnum, Sarcodon, Hydnellum*), and terrestrial coral fungi. Fleshy and stromatic ascomycetes comprise another group of macrofungi. References to these groups have been compiled by Lorelei L. Norvell (University of Washington and Oregon Mycological Society) in a master index to the macrofungi of the Pacific Northwest (including British Columbia). More than 180 ascomycetes (see Appendix 5) are cited, along with more than 100 miscellaneous basidiomycetes (see Appendix 4) in the groups listed above.

Two other sources for documentation of British Columbia macrofungi are Canada's two host indices (Conners 1967; Ginns 1986) and listings of holdings in herbaria (e.g., Lowe 1969). Most of these data refer to parasitic microfungi. Nonetheless, some "microfungi," such as the rusts and gall producers, form rather large, conspicuous fructifications. Publications such as Funk's "Foliar fungi of western trees" (1985) and Ziller's "The tree rusts of western Canada" (1974) contain descriptions of such fungi from British Columbia.

The figures discussed above and their sources represent the bulk of the published records of macrofungi for British Columbia. In total, more than 1250 individual species are documented from the province. This figure covers only a fraction of the species actually present, as even some common species have not been documented in the literature.

3 STATUS OF INDIVIDUAL SPECIES IN BRITISH COLUMBIA

Given the incompleteness of the study of British Columbia macrofungi (with the possible exception of those in old-growth coastal forests) it is not possible to designate any particular region as critical using species inventories as indicators. Macrofungi are known to occupy distinct ranges (Redhead 1989) associated with a variety of vegetation types, so the assumption can be made that total loss, modification, or destruction of a vegetation zone would eliminate fungal species. Hence, by preserving selected habitats, entire fungal communities will be preserved.

Documentation of the status of individual species is usually not possible on a large scale. Exceptions have been made for economically important species that are particularly distinctive; for example, "Indian Paint Fungus" (*Echinodontium tinctorium*) (Thomas 1958). For most macrofungi, reliance must be made on field observations by knowledgeable biologists. It is significant that only a single fungus, namely the "Fuzzy Sandozi" (*Oxyporus nobilissimus*) (Christy 1991), occurs on any endangered species list (Oregon Natural Heritage Program List) in North America. This is a very large, conspicuous polypore known to be associated with old-growth noble fir (*Abies procera*) in Washington and Oregon. It has not been found in British Columbia. Both the USDA Forest Products Laboratory, Wisconsin, and the Department of Botany, University of Washington, are involved in documenting this species in the Pacific Northwest (Coombs 1991). There are no other North American fungi on endangered lists.

However, in Europe, a series of "Red Lists" has been developed (Arnolds 1991, 1992) that lists rare or endangered species. Europe has a much more completely known mycota and a longer history to draw upon. From these data, trends in fungal population fluctuations can be plotted. Arnolds (1989) enumerated 944 species for the "Red List" for the Netherlands, of which 182 were threatened with extirpation and 91 had already been eliminated.

For British Columbia — and for that matter, virtually all of Canada — reliance must be made on field observations by trained observers. Hence, among the larger polypores in British Columbia, *Polyporoletus sublividus* may be designated rare, and perhaps endangered. It appears to have been collected only twice in British Columbia, both on Vancouver Island; once in the vicinity of Lake Cowichan in 1929, and once near Courtenay in 1963 (DAOM records). Unfortunately, one cannot point to an existing Canadian population with any certainty (30 years have lapsed since it was last sighted); once located, the species should be well plotted by the next researcher. The species was recently rediscovered in the Cascade Range in Washington State (specimens at University of Washington herbarium [WTU] and the National Mycological Herbarium, Ottawa [DAOM]). *Albatrellus caeruleoporus*, although not reported by Gilbertson and Ryvarden (1986–1987) from western North America, is a rare fungus in the U.S. Pacific Northwest and has been found in British Columbia (Spahats Creek Provincial Park) by T. Goward (Ginns, unpubl. information). It is a distinctive species, having an overall blue colouration.

Among the non-poroid aphyllophorales, *Stereopsis humphreyi* is conspicuous, unusual, and rare, so that it too might be considered endangered. Only two localities are known with certainty: one on the Olympic Peninsula of Washington and one on the Queen Charlotte Islands, in Naikoon Provincial Park near Tow Hill Ecological Reserve (Redhead and Reid 1983). *Typhula mycophaga*, a clavaroid parasite of puffballs, is known only from the type locality in the Beaver River Valley of Glacier National Park (Berthier and Redhead 1982). It may be rare, because nothing like it has been seen on other expeditions in western North America. Another easily characterized species, *Mycena tubarioides*, an agaric found in the same valley

and the nearby extensive Moberly Marsh in the Columbia River valley (Rocky Mountain Trench), is known only from these sites and from Whidbey Island, Washington (specimen in the University of Washington [WTU]) in North America. Its restricted habitat on bases of decaying cattails (*Typha* sp.) no doubt obscures it from ready detection (Redhead 1984).

Xeromphalina campanelloides occurs in two locations on Vancouver Island: at Lake Cowichan in Gordon Bay Provincial Park, and in Goldstream Provincial Park. It has also been collected on the Olympic Peninsula and in restricted sites in eastern North America in disjunct populations (Redhead 1988). Unfortunately *X. campanelloides* resembles *X. campanella*, an exceedingly common species; hence it is only recognized in the field with difficulty.

Among the agaric species more conspicuous to the trained eye are those in the genus *Phaeocollybia*. This genus reaches its northernmost limit in western North America on Vancouver Island in the Carmanah Valley. One new species, *P. carmanahensis*, was discovered in old growth in the upper Carmanah Valley (Redhead and Norvell 1993). Six species in total are known from the valley, the only sites in western Canada for the genus (specimens in DAOM). The other five species occur in greater abundance in the Pacific Northwest of the United States. It should be noted, however, that adjacent valleys (with the exception of a 1-day trip to the Walbran) have not been searched.

Rare or rarely seen species in genera that form inconspicuous or nondescript fructifications abound in the province even within populated areas. Some examples are: *Tetragoniomyces uliginosus*, known worldwide from three sites, one in Finland, one in Germany, and one on the University of British Columbia Endowment Lands (Oberwinkler and Bandoni 1981); *Dacrymyces aquaticus*, known only from the University of British Columbia endowment lands (Bandoni and Hughes 1984); *Hypochnopsis mustaliensis*, in British Columbia known only from one collection from the Lake Cowichan area (Ginns 1989); and *Syzygospora subsolida*, known to science from only one collection in the Beaver River Valley, Glacier National Park (Ginns 1986). Many other aphyllophorales fall into this category.

4 LIST OF RARE OR NOTABLE SPECIES OF MACROFUNGI OF BRITISH COLUMBIA

The following is a list of rare or notable macrofungi that have been found in British Columbia. Preliminary status designations follow the names and authorities of many species. These designations are the same as those used by the Conservation Data Centre, B.C. Ministry of Environment, Lands and Parks (see Appendix 6).

Albatrellus caeruleoporus (Peck) Pouz. (S1)
Arrhenia retiruga (Bull.:Fr.) Redhead
Boletus barrowsii Thiers (S1)
Callistosporium luteo-olivaceum (Berk. & Curt.) Singer (S3)
Clavulina ornatipes (Peck) Corner

Clitlopius hobsonii (Berk.) Orton
Collybia bakerensis A.H. Smith (S2)
Coprinus kubickae Pil. & Svr.
Coprinus phaeosporus Karst. (S1)
Dacrymyces aquaticus Bandoni & Hughes
Gammundia leucophylla (Gillet) Raithl. (S2)
Gymnopilus punctifolius (Peck) Singer
Hemimycena albicolor (A.H. Smith) c.p.
Hemimycena cyphelloides (Orton) Maas G.
Hemimycena hirsuta (Tode) Singer
Hemimycena ignobilis (Joss.) c.p. (S2)
Hemimycena nebulophila (Redhead) c.p. (G1)
Hemimycena substellata (Kuhner) c.p. (S1)
Hydnellum geogenium (Fr.) Karst. (S2)
Hypholoma tuberosum Redhead & Kroeger (E3)
Hypochnopsis mustaliensis (Karst.) Karst. (S2)
Lepiota flammeatincta Kauffman
Marasmius caricis Karst.
Marasmius epidryas Kuhner (S2)
Marasmius tremulae Vel. (S1)
Mycena bulbosa (Cejip) Kuhner (S1)
Mycena lilacifolia (Peck) A.H. Smith
Mycena longiseta von Hohnel
Mycena paucilamellata A.H. Smith
Mycena tubarioides (R. Maire) Kuhner (S1)
Mycenella nodulosa (A.H. Smith) Vellinga
Mythicomyces corneipes (Fr.) Redhead & Smith
Omphalina marchantiae (Singer & Clem.) Norvell et al. (S2)
Ossicaulis lignatilis (Pers.) Redhead & Ginns (S1)
Pachylepyrium carbonicola (A.H. Smith) Singer
Phaeocollybia attenuata (A.H. Smith) Singer (S1)
Phaeocollybia carmanahensis Redhead & Norvell (G1)
Phaeocollybia fallax A.H. Smith (S1)
Phaeocollybia kauffmanii (A.H. Smith) Singer (S1)
Phaeocollybia piceae A.H. Smith (S1)
Phaeocollybia pseudofestiva A.H. Smith (S1)
Phaeogalera stagnina (Fr.) Kuhner
Pholiota brunnescens Smith & Hesler
Pholiota carbonaria A.H. Smith
Pholiota fulvozonata Smith & Hesler
Pholiota molesta Hesler
Polyporoletus sublividus Snell (G1)
Psathyrella ammophila (Dur. & Lev.) Orton (S2)
Pseudobaeospora pillodii (Quel.) Wasser (S1)
Psilocybe rhombispora (Britz.) Sacc.
Psilocybe sabulosa Peck
Rhodocybe trachyspora var. *vinacea* (R. & B.) B. & L.
Rhodocybe hirneola (Fr.) Orton
Rimbachia arachnoidea (Peck) Redhead

Rimbachia bryophila (Pers.) Redhead
Rimbachia neckerae (Fr.) Redhead
Stereopsis humphreyi (Burt) Redhead & Reid (G1)
Suillus pseudobrevipes Smith & Thiers
Syzygospora subsolida Ginns (S1)
Tetragoniomyces uliginosus (Karst.) Oberw. & Bandoni (G1)
Tetrapyrgos subdendrophora (Redhead) Horak (G1)
Tricholoma cingulatum (Fr.) Jacobasch (S2)
Typhula mycophaga Berthier & Redhead (G1)
Xeromphalina campanelloides Redhead (G1)
Xeromphalina cirris Redhead

5 LIST OF POSSIBLY RARE MACROFUNGI FROM BRITISH COLUMBIA BY ECOREGIONS[1]

Based on limited information, potentially rare species are listed for each ecoregion in British Columbia. All unmarked species should be listed as "U," because insufficient data are available for several reasons: cryptic nature of species, difficulty in identification, or lack of field collectors. All listed species are known from five or fewer sites in British Columbia, and those are marked "G1" from five or fewer sites globally. Some are known only from the type site in B.C. Vouchers for all species, except for *Dacrymyces aquaticus* and *Tetragoniomyces uliginosus* at the University of British Columbia, are deposited in the national mycological herbarium in Ottawa (DAOM).

Ecoprovince: Coast and Mountains

1. Ecoregion: Cascade Range
Gammundia leucophylla (Gillet) Raithl. (S2)
Omphalina marchantiae (Singer & Clem.) Norvell et al. (S2)
Xeromphalina cirris Redhead
Area minimally sampled.

2. Ecoregion: Coastal Gap
Mycologically unexplored or data minimal.

3. Ecoregion: Northern Coastal Mountains
Marasmius epidryas Kuhner (S2)
M. tremulae Vel. (S1)
Tricholoma cingulatum (Fr.) Jacobasch (S2)
Area minimally sampled.

4. Ecoregion: Pacific Ranges
Hemimycena ignobilis (Joss.) c.p. (S2)
Omphalina marchantiae (Singer & Clem.) Norvell et al. (S2)
Area minimally sampled.

1 Ecoregion designation based on Demarchi, D. 1993. Ecoregions of British Columbia.

5. Ecoregion: Nass Basin
Mycologically unexplored or data minimal.

6. Ecoregion: Nass Ranges
Mycologically unexplored or data minimal.

7. Ecoregion: Queen Charlotte Lowland
Coprinus phaeosporus Karst. (S1)
Hydnellum geogenium (Fr.) Karst. (S2)
Mycena paucilamellata A.H. Smith
Phaeogalera stagnina (Fr.) Kuhner
Psathyrella ammophila (Dur. & Lev.) Orton (S2)
Rhodocybe trachyspora var. *vinacea* (Redhead & Baroni) Baroni & Largent
Stereopsis humphreyi (Burt) Redhead & Reid (G1)
Area intensively sampled once only during a dry fall season.

8. Ecoregion: Queen Charlotte Ranges
Mycologically unexplored or data minimal.

9. Ecoregion: Western Vancouver Island
Clavulina ornatipes (Peck) Corner
Gymnopilus punctifolius (Peck) Singer
Hemimycena hirsuta (Tode) Singer
Lepiota flammeatincta Kauffman
Mycena longiseta von Hohnel
Phaeocollybia attenuata (A.H. Smith) Singer (S1)
P. carmanahensis Redhead & Norvell (G1)
P. fallax A.H. Smith (S1)
P. kauffmanii (A.H. Smith) Singer (S1)
P. piceae A.H. Smith (S1)
P. pseudofestiva A.H. Smith (S1)
Sampled in several brief 1-day visits.

Ecoprovince: Georgia Depression

1. Ecoregion: Eastern Vancouver Island
Arrhenia retiruga (Bull.:Fr.) Redhead
Boletus barrowsii Thiers (S1)
Callistosporium luteo-olivaceum (Berk. & Curt.) Singer (S3)
Hypochnopsis mustaliensis (Karst.) Karst. (S2)
Micromphale sp. nov.
Mycena bulbosa (Cejip) Kuhner (S1)
Polyporoletus sublividus Snell (G1)
Rhodocybe hirneola (Fr.) Orton
Xeromphalina campanelloides Redhead (G1)
Xeromphalina cirris Redhead
Relatively intensively explored but in a mostly unorganized fashion. However, most species still undocumented.

2. Ecoregion: Lower Mainland

Dacrymyces aquaticus Bandoni & Hughes
Hypholoma tuberosum Redhead & Kroeger (E3)
Mycena paucilamellata A.H. Smith
Rimbachia arachnoidea (Peck) Redhead
R. bryophila (Pers.) Redhead
Tetragoniomyces uliginosus (Karst.) Oberw. & Bandoni (G1)
Tetrapyrgos subdendrophora (Redhead) Horak (G1)
Area of most intensive exploration but in a mostly unorganized fashion. Most of species still undocumented.

3. Ecoregion: Strait of Georgia

Psilocybe rhombispora (Britz.) Sacc.
Area minimally sampled.

Ecoprovince: Central Interior

1. Ecoregion: Chilcotin Ranges

Mycologically unexplored or data minimal.

2. Ecoregion: Fraser Plateau

Mycologically unexplored or data minimal.

Ecoprovince: Sub-Boreal Interior

1. Ecoregion: Fraser Basin

Ossicaulis lignatilis (Pers.) Redhead & Ginns (S1)
Area minimally sampled.

Ecoprovince: Southern Interior Mountains

1. Ecoregion: Columbia Mountains and Highlands

Albatrellus caeruleoporus (Peck) Pouz. (S1)
Clitopilus hobsonii (Berk.) Orton
Collybia bakerensis A.H. Smith (S2)
Hemimycena cyphelloides (Orton) Maas G.
H. ignobilis (Joss.) c.p.
H. nebulophila (Redhead) c.p. (G1)
H. substellata (Kuhner) c.p. (S1)
Marasmius epidryas Kuhner
M. tremulae Vel. (S1)
Mycena lilacifolia (Peck) A.H. Smith
M. longiseta von Hohnel
M. tubarioides (R. Maire) Kuhner (S1)
Mycenella nodulosa (A.H. Smith) Vellinga
Mythicomyces corneipes (Fr.) Redhead & Smith
Pachylepyrium carbonicola (A.H. Smith) Singer
Pholiota brunnescens Smith & Hesler
P. carbonaria A.H. Smith
P. fulvozonata Smith & Hesler
P. molesta Hesler
Pseudobaeospora pillodii (Quel.) Wasser (S1)
Rimbachia neckerae (Fr.) Redhead
Syzygospora subsolida Ginns (S1)
Typhula mycophaga Berthier & Redhead (G1)
Area intensively sampled by Redhead in one late fall season only (Sept. 1980).

2. Ecoregion: Southern Canadian Rocky Mountains
Mycologically unexplored or data minimal.

3. Ecoregion: Southern Rocky Mountain Trench
Hemimycena albicolor (A.H. Smith) c.p.
H. cyphelloides (Orton) Maas G.
Marasmius caricis Karst.
Mycena tubarioides (R. Maire) Kuhner (s1)
Area minimally sampled.

Ecoprovince: Southern Interior

1. Ecoregion: Okanagan Highland
Coprinus kubickae Pil. & Svr.
Area generally unexplored.

2. Ecoregion: Okanagan Range
Mycologically unexplored or data minimal.

3. Ecoregion: Thompson-Okanagan Plateau
Psilocybe sabulosa Peck
Suillus pseudobrevipes Smith & Thiers
Area generally unexplored.

Ecoprovince: Boreal Plains

1. Ecoregion: Alberta Plateau
Mycologically unexplored or data minimal.

Ecoprovince: Taiga Plains

1. Ecoregion: Fort Nelson Lowland
Mycologically unexplored or data minimal.

Ecoprovince: Northern Boreal Mountains

1. Ecoregion: Liard Basin
Mycologically unexplored or data minimal.

2. Ecoregion: Northern Canadian Rocky Mountains
Mycologically unexplored or data minimal.

3. Ecoregion: Northern Mountains and Plateaus
Mycologically unexplored or data minimal.

4. Ecoregion: Tatshenshini Basin
Mycologically unexplored or data minimal.

5. Ecoregion: Yukon–Stikine Highlands
Mycologically unexplored or data minimal.

6 RANKING OF ECOREGIONS

Based upon the data available for macrofungi from British Columbia, it is not reasonable to rank the various ecoregions solely on the number of reports. Some species that have only been reported once or twice are

undoubtedly common, as are species not yet recorded in the literature. However, within a Canadian perspective, there are certain regions in British Columbia unique to Canada and they will harbour species unlikely to be found elsewhere in the country. In particular, the wet coastal forests composed of tree species restricted to British Columbia in Canada, and alpine and subalpine regions not available elsewhere, will host species not found in other parts of Canada.

Ecoregion: Western Vancouver Island

This region has scarcely been sampled but has yielded several species not found elsewhere in Canada. In particular, the genus *Phaeocollybia* is represented by six species: *P. attenuata*, *P. carmanahensis*, *P. fallax*, *P. kauffmanii*, *P. pseudofestiva*, and *P. piceae* from Vancouver Island. All were discovered in 1991 or 1992; the most recently discovered species, *P. carmanahensis*, is not documented anywhere else. This genus is being considered as an indicator either of old-growth wet western coniferous forests or (at least indicative) of the presence of old-growth elements in the states of Washington and Oregon for the purposes of helping to define Northern Spotted Owl habitats. All six species were found in the Carmanah Valley but may also be present elsewhere in British Columbia. Five of the six occur in greater abundance along the coast of the United States down to northern California.

Exploration of western valleys is expected to reveal many more coast-hugging species. An interesting feature just discovered in 1993 was the existence of mushrooms (agaricales), including mycorrhizal ones, on mossy branches in forest canopies.

Ecoregion: Columbia Mountains and Highlands

This region proved to be fairly rich in rare or unusual fungi not yet reported from elsewhere in Canada or North America. The only known locations for *Typhula mycophaga, Hemimycena nebulophila*, and *Syzygospora subsolida* are in this region, all within Glacier National Park. All three are small species that could have been overlooked in other locations, however. Nonetheless, no other locations are known.

Other relatively rare species are *Albatrellus caeruleoporus*, *Hemimycena substellata*, *Marasmius tremulae*, *Mycena tubarioides*, *Mycenella nodulosa* (specimens in DAOM), *Pseudobaeospora pillodii*, and *Rimbachia neckerae.*

Ecoregion: Queen Charlotte Lowland

This ecoregion and the Queen Charlotte Ranges Ecoregion are expected to harbour many unusual species, only a few of which have been documented. One of the most unusual is *Stereopsis humphreyi*, known with certainty from only two other adjacent sites in coastal Washington. This species was collected from one population in Naikoon Provincial Park. *Coprinus phaeosporus*, although collected only once in North America from the Queen Charlotte Islands, was found in a pasture and is an exceedingly obscure fungus. Its importance as a site indicator is therefore less obvious. Both *Mycena paucilamellata* (specimens in DAOM) and *Rhodocybe trachyspora* var. *vinacea* are restricted to coastal North America, while *Phaeogalera stagnina* (specimens in DAOM) and *Psathyrella ammophila* have restricted habitat requirements (bogs for the former, dunes for the latter), but are more widespread in North America, although rarely reported.

Ecoregion: Northern Coastal Mountains

This region was visited during 2 days and revealed three species rarely recorded from North America, two being probably more widespread in northern regions (i.e., *Marasmius epidryas* and *Tricholoma cingulatum* [specimens in DAOM]) while the third, *M. tremulae*, evidently represents a post-glacial migrant into North America. Further mycological investigation of the area should prove to be very productive.

Ecoregion: Southern Rocky Mountain Trench

Out of the four species flagged as rarely recorded, three are from the extensive Moberly Marsh adjacent to the Trans-Canada Highway: *Hemimycena cyphelloides, Marasmius caricis*, and *Mycena tubarioides*. The last is known only from this area and adjoining valleys in Glacier National Park.

Ecoregion: Thompson–Okanagan Plateau

Relatively little is known about this drier region but, apparently, it supports species such as the two flagged ones not found elsewhere in Canada. *Psilocybe sabulosa* (specimens in DAOM) is very rarely collected, probably because it fruits in dry habitats not frequented by collectors of fleshy fungi. The second, *Suillus pseudobrevipes* (specimens in DAOM), is mycorrhizal and occurs further south in greater abundance.

Ecoregion: Cascade Range

This region has not been examined in detail. A new species of *Pseudoomphalina* (specimens in DAOM) was discovered during a spring visit to Manning Provincial Park near Lightning Lake, but has not yet been described. The other unusual species listed, *Gammundia leucophylla*, *Omphalina marchantiae* (both unpublished records), and *Xeromphalina cirris*, are uncommon to rare but not restricted to the province.

Ecoregion: Eastern Vancouver Island

Species of particular interest are: *Boletus barrowsii* (possibly introduced around Victoria); a possibly new species of *Micromphale* (specimens in DAOM) found once in Goldstream Provincial Park; *Polyporoletus sublividus* (discussed in text); and *Xeromphalina campanelloides* (a rare disjunct to eastern North American populations).

Ecoregion: Lower Mainland

The area around Vancouver has yielded exceedingly rare species, which, in some cases, appear to have been introduced from unknown locations in the world. One species, *Hypholoma tuberosum*, found to be locally abundant on compost piles, has been discovered to be native to Australia. Another species, *Tetrapyrgos subdendrophora*, colonizes grasses in disturbed sites. A new species in the latter genus has been discovered also on grasses, near the University of British Columbia experimental forest in Haney.

7 SURVEYS AND SURVEY TECHNIQUES USED TO DATE

There has been no systematic study of the macrofungi of British Columbia. As mentioned above, systematic surveys were carried out in selected forest districts by the federal government in the 1940s–1960s for tree-decaying fungi. These include many macrofungi. These surveys were often carried out by district rangers who sent materials to the Pacific Forestry

Centre in Victoria. Cultures and fruitbodies were sent to Agriculture Canada in Ottawa for verification. In the late 1920s, a student at the University of British Columbia, J. Davidson, undertook a study of the agarics of the "Vancouver district." Only a part of her thesis was published (Davidson 1930). Given the state of knowledge in agaric taxonomy in that era, the information given is scant and largely suspect.

