**KEY TO KEYS** of Pacific Northwest Key Council

Prepared for the Pacific Northwest Key Council

By Ian Gibson (South Vancouver Island Mycological Society) Nov. 2002

with minor revisions 2004, 2007, 2011, 2017, 2019

Copyright © 2002-2019 Pacific Northwest Key Council

TABLE OF CONTENTS

Introduction 3

Key to Keys 5

Descriptions for species not assigned to other keys 35

# Authorities and synonyms for descriptions 47

Glossary 49

References 56

Index 58

# INTRODUCTION

This key is designed to allow people to find the appropriate Pacific Northwest Key Council key for an unknown mushroom, and to provide descriptions for those species that do not fall naturally into one of the keys.

The following indicate the status of each key.

Unmarked Groups or genera in this Key have an existing Key Council key by that name.

 [ ] Groups or genera enclosed in square parentheses are those for which a key has not been written and is not expected. (Notes are available for all.)

< > Groups or genera enclosed in pointed parentheses have a key in preparation or expected.

\* An asterisk in the Key indicates miscellaneous species for which descriptions are contained in this key.

 (In the Descriptions, an asterisk next to the source indicates that that source contains an illustration of the species.)

Deciding on the correct key is relatively easy for nongilled mushrooms, but is occasionally quite difficult for gilled mushrooms. The key for gilled mushrooms often depends on knowing the color of the spores and knowing whether there is a partial veil. For these reasons it is a good idea to look at both young and mature specimens: the young ones will show whether there is a partial veil (as well as the true color of the gills) and the mature gills will show the spore color.

Note that the key is broken into sections primarily to make it easier to update. It is not necessary to understand the sections to use the key, but for those who are curious, the organization is the following:

001 - 100 nongilled

101 - 200 gilled, lateral stem

201 - 300 gilled, central stem, inky or sequestrate or volvate

301 - 400 gilled, central stem, not inky or sequestrate or volvate, partial veil

401 - 500 gilled, central stem, not inky or sequestrate or volvate, no partial veil, stem breaks like chalk

501 - 600 gilled, central stem, not inky or sequestrate or volvate, no partial veil, stem does not break like chalk, gills free

601 - 700 gilled, central stem, not inky or sequestrate or volvate, no partial veil, stem does not break like chalk, gills not free, gills waxy

701 - 800 gilled, central stem, not inky or sequestrate or volvate, no partial veil, stem does not break like chalk, gills not free, gills not waxy, gills decurrent

801 - 900 gilled, central stem, not inky or sequestrate or volvate, no partial veil, stem does not break like chalk, gills not free, gills not waxy, gills not decurrent, stem thin

901 - 999 gilled, central stem, not inky or sequestrate or volvate, no partial veil, stem does not break like chalk, gills not free, gills not waxy, gills not decurrent, stem thick

Ian Gibson

ig@islandnet.com

67 Linden Avenue

Victoria BC V8V 4C9

(250) 384-6002

# KEY TO KEYS

1a gills are present under cap 101

1b gills are not present 2

2a well-defined cap and stem 3

2b no well-defined cap and stem 11

3a pores on underside of cap 4

3b no pores on underside of cap 5

4a tube layer that ends in pores strips easily from cap, fruitbody fleshy, usually on ground **Boletes**

4b tube layer does not strip easily from cap, texture usually tough and leathery, usually on wood **Polypores**

5a (3b) teeth on underside of cap, fruitbody not jelly-like **Toothed** **fungi (Hydnoid fungi)**

5b no teeth on underside of cap or fruitbody jelly-like 6

6a veins on underside of cap as in chanterelles: thick, blunt, foldlike, shallow, may be forked or with cross veins, decurrent **Veined** **fungi(Cantharelloid fungi)**

6b no veins on underside of cap 7

7a fruitbodies grouped on dead Russulaceae mushrooms, cap whitish becoming powdery ***Lyophyllum* and Allies (*Asterophora*** ***lycoperdoides***)

7b fruitbodies growing elsewhere, cap not whitish becoming powdery 8

8a fruitbody whitish, small with cap less than 1.5 cm wide so that gill-structure may not develop fully, slender stem centrally attached, spores inamyloid