The provincial handbook series (Hardy 1947; Bandoni and Szczawinski 1964, 1976) covers less than 1% of the species in British Columbia but represents more complete coverage than most other provinces offer.

Several field trips have been conducted specifically to accumulate data on macrofungi in the province by this author. Southern Vancouver Island was sampled in the fall of 1979 and in 1992. Glacier National Park and Mt. Revelstoke National Park were sampled late in 1980. The Queen Charlotte Islands (Graham Island lower elevations) were sampled in the dry autumn of 1982, and brief excursions were made to Stewart, Prince Rupert, Kelowna, Manning Park, Meager Mountain, and southern Vancouver Island in the fall of 1989, and Mt. Seymour and Manning Provincial Parks in the spring seasons of 1990 and 1993. In all cases, random sampling has been done to accommodate the largest number of species that could be sampled in a set period of time. Species new to science were discovered in all areas intensively sampled (e.g., Graham Island, Glacier National Park, and southern Vancouver Island), and (as in one case where new records of a specific genus, *Phaeocollybia*, were made) specifically sought (Redhead and Norvell 1992).

Three amateur collectors have made substantial and valuable contributions to the province's inventories. Mrs. M.C. Melburn (Victoria) collected on southern Vancouver Island in the 1950s and 1960s, depositing collections in herbaria with Agriculture Canada in Ottawa (DAOM) and the Pacific Forestry Centre in Victoria (DAVFP). Trevor Goward, has sampled Wells Gray Provincial Park and maintains collections in his herbarium and in Ottawa. Finally, Paul Kroeger, president of the Vancouver Mycological Society, has searched for and discovered rare or undescribed species in Vancouver and Meager Mountain (Redhead and Kroeger 1984, 1987; Kroeger 1989b).

A more systematic study has been initiated by Gamiet and Berch (1992) using defined plots in old-growth forest in the University of British Columbia research forest near Haney. This study, still in the preliminary phases of development, has generated published records of 24 more agarics for the province.

8 FUTURE STUDIES

It is obvious that an immense amount of work is required to properly inventory the macrofungal population in British Columbia. For most of the ecoregions of the province, less than 1% of the macromycota has been systematically surveyed. Even if funds were available, there would be a shortage of trained researchers in Canada. Therefore, several different types of approaches could be employed.

One tactic is to develop a grid of comparable permanent plots for long-term study in selected habitats. One site has already been established by Gamiet and Berch (1992). A series of such sites would allow for comparison between different vegetation zones. In particular, such plots should be initiated in undisturbed areas, including old growth of each forest type, as well as bunchgrass and alpine and tundra regions. However, data from such plots need to be compared to those from second growth or disturbed areas also. Such studies need to be funded on a long-term basis. They could be combined with studies on the effects of harvesting commercial species, because the biodiversity within a picking area may well be affected by the impact on the commercial species. Studies similar to those recommended here have been initiated in Washington, Oregon, and California by Dr. J. Ammirati (University of Washington), by L.L. Norvell, along with the Oregon Mycological Society (Portland), and by Dr. David Largent (Humboldt State University). It should be noted, however, that there are definite limitations on the sampling methods using plots, and that rare fungi are likely to be overlooked. De Vries (1990) demonstrated that the number of species of wood-inhabiting macrofungi increased continually with increasing plot sizes in temperate forests, a result of high fungal biodiversity.

A second approach is to promote general "floristic" studies within the province. The large number of species that require rudimentary documentation and the existence of many undescribed species, as demonstrated by the random sampling to date, are major hurdles to a more detailed inventory. Promotion of such floristic studies can be accomplished in several ways, which must take into account the shortage of trained individuals. A general position could be created at the provincial level for fungi (e.g., a museum biologist); a joint university–provincial position could be created; linkages could be made with established national research centres to ensure expertise is directed towards British Columbia; funds could be established to support student research at a university; funds or support in kind could be used to tap expertise among advanced amateurs (e.g., Vancouver Mycological Society); and funds could be established for British Columbia field work by North American experts on different groups of fungi.

A third option would be to concentrate on suspected rare fungi and to try to document their occurrence in greater detail, such as is being done for the "Fuzzy Sandozi" (Coombs 1991). This may prove to be futile unless the fungus is large, easily characterized, and produces long-lived fructifications (increasing the likelihood of discovery). *Oxyporus nobilissimus* fulfils these requirements.

The compilation of the reported macrofungi from British Columbia that is part of this report establishes a basis for further studies. Many more species need to be annotated. To be effective, reference material should be maintained in the province. Currently, there are major mycological collections (see Appendix 7) at the University of British Columbia (Vancouver) and at the Pacific Forestry Centre (Victoria). Measures should be taken to ensure both remain in British Columbia and that each is actively curated and funded.

9 POTENTIAL THREATS TO FUNGI

The greatest threat to the native mycota, macrofungi in particular, is habitat destruction. Destruction of any one type of habitat, usually climax vegetation, will inevitably lead to the creation of secondary habitats. As such, some fungal species will actually increase in numbers, especially opportunistic species, decayers of slash, parasites of weedy species, many saprophytic moulds, and pioneering mycorrhizal species. Competition by these other fungi may secondarily be the cause for decline of species that directly survived the habitat destruction. Interestingly enough, some habitats maintained by humankind in some countries now harbour rare species, and these habitats (such as mowed meadows in Poland) must be continually mowed to "preserve" the habitat (Guminska 1992). Such habitats were probably rejuvenated by natural disturbances (e.g., fire, grazing by wild animals) historically, but now require human intervention.

Aside from obvious habitat "destruction," the activities of humans have negative impacts on mycota in several additional ways. Air pollution, which has frequently been linked to damage to trees, has been shown to affect mycorrhizal fungi and, as a consequence, the fungal biodiversity in Europe. Usually this is the result of acidification of sensitive soils. Some genera and families of ectomycorrhizal macromycetes are more sensitive to pollution than others and disappear first (Arnolds 1988, 1989, 1991, 1992). In severely affected areas the mycorrhizae are so "sick" that it is the health of the symbiotic fungi that is leading to unhealthy trees. Ground or groundwater pollution may also come in the form of enrichment, particularly by nitrogenous sources (e.g., farm runoff, fertilization of forests using sewage). Symbiotic relationships are often finely balanced and if a group of plants can grow prolifically in the absence of their mycorrhizal partners, they may well shuck them off. Ultimately, the source of enrichment may eliminate some mycorrhizal species that are unable to regenerate when the ecosystem reverts back to its unenriched status (Arnolds 1988). Runoff water contaminated by fungicides may have similar effects in eliminating mycorrhizal species.

Theoretically, overharvesting of the commercial species could lead to decimation of the population. However, "overharvesting" is a comparative term and nobody knows how much harvesting a mycelium, a forest, or a region can sustain. Planned, long-term studies have not been in place for long enough periods to show significant trends. Studies on the effects of harvesting edible mushrooms are being conducted in Oregon (*Cantharellus cibarius* [Norvell 1992]) and in California (*Boletus edulis*, *Cantharellus cibarius*, *Tricholoma magnivelare* [D.L. Largent, 1993, pers. comm.]). Commercial harvesting of fungi in British Columbia was the topic of discussion in March 1992 in Victoria (de Geus et al. 1992).

APPENDIX 1 British Columbia polypores

Abortiporus biennis
Albatrellus caeruleoporus[2]
Albatrellus confluens
Albatrellus flettii
Albatrellus ovinus
Amylocystis lapponica
Anomoporia albolutescens
Anomoporia bombycina
Anomoporia myceliosa
Antrodia albida
Antrodia albobrunnea
Antrodia carbonica
Antrodia heteromorpha
Antrodia serialis
Antrodia sinuosa
Antrodia sitchensis
Antrodia vaillantii
Antrodia variiformis
Antrodia xantha
Antrodiella romellii
Antrodiella semisupina
Aporpium caryae
Bjerkandera adusta
Bjerkandera fumosa
Boletopsis subsquamosa
Bondarzewia montana
Byssoporia terrestre
Ceriporia excelsa
Ceriporia purpurea
Ceriporia reticulata
Ceriporia tarda
Ceriporia viridans
Ceriporiopsis aneirinus
Ceriporiopsis mucidus
Ceriporiopsis pannocinctus
Ceriporiopsis rivulosus
Cerrena unicolor
Climacocystis borealis
Coltricia cinnamomea
Coltricia perennis
Coriolopsis gallica
Cryptoporus volvatus
Daedaleopsis confragosa
Datronia mollis
Datronia scutellata
Datronia stereoides
Dichomitus squalens
Diplomitoporus crustulinus
Diplomitoporus lenis
Diplomitoporus lindbladii
Echinodontium tinctorium
Fomes fomentarius
Fomitopsis cajanderi
Fomitopsis officinalis
Fomitopsis pinicola
Fomitopsis rosea
Ganoderma applanatum
Ganoderma oregonense
Gloeophyllum carbonarium
Gloeophyllum odoratum
Gloeophyllum protractum
Gloeophyllum sepiarium
Gloeoporus dichrous
Gloeoporus taxicola
Hapalopilus nidulans
Hapalopilus salmonicolor
Hapaloporus odorus
Heterobasidion annosum
Inonotus circinatus
Inonotus cuticularis
Inonotus dryadeus
Inonotus glomeratus
Inonotus obliquus
Inonotus radiatus
Inonotus rheades
Inonotus subiculosus
Inonotus tomentosus
Irpex lacteus
Ischnoderma resinosum
Jahnoporus hirtus
Junghuhnia collabens
Junghuhnia luteoalba
Junghuhnia nitida
Junghuhnia separabilima

2 Rare: addition to Gilbertson and Ryvarden (1986–1987).

Junghuhnia zonata
Laetiporus sulphureus
Lenzites betulina
Leptoporus mollis
Meruliporia incrassata
Oligoporia anguloporus
Oligoporia balsameus
Oligoporia caesius
Oligoporia fragilis
Oligoporia guttulatus
Oligoporia leucospongia
Oligoporia mappus
Oligoporia obducta
Oligoporia perdelicatus
Oligoporia placentus
Oligoporia sericeomollis
Oligoporia stipticus
Oligoporia tephroleucus
Oligoporia undosus
Oxyporus corticola
Oxyporus cuneatus
Oxyporus latemarginatus
Oxyporus populinus
Oxyporus similis
Perenniporia medulla-panis
Perenniporia subacida
Perenniporia tenuis var. *pulchella*
Phaeollus schweinitzii
Phellinus chrysoloma
Phellinus conchatus
Phellinus ferreus
Phellinus ferrugineofuscus
Phellinus ferruginosus
Phellinus hartigii
Phellinus igniarius
Phellinus laevigatus
Phellinus nigrolimitatus
Phellinus pini
Phellinus punctatus
Phellinus repandus
Phellinus tremulae
Phellinus viticola
Phellinus weirii
Physisporinus sanguinolentus
Physisporinus vitreus
Piptoporus betulinus
Polyporoletus sublividus[3]
Polyporus alveolaris
Polyporus arcularis
Polyporus badius
Polyporus brumalis
Polyporus elegans
Polyporus melanopus
Polyporus squamosus
Polyporus varius
Pycnoporellus alboluteus
Pycnoporellus fulgens
Pycnoporus cinnabarinus
Rigidoporus crocatus
Skeletocutis alutacea
Skeletocutis amorpha
Skeletocutis nivea
Skeletocutis stellae
Spongipellis delectans
Spongipellis spumeus
Trametes cervina
Trametes hirsuta
Trametes ochracea
Trametes pubescens
Trametes versicolor
Trechispora mollusca
Trichaptum abietinum
Trichaptum biforme
Trichaptum laricinum
Trichaptum subchartaceum
Tyromyces chioneus
Tyromyces galactinus
Wolfiporia cocos
Wrightoporia lenta

3 Rare: not seen for 30 years.

APPENDIX 2 Aphyllophorales from British Columbia, excepting polypores and chanterelles, and terrestrial clavaroid fungi

Acanthophysium abietis (Jackson & Lemke) Ginns & Lefebvre 1993
Acanthophysium cerussatum (Bres.) Boidin 1986
Acanthophysium farlowii (Burt) Ginns & Lefebvre 1993
Acanthophysium lividocoeruleum (Karsten) Boidin 1986
Acanthophysium macrocystidiatum (Lemke) Boidin 1986
Acanthophysium weirii (Burt) Nakasone 1990
Aleurocystidiellum subcruentatum (Berk. & Curtis) Lemke 1964
Aleurodiscus amorphus (Pers.:Fr.) Schröter 1888
Aleurodiscus aurantius (Pers.:Fr.) Schröter 1888
Aleurodiscus grantii Lloyd 1920
Aleurodiscus occidentalis Ginns 1990
Aleurodiscus penicillatus Burt 1918
Aleurodiscus spiniger D.P. Rogers & Lemke 1964
Amphinema byssoides (Pers.:Fr.) Eriksson 1958
Amyloathelia amylaceus (Bourd. & Galzin) Hjort. & Ryv. 1979
Amylobasidium tsugae Ginns 1988
Amylocorticium cebennense (Bourd.) Pouzar 1959
Amylocorticium subincarnatum (Peck) Pouzar 1959
Amylocorticium subsulphureum (Karsten) Pouzar 1959
Amylostereum chailletii (Pers.:Fr.) Boidin 1958
Asterodon ferruginosus Pat. 1894
Asterostroma andinum Pat. 1893
Athelia cystidiolophora Parm. 1967
Athelia decipiens (Höhnel & Litsch.) Eriksson 1958
Athelia epiphylla Pers.:Fr. 1822
Athelia laxa (Burt) Jülich 1972
Athelia munda (Jackson & Dearden) M. Christiansen 1960
Athelia salicum Pers. 1822
Athelia scutellare (Berk. & Curtis) Gilbn. 1974
Athelopsis subinconspicua (Litsch.) Jülich 1975
Auricularia auricula-judae (Bull.:Fr.) Wettst. 1885
Auriscalpium vulgare S.F. Gray 1821
Basidiodendron caesiocinerea (Höhnel & Litsch.) Luck-Allen 1963
Basidiodendron cinerea (Bres.) Luck-Allen 1963
Basidiodendron eyrei (Wakef.) Luck-Allen 1963
Basidiodendron fulvum (Massee) Ginns 1982
Basidioradulum radula (Fr.:Fr.) Nobles 1967
Boidinia furfuraceum (Bres.) Stalpers & Hjort. 1982
Boidinia propinqua (Jackson & Dearden) Hjort. & Ryv. 1988
Boreostereum radiatum (Peck) Parm. 1968
Botryobasidium ansosum (Jackson & D.P. Rogers) Parm. 1968
Botryobasidium danicum Eriksson & Hjort. 1969
Botryobasidium pruinatum (Bres.) Eriksson 1958
Botryobasidium subcoronatum (Höhnel & Litsch.) Donk 1931
Botryobasidium vagum (Berk. & Curtis) D.P. Rogers 1935

Botryohypochnus isabellinus (Fr.) Eriksson 1958
Butlerelfia eustacei Weresub & Illman 1980
Calathella eruciformis var. *eruciformis* (Batsch:Fr.) D. Reid 1964
Calocera cornea (Batsch:Fr.) Fr. 1827
Calocera viscosa (Pers.:Fr.) Fr. 1827
Calyptella capula (Holmsk.:Fr.) Quél. 1888
Ceraceomyces borealis (Romell) Eriksson & Ryv. 1973
Ceraceomyces serpens (Tode:Fr.) Ginns 1976
Ceraceomyces sublaevis (Bres.) Jülich 1972
Ceraceomyces sulphurinus (Karsten) Eriksson & Ryv. 1978
Ceraceomyces tessulatus (Cooke) Jülich 1972
Cerinomyces crustulinus (Bourd. & Galzin) G.W. Martin 1949
Chaetodermella luna (D.P. Rogers & Jackson) Rauschert 1988
Chondrostereum purpureum (Pers.:Fr.) Pouzar 1959
Clavicorona piperata (Kauffm.) Leathers & A.H. Sm. 1967
Clavicorona taxophila (Thom) Doty 1947
Clavulicium macounii (Burt) Eriksson & Boidin 1968
Coniophora arida var. *arida* (Fr.) Karsten 1868
Coniophora fusispora (Cooke & Ellis) Sacc. 1888
Coniophora olivacea (Fr.:Fr.) Karsten 1882
Coniophora puteana (Schum.:Fr.) Karsten 1868
Corticium boreoroseum Boidin & Lanquetin 1983
Corticium minnsiae (Jackson) Boidin & Lanquetin 1983
Corticium roseum Pers.:Fr. 1794
Cristinia helvetica (Pers.) Parm. 1968
Cristinia mucida (Bourd. & Galzin) Eriksson & Ryv. 1975
Crustoderma dryinum (Berk. & Curtis) Parm. 1968
Crustoderma longicystidia (Litsch.) Nakasone 1984
Crustoderma resinosum (Jackson & Dearden) Gilbn. 1981
Crustoderma testatum (Jackson & Dearden) Nakasone 1985
Crustomyces expallens (Bres.) Hjort. 1987
Crustomyces pini-canadensis ssp. *pini-canadensis* (Schw.) Jülich 1978
Crustomyces pini-canadensis ssp. *subabruptus* (Bourd. & Galzin) Ginns & Lefebvre 1993
Cylindrobasidium corrugum (Burt) Ginns 1982
Cylindrobasidium laeve (Pers.:Fr.) Chamuris 1984
Cyphellopsis anomala (Pers.:Fr.) Donk 1931
Cyphellopsis confusa (Bres.) D. Reid 1964
Cyphellopsis subglobispora D. Reid 1961
Cyphellostereum laeve (Fr.) D. Reid 1965
Cystostereum murraii (Berk. & Curtis) Pouzar 1959
Cytidia salicina (Fr.) Burt 1924
Dacrymyces aquaticus Bandoni & G.C. Hughes 1984
Dacrymyces capitatus Schw. 1832
Dacrymyces chrysocomus (Bull.:Fr.) Tul. 1853
Dacrymyces chrysospermus Berk. & Curtis 1873
Dacrymyces dictyosporus G.W. Martin 1958
Dacrymyces minutus (Olive) McNabb 1973
Dacrymyces ovisporus Bref. 1888

Dacryobolus karstenii (Bres.) Parm. 1968
Dacryobolus sudans (Alb. & Schw.:Fr.) Fr. 1849
Dacryonaema rufum (Fr.:Fr.) Nannf. 1947
Dendrothele candida var. *candida* (Schw.:Fr.) Lemke 1965
Dendrothele incrustans (Lemke) Lemke 1965
Dichostereum boreale (Pouzar) Ginns & Lefebvre*
Dichostereum effuscatum (Cooke & Ellis) Boidin & Lanquetin 1977
Dichostereum pallescens (Schw.) Boidin & Lanquetin 1977
Ditiola radicata var. *radicata* (Alb. & Schw.):Fr. 1822
Echinodontium tinctorium (Ellis & Ev.) Ellis & Ev. 1900
Eichleriella deglubens (Berk. & Br.) D. Reid 1970
Entomocorticium dendroctoni H.S. Whitney 1987
Exidia candida Lloyd 1916
Exidia crenata (Schw.) Fr. 1823
Exidia glandulosa (Bull.) Fr. 1822
Exidia glandulosa forma populi Neuhoff 1936
Exidia saccharina (Alb. & Schw.):Fr. 1822
Exidiopsis diversa Wells 1987
Exidiopsis fuliginea Rick 1906
Exidiopsis macrospora (Ellis & Ev.) Wells 1961
Exidiopsis paniculata Wells & Bandoni 1987
Exidiopsis plumbescens (Burt) Wells 1957
Femsjonia peziziformis (Lév.) Karsten 1876
Fibricium lapponicum Eriksson 1958
Fibricium rude (Karsten) Jülich 1974
Fibulomyces mutabilis (Bres.) Jülich 1972
Fibulomyces septentrionalis (Eriksson) Jülich 1972
Flagelloscypha minutissima (Burt) Donk 1951
Flavophlebia sulfureo-isabellina (Litsch.) Larsson & Hjort. 1977
Galzinia incrustans (Höhnel & Litsch.) Parm. 1965
Gloeocystidiellum clavuligerum (Höhnel & Litsch.) Nakasone 1982
Gloeocystidiellum karstenii (Bourd. & Galzin) Donk 1956
Gloeocystidiellum lactescens (Berk.) Boidin 1951
Gloeocystidiellum leucoxanthum (Bres.) Boidin 1951
Gloeocystidiellum ochraceum (Fr.) Donk 1956
Gloeocystidiellum porosum (Berk. & Curtis) Donk 1931
Gloeodontia columbiensis Burdsall & Lombard 1976
Gloiodon occidentale Ginns 1988
Guepiniopsis buccina (Pers.:Fr.) Kennedy 1959
Helicobasidium brebissonii (Desm.) Donk 1958
Helicogloea lagerheimii Pat. 1892
Henningsomyces candidus (Pers.:Fr.) Kuntze 1898
Henningsomyces pubera (W.B. Cooke) D. Reid 1964
Hericium abietis (Hubert) Harrison 1964
Hericium americanum Ginns 1984
Hericium coralloides (Scop.:Fr.) S.F. Gray 1821
Heterotextus alpinus (Tracy & Earle) G.W. Martin 1932
Heterotextus luteus (Bres.) McNabb 1965
Hymenochaete badio-ferruginea (Mont.) Lév. 1846

Hymenochaete cinnamomea (Pers.:Fr.) Bres. 1897
Hymenochaete fuliginosa (Pers.) Lév. sensu Burt 1918
Hymenochaete rubiginosa (Dickson:Fr.) Lév. 1846
Hymenochaete spreta Peck 1879
Hymenochaete tabacina (Sowerby:Fr.) Lév. 1846
Hymenochaete tenuis Peck 1887
Hyphoderma amoenum (Burt) Donk 1957
Hyphoderma deviatum (Lundell) Eriksson & Ryv. 1976
Hyphoderma guttuliferum (Karsten) Donk 1962
Hyphoderma inusitata (Jackson & Dearden) Ginns 1984
Hyphoderma medioburiense (Burt) Donk 1957
Hyphoderma mutatum (Peck) Donk 1957
Hyphoderma pallidum (Bres.) Donk 1957
Hyphoderma praetermissum (Karsten) Eriksson & Strid 1975
Hyphoderma puberum (Fr.) Wallr. 1833
Hyphoderma roseocremeum (Bres.) Donk 1957
Hyphoderma sambuci (Pers.) Jülich 1974
Hyphoderma setigerum (Fr.) Donk 1957
Hyphodermella corrugata (Fr.) Eriksson & Ryv. 1976
Hyphodontia abieticola (Bourd. & Galzin) Eriksson 1958
Hyphodontia alutacea (Fr.) Eriksson 1958
Hyphodontia arguta (Fr.) Eriksson 1958
Hyphodontia barba-jovis (Bull.) Eriksson 1958
Hyphodontia breviseta (Karsten) Eriksson 1958
Hyphodontia crustosa (Pers.:Fr.) Eriksson 1958
Hyphodontia floccosa (Bourd. & Galzin) Eriksson 1958
Hyphodontia granulosa (Pers.:Fr.) Ginns & Lefebvre 1993
Hyphodontia hastata (Litsch.) Eriksson 1958
Hyphodontia pallidula (Bres.) Eriksson 1958
Hyphodontia quercina (Pers.:Fr.) Eriksson 1958
Hyphodontia spathulata (Schrader:Fr.) Parm. 1968
Hyphodontia subalutacea (Karsten) Eriksson 1958
Hypochnicium analogum (Bourd. & Galzin) Eriksson 1958
Hypochnicium vellereum (Ellis & Cragin) Parm. 1968
Hypochnopsis mustialaensis (Karsten) Karsten 1889
Intextomyces contiguus (Karsten) Eriksson & Ryv. 1976
Irpex lacteus (Fr.:Fr.) Fr. 1825
Jaapia argillacea Bres. 1911
Kavinia alboviridis (Morgan) Gilbn. & Budington 1970
Kavinia himantia (Schw.) Eriksson 1958
Lachnella alboviolascens (Alb. & Schw.:Fr.) Fr. 1849
Lachnella villosa (Pers.:Fr.) Gill. 1880
Laurilia sulcata (Burt) Pouzar 1959
Laxitextum bicolor (Pers.:Fr.) Lentz 1955
Leptosporomyces fuscostratus (Burt) Hjort. 1987
Leptosporomyces galzinii (Bourd.) Jülich 1972
Leucogyrophana mollusca (Fr.) Pouzar 1958
Leucogyrophana pinastri (Fr.:Fr.) Ginns & Weresub 1976
Leucogyrophana pulverulenta (Sowerby:Fr.) Ginns 1978