 **Mycenoid species** (***Hemimycena***)

8b not whitish, or larger, or stem thick or lateral, or spores amyloid 9

9a fruitbody whitish, less than 3 cm tall, slender stem with fine hairs and attached at the side of cap that is kidney-shaped to asymmetrically funnel-shaped, margin often wavy, growing on mossy needle beds ***Stereopsis*** ***humphreyi***\*

9b not with the combination of features above 10

10a fruitbody whitish, kidney-shaped to spathulate or funnel-shaped, white cap less than 2.0 cm wide, slightly wrinkled or smooth spore bearing surface, short lateral stem, growth on moss ***Muscinupta*** ***laevis\****

10b fruitbody not whitish or differently shaped or larger, or stem not lateral, or habitat different **Veined fungi(Cantharelloid fungi)**

(a key where some mushrooms with smooth underside to cap are discussed, due to the species that vary from veined to smooth)

11a (2b) growing on wood in form that is shelf-like, fan-like, or bracket-like, often but not always tough 12

11b not growing on wood, or form different; tough or not 13

12a pores on underside **Polypores**

12b teeth on underside **Toothed** **fungi (Hydnoid fungi)**

13a (11b) growing underground **Truffles & False Truffles**

13b not growing underground 14

14a growing flat usually on wood but occasionally other fungi or other surfaces **Crust** **fungi**

14b not growing flat on wood 15

15a in the form of a nest less than 1 cm wide, often containing lens-shaped "eggs", or in form of 0.1-0.3 cm sphere shooting out spherical "egg" and leaving starlike rays **(Bird's Nest Fungi) Nidulariaceae**

15b not in the form of a nest, and not in form of sphere that leaves starlike rays 16

16a with foul-smelling slime at maturity, in the form of a club, sometimes with branches at the end, or in the form of a red sphere with a coarse netlike pattern **Club Fungi** (**Stinkhorns)**

16b not with foul-smelling slime, or not in the form of a club or netlike sphere 17

17a consistency like firm jelly (rubbery) **Jelly** **fungi**

17b consistency not jelly-like 18

18a cup-like or disc-like, or with tiny tubular fruitbody; with or without stem **Cup** **fungi**

(key written only for Pezizales, not Leotiales or basidiomycete cups)

18b neither cup-like nor disc-like nor with tiny tubular fruitbody 19

19a more or less spherical, with spore mass inside that often becomes powdery, with stem or without stem 20

19b not spherical or not with spore mass inside that becomes powdery 23

20a at maturity outer layer splits into several starlike rays which curl back

 **Puffballs without long stalks & Earthstars**

20b not with outer layer splitting into starlike rays 21

21a long stem which is usually slender **Long-stalked Puffballs** (in **Desert Fungi key**)

21b stem short or absent 22

22a thick tough rigid skin when fresh, typically yellowish to brown but sometimes whitish, purplish, or blackish

 **Earthballs** (**Sclerodermataceae**)

22b skin not thick tough and rigid when fresh, often whitish when fresh but also other colors **Puffballs without long stalks & Earthstars**

23a (19b) head of fungus convoluted or saddle-like but not honeycombed with large pits and ridges, and not with leaf-like lobes, usually with stem

 **Morels**, **False** **Morels** **and** **Elfin** **Saddles** (**Helvellaceae**)

23b head of fungus not convoluted or saddle-like, but may be honeycombed with large pits and ridges, or may have leaf-like lobes 24

24a head of fungus honeycombed with large pits and ridges, stem present

 **Morels**, **False** **Morels** **and** **Elfin** **Saddles** (**Morchellaceae**)

24b. head of fungus not honeycombed, stem present or absent 25

25a fleshy, unbranched upright club **Club** **fungi**

25b not in the form of fleshy unbranched upright club 26

26a fleshy, intricately branched or with leaflike lobes 27

26b not fleshy or neither intricately branched nor with leaflike lobes 28

27a medium to large, coral-like, profusely branched from common base, branches mostly erect, smooth, never ribbon-like, often brightly colored, spores usually ornamented, spore-bearing surface usually staining green or bluish with ferrous sulphate **Coral** **fungi** (***Ramaria***)

27b small to large, intricately branched or with leaf-like lobes, branches erect or not, smooth or rough, may be ribbon-like, color usually but not always whitish or grayish or yellowish, spores usually smooth, spore-bearing surface usually not staining green or bluish with ferrous sulphate <**Coral** **fungi** (**other**)>

28 (26b) Not included in keys (microscopic species, lichens, slime moulds, moulds, mildews, rusts, smuts, *Rhytisma, Taphrina, Hypocrea, Nectria, Hypoxylon, Daldinia, Dibotryon, Gymnosporangium, Pucciniastrum*, etc.)