Leucogyrophana romellii Ginns 1978
Limonomyces culmigenus (J. Webster & D. Reid) Stalpers & Loerakker 1982
Lindtneria leucobryophila (Henn.) Jülich 1977
Melzericium udicolum (Bourd.) Hauerslev 1975
Merismodes fasciculatus var. *fasciculatus* (Schw.) Earle 1909
Merismodes ochraceus (Hoffm.:Fr.) D. Reid 1964
Meruliopsis albostramineus (Torr.) Jülich & Stalpers 1980
Meruliopsis ambiguus (Berk.) Ginns 1976
Meruliopsis corium (Pers.:Fr.) Ginns 1976
Meruliopsis taxicola (Pers.:Fr.) Bondartsev 1959
Metulodontia nivea (Karsten) Parm. 1968
Mucronella aggregata Fr. 1863
Mucronella bresadolae (Quél.) Corner 1970
Mucronella calva (Alb. & Schw.:Fr.)Fr. 1874
Mycoacia aurea (Fr.) Eriksson & Ryv. 1976
Mycoacia uda (Fr.) Donk 1931
Myxarium atratum (Peck) Ginns & Lefebvre 1993
Odonticium romellii (Lundell) Parm. 1968
Pellidiscus pallidus (Berk. & Br.) Donk 1959
Peniophora aurantiaca (Bres.) Höhnel & Litsch. 1906
Peniophora cinerea (Pers.:Fr.) Cooke 1879
Peniophora decorticans Burt 1926
Peniophora incarnata (Pers.:Fr.) Karsten 1889
Peniophora piceae (Pers.) Eriksson 1950
Peniophora pithya (Pers.) Eriksson 1950
Peniophora polygonia (Pers.:Fr.) Bourd. & Galzin 1928
Peniophora pseudopini Weresub & S. Gibson 1960
Peniophora rufa (Fr.) Boidin 1959
Peniophora septentrionalis Laurila 1939
Peniophora unica Jackson & Dearden 1949
Phanerochaete affinis (Burt) Parm. 1968
Phanerochaete carnosa (Burt) Parm. 1967
Phanerochaete chrysosporium Burdsall 1974
Phanerochaete sanguinea (Fr.) Pouzar 1973
Phanerochaete sordida (Karsten) Eriksson & Ryv. 1978
Phanerochaete tuberculata (Karsten) Parm. 1968
Phanerochaete velutina (DC.:Fr.) Karsten 1898
Phlebia albida Post 1863
Phlebia centrifuga Karsten 1881
Phlebia coccineofulva Schw. 1832
Phlebia cretacea (Bourd. & Galzin) Eriksson & Hjort. 1981
Phlebia deflectens (Karsten) Ryv. 1971
Phlebia livida (Pers.:Fr.) Bres. 1897
Phlebia radiata Fr
Phlebia rufa (Pers.:Fr.) M. Christiansen 1960
Phlebia segregata (Bourd. & Galzin) Parm. 1967
Phlebia separata (Jackson & Dearden) Parm. 1967
Phlebia serialis (Fr.) Donk 1957
Phlebia subserialis (Bourd. & Galzin) Donk 1957

Phlebia tremellosus (Schrader:Fr.) Nakasone & Burdsall 1984
Phlebiella filicina (Bourd.) Larsson & Hjort. 1987
Phlebiella inopinata (Jackson) Larsson & Hjort. 1987
Phlebiella pseudotsugae (Burt) Larsson & Hjort. 1987
Phlebiella ralla (Jackson) Larsson & Hjort. 1987
Phlebiella sulphurea (Pers.:Fr.) Ginns & Lefebvre 1993
Phlebiella tulasnelloideum (Höhnel & Litsch.) Ginns & Lefebvre 1993
Phlebiopsis gigantea (Fr.) Jülich 1978
Phlebiopsis ravenelii (Cooke) Hjort. 1987
Piloderma byssinum var. *byssinum* (Karsten) Jülich 1969
Piloderma fallax (Libert) Stalpers 1984
Piloderma olivaceum (Parm.) Hjort. 1984
Pirex concentricus (Cooke & Ellis) Hjort. & Ryv. 1985
Platygloea fimetaria (Schum.) Höhnel 1917
Platygloea peniophorae var. *peniophorae* Bourd. & Galzin 1909
Platygloea pustulata G.W. Martin & Cain 1940
Platygloea sebacea (Berk. & Br.) McNabb 1965
Platygloea vestita Bourd. & Galzin 1923
Plicatura crispa (Pers.:Fr.) Rea 1922
Plicatura nivea (Fr.) Karsten 1889
Protodontia oligacantha G.W. Martin 1953
Pseudohydnum gelatinosum (Scop.:Fr.) Karsten 1868
Pseudomerulius aureus (Fr.) Jülich 1979
Pseudotomentella atrofusca Larsen 1972
Pseudotomentella humicola Larsen 1968
Pseudotomentella mucidula (Karsten) Svrcek 1958
Pseudotomentella nigra (Höhnel & Litsch.) Svrcek 1960
Pseudotomentella tristis (Karsten) Larsen 1972
Pseudotomentella vepallidospora Larsen 1967
Punctularia strigoso-zonata (Schw.) Talbot 1958
Radulodon americanus Ryv. 1972
Radulomyces cremoricolour (Berk. & Curtis) Ginns & Lefebvre 1993
Radulomyces notabilis (Jackson) Parm. 1968
Ramaricium albo-ochraceum (Bres.) Jülich 1977
Ramaricium flavomarginatum (Burt) Ginns 1979
Repetobasidium canadense Eriksson & Hjort. 1981
Repetobasidium conicum (Oberw.) Eriksson & Hjort. 1981
Repetobasidium macrosporum (Oberw.) Eriksson & Hjort. 1981
Repetobasidium mirificum Eriksson 1958
Resinicium bicolor (Alb. & Schw.:Fr.) Parm. 1968
Resinicium furfuraceum (Bres.) Parm. 1968
Resinicium praeteritum (Jackson & Dearden) Ginns & Lefebvre 1993
Schizophyllum commune Fr.:Fr. 1815
Scopuloides rimosa (Cooke) Jülich 1982
Scytinostroma arachnoideum (Peck) Gilbn. 1962
Scytinostroma galactinum (Fr.) Donk 1956
Scytinostroma jacksonii Boidin 1981
Scytinostroma ochroleucum (Bres. & Torrend) Donk 1956
Scytinostroma portentosum (Berk. & Curtis) Donk 1956

Scytinostromella heterogenea (Bourd. & Galzin) Parm. 1968
Scytinostromella humifaciens (Burt) Freeman & Petersen 1979
Serpula himantioides (Fr.:Fr.) Karsten 1889
Serpula incrassata (Berk. & Curtis) Donk 1948
Serpula lacrimans var. *lacrimans* (Jacq.:Fr.) Schröter 1888
Sistotrema adnatum Hallenb. 1984
Sistotrema athelioides Hallenb. 1984
Sistotrema binucleosporum Hallenb. 1984
Sistotrema brinkmannii (Bres.) Eriksson 1948
Sistotrema farinaceum Hallenb. 1984
Sistotrema oblongisporum M. Christiansen & Hauerslev 1960
Sistotrema porulosum Hallenb. 1984
Sistotrema raduloides (Karsten) Donk 1956
Sistotrema resinicystidium Hallenb. 1980
Sistotremastrum niveocremeum (Höhnel & Litsch.) Eriksson 1958
Sparassis crispa Wülfen:Fr. 1781
Steccherinum ciliolatum (Berk. & Curtis) Gilbn. & Budington 1970
Steccherinum fimbriatum (Pers.:Fr.) Eriksson 1958
Steccherinum ochraceum (Pers.:Fr.) S.F. Gray 1821
Stereopsis humphreyi (Burt) Redhead & D. Reid 1983
Stereum atrorubrum Ellis & Ev. 1890
Stereum complicatum (Fr.) Fr. 1838
Stereum gausapatum (Fr.) Fr. 1874
Stereum hirsutum (Willd.:Fr.) S.F. Gray 1821
Stereum ochraceoflavum (Schw.) Peck 1869
Stereum ostrea (Blume & Nees:Fr.) Fr. 1838
Stereum rugosum Pers.:Fr. 1794
Stereum sanguinolentum (Alb. & Schw.:Fr.) Fr. 1838
Stigmatolemma poriaeforme (Pers.:Fr.) Singer 1962
Stromatocyphella conglobata (Burt) W.B. Cooke 1961
Subulicystidium longisporum (Pat.) Parm. 1968
Thanatephorus cucumeris (A.B. Frank) Donk 1956
Thujacorticium mirabile Ginns 1988
Tomentella avellanea (Burt) Bourd. & Galzin 1924
Tomentella bryophila (Pers.) Larsen 1974
Tomentella caerulea (Bres.) Höhnel & Litsch. 1907
Tomentella calcicola (Bourd. & Galzin) Larsen 1967
Tomentella chlorina (Massee) G.H. Cunn. 1953
Tomentella cinerascens (Karsten) Höhnel & Litsch. 1906
Tomentella ellisii (Sacc.) Jülich & Stalpers 1980
Tomentella ferruginea (Pers.) Pat. 1887
Tomentella kootenaiensis Larsen 1975
Tomentella neobourdotii Larsen 1968
Tomentella nitellina Bourd. & Galzin 1924
Tomentella ramosissima (Berk. & Curtis) Wakef. 1960
Tomentella sublilacina (Ellis & Holway) Wakef. 1960
Tomentella terrestris (Berk. & Br.) Larsen 1974
Tomentellina fibrosa (Berk. & Curtis) Larsen 1974
Trechispora microspora (Karsten) Liberta 1966

Trechispora mollusca (Pers.:Fr.) Liberta 1973
Tremella aurantia Schw.:Fr. 1822
Tremella encephala Pers.:Fr. 1801
Tremella foliacea Pers.:Fr. 1799
Tremella globospora D. Reid 1970
Tremella mesenterica Retz.:Fr. 1769
Tremella polyporina D. Reid 1970
Tremiscus helvelloides (DC.:Fr.) Donk 1958
Tubulicium vermiferum (Bourd.) Jülich 1979
Tubulicrinis accedens (Bourd. & Galzin) Donk 1956
Tubulicrinis angustus (D.P. Rogers & Weresub) Donk 1956
Tubulicrinis borealis Eriksson 1958
Tubulicrinis calothrix (Pat.) Donk 1956
Tubulicrinis chaetophorus (Höhnel) Donk 1956
Tubulicrinis globisporus Larsson & Hjort. 1978
Tubulicrinis gracillimus (D.P. Rogers & Jackson) G.H. Cunn. 1963
Tubulicrinis juniperinus (Bourd. & Galzin) Donk 1956
Tubulicrinis subulatus (Bourd. & Galzin) Donk 1956
Tulasnella violea (Quél.) Bourd. & Galzin 1909
Uthatobasidium fusisporum (Schröter) Donk 1958
Uthatobasidium ochraceum (Massee) Donk 1958
Vararia racemosa (Burt) D.P. Rogers & Jackson 1943
Veluticeps abietina (Pers.:Fr.) Hjort. & Tellería 1990
Veluticeps fimbriata (Ellis & Ev.) Nakasone 1990
Vesiculomyces citrinum (Pers.) Hagström 1977
Xenasma rimicola (Karsten) Donk 1957

APPENDIX 3 Revised and annotated list of agarics, boletes, and cantharelloid genera reported from British Columbia up to 1993.

Agaricus No complete treatment of either Canadian or British Columbian species is available. Additional species exist in British Columbia and remain to be reported. Records of several species require confirmation.

Agaricus abruptibulbus
as *Psalliota abruptibulba*
Davidson 1930

Agaricus arvensis
Hardy 1946
Lowe 1969
Bandoni & Szczawinski 1976
Ammirati et al. 1985

Agaricus augustus
Smith 1949
Bandoni & Szczawinski 1964
Lowe 1969
Bandoni & Szczawinski 1976
Lincoff 1981
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Agaricus bisporus
Lowe 1969
Kerrigan & Ross 1989
Kerrigan 1990
also as *Agaricus brunnescens*
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Agaricus campestris
Hardy 1947
Bandoni & Szczawinski 1964
Bandoni & Szczawinski 1976
also as *Psalliota campestris*
Hardy 1954

Agaricus haemorrhoidarius
Hotson & Stuntz 1938
Lowe 1969
also as *Psalliota haemorrhodaria*
Davidson 1930

Agaricus hondensis
Smith 1949

Smith 1975
Bandoni & Szczawinski 1976
Smith et al. 1979
Lincoff 1981
Ammirati et al. 1985
Cochran 1988
Schalkwijk-Barendsen 1991a
also as *Agaricus hillii*
Murrill 1912c
Hotson & Stuntz 1938
Lowe 1969

Agaricus praeclaresquamosus
This species, *per se*, has not been reported from British Columbia but most western North American reports of *A. meleagris* and *A. placomyces* refer to this species. The following references to these species probably refer to *A. praeclaresquamosus*

as *Agaricus meleagris*
Ammirati et al. 1985
as *Agaricus placomyces*
Hardy 1946
Bandoni & Szczawinski 1964
Melburn 1967
Lowe 1969
Bandoni & Szczawinski 1976
as *Psalliota placomyces*
Davidson 1930
Hardy 1954

Agaricus silvaticus
Melburn 1967
Lowe 1969
Bandoni & Szczawinski 1976
also as *Psalliota silvatica*
Lowe 1954

Agaricus silvicola
Melburn 1961a
Bandoni & Szczawinski 1964
Melburn 1967
Lowe 1969
Bandoni & Szczawinski 1976
Ammirati et al. 1985
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b
also as *Psalliota silvicola*
Hardy 1952a
Hardy 1954

Agaricus smithii
This species, *per se*, has not been reported from British Columbia, but western authors had previously been using the name *Agaricus perrarus* for the species. The following reports possibly refer to *A. smithii*

as *Agaricus perrarus*
Lowe 1969
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Agaricus subrufescens
Lowe 1969
also as *Psalliota subrufescens*
Davidson 1930

Agaricus xanthodermus
Lowe 1969

Agrocybe No complete treatment of either Canadian or British Columbian species is available. Additional species exist in British Columbia and remain to be reported. Records of several species require confirmation.

Agrocybe acericola
as *Pholiota acericola*
Lowe 1969

Agrocybe arvalis
Redhead & Kroeger 1987

Agrocybe molesta
as *Agrocybe dura*
Bandoni & Szczawinski 1976

Agrocybe praecox
Bandoni & Szczawinski 1976
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Agrocybe semiorbicularis
as *Naucoria semiorbicularis*
Davidson 1930
Lowe 1969

Amanita No complete treatment of either Canadian or British Columbian species is available. Additional species exist in British Columbia and remain to be reported. Records of several species require confirmation.

Amanita calyptrata
McKnight & McKnight 1987
also as *Amanita calyptroderma*

Bandoni & Szczawinski 1964
Lowe 1969
Bandoni & Szczawinski 1976

Amanita gemmata
Bandoni & Szczawinski 1976
Jenkins 1977
Bandoni & McLennan 1978
Ammirati et al. 1985
also as *Amanita junquillea*
Bandoni & Szczawinski 1976

Amanita muscaria
Davidson 1930
Hardy 1947
Hardy 1948a
Hardy 1952b
Lowe 1954
Bandoni & Szczawinski 1964
Melburn 1967
Lowe 1969
Bandoni & Szczawinski 1976
Ammirati et al. 1985
Redhead 1987b
Goward & Hickson 1989
also as *Amanita muscaria* var. *muscaria*
Jenkins 1977

Amanita pantherina
Groves 1962
Bandoni & Szczawinski 1964
Lowe 1969
Bandoni & Szczawinski 1976
Bandoni 1977
Hunt & Funk 1977
Bandoni & McLennan 1978
Ammirati et al. 1985
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b
also as *Amanita pantherina* var. *pantherina*
Jenkins 1977

Amanita porphyria
Bandoni & Szczawinski 1964
Bandoni & Szczawinski 1976
Goward & Hickson 1989
Gamiet & Berch 1992

Amanita silvicola
Bandoni & Szczawinski 1964
Bas 1969
Bandoni & Szczawinski 1976

Amanita smithiana
Lampe 1989
Tulloss & Lindgren 1992

Amanita solitaria
Lowe 1969

Amanita strobiliformis
Lowe 1969

Amanita verna
Bandoni & Szczawinski 1976
Bandoni & McLennan 1978
Turner & Szczawinski 1991

Amanita vaginata
as *Amanitopsis vaginata*
Hardy 1947
Melburn 1968
Lowe 1969

Anellaria This is a segregate of *Panaeolus*. *A. semiovata* has been confirmed from British Columbia but *A. sepulchralis* requires rediscovery.

Anellaria sepulchralis
as *Panaeolus solidipes*
Davidson 1930

Anellaria semiovata
as *Anellaria separata*
Cheesman 1910

Armillaria The genus *Armillaria* has been interpreted in many ways, but is here restricted to species allied to *A. mellea*, formerly called *Armillariella* species, and does not cover species such as the pine mushroom, *Tricholoma magnivelare* (also known as *Armillaria ponderosa*). The name *Armillaria mellea* was until this decade applied in a generic fashion and most early reports cannot be attributed to any of the recently split species in the complex. These have been either named or assigned intersterility numbers (Roman numerals or other designations); for example, *A. mellea* (IX). *Armillaria mellea sensu stricto* has not been recorded from British Columbia.

Armillaria bulbosa
Morrison et al. 1985a
Morrison et al. 1985b

Armillaria mellea *sensu lato* (see *A. mellea* segregates below)
Davidson 1930
Jones 1937
Bier et al. 1946
Buckland 1946
Hardy 1946
Bier et al. 1948
Nobles 1948
Bier 1949
Buckland et al. 1949
Hardy 1949b
Foster & Foster 1951
Hardy 1952a
Hardy 1952b
Thomas & Podmore 1953
Foster et al. 1954
Hardy 1954
Thomas & Thomas 1954
Melburn 1956
Foster et al. 1958
Bandoni & Szczawinski 1964
Lowe 1969
Pilley & Trieselmann 1969
Smith, R.B. et al. 1970
Lawrence & Hiratsuka 1972d
Bandoni & Szczawinski 1976
Turner 1978
Martin & Gilbertson 1980
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b
Gamiet & Berch 1992
also as *Armillariella mellea*
Bandoni & McLennan 1978
Ammirati et al. 1985
Goward & Hickson 1989

Armillaria mellea (F)
Morrison et al. 1985b

Armillaria mellea (I)
Anderson & Ullrich 1979

Armillaria mellea (IV)
Anderson & Ullrich 1979

Armillaria mellea (v)
Morrison et al. 1985b
Anderson et al. 1987

Armillaria mellea (ix)
Anderson & Ullrich 1979
Morrison et al. 1985b
Anderson 1986
Anderson et al. 1987

Armillaria mellea (x)
Morrison et al. 1985b
Anderson et al. 1987

Armillaria ostoyae
Hood & Morrison 1984
Morrison et al. 1985
Morrison et al. 1985b
Berube & Dessureault 1988
Morrison et al. 1988
Morrison et al. 1989
Wood & Van Sickle 1989
Morrison 1991
originally as *Armillaria mellea fide*
Morrison 1974
Morrison 1982
Morrison 1991

Armillaria sinapina
Berube & Dessureault 1988

Arrhenia A Canadian monograph exists, but additional species are to be expected in British Columbia.

Arrhenia acerosa
Redhead 1984a

Arrhenia retiruga
Redhead 1984a

Baeospora This is a small genus with one other species, *B. myriadophylla*, known from British Columbia.

Baeospora myosura
Redhead 1989
Rogers 1990

Boletellus No complete treatment of either Canadian or British Columbian species is available. Additional species may exist in British Columbia.

Boletellus chrysenteroides
Schisler & Volkoff 1977

Boletinus A single species is known from Canada.

Boletinus cavipes
Bandoni & Szczawinski 1964
also as *Suillus cavipes*
Schisler & Volkoff 1977

Boletus No complete treatment of either Canadian or British Columbian species is available. Additional species exist in British Columbia and remain to be reported. Records of several species require confirmation.

Boletus barrowsii
Kroeger 1991b

Boletus chrysenteron
Hardy 1949b
Hardy 1952a
Lowe 1954
Schisler & Volkoff 1977

Boletus edulis
Bandoni & Szczawinski 1964
Lowe 1969
Bandoni & Szczawinski 1976
Schisler & Volkoff 1977
Kroeger 1989b

Boletus mirabilis
Bandoni & Szczawinski 1964
Bandoni & Szczawinski 1976
Schisler & Volkoff 1977
Redhead 1989
Rogers 1990
also as *Boletellus mirabilis*
Lowe 1969

Boletus piperatus
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Boletus pulcherrimus
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Boletus subtomentosus
as *Xerocomus subtomentosus*
Lowe 1969

Boletus zelleri
Bandoni & Szczawinski 1964
Melburn 1965a
Melburn 1965b
Melburn 1966
Melburn 1968
Bandoni & Szczawinski 1976
Bandoni 1977
Schisler & Volkoff 1977
Bandoni & McLennan 1978
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b
also as *Boletellus zelleri*
Snell et al. 1959
Lowe 1969

Callistosporium A small genus with only one or two species in Canada.

Callistosporium luteo-olivaceum
Redhead 1982e

Camarophyllus A North American monograph by Hesler and Smith (1963) is available. However, no complete treatment of either Canadian or British Columbian species is available. Additional species exist in British Columbia and remain to be reported.

Camarophyllus borealis
as *Hygrophorus borealis*
Melburn 1970

Camarophyllus pratensis
as *Hygrophorus pratensis*
Hardy 1954

Cantharellula A single species occcurs in Canada.

Cantharellula umbonata
Redhead & Malloch 1986b
Redhead 1989b

Cantharellus A relatively small genus but no critical treatment of Canadian species exists. Debate exists over species concepts.

Cantharellus cibarius
Cheesman 1910
Hardy 1947

Bandoni & Szczawinski 1964
Lowe 1969
Bandoni & Szczawinski 1976
Turner 1978
Bandoni & McLennan 1978
Leichter & Bandoni 1980
Goward & Hickson 1989
Kroeger 1989b
Kroeger 1991b
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Cantharellus cinereus
Melburn 1968

Cantharellus cinnabarinus
Lowe 1969

Cantharellus formosus
Corner 1966
Thiers 1985

Cantharellus infundibuliformis
Lowe 1969

Cantharellus subalbidus
Bandoni & Szczawinski 1964
Lowe 1969
Bandoni & Szczawinski 1976

Cantharellus tubaeformis
Lowe 1969

Cheimonophyllum A single species occurs in Canada.

Cheimonophyllum candidissimum
as *Pleurotus candidissimus*
Davidson 1930
Lowe 1969

Chroogomphus This is a segregate of *Gomphidius*. A North American monograph by Miller (1964) treats most Canadian species but contains few references to Canadian material.

Chroogomphus leptocystis
Miller 1964
also as *Gomphidius leptocystis*
Singer 1949
Lowe 1969

Chroogomphus rutilus
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b
also as *Gomphidius rutilus*
Bandoni & Szczawinski 1976

Chroogomphus tomentosus
Redhead 1989
also as *Gomphidius tomentosus*
Bandoni & Szczawinski 1964
Bandoni & Szczawinski 1976
Gamiet & Berch 1992

Chroogomphus vinicolor
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b
also as *Gomphidius vinicolor*
Singer 1949
Lowe 1969

Chrysomphalina

A segregate of *Omphalina* only recently recognized. Two out of three North American species are known in British Columbia, and a third is to be expected. Species have been treated in the North American *Omphalina* monograph by Bigelow (1970).

Chrysomphalina aurantiaca
Redhead 1986b
Redhead 1989
also as *Omphalina luteicolor*
Bigelow 1970

Chrysomphalina chrysophylla
Redhead 1986b
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Clitocybe

No complete treatment of either Canadian or British Columbian species is available. Additional species exist in British Columbia and remain to be reported. Records of several species require confirmation.

Clitocybe avellaneialba
Bandoni & Szczawinski 1976

Clitocybe candida
Davidson 1930
Lowe 1969

Clitocybe dealbata
Bandoni & Szczawinski 1976

Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Clitocybe dilatata
Bigelow 1965
Bigelow 1982
Ammirati et al. 1985
also as *Clitocybe cerussata* var. *difformis*
Bigelow 1959
Lowe 1969

Clitocybe gibba
Bigelow 1968
Lowe 1969
also as *Clitocybe gibba* var. *gibba*
Lowe 1969
Bigelow 1985
also as *Clitocybe infundibuliformis*
Hardy 1946
Hardy 1947
Hardy 1954
Lowe 1954

Clitocybe gilvaoides
Lowe 1969

Clitocybe incomis
Redhead 1984c

Clitocybe nebularis
Davidson 1930
Hardy 1946
Hardy 1954
Bigelow 1965
Lowe 1969
Bigelow 1982
McKnight & McKnight 1987

Clitocybe odora
Melburn 1960
Bandoni & Szczawinski 1964
Lowe 1969
Bandoni & Szczawinski 1976
Schalkwijk-Barendsen 1991a

Clitocybe sinopica
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b
as *Clitocybe sinopica* var. *sinopica*
Bigelow 1985

Clitocybe trullaeformis
Bigelow 1982

Clitocybe truncicola
Lowe 1969

Clitocybula A North American monograph exists (Bigelow & Smith 1973), but no western Canadian records were included. Additional species are to be expected.

Clitocybula atrialba
as *Clitocybe atrialba*
Lowe 1969
Bandoni & Szczawinski 1976

Clitopilus No North American monograph exists and no complete treatment of either Canadian or British Columbian species is available. Additional species exist in British Columbia and remain to be reported.

Clitopilus hobsonii
Kroeger 1989b

Collybia No complete treatment of either Canadian or British Columbian species is available. Additional species exist in British Columbia and remain to be reported. Records of several species require confirmation.

Collybia acervata
Melburn 1956
Bandoni & Szczawinski 1964
Lowe 1969
Bandoni & Szczawinski 1976
Martin & Gilbertson 1980

Collybia bakerensis
Desjardin & Halling 1987
Redhead 1989

Collybia confluens
Lowe 1969
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b
Gamiet & Berch 1992

Collybia contraria
Halling 1983

Collybia dryophila
Davidson 1930
Hardy 1954
Lowe 1954

Lowe 1969
Perrin & Koske 1973
Bandoni & Szczawinski 1976
Ammirati et al. 1985
Ginns 1986

Collybia oregonensis
Gamiet & Berch 1992

Conocybe No North American monograph exists and no complete treatment of either Canadian or British Columbian species is available. Many other species exist in British Columbia and remain to be reported.

Conocybe cyanopus
Stamets 1978

Conocybe filaris
Ammirati et al. 1985

Conocybe tenera
Lowe 1969
also as *Galera tenera*
Davidson 1930
Melburn 1956

Coprinus No North American monograph exists and no complete treatment of either Canadian or British Columbian species is available. Many other species exist in British Columbia and remain to be reported. Records of several species require confirmation.

Coprinus atramentarius
Cheesman 1910
Hardy 1946
Melburn 1958
Melburn 1959
Bandoni & Szczawinski 1964
McClaren 1967
Bandoni & Szczawinski 1976
Bandoni 1977
Bandoni & McLennan 1978
Ammirati et al. 1985

Coprinus congregatus
as *Coprinus alkalinus*
Anastasiou 1967
Lowe 1969

Coprinus cinereus var. ***cinereus***
Van De Bogart 1979

Coprinus comatus
Davidson 1930
Hardy 1947
Hardy 1949a
Hardy 1952b
Melburn 1959
Bandoni & Szczawinski 1964
Lowe 1969
Bandoni & Szczawinski 1976
Bandoni & McLennan 1978
Turner 1978
Morrison & Morrison 1980
Goward & Hickson 1989

Coprinus ephemerus
Cheesman 1910

Coprinus kubickae
Redhead & Traquair 1981
also as *Coprinus amphibius*
Anastasiou 1967
Lowe 1969

Coprinus lagopus
Hanna 1925

Coprinus micaceus
Davidson 1930
Hardy 1947
Hardy 1954
Lowe 1954
Melburn 1958
Lowe 1969
Perrin & Koske 1973
Turner 1978
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Coprinus phaeosporus
Redhead 1984b

Coprinus psychromorbidus
Redhead & Traquair 1981
Traquair 1982
Traquair 1987
Gaudet et al. 1990

Cortinarius This is the largest genus of agarics in the world and it is a particularly important mycorrhizal in Canada. However, no recent North American

monograph exists and no complete treatment of either Canadian or British Columbian species is available. Most of the British Columbian species remain to be reported. Records of most of the few species reported require confirmation.The genus *Dermocybe* is included here for convenience.

Cortinarius alboviolaceus
Davidson 1930
Lowe 1969

Cortinarius brunneofulvus
Lowe 1969

Cortinarius calochrous
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Cortinarius cinnabarinus
Bandoni & Szczawinski 1964

Cortinarius cinnamomeus
Bandoni & Szczawinski 1964
Melburn 1967
Lowe 1969
Perrin & Koske 1973
Bandoni & Szczawinski 1976

Cortinarius iliopodius
Lowe 1969

Cortinarius iodeoides
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Cortinarius mucifluus
Melburn 1956

Cortinarius mucosus
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Cortinarius mutabilis
Lowe 1969

Cortinarius oregonensis
Lowe 1969

Cortinarius phoeniceus ssp. ***occidentalis***
Bandoni & Szczawinski 1976

Cortinarius plumiger
Lowe 1969

Cortinarius rigidus
Davidson 1930
Lowe 1969

Cortinarius sanguineus
Bandoni & Szczawinski 1976
Schalkwijk-Barendsen 1991a

Cortinarius semisanguineus
Bandoni & Szczawinski 1964
Melburn 1967
Melburn 1970
Bandoni & Szczawinski 1976
Bandoni 1977
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Cortinarius squarrosus
Davidson 1930
Lowe 1969

Cortinarius subbalteatus
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Cortinarius trivialis
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Cortinarius vanduzerensis
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Cortinarius violaceus
Bandoni & Szczawinski 1964
Perrin & Koske 1973
Bandoni & Szczawinski 1976
Schalkwijk-Barendsen 1991a

Craterellus This is a segregate of *Cantharellus*. Debate exists over species concepts. Possibly more than one species exists in British Columbia.

Craterellus cornucopioides
Melburn 1968

Crepidotus A North American monograph exists, but it contains few references to Canada. No complete treatment of either Canadian or British Columbian species is available. Additional species exist in British Columbia and remain to be reported. Records of several species require confirmation.

Crepidotus applanatus
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Crepidotus herbarum
Buckland 1946
Melburn 1957
Lowe 1969
Redhead 1984c

Crepidotus mollis
Davidson 1930
Lowe 1969
also as *Crepidotus fulvotomentosus*
Lowe 1969
also as *Crepidotus haerens*
Lowe 1969

Crepidotus occidentalis
Gamiet & Berch 1992

Crepidotus submollis
Lowe 1969

Crepidotus versutus
Davidson 1930
Lowe 1969

Crinipellis A Canadian monograph exists (Redhead 1986a). Only a single species is known with certainty in western Canada.

Crinipellis piceae
Redhead 1986a
Redhead 1989

Cyphellostereum A small genus with a single Canadian species.

Cyphellostereum laeve
Redhead 1973
Redhead 1984a
Redhead 1989

Cystoderma A North American monograph exists (Smith & Singer 1945), with additional species reported. No complete treatment of either Canadian or

British Columbian species is available. Additional species exist in British Columbia and remain to be reported. Records of several species require confirmation.

Cystoderma amianthinum
Hardy 1946
Hardy 1954
Lowe 1969
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Cystoderma fallax
Lowe 1969

Cystoderma granulosum
Bandoni & Szczawinski 1976

Entoloma

Entoloma is a large and complex genus for which there is no North American monograph. No complete treatment of either Canadian or British Columbian species is available. Additional species exist in British Columbia and remain to be reported. Records of several species require confirmation.

Entoloma rhodopolium
Perrin & Koske 1973

Entoloma sericeum
Davidson 1930
Lowe 1969
Bandoni & Szczawinski 1976

Entoloma speculum
Davidson 1930
Lowe 1969

Entoloma strictus
Hardy 1954
Lowe 1954

Flammulina

This is a small genus until recently believed to have a single species in North America. However, additional species exist in Canada and British Columbia.

Flammulina velutipes
Bandoni 1977
Kroeger 1989
also as *Collybia velutipes*
Hardy 1947
Bandoni & Szczawinski 1964

Lowe 1969
Bandoni & Szczawinski 1976

Floccularia Species in this genus are sometimes treated under the generic name *Armillaria*. One or more additional western species may occur in British Columbia.

Floccularia albolanaripes
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b
also as *Armillaria albolanaripes*
Kroeger 1989b

Fuscoboletinus This is a segregate of *Suillus*. A North American monograph exists (Pomerleau & Smith 1963), but contains limited reference to western Canadian materials.

Fuscoboletinus grevillei
also as *Suillus grevillei*
Lowe 1969
Schisler & Volkoff 1977
also as *Boletus grevillei*
Bandoni & Szczawinski 1976

Fuscoboletinus ochraceoroseus
Schisler & Volkoff 1977
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Fuscoboletinus sinuspaulianus
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Galerina This is a large genus monographed worldwide by Smith & Singer (1964). However, a detailed treatment of Canadian materials is lacking and most species remain to be documented from British Columbia.

Galerina autumnalis
Bandoni & Szczawinski 1976
Bandoni & McLennan 1978
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Galerina marginata
Lowe 1969
Kroeger 1989b

Galerina vittaeformis var. ***vittaeformis*** f. ***tetraspora***
Parmelee 1969

Gomphidius A North American monograph exists (Miller 1972), but virtually no western Canadian material was cited. The genus is well represented in British Columbia, although documentation is lacking and species circumscriptions require clarification.

Gomphidius glutinosus
Hardy 1947
Hardy 1952a
Hardy 1954
Lowe 1954
Melburn 1956
Melburn 1959
Melburn 1960
Bandoni & Szczawinski 1964
Melburn 1965a
Melburn 1967
Lowe 1969
Bandoni & Szczawinski 1976
Bandoni 1977
Rogers 1990
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Gomphidius maculatus
Davidson 1930
Lowe 1969

Gomphidius subroseus
Singer 1949
Melburn 1965a
Melburn 1967
Lowe 1969
Bandoni & Szczawinski 1976
Goward & Hickson 1989
also as *Gomphidius septentrionalis*
Lowe 1969

Gomphus A North American monograph exists (Petersen 1971) and the species are fairly well known.

Gomphus bonarii f. ***bonarii***
Petersen 1971

Gomphus clavatus
Petersen 1971
also as *Cantharellus clavatus*
Bandoni & Szczawinski 1964
Lowe 1969
Bandoni & Szczawinski 1976

Gomphus floccosus
Petersen 1971
Rogers 1990
also as *Cantharellus floccosus*
Melburn 1959
Bandoni & Szczawinski 1964
Lowe 1969
Bandoni & Szczawinski 1976

Gomphus floccosus f. ***floccosus***
Petersen 1971

Gomphus floccosus ssp. ***rainieriensis***
Petersen 1971

Gomphus kauffmanii
Petersen 1971
also as *Cantharellus kauffmanii*
Lowe 1969

Gymnopilus This is a fairly important wood decay genus with relatively few species, but they have been poorly differentiated and need to be reworked. No complete treatment of either Canadian or British Columbian species is available. Additional species exist in British Columbia and remain to be reported. Records of several species require confirmation.

Gymnopilus bellulus
Gamiet & Berch 1992

Gymnopilus echinulispora
as *Flammula echinulisporus*
Davidson 1930
Lowe 1969

Gymnopilus geminellus
as *Naucoria geminella*
Lowe 1969

Gymnopilus junonius
Melburn 1970
also as *Pholiota spectabilis*
Hardy 1946
Hardy 1947
Hardy 1949b
Hardy 1952a
Thomas & Podmore 1953
Hardy 1954
Melburn 1967
Lowe 1969

Gymnopilus liquiritae
as *Flammula liquiritiae*
Buckland 1946
Lowe 1969

Gymnopilus magnus
Hesler 1969

Gymnopilus pallidus
Murrill 1912b
Murrill 1917
Lowe 1969

Gymnopilus penetrans
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Gyroporus A small genus with one western Canadian species known.

Gyroporus castaneus
Lowe 1969

Hebeloma A moderately large important mycorrhizal genus, but very poorly known. Species are difficult to differentiate and no North American monograph exists. No complete treatment of either Canadian or British Columbian species is available. Additional species exist in British Columbia and remain to be reported. Records of several species require confirmation.

Hebeloma albidulum
Davidson 1930

Hebeloma colvini
Davidson 1930

Hebeloma crustuliniforme
Bandoni & Szczawinski 1976

Hebeloma sordidulum
Lowe 1969

Hebeloma strophosum
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Heliocybe A monotypic segregate of *Lentinus* related to *Neolentinus*.

Heliocybe sulcata
Schalkwijk-Barendsen 1991a

Hemimycena A relatively small segregate genus of *Mycena*, which is perhaps polyphyletic. Although the genus was treated in the North American monograph of *Mycena* by Smith (1947), no western Canadian material was included. No complete treatment of either Canadian or British Columbian species is available. Additional species exist in British Columbia and remain to be reported. Records of several species require confirmation.

Hemimycena albicolor c.n.
as *Helotium albicolor*
Redhead 1982a

Hemimycena albidula
as *Omphalia albidula*
Lowe 1969

Hemimycena cyphelloides
as *Helotium cyphelloides*
Redhead 1982a

Hemimycena delectabilis
Gamiet & Berch 1992

Hemimycena hirsuta
as *Helotium hirsutum*
Redhead 1982a

Hemimycena leucophaea c.n.
as *Helotium leucophaeum*
Redhead 1982a

Hemimycena nebulophila c.n.
as *Helotium nebulophilum*
Redhead 1982a

Hemimycena substellata c.n.
as *Helotium substellatum*
Redhead 1982a

Hemimycena tortuosa
Redhead 1980a
Redhead 1989

Hohenbuehelia A relatively small and distinctive genus only recently critically examined in North America (Thorn), largely based upon eastern Canadian material. No critical study of western species exists and additional species are expected to be found.

Hohenbuehelia angustata
as *Panus angustatus*
Davidson 1930
Lowe 1969

Hohenbuehelia petaloides
Thorn & Barron 1986
also as *Pleurotus petaloides*
Foster & Foster 1951
Lowe 1969
also as *Pleurotus spathulatus*
Lowe 1969

Hygrocybe A segregate of *Hygrophorus* treated with that genus in a North American monograph by Hesler & Smith (1963). However, little western Canadian material was studied. No complete treatment of either Canadian or British Columbian species is available. Additional species exist in British Columbia and remain to be reported. Records of several species require confirmation.

Hygrocybe ceraceus
as *Hygrophorus ceraceus*
Davidson 1930
Lowe 1969

Hygrocybe conica
Goward & Hickson 1989
also as *Hydrocybe conica*
Murrill 1912a
also as *Hygrophorus conicus*
Hardy 1954
Lowe 1954
Melburn 1961a
Bandoni & Szczawinski 1964
Melburn 1965a
Melburn 1967
Lowe 1969
Melburn 1970
Bandoni & Szczawinski 1976

Hygrocybe laeta
Gamiet & Berch 1992

Hygrocybe miniata
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b
also as *Hygrophorus miniatus*
Davidson 1930
Hardy 1952a
Lowe 1969
Melburn 1970
Bandoni & Szczawinski 1976

Hygrocybe minutula
as *Hygrophorus minutulus*
Lowe 1969

Hygrocybe psittacina
as *Hygrophorus psittacinus*
Davidson 1930
Smith & Hesler 1942
Lowe 1969
as *Hygrophorus psittacinus* var. *psittacinus*
Hesler & Smith 1963

Hygrophoropsis A small genus with either one variable North American species or several poorly differentiated species.

Hygrophoropsis aurantiaca
Bigelow 1975
Watling & Gregory 1991
also as *Cantharellus aurantiacus*
Cheesman 1910
Davidson 1930
Hardy 1946
Hardy 1947
Hardy 1949b
Hardy 1952a
Hardy 1954
also as *Chanterel alectorolophoides*
Murrill 1912a
also as *Clitocybe aurantiaca*
Bandoni & Szczawinski 1964
Lowe 1969
Perrin & Koske 1973
Bandoni & Szczawinski 1976

Hygrophorus This is here accepted in a more restricted sense than in the North American monograph by Hesler & Smith (1963). Relatively little western Canadian material was studied in that monograph. No complete treatment of either Canadian or British Columbian species is available. Additional species exist in British Columbia and remain to be reported. Records of several species require confirmation.

Hygrophorus aureus
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Hygrophorus camarophyllus
Hesler & Smith 1963

Hygrophorus capreolarius
Lowe 1969

Hygrophorus eburneus
Davidson 1930
Hesler & Smith 1963

Bandoni & Szczawinski 1964
Lowe 1969
Bandoni & Szczawinski 1976
Goward & Hickson 1989
Gamiet & Berch 1992

Hygrophorus hypothejus
Bandoni & Szczawinski 1976

Hygrophorus piceae
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Hygrophorus saxatilis
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Hypholoma A relatively small genus, moderately well known but several species remain to be documented in British Columbia and elsewhere in Canada.

Hypholoma capnoides
Davidson 1930
Buckland 1946
Gamiet & Berch 1992
also as *Naematoloma capnoides*
Smith 1951
Bandoni & Szczawinski 1964
Lowe 1969
Bandoni & Szczawinski 1976
Bandoni 1977
Martin & Gilbertson 1980

Hypholoma dispersum
Redhead 1989
also as *Naematoloma dispersum*
Lowe 1969
Bandoni & Szczawinski 1976

Hypholoma epixanthum
Davidson 1930
also as *Naematoloma epixanthum*
Lowe 1969

Hypholoma fasciculare
Davidson 1930
Buckland 1946
Hardy 1946
Hardy 1947
Hardy 1949b
Hardy 1952a

Hardy 1954
Lowe 1954
also as *Naematoloma fasciculare*
Smith 1951
Bandoni & Szczawinski 1964
Lowe 1969
Perrin & Koske 1973
Bandoni & Szczawinski 1976
Bandoni 1977
Bandoni & McLennan 1978
Ammirati et al. 1985

Hypholoma sublateritium
Davidson 1930
Hardy 1954
also as *Naematoloma sublateritium*
Lowe 1969

Hypholoma tuberosa
Redhead & Kroeger 1987

Hypsizygus A genus segregated from *Pleurotus* but more closely allied to *Lyophyllum*. Two species are known from Canada, with one from the west.

Hypsizygus tessullatus
as *Hypsizygus marmoreus*
Redhead 1984d
also as *Pleurotus ulmarius* as misapplied by both
Thomas & Podmore 1953
Lowe 1969

Inocybe A large genus of important mycorrhizal species in Canada. However, no recent North American monograph exists and no complete treatment of either Canadian or British Columbian species is available. Most of the British Columbian species remain to be reported. Records of most of the few species reported require confirmation.

Inocybe calamistrata
Gamiet & Berch 1992

Inocybe fuscodisca
Gamiet & Berch 1992

Inocybe geophylla
Bandoni & Szczawinski 1964
Melburn 1965a
Lowe 1969
Melburn 1970
Perrin & Koske 1973
Bandoni & Szczawinski 1976

Ammirati et al. 1985
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b
Gamiet & Berch 1992

Inocybe godeyi
Lowe 1969

Inocybe lanuginosa
Bandoni & Szczawinski 1976

Inocybe napipes
Perrin & Koske 1973
Ammirati et al. 1985

Inocybe radiata
Gamiet & Berch 1992

Inocybe rimosa
as *Inocybe fastigiata*
Melburn 1970
Bandoni & Szczawinski 1976

Inocybe subdestricta
Ammirati et al. 1985

Inocybe whitei
as *Inocybe pudica*
Bandoni 1977

Kuehneromyces A relatively small segregate genus differentiated from *Pholiota* and *Psilocybe*. Species have been treated the monograph of *Pholiota* (Smith & Hesler 1968). No complete treatment of either Canadian or British Columbian species is available and additional species are known.

Kuehneromyces lignicola
Redhead 1984c
also as *Kuehneromyces vernalis*
Lowe 1969
also as *Gymnopilus hillii*
Murrill 1912b
Lowe 1969
also as *Naucoria lignicola*
Davidson 1930
Lowe 1969

Kuehneromyces mutabilis
Lowe 1969
also as *Pholiota mutabilis*
Thomas & Podmore 1953
Smith & Hesler 1968

Laccaria This genus was just treated in a North American monograph (Mueller 1992), but critical collecting in British Columbia has not been carried out. Additional species are to be expected.

Laccaria amethysteo-occidentalis
Mueller 1984
Mueller 1992

Laccaria amethystina
Lowe 1969
Perrin & Koske 1973
also as *Clitocybe laccata* var. *amethystina*
Davidson 1930
also as *Laccaria laccata* var. *amethystina*
Hardy 1954
Lowe 1954
Melburn 1961a
Melburn 1966

Laccaria bicolor
Mueller 1992

Laccaria laccata
Murrill 1912a
Hardy 1947
Lowe 1954
Bandoni & Szczawinski 1964
Melburn 1968
Lowe 1969
Bandoni & Szczawinski 1976
Bandoni 1977
Goward & Hickson 1989
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Laccaria laccata var. ***pallidifolia***
Mueller 1992

Laccaria montana
Mueller 1992

Laccaria proxima
Mueller 1992

Lacrymaria A relatively small genus segregated from *Psathyrella*. The species have not been critically studied from British Columbia. In North America they were treated as *Psathyrellas* by Smith (1972).

Lacrymaria lacrymabunda
as *Hypholoma velutinum*
Davidson 1930
also as *Psathyrella velutina*
Lowe 1969

Lacrymaria rigidipes
Watling 1979
also as *Psathyrella rigidipes*
Smith 1972

Lactarius A North American monograph by Hesler & Smith (1979) treats virtually all species expected in British Columbia, although some northern taxa may not be included. However, only a single specimen from British Columbia was cited. No other complete treatment of either Canadian or British Columbian species is available. This is a large and showy genus, in which many additional species exist in British Columbia and remain to be reported. Records of several species require confirmation.