# \* \* \*

101a stem off-center or absent 102

101b stem central 201

102a gill edge split lengthwise into two halves ***Schizophyllum\****

102b gill edge not split lengthwise into two halves 103

103a spores decidedly pink, salmon-colored, reddish clay-colored, or brownish-pink 105

103b spores whitish, buff, slightly pinkish, clay-colored without reddish tones, brownish-yellow, olivaceous brown, lilac, violaceous, purple-brown, blackish brown or another brown 104

104a spores white, cream, cream-buff, pale yellow, brownish-yellow, or slightly pinkish 112

104b spores buff, clay-colored without reddish tones, olivaceous-umber, lilac, violaceous, purple-brown, or blackish-brown, or another shade of brown 107

105a (103a) cap densely tomentose, fruitbody entirely orange-yellow to orange

 **Pleurotoid** **species** (***Phyllotopsis***)

105b cap not densely tomentose, or fruitbody another color 106

106a cap 3-6 cm wide, deeply depressed becoming flat-depressed, hispid or nearly bald, white to cream or purplish with dark purple lines, spores dull brown to yellow-brown, or cinnamon-brown, sometimes with slight pinkish tint (and smooth under microscope) **[*Crepidotus***]

106b fruitbody with a different combination of features, spores pink, salmon, or brownish-pink (and angular under microscope) **Entolomataceae**

107a (104b) spores violaceous to lilac **Pleurotoid** **species** (***Pleurotus***)

107b spores not violaceous to lilac 108

108a gills readily removed from cap **Gilled** **Boletes** (***Paxillus***)

108b gills not readily removed from cap 109

109a spores reddish-brown or purplish to fuscous violet to dark violaceous-brown **Deconica*\****

109b spores clay-colored, yellowish brown, cinnamon-brown, dull brown, light brown, olivaceous-umber or bright rusty-brown 110

110a fruitbody and lower stem coarsely scaly, dark brown to cinnamon or rusty-brown ***Phaeomarasmius***\*

110b fruitbody and lower stem not coarsely scaly, or not dark brown to cinnamon or rusty-brown 111

111a yellow-brown fruitbody, gills tinged yellowish or orange and often crimped, forked, and/or interveined, spores yellowish brown or light brown, stem lateral or absent ***Tapinella panuoides\****

111b yellow-brown to red-brown fruitbody, gills cream to tan or yellow-brown, often forked and/or interveined, spores yellowish brown to brownish yellow, stem off-center to lateral, taste often bitter ***Tapinella atrotomentosa\****

111c fruitbody whitish, ochraceous, yellowish, brownish, spores yellowish brown to cinnamon-brown or dull brown, stem lateral or absent [***Crepidotus*]**

111d fruitbody everywhere olivaceous or olive-brown or spores dull brown or grayish-brown to umber, stem lateral or off-center [***Simocybe***]

112a (104a) gills hard, regular to mazelike, fruitbody a bracket on wood **Polypores**

112b gills soft, regular to forking or anastomosing, yellow-tinged or orange-tinged, and often crimped, yellow-brown fruitbody on wood with lateral or absent stem ***Tapinella panuoides\****

112c gills soft, regular to forking or anastomosing, cream to tan or yellow-brown, yellow-brown to red-brown fruitbody on wood with lateral or absent, velvety stem, taste often bitter ***Tapinella atrotomentosa\****

112d gills soft, regular to forking or anastomosing, fruitbody not a bracket on wood 113

113a gills forking (dichotomously branching), fruitbody orange or brown, rarely whitish, mild odor, growing on ground **Gilled boletes**(***Hygrophoropsis***)

113b gills forking (dichotomously branching), fruitbody pink, fragrant odor of bubblegum, cinnamon candy, or grape soda, growing on ground

 [**Omphalinoid** **species** (***Aphroditeola olida***)]

113c gills either not strongly forking or fruitbody a different color or growing on wood 114

114a gills readily removed from cap **Gilled** **Boletes** (***Paxillus***)