Lactarius aurantiacus
Bandoni & Szczawinski 1964
Bandoni & Szczawinski 1976
Bandoni 1977

Lactarius camphoratus
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Lactarius chrysorrheus
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Lactarius circellatus
Lowe 1969

Lactarius deliciosus
Melburn 1956
Melburn 1961a
Bandoni & Szczawinski 1964
Melburn 1966
Lowe 1969
Melburn 1970
Bandoni & Szczawinski 1976
Goward & Hickson 1989
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b
also as *Lactaria deliciosa*
Lowe 1954

Lactarius glyciosmus
Goward & Hickson 1989

Lactarius kauffmanii var. ***kauffmanii***
Hesler & Smith 1979

Lactarius luculentus
Gamiet & Berch 1992

Lactarius piperatus
Hardy 1948a

Lactarius representaneus
Bandoni & Szczawinski 1976

Lactarius resimus
Goward & Hickson 1989
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Lactarius rufus
Bandoni & Szczawinski 1964
Perrin & Koske 1973
Bandoni & Szczawinski 1976
Goward & Hickson 1989
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Lactarius sanguifluus
Bandoni & Szczawinski 1964
Bandoni & Szczawinski 1976

Lactarius scrobiculatus
McKnight & McKnight 1987
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Lactarius torminosus
Bandoni & Szczawinski 1964
Bandoni & Szczawinski 1976

Lactarius trivialis
Lowe 1969

Lactarius volemus
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Leccinum A moderately sized genus with some poorly differentiated species. Preliminary monographic treatments for North America are incomplete. No complete treatment of either Canadian or British Columbian species is available. Additional species exist in British Columbia and remain to be reported. Records of several species require confirmation.

Leccinum aurantiacum
Lowe 1969
Schisler & Volkoff 1977
Goward & Hickson 1989
also as *Boletus aurantiacus*
Bandoni & Szczawinski 1976

Leccinum boreale
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Leccinum holopus var. ***americanum***
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Leccinum scabrum
Lowe 1969
Schisler & Volkoff 1977
also as *Boletus scaber*
Bandoni & Szczawinski 1964
Bandoni & Szczawinski 1976

Lentinellus A small genus monographed in North America by Miller (1971). No complete treatment of either Canadian or British Columbian species is available. Additional species may exist in British Columbia. Records of several species require confirmation.

Lentinellus cochleatus
as *Lentinus cochleatus*
Lowe 1969

Lentinellus flabelliformis
as *Lentinus bisus*
Lowe 1969

Lentinellus micheneri
as *Lentinellus omphalodes*
Miller & Stewart 1971

Lentinellus ursinus
as *Lentinus ursinus*
Davidson 1930
Lowe 1969

Lentinellus vulpinus
as *Lentinus vulpinus*
Lowe 1969

Lepiota A moderately large genus for which there is no North American treatment. No complete treatment of either Canadian or British Columbian species is available. Additional species exist in British Columbia and remain to be reported. Records of several species require confirmation.

Lepiota acutesquamosa
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b
probably as *Lepiota friesii*
Davidson 1930
Lowe 1969

Lepiota alba
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Lepiota cristata
Hardy 1946
Hardy 1947
Hardy 1952a
Hardy 1954
Lowe 1954
Melburn 1959
Melburn 1960
Melburn 1962
Melburn 1963
Melburn 1966
Lowe 1969

Lepiota helveola
Schalkwijk-Barendsen 1991a

Lepiota rubrotincta
Davidson 1930
Lowe 1969

Lepiota subincarnata
Lampe 1989

Lepista A moderately large segregate genus differentiated from *Clitocybe*. No complete treatment of either Canadian or British Columbian species is available, but all species ae described in the North American monograph of *Clitocybe* by Bigelow (1982, 1985). Additional species exist in British Columbia and remain to be reported. Records of several species require confirmation.

Lepista caespitosa
as *Tricholoma panaeolum* var. *caespitosum*
Davidson 1930

Lepista inversa
as *Clitocybe inversa*
Davidson 1930
Bigelow & Smith 1969
Lowe 1969

Lepista nuda
Lowe 1969
also as *Tricholoma nudum*
Davidson 1930
Bandoni 1977

Lepista personata
Lowe 1969
also as *Tricholoma personatum*
Hardy 1947
Hardy 1954
Melburn 1960
Melburn 1963
Bandoni & Szczawinski 1964
Bandoni & Szczawinski 1976

Lepista sordida
Lowe 1969
also as *Tricholoma sordidum*
Davidson 1930

Leptonia Many western species are treated by Largent (1977) and a new monograph is expected, but virtually no British Columbian material is included. No complete treatment of either Canadian or British Columbian species is available. Many more species exist in British Columbia and remain to be reported. Records of several species require confirmation.

Leptonia lampropoda
Lowe 1969

Leptonia serrulata
Lowe 1969

Leucoagaricus A segregate genus from Lepiota. No complete treatment of either Canadian or British Columbian species is available. Additional species exist in British Columbia and remain to be reported.

Leucoagaricus naucinus
as *Lepiota naucina*
Hardy 1947

Bandoni & Szczawinski 1964
Lowe 1969
Bandoni & Szczawinski 1976
Ammirati et al. 1985

Leucocoprinus A segregate genus from *Lepiota*. No complete treatment of either Canadian or British Columbian species is available. Additional species exist in British Columbia and remain to be reported.

Leucocoprinus caespitosa
as *Lepista caespitosa*
Lowe 1969

Leucopaxillus An early monograph of all known *Leucopaxillus* species (Singer & Smith 1943) covers most Canadian species, but does not give detailed information on distribution. No complete treatment of either Canadian or British Columbian species is available. Additional species exist in British Columbia and remain to be reported. Records of several species require confirmation.

Leucopaxillus albissimus var. ***paradoxus*** f. ***albiformis***
Lowe 1969

Leucopaxillus giganteus
as *Clitocybe gigantea*
Hardy 1947
Hardy 1948a
Lowe 1954
Melburn 1956
Melburn 1958
Bandoni & Szczawinski 1964
Bandoni & Szczawinski 1976

Leucopaxillus laterarius
Lowe 1969
also as *Tricholoma laterarium*
Davidson 1930

Leucopaxillus piceinus
as Clitocybe piceina
Hardy 1946

Lyophyllum No complete treatment of either Canadian or British Columbian species is available. Many more species exist in British Columbia and remain to be reported. Records of several species require confirmation.

Lyophyllum decastes s.l.
as *Clitocybe multiceps*
Lowe 1954
Lowe 1969

Lyophyllum loricatum
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Lyophyllum tylicolor
Redhead 1984c

Macrolepiota A segregate genus from *Lepiota*. No complete treatment of either Canadian or British Columbian species is available. Additional species exist in British Columbia and remain to be reported.

Macrolepiota rachodes
as *Lepiota rachodes*
Hardy 1947
Hardy 1952b
Melburn 1957
Bandoni & Szczawinski 1964
Lowe 1969
Weresub 1971
Bandoni & Szczawinski 1976

Marasmiellus A large mostly tropical genus with few temperate species. Additional species may exist in British Columbia and no complete treatment of either Canadian or British Columbian species is available; however, most Canadian species have been described in recent literature.

Marasmiellus candidus
Redhead 1989
as *Marasmius candidus*
Hardy 1947
Hardy 1954
Lowe 1954
Melburn 1956
Lowe 1969
also as *Marasmius magnisporus*
Bandoni 1977

Marasmiellus filopes
Redhead 1980d
Redhead 1989
also as *Marasmius thujinus*
Gilliam 1976

Marasmiellus papillatus
Redhead & Halling 1982
Redhead 1989

Marasmiellus pluvius
Redhead 1982c

Redhead 1989
Gamiet & Berch 1992

Marasmiellus vaillantii
Redhead 1981

Marasmius A large genus well represented in both tropical and temperate regions. Additional species may exist in British Columbia and no complete treatment of either Canadian or British Columbian species is available; however, most Canadian species have been described in recent literature.

Marasmius androsaceus
Redhead 1984c
Redhead 1989
Gamiet & Berch 1992

Marasmius caricis
Redhead 1981

Marasmius epidryas
Redhead et al. 1982
Redhead 1989

Marasmius epiphyllus
Melburn 1957
Redhead 1989

Marasmius limosus
Redhead 1981

Marasmius oreades
Hardy 1947
Bandoni & Szczawinski 1964
Lowe 1969
Bandoni & Szczawinski 1976
Leichter & Bandoni 1980

Marasmius pallidocephalus
Redhead 1984c
Ginns 1986
Redhead 1989

Marasmius plicatulus
Redhead 1989
as *Marasmius bellipes*
Hardy 1946
Hardy 1947
Hardy 1954
Melburn 1956

Melburn 1962
Melburn 1963
Lowe 1969

Marasmius salalis
Desjardin & Redhead 1987
Redhead 1989
as *Marasmius copelandi*
Redhead 1982b

Marasmius scorodonius
Buckland 1946
Lowe 1969
Gilliam 1975a
Goward & Hickson 1989

Marasmius tremulae
Redhead 1989

Megacollybia A small genus segregated from *Tricholomopsis* but not closely allied to it. A single Canadian species is known.

Megacollybia platyphylla
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b
also as *Collybia platyphylla*
Lowe 1954

Melanotus A small, mostly tropical genus allied to *Psilocybe*. All known Canadian species have been treated in recent literature, but additional species may be discovered.

Melanotus caricicola
Redhead 1984b
Kroeger 1991a

Melanotus textilis
Redhead & Kroeger 1984
Redhead 1989
Kroeger 1991a

Micromphale A small genus segregated from *Marasmius* and *Collybia*. Additional species, such as *M. perforans*, occur in British Columbia.

Micromphale foetidum
as *Marasmius foetidus*
Lowe 1969

Micromphale perforans
Gamiet & Berch 1992

Mycena No complete treatment of either Canadian or British Columbian species is available. Many more species exist in British Columbia and remain to be reported. Records of several species require confirmation. The genus, in a broad sense, was monographed for North America by Smith (1947). In recent years, Maas Geesteranus has been revising the genus on a global basis. This is a large genus well represented in British Columbia.

Mycena acicula
Davidson 1930
Lowe 1969

Mycena adonis
Melburn 1965b
Melburn 1967

Mycena alcalina
Cheesman 1910
Davidson 1930
Lowe 1969
Goward & Hickson 1989

Mycena alnicola
Gamiet & Berch 1992

Mycena amabilissima
Gamiet & Berch 1992

Mycena amicta
Smith 1947
Gamiet & Berch 1992
probably as *Mycena cyaneobasis*
Davidson 1930
Lowe 1969

Mycena atroalboides
Smith 1947

Mycena aurantiomarginata
Gamiet & Berch 1992

Mycena bulbosa
Redhead 1981

Mycena citrinomarginata
Smith 1947
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Mycena clavicularis
Lowe 1969

Mycena culmigena
Redhead 1989
as *Mycena juncicola*
Redhead 1981
Redhead 1984b

Mycena elegantula
Gamiet & Berch 1992

Mycena epipterygia
Gamiet & Berch 1992
probably as *Mycena clavicularis* var. *luteipes*
Davidson 1930

Mycena fagetorum
Gamiet & Berch 1992

Mycena flavoalba
Melburn 1963
Lowe 1969

Mycena galericulata
Davidson 1930
Hardy 1946
Hardy 1947
Hardy 1952a
Hardy 1954
Lowe 1954
Melburn 1957
Lowe 1969

Mycena griseiconica
Buckland 1946
Lowe 1969
Gamiet & Berch 1992

Mycena haematopus
Smith 1947
Hardy 1954
Bandoni & Szczawinski 1964
Lowe 1969
Bandoni & Szczawinski 1976
Gamiet & Berch 1992
also as *Mycena haematopa*
Davidson 1930
Melburn 1956
Melburn 1957
also as *Mycena haematopoda*
Hardy 1946

Mycena inclinata
Davidson 1930
Lowe 1969

Mycena laevigata
Gamiet & Berch 1992

Mycena leptocephala
Davidson 1930
Lowe 1969
Gamiet & Berch 1992
also as *Mycena ammoniaca*
Davidson 1930
Lowe 1969

Mycena lohwagii
Redhead 1984e
Redhead 1989

Mycena longiseta
Gamiet & Berch 1992

Mycena occidentalis
Smith 1947

Mycena osmundicola
Smith 1947

Mycena parabolica
Davidson 1930
Lowe 1969

Mycena pterigena
Redhead 1984e
Gamiet & Berch 1992

Mycena pura
Davidson 1930
Smith 1947
Hardy 1954
Melburn 1957
Lowe 1969
Gamiet & Berch 1992

Mycena rorida
Gamiet & Berch 1992

Mycena rosella
Davidson 1930
Lowe 1969

Mycena rubromarginata
Smith 1947

Mycena rugulosiceps
Gamiet & Berch 1992

Mycena sanguinolenta
Davidson 1930
Smith 1947
Lowe 1969

Mycena strobilinoides
Smith 1947

Mycena stylobates
Redhead 1981

Mycena subsanguinolenta
Gamiet & Berch 1992

Mycena tubarioides
Redhead 1984b

Mycena vulgaris
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Mythicomyces A monotypic genus recently segregated from *Psilocybe*.

Mythicomyces corneipes
Redhead & Smith 1986
Huhtinen & Vauras 1992

Naucoria A moderately sized genus often treated as *Alnicola*. There is no modern North American treatment. No complete treatment of either Canadian or British Columbian species is available. Many more species exist in British Columbia and remain to be reported.

Naucoria melinoides
as *Alnicola melinoides*
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b
Gamiet & Berch 1992

Neolentinus A small genus segregated from *Lentinus*. Additional species may exist in British Columbia. All are described as *Lentinus* species in the world monograph by Pegler (1983), but a detailed treatment of the species in British Columbia is lacking.

Neolentinus kauffmanii
Redhead 1989
also as *Lentinus kauffmanii*
Bier & Nobles 1946
Bier et al. 1946
Nobles 1948
Lowe 1969
Martin & Gilbertson 1980
Gilbertson 1981
Pegler 1983

Neolentinus lepideus
as *Lentinus lepideus*
Lowe 1969

Omphalina A moderately small genus variously circumscribed and as such sometimes combined with *Gerronema* which is unrelated or combined with *Clitocybe* with which it is closely allied. Many species are treated as *Clitocybe* in Bigelow's North American monograph of *Clitocybe* (Bigelow 1982, 1985). No complete treatment of either Canadian or British Columbian species is available. Many more species exist in British Columbia and remain to be reported.

Omphalina hohensis
as *Clitocybe hohensis*
Bigelow 1985

Omphalina marchantiae
as *Gerronema marchantiae*
Kroeger 1989b

Omphalina viridis
Redhead 1986b
Redhead 1989
also as *Clitocybe atroviridis*
Bigelow 1982
Bigelow 1985
also as *Clitocybe smaragdina*
Bigelow & Smith 1962
Lowe 1969

Ossicaulis A monotypic genus recently segregated from both *Pleurotus* and *Clitocybe*.

Ossicaulis lignatilis
Redhead & Ginns 1985
also as *Pleurotus lignatilis*
Thomas & Podmore 1953
Lowe 1969

Panaeolina A small genus segregated from both *Panaeolus* and *Psathyrella*. Species are described as *Psathyrellas* by Smith (1972).

Panaeolina foenisecii
as *Panaeolus foenisecii*
Bandoni & Szczawinski 1976
Ammirati et al. 1985

Panaeolus A relatively small genus of mainly cosmopolitan species on dung. Many species were described by Ola'h (1970), but no detailed treatment of western species exists.

Panaeolus acuminatus
Lowe 1969

Panaeolus campanulatus
Davidson 1930
Melburn 1967
Lowe 1969
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Panaeolus phalaenarum
Stamets 1978

Panaeolus retirugis
Davidson 1930
Lowe 1969

Panaeolus subbalteatus
Ammirati et al. 1985

Panellus A relatively small genus segregated from *Pleurotus*. Miller (1970) monographed the North American species but did not examine very much western Canadian material. Subsequently a common British Columbian species was discovered.

Panellus longinquus ssp. ***pacificus***
Libonati-Barnes & Redhead 1984
Kroeger 1989
Redhead 1989

Panellus mitis
Miller 1970
also as *Pleurotus mitis*
Lowe 1969

Panellus ringens
Lowe 1969

also as *Panus salicinus*
Lowe 1969

Panellus serotinus
Bandoni 1977
Martin & Gilbertson 1980
Kroeger 1989
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b
also as *Crepidopus serotinus*
Murrill 1912a
Murrill 1916
also as *Pleurotus serotinus*
Davidson 1930
Hardy 1954
Lowe 1969
Bandoni & Szczawinski 1976

Panellus stypticus
as *Panus stipticus*
Davidson 1930
Lowe 1969

Panus This mainly tropical genus is sometimes included with *Lentinus* (see Pegler's 1983 world monograph). The few Canadian species have not been documented in detail, but no new species are expected.

Panus rudis
Lowe 1969

Panus torulosus
Cheesman 1910
Bandoni & Szczawinski 1964
Lowe 1969
Bandoni & Szczawinski 1976

Paxillus A relatively small but important pioneering mycorrhizal genus. The most common species, *P. involutus*, is probably a species complex much like *Armillaria mellea* s.l. *Paxillus vernalis* probably occurs in British Columbia, too.

Paxillus atrotomentosus
Lowe 1969
Bandoni & Szczawinski 1976
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Paxillus involutus
Davidson 1930
Hardy 1946

Hardy 1947
Hardy 1951
Melburn 1957
Bandoni & Szczawinski 1964
Lowe 1969
Bandoni & Szczawinski 1976
Bandoni & McLennan 1978
Ammirati et al. 1985
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b
Gamiet & Berch 1992

Phaeocollybia A relatively small distinctive genus characteristic of the Pacific Northwest, but only recently discovered in British Columbia. Several additional species are known and are currently being studied by Norvell (pers. comm., 1993). Two North American monographs (Smith 1957; Smith & Trappe 1972) exist, but require major revision.

Phaeocollybia carmanahensis
Redhead & Norvell 1993

Phaeocollybia kauffmanii
Norvell 1992a
Redhead & Norvell 1993

Phaeolepiota A showy and charcteristic monotypic genus first documented in North America from British Columbia.

Phaeolepiota aurea
Bandoni & Szczawinski 1964
Lowe 1969
Bandoni & Szczawinski 1976
Turner 1978
Ammirati et al. 1985
Redhead 1989
Rogers 1990
also as *Pholiota aurea*
Smith 1937c
Bach 1956
Smith & Hesler 1968

Phaeomarasmius A small genus segregated from *Pholiota*, where it was treated by Smith & Hesler (1968). Possibly additional species exist in British Columbia, but this is unlikely.

Phaeomarasmius erinaceus
Redhead 1980b
Redhead 1989

Pholiota A large important genus of wood-decaying species. A North American monograph exists (Smith & Hesler 1968), but is now outdated. No complete treatment of either Canadian or British Columbian species is available. Many more species exist in British Columbia and remain to be reported. Records of several species require confirmation.

Pholiota adiposa
Davidson 1930
Bier et al. 1948
Nobles 1948
Foster & Foster 1951
Foster et al. 1954
Foster et al. 1958
Smith & Hesler 1968
Martin & Gilbertson 1980

Pholiota alnicola
Martin & Gilbertson 1980
also as *Flammula alnicola*
Denyer 1960
Lowe 1969

Pholiota astragalina
Gamiet & Berch 1992

Pholiota aurivella
Smith & Hesler 1968
Lowe 1969
Martin & Gilbertson 1980

Pholiota aurivelloides
Lowe 1969

Pholiota decorata
Smith & Hesler 1968
also as *Flammula decorata*
Buckland 1946
Lowe 1969

Pholiota flammans
Lowe 1969
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b
Gamiet & Berch 1992

Pholiota jahnii?
Jacobsson 1987

Pholiota limonella
Martin & Gilbertson 1980
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b
also as *Pholiota squarroso-adiposa*
Smith 1949
Bandoni & Szczawinski 1964
Lowe 1969
Bandoni & Szczawinski 1976

Pholiota lubrica
as *Flammula lubrica*
Lowe 1969

Pholiota malicola
Lowe 1969
Bandoni & McLennan 1978
probably also as *Flammula connissans*
Foster et al. 1954
Foster et al. 1958

Pholiota polychroa
as *Flammula polychroa*
Hardy 1952a

Pholiota populnea
as *Pholiota destruens*
Davidson 1930
Thomas & Podmore 1953
Lowe 1969

Pholiota scamba
Kroeger 1989
Gamiet & Berch 1992

Pholiota squarrosa
Hardy 1946
Bandoni & Szczawinski 1964
Lowe 1969
Bandoni & Szczawinski 1976
Ammirati et al. 1985

Pholiota squarrosoides
Lowe 1969
Jacobsson 1989

Pholiota terrestris
Smith & Hesler 1968
Lowe 1969

Bandoni & Szczawinski 1976
Bandoni 1977
Bandoni & McLennan 1978
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Phyllotopsis A small genus represented by a single species in Canada.

Phyllotopsis nidulans
Lowe 1969

Phytoconis A small lichenized genus segregated from *Omphalina*. Species have been treated as *Omphalinas* by Bigelow (1970) and as *Botrydina* by Redhead & Kuyper (1987). Several other species are expected to be discovered in British Columbia.

Phytoconis ericetorum
Redhead 1989
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b
Gamiet & Berch 1992
also as *Botrydina botryoides*
Redhead & Kuyper 1987
also as *Omphalia umbellifera*
Davidson 1930
Lowe 1969
also as *Omphalina ericetorum*
Bigelow 1970
Perrin & Koske 1973
Bandoni & Szczawinski 1976
also as *Omphalina umbellifera*
Murrill 1916
Bandoni & Szczawinski 1964
Melburn 1965a

Pleurocybella A small genus represented by a single common species in Canada.

Pleurocybella porrigens
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b
Gamiet & Berch 1992
also as *Pleurotus porrigens*
Bandoni & Szczawinski 1964
Lowe 1969
Bandoni & Szczawinski 1976

Pleurotus This genus is largely restricted to species allied to *P. ostreatus*, which includes *P. sapidus*. In North America, several criteria have been used to distinguish species (e.g., spore print colour), but these have proved to be

unreliable. In more recent years the complex has been shown to encompass several intersterile populations. For the most part, the biological species have not been accurately determined in Canada or more specifically in British Columbia.

Pleurotus ostreatus
Hardy 1946
Hardy 1947
Thomas & Podmore 1953
Lowe 1969
Bandoni & Szczawinski 1976
Bandoni & McLennan 1978
Leichter & Bandoni 1980
Martin & Gilbertson 1980
Turner et al. 1987
also as *Pleurotus sapidus*
Davidson 1930
Hardy 1952a
Bandoni & Szczawinski 1964
Lowe 1969

Pleurotus subareolatus
Thomas & Podmore 1953
Lowe 1969

Pluteus There is no North American monograph. No complete treatment of either Canadian or British Columbian species is available. Additional species exist in British Columbia and remain to be reported. Records of several species require confirmation.

Pluteus atricapillis
as *Pluteus cervinus*
Davidson 1930
Hardy 1946
Hardy 1947
Hardy 1950
Melburn 1961a
Bandoni & Szczawinski 1964
Lowe 1969
Perrin & Koske 1973
Bandoni & Szczawinski 1976
Gamiet & Berch 1992

Pluteus flavofuligineus
Lowe 1969

Pluteus granularis
Lowe 1969

Pluteus leoninus
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Polyozellus A monotypic genus.

Polyozellus multiplex
Imazeki 1953
Bigelow 1978
also as *Cantharellus multiplex*
Smith & Morse 1947
Smith 1949
Lowe 1969

Psathyrella This genus was monographed for North America by Smith (1972), but little Canadian material, especially western Canadian material, was examined. No complete treatment of either Canadian or British Columbian species is available. Additional species exist in British Columbia and remain to be reported. Records of several species require confirmation.

Psathyrella ammophila
Agriculture Canada 1983

Psathyrella candolleana
Lowe 1969
Bandoni & Szczawinski 1976

Psathyrella columbiana
Smith 1972

Psathyrella hydrophila
Lowe 1969
Smith 1972
also as *Hypholoma hydrophilum*
Davidson 1930

Psathyrella incerta
also as *Hypholoma incertum*
Hardy 1954

Psathyrella longistriata
Bandoni & Szczawinski 1976

Psathyrella madeodisca
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Psathyrella spadicea
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Pseudoarmillariella A monotypic genus.

Pseudoarmillariella ectypoides
Gamiet & Berch 1992

Pseudobaeospora A small genus segregated from *Lepiota*. A single Canadian species is known.

Pseudobaeospora pillodii
Redhead 1982d

Pseudoclitocybe A small genus segregated from *Clitocybe*. Species are treated in the North American monograph of *Clitocybe* by Bigelow (1982, 1985). No complete treatment of either Canadian or British Columbian species is available. Additional species exist in British Columbia and remain to be reported.

Pseudoclitocybe cyathiformis
as Clitocybe cyathiformis
Lowe 1969

Psilocybe This genus was monographed worldwide by Guzman (1983) and includes western Canadian materials from around Vancouver, but little else from the west. No complete treatment of either Canadian or British Columbian species is available. Additional species exist in British Columbia and remain to be reported. Records of several species require confirmation.

Psilocybe baeocystis
Robinson 1975
Guzman et al. 1976
Guzman 1983
Ammirati et al. 1985

Psilocybe cyanescens
Robinson 1975
Guzman 1978
Stamets 1978
Lincoff 1981
Guzman 1983
Ammirati et al. 1985

Psilocybe fimetaria
Guzman 1983

Psilocybe inquilina
Kroeger 1989b

Psilocybe pelliculosa
Robinson 1975
Guzman et al. 1976
Lincoff 1981

Guzman 1983
Ammirati et al. 1985

Psilocybe pratense?
Kroeger 1989b

Psilocybe semilanceata
Robinson 1975
Guzman et al. 1976
Weil 1977
Stamets 1978
Z 1980
Guzman 1983
Redhead 1989b
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b
Turner & Szczawinski 1991

Psilocybe strictipes
Robinson 1975
Guzman et al. 1976
Ammirati et al. 1985

Psilocybe stuntzii
Guzman & Ott 1976
Guzman et al. 1976
Guzman 1983
Ammirati et al. 1985

Psilocybe subfimetaria
Guzman & Smith 1978
Guzman 1983

Psilocybe subviscida
Davidson 1930
Lowe 1969

Pulveroboletus A small segregate genus differentiated from *Boletus*.

Pulveroboletus retipes
Lowe 1969

Resinomycena A small recently described genus segregated from *Mycena*. Western Canadian material was included and additional species are not expected, but the ranges require documentation.

Resinomycena montana
Redhead & Singer 1981
Redhead 1989

Resinomycena saccharifera ssp. ***kalalochensis***
Redhead 1984b
Redhead 1989
also as *Resinomycena kalalochensis*
Redhead & Singer 1981

Resupinatus A small genus allied to *Hohenbuehelia*. Possibly more than one species exists in British Columbia.

Resupinatus striatulus
Thorn & Barron 1986
also as *Pleurotus striatulus*
Coker 1944

Rhodocybe This genus was monographed worldwide by Baroni (1981) concentrating on North American materials. No complete treatment of either Canadian or British Columbian species is available. Additional species probably exist in British Columbia and remain to be reported.

Rhodocybe hirneola
Baroni 1981

Rhodocybe trachyspora var. ***trachyspora***
Baroni & Largent 1989
also as *Rhodocybe carlottae* var. *carlottae*
Redhead & Baroni 1986

Rhodocybe trachyspora var. ***vinacea***
Baroni & Largent 1989
also as *Rhodocybe carlottae* var. *vinacea*
Redhead & Baroni 1986

Rickenella A small genus with other species in British Columbia.

Rickenella fibula
Gamiet & Berch 1992

Rimbachia A small cyphelloid genus easily overlooked. Existing Canadian collections were revised by Redhead (1984).

Rimbachia arachnoidea
Redhead 1984a

Rimbachia bryophila
Redhead 1984a

Rimbachia neckerae ssp. ***neckerae***
Redhead 1984a

Rozites A small genus allied to *Cortinarius* represented by a single Canadian species.

Rozites caperata
Lowe 1969
Bandoni & Szczawinski 1976
Rogers 1990
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Russula A large important mycorrhizal genus presenting many taxonomic problems. There is no North American monograph. No complete treatment of either Canadian or British Columbian species is available. Many additional species exist in British Columbia and remain to be reported. Records of most species require confirmation.

Russula abietina
Lowe 1969

Russula alutacea
Hardy 1947
Lowe 1954
Melburn 1956
Hardy 1962
Gamiet & Berch 1992

Russula atropurpurea
Lowe 1954

Russula brevipes
Goward & Hickson 1989
Gamiet & Berch 1992

Russula cascadensis
Bandoni & Szczawinski 1976
Schalkwijk-Barendsen 1991
Schalkwijk-Barendsen 1991b

Russula delica
Bandoni & Szczawinski 1964
Lowe 1969
Melburn 1970

Russula densifolia
Bandoni & Szczawinski 1976

Russula emetica
Davidson 1930
Bandoni & Szczawinski 1964

Lowe 1969
Perrin & Koske 1973
Bandoni & Szczawinski 1976
Bandoni 1977
Goward & Hickson 1989

Russula foetens
Melburn 1970

Russula foetidus
Lowe 1954

Russula fragilis
Lowe 1969

Russula fragrantissima
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Russula furcata
Lowe 1969

Russula lutea
Lowe 1969

Russula mariae
Hardy 1946

Russula nigricans
Bandoni & Szczawinski 1964
Gamiet & Berch 1992

Russula olivacea
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Russula vesca
Gamiet & Berch 1992

Russula veternosa
Davidson 1930
Lowe 1969

Russula xerampelina
Bandoni & Szczawinski 1976
Bandoni 1977
Morrison & Morrison 1980

Schizophyllum A small genus represented by a single cosmopolitan Canadian species.

Schizophyllum commune
Davidson 1930
Buckland 1946
Cooke 1961
Lowe 1969

Stagnicola A recently described monotypic genus segregated from *Tubaria*.

Stagnicola perplexa
Redhead & Smith 1986

Strobilurus A small genus segregated from *Collybia*, but not closely allied to it. Canadian material has been revised by Redhead(1980, 1989). Additional species are not expected in British Columbia.

Strobilurus albipilatus
Redhead 1980d
Redhead 1989
Gamiet & Berch 1992

Strobilurus occidentalis
Redhead 1980d
Redhead 1989
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Strobilurus trullisatus
Redhead 1980d
Redhead 1989
Rogers 1990
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b
Gamiet & Berch 1992

Stropharia A relatively small genus for which no North American monograph exists. No complete treatment of either Canadian or British Columbian species is available. Additional species probably exist in British Columbia and remain to be reported. Records of some species require confirmation.

Stropharia aeruginosa
Hardy 1949b
Lowe 1969
Bandoni & Szczawinski 1976

Stropharia albonitens
Davidson 1930
Lowe 1969

Stropharia ambigua
Hardy 1947
Hardy 1952
Hardy 1954
Lowe 1954
Bandoni & Szczawinski 1964
Lowe 1969
Bandoni & Szczawinski 1976
also as *Hypholoma ambigua*
Hardy 1949b

Stropharia coronilla
Ammirati et al. 1985

Stropharia pseudocyanea
Redhead 1984b
Kroeger 1989b
possibly as *Pholiota aeruginosa*
Lowe 1969

Stropharia riparia
Kroeger 1989b

Stropharia semiglobata
Hardy 1946

Stropharia stercoraria
Davidson 1930
Lowe 1969

Suillus This moderately sized, important mycorrhizal genus was monographed for North America by Smith & Thiers (1964), but little Canadian material was cited. No complete treatment of either Canadian or British Columbian species is available. Additional species probably exist in British Columbia and remain to be reported. Records of some species require confirmation.

Suillus albidipes
Pantidou & Groves 1966
Lowe 1969

Suillus brevipes
Pantidou & Groves 1966
Lowe 1969
Schisler & Volkoff 1977
also as *Boletus brevipes*
Bandoni & Szczawinski 1976

Suillus caerulescens
Pantidou & Groves 1966
Lowe 1969

Suillus granulatus
Lowe 1969
Schisler & Volkoff 1977
also as *Boletus granulatus*
Bandoni & Szczawinski 1964

Suillus lakei
Pantidou & Groves 1966
Lowe 1969
Bandoni 1977
Schisler & Volkoff 1977
Goward & Hickson 1989
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b
also as *Boletinus amabilis*
Lowe 1969
The application of the name *B. amabilis* is in dispute, but it seems to have been generally applied to *S. lakei* in western North America
also as *Boletinus lakei*
Bandoni & Szczawinski 1964
Bandoni & Szczawinski 1976
also as *Boletus lakei*
Melburn 1966
possibly as *Boletinus pictus* (see excluded species)
Hardy 1947
Melburn 1960
Melburn 1961a
possibly as *Boletus pictus* (see excluded species)
Hardy 1952b

Suillus luteus
Schisler & Volkoff 1977
Bandoni & McLennan 1978
also as *Boletus luteus*
Hardy 1954
Lowe 1954
Bandoni & Szczawinski 1964
Bandoni & Szczawinski 1976

Suillus placidus
Pantidou & Groves 1966
Lowe 1969

Suillus ponderosus
Schisler & Volkoff 1977
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Suillus punctipes
Lowe 1969
Schisler & Volkoff 1977

Suillus subaureus
as *Boletus subaureus*
Hardy 1947
Hardy 1949b
Hardy 1952b
Hardy 1954
Lowe 1954

Suillus subluteus
Leichter & Bandoni 1980

Suillus subolivaceus
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Suillus subvariegatus
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Suillus tomentosus
Pantidou & Groves 1966
Lowe 1969
Schisler & Volkoff 1977
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b
also as *Boletus tomentosus*
Bandoni & Szczawinski 1976

Suillus umbonatus
Pantidou & Groves 1966
Lowe 1969
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Tapinella A monotypic genus.

Tapinella panuoides
as *Paxillus panuoides*
Lowe 1969

Tetrapyrgos A small, mainly tropical genus recently segregated from *Marasmiellus*, itself a segregate of both *Marasmius* and *Collybia*. At least one other species is known from British Columbia, but requires research before documentation.

Tetrapyrgos subdendrophora
Redhead 1989
also as *Campanella subdendrophora*
Redhead 1974

Tricholoma A large, important mycorrhizal genus presenting many taxonomic problems. *Tricholoma magnivelare*, the Pine Mushroom, is commercially harvested in British Columbia. There is no North American monograph. No complete treatment of either Canadian or British Columbian species is available. Many additional species exist in British Columbia and remain to be reported. Records of most species require confirmation.

Tricholoma caligata
as *Armillaria calligata*
Kinugawa & Goto 1978

Tricholoma flavovirens
Schalkwijk-Barendsen 1991a
also as *Tricholoma equestre*
Bandoni & Szczawinski 1976

Tricholoma focale
as *Armillaria zelleri*
Bandoni & Szczawinski 1976
also as *Tricholoma zelleri*
Ogawa 1981

Tricholoma grave
Davidson 1930

Tricholoma inamoenum
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Tricholoma magnivelare
Redhead 1984d
Turner et al. 1987
Kroeger 1989
Redhead 1989
Kroeger 1991b
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b
also as *Armillaria ponderosa*
Lowe 1969
Bandoni & Szczawinski 1976
Kinugawa & Goto 1978
Turner 1978
Kroeger 1989b
Saenger 1989
also as *Tricholoma ponderosum*
Yokoyama & Kobayashi 1973
Ogawa 1979

Tricholoma populinum
Turner et al. 1987

Tricholoma terreum
Hardy 1954
Lowe 1969
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Tricholomopsis A moderately small genus monographed in North America by Smith (1960), but without examining western Canadian material. No complete treatment of either Canadian or British Columbian species is available. Additional species exist in British Columbia and remain to be reported.

Tricholomopsis decora
Martin & Gilbertson 1980
also as *Clitocybe decora*
Lowe 1969
also as *Tricholoma decorum*
Bandoni & Szczawinski 1976

Tricholomopsis rutilans
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b
also as *Tricholoma rutilans*
Bandoni & Szczawinski 1976

Tubaria A small, often overlooked genus for which no North American monograph exists. No complete treatment of either Canadian or British Columbian species is available. Additional species exist in British Columbia and remain to be reported.

Tubaria furfuracea
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b

Tylopilus A moderately sized genus segregated from *Boletus*. No complete treatment of either Canadian or British Columbian species is available. Additional species possibly exist in British Columbia and remain to be reported.

Tylopilus alboater
Schisler & Volkoff 1977

Tylopilus pseudoscaber
as *Boletus olivaceobrunneus*
Lowe 1969

Volvariella Shaffer (1957) monographed the genus, which is widespread but rarely collected. No complete treatment of either Canadian or British Columbian species is available. Additional species possibly exist in British Columbia and remain to be reported.

Volvariella speciosa var. ***speciosa***
Shaffer 1957
Lowe 1969

Volvariella stercoraria
as *Locellina stercoraria*
Murrill 1912b

Xeromphalina This genus was monographed in Canada by Redhead (1988), who revised all western Canadian specimens. Additional species are not expected, but ranges require further documentation.

Xeromphalina campanella
Bandoni & Szczawinski 1964
Melburn 1965
Lowe 1969
Smith et al. 1970
Perrin & Koske 1973
Bandoni & Szczawinski 1976
Martin & Gilbertson 1980
Redhead 1988
also as *Omphalia campanella*
Davidson 1930
Bier et al. 1946
Buckland 1946
Hardy 1946
Hardy 1947
Bier et al. 1948
Nobles 1948
Foster & Foster 1951
Foster et al. 1954
Hardy 1954
Lowe 1954
Thomas & Thomas 1954
Foster et al. 1958

Xeromphalina campanelloides
Redhead 1988

Xeromphalina cauticinalis ssp. ***cauticinalis***
Redhead 1988

Xeromphalina cirris
Redhead 1988

Xeromphalina cornui
Redhead 1988

Xeromphalina fulvipes
Lowe 1969
Redhead 1988
Redhead 1989
Gamiet & Berch 1992

Excluded or Doubtful Species

Amanita phalloides
Hardy 1947
Early reports of this species from North America refer to the *Amanita virosa* complex, a group of white toxic species. *Amanita phalloides* is generally agreed to be an introduced species in North America and is found in California, Oregon, and Washington, but has never been reliably recorded from British Columbia to date. Hardy's report is undoubtedly erroneous.

Amanita rubescens
Lowe 1969
This is an eastern North American species. Until verified, this report should be treated as suspect.

Clitocybe catina
Davidson 1930
Lowe 1969
This species was not recognized from western North America by Bigelow (1982, 1985). The name has probably been misapplied to another *Clitocybe*.

Clitocybe cerussata
possibly as *Clitocybe pithyophila*
Davidson 1930
Lowe 1969
This application of the name *C. pithophylla* possibly refers to *C. dilatata*.

Crepidotus latifolius
Lowe 1969
This is an eastern North American species not reliably documented from the west.

Crepidotus sphaerosporus
Lowe 1969
This species is only known from Europe and is not reliably known from North America.

Lactarius subdulcis
Davidson 1930
Hardy 1946
Hardy 1947

Melburn 1958
Melburn 1966
Lowe 1969
Melburn 1970
as *Lactaria subdulcis*
Lowe 1954
This species is not known for certain from North America. A complex of species has been referred to this name in older literature.

Leccinum
as *Boletus versipellis*
Lowe 1969
This species name has been variously applied to different species and its application in this report is unclear.

Lyophyllum ambustum
as *Collybia ambusta*
Melburn 1961b
This name has been variously applied and its application here is ambiguous.

Lyophyllum sp.
possibly as *Clitocybe cartilaginea*
Lowe 1969
This species of *Clitocybe* is not recognized from North America. Varieties of *C. cartilaginea* reported from North America have been referred to *Lyophyllum*.

Marasmius felix
Lowe 1969
This is an eastern North American species. Western material represents different species.

Marasmius rotula
Hardy 1952a
Hardy 1954
Lowe 1954
Melburn 1956
Melburn 1957
This is an eastern North American species not reliably documented from western North America.

Mycena atroalba
Davidson 1930
Lowe 1969
Smith (1947) was uncertain about the use of this name in North America. Its application remains doubtful in older records.

Mycena excisa
Davidson 1930
Lowe 1969
An eastern species probably not found in western North America.

Mycena leaiana
Schalkwijk-Barendsen 1991a
Schalkwijk-Barendsen 1991b
A doubtful report from British Columbia, as the species appears to extend no further west than Manitoba.

Mycena minutula
Davidson 1930
Lowe 1969
A species described from the east and not fully characterized.

Mycena niveipes
as *Mycena polygramma* var. *albida*
Davidson 1930
An eastern North American species not reliably documented from western North America.

Mycena polygramma
Lowe 1969
A species known for certain only from eastern North America.

Oudemansiella mucida
as *Armillaria mucida*
Cheesman 1910
This species is European and has never been reliably documented from North America. It is possible that it could be introduced with colonized trees but in this case is probably erroneously reported.

Pholiota marginata
Melburn 1967
This species was poorly known and early applications refer to a number of species.

Pholiota subsquarrosa
Lowe 1969
This species was not recognized from North America by Smith & Hesler (1968). It was said to possibly be = *P. subvelatipes*, which is now considered to be synonymous with *P. limonella*.

Pholiota tuberculosa
Lowe 1969
This species was not recognized from North America by Smith & Hesler (1968).

Pleurotus albolanatus
Thomas & Podmore 1953
Lowe 1969
This species is possibly synonymous with *Pleurocybella porrigens*. Older applications of the name are ambiguous.

Psathyrella crenata
Davidson 1930
Lowe 1969
A poorly known species of European origin interpreted as *Coprinus hiascens* by some Europeans.

Psilocybe callosa
Guzman 1983
A misapplied name, in this case possibly referring to *P. strictipes*.

Strobilurus sp.
as *Collybia albipilata*
Hardy 1946
Hardy 1949b
Melburn 1956
Melburn 1957
Melburn 1960
Melburn 1961a
Melburn 1963
Melburn 1968
Lowe 1969
as *Collybia conigena*
Davidson 1930
as *Collybia conigenoides*
Davidson 1930
Lowe 1969
Strobilurus species have been variously reported as *Collybia albipilata* and *C. conigenoides*. Unless examined microscopically none can be reliably assigned (see Redhead 1980d). *Collybia albipilata s.s.* = *Strobilurus albipilatus*.

Stropharia appendiculata
Hardy 1946
An untraceable name possibly referring to a *Psathyrella* or *Stropharia ambigua*.

Suillus spraguei
as *Boletinus pictus*
Hardy 1947
Melburn 1960
Melburn 1961a
as *Boletus pictus*
Hardy 1952b

This is an eastern North American species found under eastern white pine. Early western reports are probably based upon *S. lakei* (q.v.), a Douglas-fir associate.

Xerula radicata

as *Collybia radicata*

Lowe 1969

This species is rare in North America and is only known from the eastern United States. The British Columbia record appears to have been based on *Collybia maculata*.

Gasteromycetes and False Truffles

Astraeus hygrometricus
Battarrea stevensii
Bovista pila
Bovista pusilla
Calvatia elata
Calvatia gigantea
Calvatia lepidophorum
Calvobovista subsculpta
Clathrus ruber
Crucibulum laeve
Cyathus striatus
Geastrum minus
Geastrum triplex
Lycoperdon curtisii
Lycoperdon perlatum
Lycoperdon pyriforme
Lycoperdon subincarnatum
Lysurus cruciatus
Mycenastrum corium
Mycoacia denudata
Mycoacia uda
Mutinus caninus
Nidula candida
Nidula niveotomentosa
Nidularia pulvinatus
Phallus impudicus
Pisolithus tinctorius
Podaxis pistillaris
Rhizopogon canadensis
Rhizopogon cinnamomeus
Rhizopogon columbianus
Rhizopogon defectus
Rhizopogon diabolicus
Rhizopogon evadens
Rhizopogon florencianus
Rhizopogon hawkerae
Rhizopogon idahoensis
Rhizopogon molallaensis
Rhizopogon occidentalis
Rhizopogon ochraceorubens
Rhizopogon olivaceofuscus
Rhizopogon pseudoroseolus
Rhizopogon pseudovillosus
Rhizopogon roseolus
Rhizopogon rubescens
Rhizopogon subcaerulescens
Rhizopogon subsalmoneus
Rhizopogon vinicolor
Scleroderma aerolatum
Scleroderma aurantia
Scleroderma cepa
Scleroderma lycoperdoides
Simblum sphaerocephalum
Truncocolumella citrina
Truncocolumella rubra
Tulostoma campestre
Tulostoma tuberculatum

Hydnoid and Thelephoroid Fungi

Hydnellum aurantiacum
Hydnellum caeruleum
Hydnellum peckii
Hydnellum pineticola
Hydenellum scrobiculatum
Hydnellum suaveolens
Hydnum repandum
Hydnum umbilicatum
Phellodon tomentosus
Sarcodon calvatum
Sarcodon fuscoindicum
Sarcodon imbricatum
Sarcodon stereosarcinon
Thelephora caryophyllea
Thelephora palmata
Thelephora regularis

Coral Fungi

Clavaria vermicularis
Clavariadelphus ligula
Clavariadelphus occidentalis
Clavariadelphus sachalinensis
Clavariadelphus truncatus
Clavicorona taxophila
Clavulina cinerea
Clavulina cristata
Clavulinopsis aurantio-cinnabarinus
Macrotyphula fistulosa
Ramaria apiculata
Ramaria botrytis
Ramaria concolor
Ramaria distinctissima
Ramaria flava

Ramaria flavo-brunnescens
Ramaria formosa
Ramaria mutabilis
Ramaria rubella
Ramaria stricta
Ramaria subbotrytis
Ramaria suecia
Sparassis crispa
Typhula abietina
Typhula erythropus
Typhula incarnata
Typhula mycophaga
Typhula setipes
Typhula thaxteri
Typhula umbrina

Aleuria aurantia
Anthracobia macrocystis
Anthracobia melaloma
Apiosporina morbosa
Ascobolus carbonarius
Ascobolus epimyces
Ascobolus furfuraceus
Ascobolus immersus
Ascobolus michaudii
Ascobolus sacchariferus
Ascobolus tenuisporus
Ascocoryne sarcoides
Bisporella citrina
Bryoglossum gracile
Caloscypha fulgens
Cenangium acuum
Cenangium ferruginosum
Cenagium singulare
Cheilymenia ciliata
Cheilymenia coprinata
Chlorencoella versiformis
Chlorociboria aeruginascens
Ciboria gordonii
Ciboria rufo-fusca
Ciborina foliicola
Ciborina whetzelii
Cordyceps militaris
Cordyceps myrmecophila
Daldinia concentrica
Daldinia occidentalis
Dasyscyphus bicolor
Dasyscyphus ellisianus
Dasyscyphus sulphureus
Dasyscyphus turbinulatus
Dasyscyphus virginellus
Dematioscypha dematiicola
Dermea balsamea
Dermea cerasi
Dermea prunastri
Dermea pseudotsugae
Dermea rhytidiformans
Dermea tetrasperma
Discina macrospora
Discina perlata
Discinella schimperi
Elaphomyces granulatus
Elaphomyces muricatus
Encoelia fascicularis
Encoelia furfuracea
Gelatinodiscus flavidus
Geopyxis carbonaria
Geopyxis vulcanalis
Godronia cassandrae
Godronia confertus
Godronia fuliginosa
Godronia spiraeae
Godronia zelleri
Gyromitra ambigua
Gyromitra californica
Gyromitra caroliniana
Gyromitra columbiana
Gyromitra esculenta
Gyromitra infula
Gyromitra melaleucoides
Helvella acetabulum
Helvella corlum
Helvella crispa
Helvella elastica
Helvella lacunosa
Helvella macropus
Helvella solitaria
Herpotrichia juniperina
Humaria hemisphaerica
Hypomyces aurantius
Hypomyces cervinigenus
Hypomyces lactifluorum
Hypomyces rosellus
Hypoxylon cerebrinum
Hypoxylon cinereo-lilacinum
Hypoxylon diathrauston
Hypoxylon fragiforme
Hypoxylon fuscum
Hypoxylon howeianum
Hypoxylon mammatum
Hypoxylon mediterraneum
Hypoxylon multiforme
Hypoxylon nummularium
Hypoxylon rubiginosum
Hypoxylon serpens
Hypoxylon vogesiacum
Lachnellula agassizii
Lachnellula arida

Lachnellula calyciformis
Lachnellula ciliata
Lachnellula flavovirens
Lachnellula fuscosanguinea
Lachnellula occidentalis
Lachnellula pini
Leucoscypha hetleri
Mitrula elegans
Morchella angusticeps
Morchella elata
Morchella esculenta
Monilinia corni
Monilinia demissa
Monilinia oxycocci
Monilinia padi
Monilinia vaccinii-corymbosi
Neournula pouchetii
Onygena equina
Otidea kauffmanii
Otidea leporina
Otidea onotica
Otidea smithii
Paxina barlae
Paxina recurvum
Peziza badia
Peziza brunneoatra
Peziza domiciliana
Peziza emileia
Peziza melaleuca
Peziza petersii
Peziza phyllogena
Peziza praetervisa
Peziza repanda
Peziza succosa
Peziza sylvestris
Peziza vesciculosa
Peziza violacea
Pithya cupressina
Pithya vulgaris
Plectania melastoma
Plectania nannfeldtii
Plicaria endocarpoides
Plicaria trachycarpa
Pseudoplectania melaena
Pseudoplectania nigrella
Pseudoplectania vogesiaca
Pulvinula archeri
Roesleria subterranea
Roeslerina microspora
Roeslerina radicella
Pyronema omphalodes
Rhizina undulata
Rutstroemia sydowiana
Sarcoscypha coccinea
Sacrosphaera coronaria
Sarcosoma mexicana
Sclerotinia borealis
Sclerotinia bulborum
Sclerotinia fructicola
Sclerotinia gladioli
Sclerotinia homeocarpa
Sclerotinia laxa
Sclerotinia minor
Sclerotinia narcissicola
Sclerotinia polyblastis
Sclerotinia sclerotiorum
Sclerotinia trifoliorum
Scutellinia scutellata
Scutellinia setosa
Scutellinia umbrarum
Spathularia flavida
Spathularia velutipes
Tarzetta cupularis
Tarzetta rosea
Thelebolus stercoreus
Thelebolus zukalii
Tricharina praecox
Trichoglossum hirsutum
Tricophaea contradicta
Tuber gibbosum
Tympanis alnea
Tympanis confusa
Tympanis conspersa
Tympanis hypopodia
Tympanis hysterioides
Tympanis laricina
Tympanis spermatiospora
Tympanis truncatula
Ustulina deusta
Verpa bohemica
Verpa conica
Xylaria hypoxylon

Each "element" (e.g., a species) on the Conservation Data Centre's list is ranked using the system developed over the last 20 years by the Nature Conservancy. This system is now in use in six Canadian provinces, all U.S. states, and a number of Latin American countries. Most government agencies within these jurisdictions have also adopted this ranking system.