114b gills not readily removed from cap 115

115a gills strongly anastomosing 116

115b gills not strongly anastomosing 118

116a fruitbody white, on grasses and *Rubus* canes ***Tetrapyrgos\****

116b fruitbody a different color or habitat different 117

117a gills often veinlike as in chanterelles, fruitbody gray to gray-brown, among mosses [**Omphalinoid** **species** (***Arrhenia***)]

117b gills usually veinlike as in chanterelles, fruitbody reddish-brown to yellow-brown to tan, on hardwoods **Veined Fungi** (***Plicaturopsis***)

118a (115b) gill edge with abundant large cells appearing ciliate under hand lens

 ***Tricholomopsis***

118b gill edge not with abundant large cells appearing ciliate under hand lens 119

119a some part of fruitbody staining blackish, bluing, or turning red, (gills usually bluing with PDAB) ***Lyophyllum* and Allies (*Lyophyllum*)**

119b no part of fruitbody staining blackish, bluing, or turning red, (gills not usually bluing with PDAB) 120

120a cap up to 2cm wide, chalky whitish, dry, minutely hairy, without stem or with short lateral whitish stem, growth on wood, spore deposit white, (spores 5-6 x 4.5-5.5 um) **Pleurotoid species** (***Cheimonophyllum candidissimum***)

120b not with this combination of features 121

121a cap flesh and flesh of gills (at times) either completely gelatinous or with gelatinous layers, gill edge not serrate under hand lens **Pleurotoid species**

121b cap and gills neither gelatinous nor with gelatinous layers, gill edge smooth to serrate under hand lens 122

122a gill edge not serrate and cap fleshy **Pleurotoid species**

122b gill edge serrate or cap tough and leathery to corky 123

123a gill edge not serrate **Pleurotoid species**

123b gill edge serrate 124

124a gill edge coarsely toothed, cap whitish-ocher to brown, stem usually central

 ***Lentinellus*** **&** ***Neolentinus*** (***Neolentinus***)

124b gill edge finely toothed, cap brown, ocher, or slightly violaceous, stem central to lateral 125

125a fruitbodies with one of following features a) cap hairy tomentose and stem base strigose with gray or greenish hairs, b) cap with small blackish fine scales on a white background and stem blackish scaly, c) cap bald when young and orange-yellow, ocher-yellow, or ocher-brown, or d) gills ocher to pinkish brown or violaceous **Pleurotoid** **species** (***Panus***)

125b fruitbodies without one of the above features, cap variable in color but usually brown, rarely whitish, gills usually serrate and white, whitish-yellow or pallid-pinkish ***Lentinellus*** **&** ***Neolentinus*** (***Lentinellus***)

\* \* \*

201a gills and/or cap turning to inky blackish liquid ***Coprinoid Species***

201b gills and/or cap not turning to inky blackish liquid 202

202a gills distorted or convoluted and may form cavities, spores not forcibly released, so spore print not available, often in deserts or mountainous areas

 **Truffles & False Truffles (Sequestrate agarics)**

202b gills well-formed 203

203a volva present, gills free 204

203b volva absent 301

204a spores white or pale cream ***Amanita***

204b spores pinkish brown [***Volvariella***]

\* \* \*

301a (203b) partial veil present 302

301b partial veil absent 401

302a partial veil membranous or a solid fibrillose layer, forming a distinct annulus 304

302b partial veil gelatinous, weblike or granular, there may be scattered fibrils, annular zone may be present 303

303a partial veil gelatinous 343

303b partial veil weblike or granular, there may be scattered fibrils, annular zone may be present 347

304a (302a) gills free 305

304b gills abruptly adnexed, adnexed, adnate, notched or decurrent 312

305a spores rust-brown, cap and lower stem granular and yellow brown to pale orange, annulus sheathlike ***Phaeolepiota aurea\****

305b spores greenish, or purple-brown to chocolate brown, or white 306

306a spores greenish becoming purplish brown on drying, young gills red

 **Lepiotoid** **species** (***Melanophyllum***)

306b spores greenish and remaining so, or purple-brown to chocolate brown, or white 307

307a spores greenish and remaining so, cap with large scales **Lepiotoid** **species** (***Chlorophyllum***)