Each element is ranked at two levels: global (G) and provincial, or "subnational" (S). The global rank is based on the status of the element throughout its entire range, whereas the provincial rank is based solely on its status within British Columbia. The global rank is established by a biologist assigned to that element by The Nature Conservancy; the provincial rank cannot exceed the global rank.

The status of an element is indicated on a scale of one to five; the score is based primarily on the number of extant occurrences of the element, but other factors such as abundance, range, protection, and threats are also considered if the information is available. Generally, the Conservation Data Centre will track only those species with ranks of 1–3. In addition to the ranks 1–5, there are several letter ranks; all are defined below.

1 = Critically imperiled because of extreme rarity (5 or fewer extant occurrences or very few remaining individuals) or because of some factor(s) making it especially vulnerable to extirpation or extinction.
2 = Imperiled because of rarity (typically 6–20 extant occurrences or few remaining individuals) or because of some factor(s) making it vulnerable to extirpation or extinction.
3 = Rare or uncommon (typically 21–100 occurrences); may be susceptable to large-scale disturbances (e.g., may have lost extensive peripheral populations).
4 = Frequent to common (greater than 100 occurrences); apparently secure but may have a restricted distribution; or there may be perceived future threats.
5 = Common to very common; demonstrably secure and essentially ineradicable under present conditions.
H = Historial occurrence; usually not verified in the last 40 years, but with the expectation that it may someday be rediscovered.
X = Apparently extinct or extirpated, without the expectation that it will be rediscovered.
U = Status uncertain, often because of low search or cryptic nature of the element; uncertainty spans a range of 4 or 5 ranks.
R = Reported from the province, but without persuasive documentation for either accepting or rejecting the report.
RE = Reported in error, but this error has persisted in the literature.
? = No information is available or the number of extant occurrences is estimated.
A = An element (usually an animal) that is considered accidental or casual in province; a species that does not appear on an annual basis.

E = An exotic or introduced species to the province.
Z = Occurs in the province but as a diffuse, usually moving, population; difficult or impossible to map static occurrences.

In addition to the above ranks, there are four letter qualifiers sometimes used on conjunction with them:

T = Designates a rank associated with a subspecies.
B = Breeding; the associated rank refers to breeding occurrences of mobile animals.
N = Non-breeding; the associated rank refers to non-breeding occurrences of mobile animals.
Q = Taxonomic validity of the element is not clear or is in question.

Mycological Herbarium — Curator Dr. R. Bandoni
Department of Botany
University of British Columbia
Vancouver, British Columbia
V6T 2B1

FIDS Herbarium — Curator Dr. B. Callan
Pacific Forestry Centre
506 West Burnside Road
Victoria, British Columbia
V8V 2Y1

National Mycological Herbarium — Curator Dr. S. Redhead
Centre for Land & Biological Resources Research
Research Branch, Agriculture Canada
Ottawa, Ontario
K1A 0C6

Mycological Herbarium — Curator Dr. R. Fogel
University of Michigan
Ann Arbor, Michigan 48109

Mycological Herbarium — Curator Dr. J. Ammirati
Department of Botany
University of Washington
Seattle, Washington 98195

APPENDIX 8 Mycological taxonomists in North America

Taxonomist	Address	Area of expertise
Dr. Joseph F. Ammirati	Dept. Botany, University of Washington, Seattle, WA 98195 phone: 206 543-1986 fax: 206 685-1728	Agarics and other macrofungi, especially Cortinariaceae and Amanita; secondary and old-growth forestry plots in Washington.
Dr. Robert J. Bandoni (retired)	Dept. Botany, University of British Columbia, Vancouver, B.C. V6T 2B1	Jelly fungi (esp. Tremellales), general mycology.
Dr. Timothy J. Baroni	P.O. Box 2000, Dept. Biol. Sci., Cortland College, SUNY, Cortland, NY 13045 phone: 607 753-2725 fax: 607 753-5999	Rhodocybe, Clitopilus, other pink-spored mushrooms.
Dr. Shannon Berch	B.C. Ministry of Forests Research Branch Glyn Road Research Station, 1320 Glyn Road, Victoria, B.C. V8W 3E7 phone: 250 356-9051 fax: 250 356-8543	VAM fungi, but also general mycology.
Dr. Brenda Callan	Pacific Forest Centre, Forestry Canada, 506 West Burnside Road, Victoria, B.C. V8V 2Y1 phone: 250 363-0744 fax: 250 363-0775	Forest pathogens, Xylariaceae, general fungi incl. polypores, common agarics and ascomycetes.
Dr. Dennis E. Desjardin	Department of Biology, San Francisco State Univ., San Francisco, CA 94132 phone: 415 338-1548	Marasmius, Collybia, Mycena.
Dr. Keith N. Egger	Faculty of Natural Resources and Environmental Studies, University of Northern B.C. 3333 University Way, Prince George, B.C. V2N 2Z9 phone: 604 960-5860	Cup fungi, especially ascomycetes on burned sites.
Ms. Sharmin Gamiet	356 Defehr Road, Abbotsford, B.C. V2S 1M3 phone: 604 856-7572 fax: 604 857-0829	Generalist.

Dr. James Ginns	ECORC, Research Branch Agriculture & Agri-Food Canada Ottawa, Ont. K1A 0C6 phone: 613 759-1382	Polypores, other aphyllophorales, miscellaneous wood decay fungi.
Mr. Paul Kroeger	395 East 40th, Vancouver, B.C. V5W 1M1 phone: 604 322-0074	Contact for Vancouver Mycological Society, experienced amateur mushroom collector.
Dr. David L. Largent	Dept. Biol., Humboldt State University, Arcata, CA 95221 phone: 707 826-4841	Leptonia, Nolanea, Entoloma, other pink-spored mushrooms/ contact for mushroom harvesting plots in California.
Dr. Roy E. Halling	New York Botanical Garden, Bronx, NY 10458-5126 phone: 212 220-8613 fax: 212 220-6504	Collybia, boletes.
Dr. Andrew S. Methven	Botany Dept., Eastern Illinois Univ., Charleston, IL 61920 phone: 217 345-9401	Clavariadelphus.
Dr. Duncan Morrison	Pacific Forest Centre, Forestry Canada, 506 West Burnside Road, Victoria, B.C. V8V 2Y1 phone: 250 388-0600 fax: 250 388-0775	Armillaria.
Dr. Gregory M. Mueller	Dept. Botany, Field Museum Natural History, Chicago, IL 60605-2496 phone: 312 922-9410 fax: 312 427-7269	Laccaria.
Mrs. Lorelei L. Norvell	Pacific Northwest Mycology Service LLC 6720 NW Skyline, Portland, OR 97229 phone: 503 297-3296	Phaeocollybia, chanterelles/contact for Oregon Mycological Society — chanterelle harvesting plots in Oregon.
Dr. Clark Ovrebo	Dept. Biol., Univ. Central Oklahoma, Edmond, OK 73034 phone: 405 341-2980 fax: 405 341-4964	Tricholoma.
Dr. Ronald H. Petersen	Dept. Botany, Univ. Tennessee, Knoxville, TN 37916-1100 phone: 615 974-6217 fax: 615 974-0978	Coral fungi, Gomphus, chanterelles.

Dr. Scott A. Redhead	ECORC, Research Branch Agriculture Canada, Ottawa, Ont. K1A 0C6 phone: 613 759-1384 fax: 613 759-1599	Agarics, boletes, other fleshy fungi, especially saprophytes.
Mr. Rodham E. Tulloss	P.O. Box 57, Roosevelt, NJ 08555-0057 phone: 609 639-3188 fax: 609 639-3197	Amanita.

Agriculture Canada. 1983 Progress in Research 1982. Agric. Can., Ottawa, Ont. p. 72, photo.

Ammirati, J.F., J.A. Traquair, and P.A. Horgen. 1985. Poisonous mushrooms of Canada including other inedible fungi. Fitzhenry and Whiteside, Markham Ont. 396 p.

Anastasiou, C.J. 1967. Two species of *Coprinus* from alkali lakes. Can. J. Bot. 45:2213–22.

Anderson, J.B. 1986. Biological species of *Armillaria* in North America: redesignation of groups IV and VII and enumeration of voucher strains for other groups. Mycologia 78:837–9.

Anderson, J.B., D.M. Petsche, and M.L. Smith. 1987. Restriction fragment polymorphisms in biological species of *Armillaria*. Mycologia 79:69–76.

Anderson, J.B. and R.C. Ullrich. 1979. Biological species of *Armillaria mellea* in North America. Mycologia 71:402–14.

Arnolds, E. 1988. The changing macromycete flora in the Netherlands. Trans. Brit. Mycol. Soc. 90: 391–406.

———. 1989a. A preliminary Red Data list of macrofungi in the Netherlands. Persoonia 14:77–125.

———. 1989b. Former and present distribution of stipitate hydnaceous fungi (Basidiomycetes) in the Netherlands. Nova Hedwigia 48:107–42.

———. 1991a. Decline of ectomycorrhizal fungi in Europe. Agric. Ecosyst. and Environ. 35:209–44.

———. 1991b. Mycologists and nature conservation. In Frontiers in Mycology. D.L. Hawksworth (editor). C.A.B. Intl., London, U.K. pp 243–64.

———. 1992. Mapping and monitoring of macromycetes in relation to nature conservation. McIlvainea 10:4–27.

Bach, E. 1956. The agaric *Pholiota aurea*. Physiology and ecology. Dansk Bot. Ark. 16(2):1–220.

Bandoni, R.J. 1976. Guide to common mushrooms of B.C., rev. colour ed. B.C. Prov. Mus. Handb. 24.

———. 1977. Some observations on winter fungi in British Columbia, Canada. Trans. Mycol. Soc. Japan 18:224–5.

Bandoni, R.J. and G.C. Hughes. 1984. A new *Dacrymyces* from British Columbia. Mycologia 76:63–6.

Bandoni, R.J. and W. McLennan. 1978. Macrofungi in the botanical garden. Davidsonia 9:21–9.

Bandoni, R.J. and A.F. Szczawinski. 1964. Guide to common mushrooms of B.C. B.C. Prov. Mus. Handb. 24.

Baroni, T.J. 1981. A revision of the genus *Rhodocybe Maire* (Agaricales). Beih. Nova Hedwigia 67:1–194.

Baroni, T.J. and D.L. Largent. 1989. The genus *Rhodocybe*: new combinations and a revised key to section Rhodophana in North America. Mycotaxon 34:47–53.

Bas, C. 1969. Morphology and subdivision of *Amanita* and a monograph of its section Lepidella. Persoonia 5:285–579.

Berthier, J. and S.A. Redhead. 1982. Presence de *Typhula mycophaga* sp. nov. sur Lycoperdon en Colombie-Britannique. Can. J. Bot. 60:1428–30.

Berube, J.A. and M. Dessureault. 1988. Morphological characterization of *Armillaria ostoyae* and *Armillaria sinapina* sp. nov. Can. J. Bot. 66:2027-34.

Bier, J.E. 1949. Some common tree diseases of British Columbia. Edmond Cloutier, Ottawa, Ont. 48 p.

Bier, J.E., R.E. Foster, and P.J. Salisbury. 1946. Studies in forest pathology IV. Decay of Sitka spruce on the Queen Charlotte Islands. Can. Dep. Agric. (Publ. 783) Tech. Bull. 56:1–35.

Bier, J.E. and M.K. Nobles. 1946. Brown pocket rot of Sitka spruce. Can. J. Res. (C) 24:115–20.

Bier, J.E., P.J. Salisbury, and R.A. Waldie. 1948. Studies in forest pathology V. Decay in fir, *Abies lasiocarpa* and *A. amabilis*, in the upper Fraser region of British Columbia. Can. Dep. Agric. (Publ. 804) Tech. Bull. 66:1–28.

Bigelow, H.E. 1959. Notes on fungi from northern Canada. IV. Tricholomataceae. Can. J. Bot. 37:769–79.

———. 1965. The genus *Clitocybe* in North America. Section *Clitocybe*. Lloydia 28:139–80.

———. 1968. The genus *Clitocybe* in North America. II. Section Infundibuliformes. Lloydia 31:43–62.

———. 1969. The status of *Lepista* — a new section of *Clitocybe*. Brittonia 21:144–77.

———. 1970. *Omphalina* in North America. Mycologia 62:1–32.

———. 1975. Studies in the Tricholomataceae: Hygrophoropsis, Cantharellula, Myxomphalia, Omphaliaster. Beih. Nova Hedwigia 51:61–77.

———. 1978. The cantharelloid fungi of New England and adjacent areas. Mycologia 70:705–56.

———. 1982. North American species of *Clitocybe*. Part I. Beih. Nova Hedwigia 72:1–280.

———. 1985. North American species of *Clitocybe*. Part II. Beih. Nova Hedwigia 81:281–471.

Bigelow, H.E. and A.H. Smith. 1962. *Clitocybe* species from the western United States. Mycologia 54:498–515.

Buckland, D.C. 1946. Investigations of decay in western red cedar in British Columbia. Can. J. Res., Ser. C 24:158–81.

Buckland, D.C., R.E. Foster, and V.J. Nordin. 1949. Studies in forest pathology. VII. Decaying western hemlock and fir in the Franklin River area, British Columbia. Can. J. Res., Ser. C 27:312–31.

Chapin, F.S. III, E-D. Schulze, and H.A. Mooney. 1992. Biodiversity and ecosystem processes. TREE 7:107–8.

Cheesman, W.N. 1910. A contribution to the mycological flora and the Mycetozoa of the Rocky Mountains. Trans. Brit. Mycol. Soc. 3(4):267–76.

Christy, J. 1991. The most noble polypore — endangered, or already gone to passenger pigeon-land? Mushroom, the journal 9(3):11.

Cochran, K.W. 1988. Mushroom poisoning case registry. Cases reported in 1987. McIlvainea 8:30–2.

Coker, W.C. 1944. The smaller species of *Pleurotus* in North Carolina. Jour. Elisha Mitchel Sci. Soc. 60:71–95.

Conners, I.L. 1967. An annotated index of plant diseases in Canada and fungi recorded on plants in Alaska, Canada and Greenland. Can. Dep. Agric. Publ. 1251. Ottawa, Ont.

Cooke, W.B. 1961. The genus *Schizophyllum*. Mycologia 53:575–99.

Coombs, D.H. 1991. Was it endangered? Perhaps even extinct? Looking for a big fuzzy one. Mushroom, the journal 9(4):5–8.

Cormack, M.W. 1948. Winter crown rot or snow mold of alfalfa, clovers, and grasses in Alberta. Can. J. Res. (Sec. C) 26:71–85.

Corner, E.J.H. 1966. A monograph of Cantharelloid fungi. Oxford Univ. Press, London, U.K.

Davidson, J.E. 1930. Notes on the Agaricaceae of Vancouver (B.C.) district — I. Mycologia 22:80–93.

de Geus, N., S.A. Redhead, and B. Callan. 1992. Wild mushroom harvesting discussion: session minutes. B.C. Min. For., Victoria, B.C.

Demarchi, D.A. 1993. Ecoregions of British Columbia. B.C. Ministry of Environment, Lands & Parks, Victoria, B.C. Third ed. 1:2,000,000 scale map.

Denyer, W.B.G. 1960. Cultural studies of *Flammula alnicola* (Fr.) Kummer and *Flammula conissans* (Fr.) Gillet. Can. J. Bot. 38:909–20.

Desjardin, D.E. 1987a. The Agaricales (Gilled fungi) of California. 7. Tricholomataceae I. Mad River Press, Eureka, Calif. 99 p.

———. 1987b. New and noteworthy marasmioid fungi from California. Mycologia 79:123–34.

Desjardin, D.E. and R.E. Halling. 1987. California Collybias. I. *Collybia bakerensis*: a common snowbank agaric. Mycotaxon 29:321–7.

Desjardin, D.E. and S.A. Redhead. 1987. *Marasmius salalis*, a new Pacific coast North American species. Mycotaxon 29:307–8.

de Vries, B.W.L. 1990. On the quantitative analysis of wood-decomposing macrofungi in forests. I. *In* Forest components. R.A.A. Oldeman et al. (editors). Wageningen Agric. University Papers 90–6.

Fenger, M.A., E.H. Miller, J.A. Johnson, and E.J.R. Williams (editors). 1993. Our Living Legacy. Proc. symp. on biological diversity. Royal B.C. Mus., Victoria, B.C. 392 p.

Foster, R.E., J.E. Browne, and A.T. Foster. 1958. Studies in forest pathology XIV. Decay of western hemlock and amabilis fir in the Kitimat region of British Columbia. Can. Dep. Agric. Publ. 1029:1–37.

Foster, R.E., H.M. Craig, and G.W. Wallis. 1954. Studies in Forest Pathology XII. Decay of western hemlock in the upper Columbia region, British Columbia. Can. J. Bot. 32:145–71.

Foster, R.E. and A.T. Foster. 1951. Studies in forest pathology VIII. Decay of western hemlock on the Queen Charlotte Islands, British Columbia. Can. J. Bot. 29:479–521.

Funk, A. 1985. Foliar fungi of western trees. Can. For. Serv. Publ. BC-X-265. Victoria, B.C.

Gamiet, S. and S.M. Berch. 1992. Fungi of old-growth forests in British Columbia. Northwest Environ. 8(1):168–70.

Gaudet, D.A., E.G. Kokko, and P.L. Sholberg. 1990. Histopathology of apple fruit infected with strains of the low-temperature basidiomycete *Coprinus psychromorbidus*. Can. J. Plant Path. 12:369–75.

Gilbertson, R.L. 1981. North American wood-rotting fungi that cause brown rots. Mycotaxon 12:372–416.

Gilbertson, R.L. and L. Ryvarden. 1986–1987. North American polypores. Fungiflora Vols. 1–2. Oslo, Norway.

Gilliam, M.S. 1975. *Marasmius* section Chordales in the northeastern United States and adjacent Canada. Contr. Univ. Mich. Herb. 11(2):25–40.

———. 1976. The genus *Marasmius* in the northeastern U.S.A. and adjacent Canada. Mycotaxon 4(1):1–144.

Ginns, J. 1986a. Compendium of plant disease and decay fungi in Canada 1960–1980. Agric. Can. Publ. 1813. Ottawa, Ont.

———. 1986b. The genus *Syzygospora* (Heterobasidiomycetes: Syzygosporaceae). Mycologia 78:619–36.

———. 1989. Descriptions and notes for some unusual North American corticioid fungi (Aphyllophorales, Corticiaceae). Mem. N.Y. Bot. Gard. 49:129–37.

Ginns, J. and M.N.L. Lefebvre. 1993. Lignicolous Corticioid Fungi (Basidiomycota) of North America. Systemics, Distribution, and Ecology. Mycol. Mem. 19:1–247.

Goward, T. and C. Hickson. 1989. Nature Wells Gray. The Clearwater Valley. The Friends of Wells Gray Park, Kamloops, B.C. 190 p.

Groves, J.W. 1962. Edible and poisonous mushrooms of Canada. Can. Agr. Publ. 1112

Guminska, B. 1992. Macromycetes of the Pieniny National Park (S. Poland). Veroff. Geobot. Inst. ETH, Sifttung Ribel, Zurich, Switzerland. 107:238–52.

Guzman, G. 1978. Variation, distribution, ethnomycological data and relationships of *Psilocybe aztectorum*, a Mexican hallucinogenic mushroom. Mycologia 70:385–96.

———. 1983. The genus *Psilocybe*. A systematic revision of the known species including the history, distribution and chemistry of the hallucinogenic species. Beih. Nova Hedwigia. 74:1–439.

Guzman, G., J. Ott, J. Boydston, and S.H. Pollock. 1976. Psychotropic mycoflora of Washington, Idaho, Oregon, California and British Columbia. Mycologia 68:1267–72.

Guzman, G. and J. Ott. 1976. Description and chemical analysis of a new species of hallucinogenic *Psilocybe* from the Pacific Northwest. Mycologia 68:1261–7.

Guzman, G. and A.H. Smith. 1978. Three new species of *Psilocybe* from the Pacific Northwest in North America. Mycotaxon 7:515–20.

Hale, M.E. Jr. and M. Cole. 1988. Lichens of California. Univ. Calif. Press, Berkeley, Calif.

Halling, R.E. 1983. The genus *Collybia* (Agaricales) in the northeastern United States and adjacent Canada. Mycologia Memoirs 8:1–148.

Hanna, W.F. 1925. The problem of sex in *Coprinus lagopus*. Ann. Bot. 39:431–57.

Hansen, A.J., T.A. Spies, F.J. Swanson, and J.L. Ohmann. 1991. Conserving biodiversity in managed forests. Bioscience 41:382–92.

Hardy, G.A. 1946. Report of the Third Annual Fungus Foray. The Victoria Naturalist 3(6):78–9.

———. 1947. Some mushrooms and other fungi of British Columbia. B.C. Prov. Mus. Handb. 4:1–96.

———. 1948a. A measure of the fungi. The Victoria Naturalist 5(4):40–4.

———. 1948b. Report of the fifth annual fungus foray. The Victoria Naturalist 5(6):66–7.

———. 1949a. Report on the seventh annual fungus foray. The Victoria Naturalist 6(6):63–4.

———. 1949b. The shaggy mane, *Coprinus comatus*, Fr. The Victoria Naturalist 6(4):38–9.