307b spores purple-brown to chocolate brown, or white 308

308a spore purple-brown to chocolate brown 309

308b spores white 310

309a young gills red **Lepiotoid** **species** (***Melanophyllum)***

309b gills white to pink at first ***Agaricus***

310a (308b) warts or patches on cap, volva present ***Amanita***

310b cap otherwise or volva not formed 311

311a cap viscid ***Limacella***

311b cap scaly, granular, innately fibrillose or pruinose, rarely bald **Leptiotoid** **species**

312a (304b) spores white to cream 313

312b spores some shade of brown, or black 319

313a gills serrate, fruitbodies often tough ***Lentinellus and Neolentinus*** (***Neolentinus)***

313b gills not serrate, fruitbodies fleshy 314

314a gills waxy-looking, soft, often decurrent, cap usually viscid, (and spores smooth, basidia long and narrow, at least 6 times as long as spores) **Hygrophoraceae**

314b gills not waxy-looking, gill attachment variable, cap dry or viscid 315

315a cap granular, under 8 cm and usually under 5 cm wide, gills adnexed or adnate, no swollen rootlike base ***Cystoderma***(key including***Cystodermella***)

315b cap not granular, or larger, gill attachment various 316

316a cap bald to appressed-fibrillose, large, annulus two-layered, gills decurrent ***Catathelasma*\***

316b either cap not bald or fruitbody not large or annulus not two-layered or gills not decurrent 317

317a cap yellowish brown to reddish brown or brownish yellow, usually with scattered bristle-like scales, medium size, annulus one-layered ***Armillaria***

317b cap another color or not having bristle scales, size and annulus various 318

318a with sclerotium-like or swollen rootlike often hollow base ***Squamanita***

318b without a base like this, cap white, gray, brown, reddish, or reddish brown ***Tricholoma***

319a (312b) spores rust-colored, dark reddish cinnamon, or some shade of brown other than purple-brown 320

319b spores reddish, purple-brown, or black 339

320a gills cleanly removable from cap, spores dull brown **Gilled** **Boletes** (***Paxillus***)

320b gills not cleanly removable from cap, spores various in color 321

321a stem slender less than or equal to 0.5 cm and typically brittle or cartilaginous 322

321b stem fleshy greater than 0.5 cm 329

322a scattered or in groups or clusters on wood, gills adnate to slightly decurrent, spores ocher to dark reddish cinnamon or rust-brown, hygrophanous moist or dry, reddish or reddish brown cap and brownish flesh, cap 1-5 cm with white fibrils especially near margin, base usually with white mycelial mat ***Tubaria\****

322b not with above combination of features 323

323a on burnt ground among the moss *Funaria hygrometrica*, gills adnate, hygrophanous dry cap 1-4 cm ***Pholiota*** (***Crassisporium***)

323b not with above combination of features 324

324a spores rust-colored or dark reddish cinnamon 325

324b spores some shade of brown other than rust-colored or dark reddish cinnamon 326

325a cap cuticle filamentous, spores without germ pore, cannot be separated reliably to genus without microscope, but cap moist to sometimes viscid (may appear dry in dry weather), usually without hoary sheen, often striate [***Galerina*]**

325b cap cuticle cellular, spores with germ pore, cannot be separated reliably to genus without microscope, but dry (may appear moist in wet weather), with hoary sheen or pruinose, may be striate [***Conocybe***]

326a (324b) on burnt ground and/or often among mosses, cap dry 1-4 cm

 ***Pholiota*** (***Crassisporium***)

326b not on burnt ground and not among mosses, or cap not both dry and 1-4cm 327

327a on wood, cap strongly hygrophanous, bald, dry, brown, annulus small membranous ***Pholiota*** (***Kuehneromyces***)

327b not on wood, or cap not with hygrophanous, bald, dry and brown features, or annulus different 328

328a cap 2-7 cm, gills reddish brown or purplish brown, stem fragile breaking into pieces with ease, spores dark umber brown **[*Psathyrella*]**

328b cap 1-4 cm, gills not reddish brown or purplish brown, stem cartilaginous to brittle but not breaking into pieces with ease, spores dull brown to pale brown [***Simocybe***]

329a (321b) growing on ground 330

329b growing on wood 336

330a cap and lower stem with easily removed granules and yellow-brown to pale orange, spores rust-brown, sheathing veil on stem ***Phaeolepiota aurea\****

330b cap and stem not with easily removed granules or not yellow-brown to pale orange, or spores not rust-brown, or without sheathing veil on stem 331

331a spores rust-colored 332

331b spores dark brown to earth-brown to milky-coffee-brown 333

332a mycenoid, cap surface with hoary sheen, no veil patches on stem base [***Conocybe***]

332b more robust, cap surface with small white fibrils, stem base may have white volva patches [***Cortinarius* (*Cortinarius caperatus*)]**

333a (331b) spores milky-coffee-brown, cap bald and hygrophanous, stem dry and without conspicuous scales ***Agrocybe*** (including ***Cyclocybe***)

333b spores another color, or cap not both bald and hygrophanous, or stem not dry, or stem with conspicuous scales 334

334a gill edge colored as face or stem entirely scaly ***Pholiota***

334b gill edge white, stem often pruinose to granular or scabrous near top 335

335a cap often dry and cracked, surface fibrillose, fibrillose-scaly, or scaly; odor often spermatic or some other distinctive smell like fishy, fruity, green corn, bruised Geranium leaves, or like Lycoperdon flesh ***Inocybe***

335b cap usually viscid, sticky to touch, surface smooth, never cracked or scaly; odor usually like radish but also may be like burnt sugar, saccharine, sweet, orange blossoms, cocoa, or mild [***Hebeloma***]

336a (329b) spores clay-color to bright rusty-orange, gills bright yellow to bright rusty-brown 337

336b spores dull brown to milky-coffee brown 338

337a cap fibrillose or breaking up into small scales, more than 1.5 cm wide, brightly colored, spore deposit bright rusty orange, taste bitter ***Gymnopilus***

337b cap coarsely scaly, granular, pruinose or floccose, spore deposit a shade of yellow brown to cinnamon or darker brown or duller brown ***Phaeomarasmius\****

338a (336b) spores milky-coffee-brown, cap bald, hygrophanous, stem dry and without conspicuous scales ***Agrocybe*** (including ***Cyclocybe***)

338b spores another color or cap not both bald and hygrophanous, or stem not dry, or stem with conspicuous scales ***Pholiota***

339a (319b) cap viscid or subviscid 340

339b cap dry 342

340a gills mottled, fruitbody on dung, cap hemispherical to deeply convex ***Panaeolus***

340b gills not mottled or fruitbody not on dung or cap not hemispherical to deeply convex 341

341a stem viscid or with distinct annulus, fruitbodies terrestrial ***Strophariaceae* (dark-spored)**

341b stem dry, with indistinct annulus, fruitbodies usually on wood ***Pholiota***

342a (339b) fruitbody fleshy not fragile, usually on wood, cap yellow, orange, yellow-brown, or greenish ***Pholiota***

342b fruitbody often fragile, on dung, humus or wood, cap brown, gray, gray-brown to black or black-brown [***Psathyrella***]

343a (303a) spores white to cream 344

343b spores black to brown 345

344a gills free, not waxy-looking ***Limacella***

344b gills not free, waxy-looking **Hygrophoraceae**

345a (343b) spores smoky to black, gills long-decurrent **Gomphidiaceae (*Gomphidius*)**

345b spores brown 346

346a spores rust-brown, cortina present in button stage [***Cortinarius*]**

346b spores clay-colored, cinnamon-brown, umber-brown, or black-brown, cortina not present although veil may be fibrillose ***Pholiota***

347a (303b) fruitbodies usually on old Russulaceae, caps 1-2 cm and whitish becoming powdery ***Lyophyllum* and Allies (*Asterophora*** ***lycoperdoides***)

347b fruitbodies not on old Russulaceae, caps a different size or color or not becoming powdery 348

348a spores white to cream 352

348b spores brownish or blackish 349

349a spores smoky to black, gills waxy-looking and decurrent, flesh of cap orange

 **Gomphidiaceae**(***Chroogomphus***)

349b spores not smoky to black, or gills not both waxy-looking and decurrent, or flesh of cap not orange 350

350a spores bright rust-brown to rust-yellow or cinnamon-brown 353

350b spores dull rust brown, dull brown, clay-colored, umber-brown, purple-brown, blackish-brown or black 351