———. 1950. The fawn-coloured pluteus, *Pluteus cervinus*. The Victoria Naturalist 7(4):41–2.

———. 1951. The plant and insect world in September. The Victoria Naturalist 8(3):27–9.

———. 1952a. Afield with the mushrooms. The Victoria Naturalist 9(4):37–9.

———. 1952b. Eighth annual fungus foray. The Victoria Naturalist 8(7):81–2.

———. 1954. The tenth annual fungus foray. The Victoria Naturalist 10(7):82–3.

———. 1962. Tan-coloured *Russula*. The Victoria Naturalist 19(2):17.

Harris, L.D. 1984. The fragmented forest. Univ. Chicago Press, Chicago, Ill.

Hesler, L.R. 1969. North American species of *Gymnopilus*. Mycologia Memoir 3.

Hesler, L.R. and A.H. Smith. 1963. North American species of *Hygrophorus*. Univ. Tenn. Press.

———. 1979. North American species of *Lactarius*. Univ. Mich. Press.

Hood, I.A. and D.J. Morrison, 1984. Incompatibility testing of *Armillaria* isolates in a wood substrate. Can. For. Serv. Res. Notes 4(1):8–9.

Hotson, J.W. and D.E. Stuntz. 1938. The genus *Agaricus* in western Washington. Mycologia 30:204–34.

Huhtinen, S. and J. Vauras. 1992. *Mythicomyces corneipes*, a rare agaric in Fennoscandia. Karstenia 32:7–12.

Hunt, R.S. and A. Funk. 1977. Mushrooms fatal to dogs. Mycologia 69:432–3.

Imazeki, R. 1953. *Polyozellus multiplex* and the family Phylacteriaceae. Mycologia 45:555–61.

Jacobsson, S. 1987. On the correct interpretation of *Pholiota adiposa* and a taxonomic survey of section Adiposae. Windahlia 17:1–18.

———. 1989. Studies on *Pholiota* in culture. Mycotaxon 36:95–145.

Jenkins, D.T. 1977. A taxonomic and nomenclatural study of the genus *Amanita* section *Amanita* for North America. Biblotheca Mycologica 57:1–126.

Jones, W. 1937. *Armillaria mellea* Vahl. ex Fr. on raspberries in British Columbia. Scientific Agr. 17(11):752–3.

Kerrigan, R.W. 1990. Evidence of genetic divergence in two poulations of *Agaricus bisporus*. Mycol. Res. 94:721–33.

Kerrigan, R.W. and I.K. Ross. 1989. Allozymes of a wild *Agaricus bisporus* population: new alleles, new genotypes. Mycologia 81:433–43.

Kimmins, H. 1992. Balancing act: environmental issues in forestry. Univ. B.C. Press, Vancouver, B.C.

Kinugawa, K. and T. Goto. 1978. Preliminary survey on the "Matsutake" *(Armillaria ponderosa)* of North America. Trans. Mycol. Soc. Japan 19:91–101.

Kroeger, P. 1989a. The biology and mycology of a hot springs. Mushroom 8(1):16–21.

———. 1989b. What's happening? Mushroom 7(2):13–14.

———. 1991a. The fall 1990 North American wild mushroom roundup. Southwestern British Columbia. Mushroom 9(2):26.

———. 1991b. The Swiss army knife and strange substrates. Mushroom 9(3):31–2.

Lampe, K.F. 1989. NAMA poisoning registry — 1988. McIlvainea 9:28–30.

Lawrence, J.J. and Y. Hiratsuka. 1972. Forest fungi collected in Kootenay National Park, British Columbia. Northern Forest Research Centre, Info. Rep. NOR-X-28. Environ. Can. For. Serv., Edmonton, Alta.

Leichter, J. and R.J. Bandoni. 1980. Nutrient content of mushrooms grown in British Columbia. Can. Inst. Food Sci. Tech. J. 13(3):122–4.

Libonati-Barnes, S.D. and S.A. Redhead. 1984. *Panellus longinquus* subsp. *pacificus* — a new west coast North American agaric associated with red alder. Mycotaxon 20:205–12.

Lincoff, G.H. 1981. The Audubon Society field guide to North American mushrooms. Alfred A. Knopf Inc., New York, N.Y.

Lowe, C.W. 1954. Fungus foray 1954. The Victoria Naturalist 11(5):51.

Lowe, D.P. 1969. Checklist and host index of bacteria, fungi, and mistletoes of British Columbia. For. Res. Lab., Victoria, B.C. Dep. Fish., and For., Victoria, B.C. BC-X-32.

McClaren, M. 1967. Meiosis in *Coprinus atramentarius*. Can. J. Bot. 45:215–19.

McKnight, K.H. and V.B. McKnight. 1987. The Peterson field guide series. A field guide to mushrooms. North America. Houghton Mifflin Co., Boston, Mass.

Martin, K.J. and R.L. Gilbertson. 1980. Synopsis of wood-rotting fungi on spruce in North America: III. Mycotaxon 10:479–501.

Meheriuk, M. and W.J. McPhee. 1986. Postharvest handling of pome fruits, soft fruits, and grapes. Agric. Can. Publ. 1768E.

Melburn, M.C. 1956. Fungus foray. The Victoria Naturalist 13(6):67–8.

———. 1957. The annual fungus foray. The Victoria Naturalist 14(6):70–1.

———. 1958. Fungus foray. The Victoria Naturalist 15(4):46.

———. 1959. Fungus foray. The Victoria Naturalist 16(4):46–7.

———. 1960. Fungus hunting in John Dean Park. The Victoria Naturalist 17(4):46–7.

———. 1961a. A Canadian record. The Victoria Naturalist 18(4):46.

———. 1961b. Eighteenth fungus foray. The Victoria Naturalist 18(4):42–3.

———. 1962. Fungus foray 1962. The Victoria Naturalist 19(4):54–5.

———. 1963. Annual fungus foray. The Victoria Naturalist 20(4):43–4.

———. 1965a. Annual fungus foray. The Victoria Naturalist 21(5):48–50.

———. 1965b. Fungus foray. The Victoria Naturalist 22(4):42–3.

———. 1966. Annual fungus foray. The Victoria Naturalist 23(4):38–40.

———. 1967. Annual fungus foray. The Victoria Naturalist 24:44–5.

———. 1968. Fungus foray — November 2, 1968. The Victoria Naturalist 25:40–2.

———. 1970. Fungus foray. The Victoria Naturalist 26:50–2.

Miller, O.K. 1964. Monograph of *Chroogomphus* (Gomphidiaceae). Mycologia 56:526–49.

———. 1970. The genus *Panellus* in North America. The Mich. Bot. 9:17–30.

Miller, O.K. and L. Stewart. 1971. The genus *Lentinellus*. Mycologia 63(2):333–69.

Morrison, D.J. 1974. Effect of soil pH on rhizomorph growth of *Armillaria mellea*. Can. For. Serv., Bi-monthly Res. Notes 30:18–19.

———. 1982. Effects of soil organic matter on rhizomorph growth by *Armillaria mellea*. Trans. Brit. Mycol. Soc. 78:201–7.

———. 1989. Variation in isozyme patterns of esterase and polyphenol oxidase among isolates of *Armillaria ostoyae* from British Columbia. Can. J. Plant Path. 11:229–34.

———. 1991. Identity of *Armillaria* isolates used in studies of rhizomorph behavior and pathogenicity. Mycol. Res. 95:1437–8.

Morrison, D.J., D. Chu, and A.S.L. Johnson. 1985a. Species of *Armillaria* in British Columbia. Can. J. Plant Path. 7:242–6.

Morrison, D.J., A.J. Thomson, D. Chu, F.G. Peet, and T.S. Sahota. 1985b. Isozyme patterns of *Armillaria* intersterility groups occurring in British Columbia. Can. J. Microbiol. 31:651–3.

Morrison, D.J., G.W. Wallis, and L.C. Weir. 1988. Control of *Armillaria* and *Phellinus* root diseases: 20-year results from the Skimikin stump removal experiment. Can. For. Serv., Info. Rep. BC-X-302:1–16.

Morrison, R. and A. Morrison. 1980. Fungus foray and cook-out, 1980. Victoria Naturalist 36:48–9.

Mueller, G.M. 1984. New North American species of *Laccaria* (Agaricales). Mycotaxon 20(1):101–16.

———. 1992. Systematics of *Laccaria* (Agaricales) in the continental United States and Canada, with discussions on extralimital taxa and descriptions of extant types. Fieldiana (Bot., N.S.) 30:1–158.

Murrill, W.A. 1912a. The Agaricaceae of the Pacific coast — I. Mycologia 4:205–17.

———. 1912b. The Agaricaceae of the Pacific coast — II. Mycologia 4:231–62.

———. 1912c. The Agaricaceae of the Pacific coast — III. Mycologia 4:294–308.

———. 1916. Agaricaceae tribe Agariceae. N.A. Flora 9(5):297–374.

———. 1917. Agaricaceae subtribe Pholiotanae. N.A. Flora 10(2):145–226.

———. 1922a. Dark-spored agarics — II. *Gomphidius* and *Stropharia*. Mycologia 14:121–42.

———. 1922b. Dark-spored agarics — III. Agaricus. Mycologia 14:200–21.

Nobles, M.K. 1948. Studies in forest pathology VI. Identification of cultures of wood-rotting fungi. Can. J. Res. (Sec. C) 26:281–431.

Norvell, L.L. 1992a. A Canadian odyssey. Mushroom 10(2):9–12.

———. 1992b. Studying the effects of harvesting on chanterelle productivity in Oregon's Mt. Hood National Forest. *In* Wild mushroom harvesting discussion session minutes. N. de Geus, S. Redhead, and B. Callan (editors). B.C. Min. For., Victoria, B.C. pp. 9–15

Oberwinkler, F. and R.J. Bandoni. 1981. *Tetragoniomyces* gen. nov. and *Tetragonio mycetaceae* fam. nov. (Tremellales). Can. J. Bot. 59:1034–40.

Ogawa, M. 1979. Microbial ecology of "Shiro" in *Tricholoma matsutake* and its allied species. IX. *Tricholoma ponderosum* in *Pseudotsuga menziesii–Tsuga heterophylla* and *Pinus contorta* forests. Trans. Mycol. Soc. Jap. 20:370–82.

———. 1981. Microbial ecology of "Shiro" in *Tricholoma matsutake* and its allied species. X. *Tricholoma robustum* in *Pinus densiflora* and *P. pumila* forests and *T. zelleri* in *P. contorta* forests. Trans. Mycol. Soc. Jap. 22:231–45.

Ola'h, G.M. 1970. Le genre *Panaeolus*. Rev. Mycol. Mém. Hors. série 10:1–222.

Pantidou, M.E. and J.W. Groves. 1966. Cultural studies of Boletaceae. Some species of *Suillus* and *Fuscoboletinus*. Can. J. Bot. 44:1371–92.

Parmelee, J.A. 1969. Fungi of Central Baffin Island. Can. Field Nat. 83(1):48–53.

Pegler, D.N. 1983. The genus *Lentinus*. A world monograph. Kew Bull. Addit. Ser. 10:1–281.

Perrin, P.W. and R.E. Koske. 1973. Mushrooms. *In* Nature West Coast. K.M. Smith, N.J. Anderson, and K.I. Beamish (editors). Nature West Coast. Discovery Press, Vancouver, B.C.

Petersen, R.H. 1971. The genera *Gomphus* and *Gloeocantharellus* in North America. J. Cramer, Lehre, Germany.

Pielou, C. 1992. A tale of two diversities. Gulf Island Guardian (Fall Issue).

Pilley, P.G. and R.A. Trieselmann. 1969. A synoptic catalogue of cryptogams deposited in the Ontario region herbarium II. Basidiomycetes. Forest Research Laboratory, Ontario Region. Info. Rep. O-X-108. Dep. Fish. and For., Sault Ste. Marie, Ont.

Pimentel, D., U. Stachow, D.A. Takacs, H.W. Brubaker, A.R. Dumas, J.J. Meaney, J.A.S. O'Neil, D.E. Onsi, and D.B. Corzilius. 1992. Conserving biological diversity in agricultural/forestry systems. Bioscience 42:354–62.

Pomerleau, R. 1980. Flore des champignons au Quebec et regions limitrophes. Les editions la presse, Montreal, Que.

Redhead, S.A. 1973. *Epistolae mycologicae* I. Some cyphelloid basidiomycetes from British Columbia. Syesis 6:221–7.

———. 1974. A new species of *Campanella* from North America. Mycologia 66:183–7.

———. 1980a. *Hemimycena tortuosa*. Fungi Canadenses 177.

———. 1980b. The genus *Strobilurus* (Agaricales) in Canada with notes on extralimital species. Can. J. Bot. 58(1):68–83.

———. 1980c. *Marasmiellus filopes*. Fungi Canadenses 179.

———. 1980d. *Phaeomarasmius erinaceus*. Fungi Canadenses 175.

———. 1981. Agaricales on wetland Monocotyledonae in Canada. Can. J. Bot. 59:574–89.

———. 1982a. The application of Helotium to agarics. Part I. Nomenclature. Part II. Notes on selected species from Canada. Can. J. Bot. 60:1998–2013.

———. 1982b. *Marasmius copelandi*. Fungi Canadenses 214.

———. 1982c. *Marasmiellus pluvius*. Fungi Canadenses 216.

———. 1982d. *Pseudobaeospora pillodii*. Fungi Canadenses 217.

———. 1982e. The systematics of *Callistosporium luteo-olivaceum*. Sydowia 35:223–35.

———. 1984a. *Arrhenia* and *Rimbachia*, expanded generic concepts, and evaluation of *Leptoglossum* with emphasis on muscicolous North American taxa. Can. J. Bot. 62:865–92.

———. 1984b. Additional Agaricales on wetland monocotyledoneae in Canada. Can. J. Bot. 62:1844–51.

———. 1984c. Mycological observations, 4–12: on *Kuehneromyces, Stropharia, Marasmius, Mycena, Geopetalum, Omphalopsis, Phaeomarasmius, Naucoria* and *Prunulus*. Sydowia 37:246–70.

———. 1984d. Mycological observations 13–14: on *Hypsizygus* and *Tricholoma*. Trans. Mycol. Soc. Japan 25:1–9.

———. 1984e. Two fern-associated mushrooms, *Mycena lohwagii* and *M. pterigena*, in Canada. Naturaliste can. 111:439–42.

———. 1986a. The genus *Crinipellis* Pat. in Canada. *In* La Famiglia delle Tricholomataceae. Centro Studi per la flora Mediterranea 6:175–99.

———. 1986b. Mycological observation: 17–20, nomenclatural notes on some omphaloid genera in Canada: *Chrysomphalina, Rickenella, Gerronema, Omphalina*. Acta Mycologica Sinica Suppl. 1:297–304.

———. 1987a. Mushrooms in Canadian parks. Park News (summer): 16–17.

———. 1987b. A sclerotium-producing *Hypholoma* from British Columbia. Mycotaxon 29:457–65.

———. 1988. Notes on the genus *Xeromphalina* (Agaricales, Xerulaceae) in Canada: biogeography, nomenclature, taxonomy. Can. J. Bot. 66:479–507.

———. 1989. A biogeographical overview of the Canadian mushroom flora. Can. J. Bot. 67:3003–62.

Redhead, S.A. and T.J. Baroni. 1986. *Clitopilus fuscogelatinosus* and *Rhodocybe carlottae*, new species in the Entolomataceae (Agaricales) from Canada. Can. J. Bot. 64:1450–2.

Redhead, S.A. and J.H. Ginns. 1985. A reappraisal of agaric genera associated with brown rots of wood. Trans. Mycol. Soc. Japan 26:349–81.

Redhead, S.A. and R.E. Halling. 1982. *Marasmiellus papillatus*. Fungi Canadenses 215.

Redhead, S.A. and P. Kroeger. 1984. *Melanotus textilis*, a new fabric- and wood-inhabiting North American agaric. Mycologia 76:868–72.

Redhead, S.A. and T.W. Kuyper. 1987. Lichenized agarics: taxonomic and nomenclatural riddles. Environmental Sci. Res. Ser. 34:319–48.

Redhead, S.A. and D.W. Malloch. 1986. The genus *Phaeocollybia* (Agaricales) in eastern Canada and its biological status. Can. J. Bot. 64:1249–54.

Redhead, S.A., O.K. Miller, R. Watling and E. Ohenoja. 1982. *Marasmius epidryas*. Fungi Canadenses 213.

Redhead, S.A. and L.L. Norvell. 1993. *Phaeocollybia* in western Canada. Mycotaxon 46:343–58.

Redhead, S.A. and D.A. Reid. 1983. *Craterellus humphreyi*, an unusual Stereopsis from western North America. Can. J. Bot. 61:3088–90.

Redhead, S.A. and A.H. Smith. 1986. Two new genera of agarics based on *Psilocybe corneipes* and *Phaeocollybia perplexa*. Can. J. Bot. 64:643–7.

Redhead, S.A. and J.A. Traquair. 1981. *Coprinus* sect. *herbicolae* from Canada, notes on extralimital taxa, and the taxonomic position of a low temperature basidiomycete forage crop pathogen from western Canada. Mycotaxon 13:373–404.

Robinson, D. 1975. Myth & magic. Ont. Nat. 15(4):8–22.

Rogers, M. 1990. NAMA finds good hunting at Whistler. Mushroom 9(1):7.

Saenger, E. 1989. Killing the golden goose. British Columbia Report 1(4):24–5.

Schalkwijk-Barendsen, H.M.E. 1991a. Checklist of fungi to accompany the book *Mushrooms of Western Canada*. Schalkwijk-Barendsen, Edmonton, Alta.

———. 1991b. Mushrooms of western Canada. Lone Pine Publishing, Edmonton, Alta.

Schisler, L.C. and O. Volkoff. 1977. The effect of safflower oil on mycelial growth of Boletaceae in submerged liquid cultures. Mycologia 69:118–25.

Shaffer, R.L. 1957. *Volvariella* in North America. Mycologia 49(4):545–79.

Singer, R. 1949. The genus *Gomphidius Fries* in North America. Mycologia 41:462–89.

Smith, A.H. 1937. Notes on Agarics from the Western United States. Bull. Torrey Bot. Club 64:477–87.

———. 1947. North American species of *Mycena.* Univ. Mich. Press, Ann Arbor, Mich.

———. 1949. Mushrooms in their natural habitats. Sawyer's Inc., Portland, Oreg.

———. 1951. The North American species of *Naematoloma.* Mycologia 43(5):467–521.

———. 1972. The North American species of *Psathyrella.* Mem. N.Y. Bot. Garden.

———. 1975. A field guide to western mushrooms. Univ. Mich. Press, Ann Arbor, Mich.

Smith, A.H. and L.R. Hesler. 1942. Studies in North American species of *Hygrophorus* — II. Lloydia 5(1):1–94.

——— 1943. New and interesting Agarics from Tennessee and North Carolina. Lloydia 6(4):248–66.

——— 1946. New and unusual dark-spored Agarics from North America. J. Elisha Mitchell Sci. Soc. 62(2):177–200.

———. 1962. Studies on *Lactarius* — III, the North American species of Section *Plinthogali.* Brittonia 14(4):369–440.

———. 1968. The North American species of *Pholiota.* Hafner Publ. Co., New York, N.Y.

Smith, A.H. and E.E. Morse. 1947. The genus *Cantharellus* in the Western United States. Mycologia 39(5):497–534.

Smith, A.H., H.V. Smith, and N.S. Weber. 1979. How to know the gilled mushrooms. Wm. C. Brown Co. Publ., Dubuque, Iowa.

Smith, R.B., H.M. Craig, and D. Chu. 1970. Fungal deterioration of second-growth Douglas-fir logs in coastal British Columbia. Can. J. Bot. 48:1541–51.

Snell, W.H., R. Singer, and E.A. Dick. 1959. Notes on boletes. XI. Mycologia 51:564–77.

Stamets, P. 1978. *Psilocybe* mushrooms and their allies. Homestead Book Company, Seattle, Wash.

Thiers, H.D. 1985. The Agaricales (gilled fungi) of California. 2. Cantharellaceae. Mad River Press, Eureka, Calif.

Thomas, G.P. 1958. Studies in forest pathology XVIII. The occurrence of the Indian Paint Fungus, *Echinodontium tinctorium* E. & E., in British Columbia. Can. Dep. Agric. Publ. 1041. Ottawa, Ont.

Thomas, G.P. and D.G. Podmore. 1953. Studies in forest pathology XI. Decay in black cottonwood in the middle Fraser region, British Columbia. Can. J. Bot. 31:675–92.

Thomas, G.P. and R.W. Thomas. 1954. Studies in forest pathology XIV. Decay of Douglas-fir in the coastal region of British Columbia. Can. J. Bot. 32:630–53.

Thorn, R.G. and G. Barron. 1986. *Nematoctomus* and the Tribe Resupinateae in Ontario, Canada. Mycotaxon 25:321–453.

Traquair, J.A. 1982. Distribution of LTB snow mold (*Coprinus psychromorbidus*). Can. J. Plant Path. 4:311.

———. 1987. Postharvest rot by *Coprinus psychromorbidus* on apples and pears in cold storage in British Columbia. Can. Plant Dis. Survey 67(2):47–50.

Trieselmann, R.A., F.A. Bricault, and C.A. Barnes. 1974. A synoptic catalogue of cryptogams deposited in the Ontario region herbarium IV. Supplement 2. Can. For. Serv., Great Lakes For. Res. Centre, Sault Ste. Marie, Ont. July 1974. 0X-206. 511–85 add.

Tulloss, R.E. and J.E. Lindgren. 1992. *Amanita smithiana* — taxonomy, distribution, and poisonings. Mycotaxon 45:373–87.

Turner, N.J. 1978. Food plants of British Columbia Indians, Part II Interior Peoples. B.C. Provincial Mus. Handb. 36. 259 pp.

Turner, N.J., H.V. Kuhnlein, and K.N. Egger. 1987. The cottonwood mushroom *(Tricholoma populinum)*: a food resource of the Interior Salish Indian peoples of British Columbia. Can. J. Bot. 65:921–7.

Turner, N.J. and A.F. Szczawinski. 1991. Common poisonous plants and mushrooms of North America. Timber Press, Portland, Oreg.

Van De Bogart, F. 1979. The genus *Coprinus* in western North America, Part II: section Lanatuli. Mycotaxon 8:243–91.

Watling, R. 1979. Studies in the Genera *Lacrymaria* and *Panaeolus*. Notes from R. Bot. Gard. 37(2):369–80.

Watling, R. and N.M. Gregory. 1991. Observations on the Boletes of the Cooloola Sand-Mass, Queensland and notes on their distribution in Australia: Part 3. Lamellate taxa. Edinb. J. Bot. 48:353–91.

Weil, A.T. 1977. The use of psychoactive mushrooms in the Pacific Northwest: Anethnopharmalogic report. Bot. Mus. Leaflets, Harvard Univ. 25(5):131–49.

Weresub, L.K. 1971. Congo Red for instant distinction between poisonous *Lepiotamolybdites* and edible *L. brunnea*. Can. J. Bot. 49:2059–60.

Westman, W.E. 1990. Managing for biodiversity. Bioscience 40:26–33.

Wilson, E.O. (editor). 1988. Biodiversity. National Academy Press, Washington, D.C.

———. 1992. The diversity of life. Belknap Press of Harvard Univ. Press, Cambridge, Mass.

Wood, C.S. and G.A. Van Sickle. 1989. Forest insect and disease conditions. British Columbia and Yukon 1988. Forestry Canada Info. Rep. BC-X-306:1–33.

Yokoyama, K. and H. Kobayashi. 1973. Mushrooming in Seattle and Vancouver. Trans. Mycol. Soc. Japan 14:403–8.

Z, Theophane 1980. Magic mushrooms are legal! Harvest Magazine. p. 21.

Ziller, W.G. 1974. The tree rusts of western Canada. Can. For. Serv. Publ. 1329. Victoria, B.C.