351a spores clay-colored, dull brown, dull rust brown, or umber-brown 355

351b spores purple-brown, blackish brown, or black 358

352a (348a) stem sheathed up to annular zone with rusty recurved scales that are also present on cap; growing on wood ***Leucopholiota*** ***decorosa\****

352b stem not sheathed up to annular zone, or cap and stem not having rusty recurved scales; growing on the ground or on wood 313

353a (350a) taste bitter, typically on wood, gills become bright rust-colored from spores ***Gymnopilus***

353b taste typically not bitter, if bitter then not exclusively on wood, if gills rust-colored then not bright rust-colored 354

354a cortina well-developed when young, usually with conifers [***Cortinarius*]**

354b cortina absent, may have slight fibrillose veil, typically under alder, willow, or birch, sometimes on mosses or on burnt ground ***Naucoria\****

355a (351a) cap either fibrillose to scaly, or bald and slippery to viscid or slimy, stem typically scaly, at least on basal part, rarely bald, growing typically on wood, wood chips, or rarely on hard-packed soil ***Pholiota***

355b not with above combination of features 356

356a brown scaly dry cap, pallid gills that turn brown, brown stem that is scaly, floccose or woolly fibrillose, growing on soil, rotten wood or among *Sphagnum* ***Inocybe*** (***lanuginosa*** group)

356a cap not brown or not scaly or not dry, or gills not pallid or not turning brown, or stem not scaly and not floccose and not woolly-fibrillose, most often growing on ground 357

357a cap often dry and cracked, surface fibrillose, fibrillose-scaly, or scaly; odor often spermatic or some other distinctive smell like fishy, fruity, green corn, bruised Geranium leaves, or like Lycoperdon flesh ***Inocybe***

357b cap usually viscid, sticky to touch, surface smooth, never cracked or scaly; odor usually like radish but also may be like burnt sugar, saccharine, sweet, orange blossoms, cocoa, or mild [***Hebeloma***]

358a (351b) cap and stem fragile with superficial layer of dull brown fibrils, gills often purplish-violet [***Psathyrella***]

358b cap yellow, olivaceous-brown, or yellow brown without superficial layer of dull brown fibrils, stem not fragile, gills not purplish-violet **Strophariaceae** (***Hypholoma***)

\* \* \*

401a (301b) stem breaks like chalk, cap, stem and gills break into many pieces when crushed, stem typically more than 0.3 cm thick, (and spores with amyloid warts or ridges) 402

401b stem not breaking into small pieces but may be fragile or snap in two, cap fleshy or tough 501

402a fruitbody exudes watery or milky substance of various colors when cut ***Lactarius***

402b fruitbody does not exude watery or milky substance ***Russula***

\* \* \*

501a (401b) gills free 502

501b gills abruptly adnexed, adnexed, adnate, decurrent, notched, sinuate, or toothed 601

502a spores white to cream 508

502b spores brown, pinkish-brown, purple-brown, blackish, (or spores not deposited, 1-1.5 cm conical viscid striate cap, gills gelatinize quickly, tall fragile stem that often bends over, growing in grass in early summer) 503

503a spores not present, 1-1.5 cm conical viscid striate cap, gills gelatinize quickly, tall fragile stem that often bends over, growing in grass in early summer

 [**Truffles and False Truffles (Sequestrate agarics)]**

503b spores brown, pinkish-brown, purple-brown, or blackish 504

504a spores bright rust-brown, cap striate, usually viscid ***Bolbitius*\***

504b spores brown or blackish (but not rust-brown) or cap not striate 505

505a spores pinkish-brown 512

505b spores brown, purple-brown, or blackish but not pinkish-brown 506

506a spores blackish, cap pleated ***Coprinoid Species***

506b spores not blackish or cap not pleated 507

507a spores greenish becoming purple-brown on drying, cap powdery

 **Lepiotoid species** (***Melanophyllum***)

507b spores purple-brown or chocolate-brown, cap not powdery ***Agaricus***

508a (502a) cap or stem viscid ***Limacella***

508b cap and stem dry 509

509a cap surface with removable powder, 1-8 cm wide, stem 0.1-1.0 cm at top 510

509b cap surface without removable powder, or cap a different size, or stem a different width 511

510a Lepiota-like in stature, stem fragile and brittle, easily removed, without bulb **Lepiotoid species** (***Cystolepiota***)

510b not Lepiota-like in stature, stem fleshy-fibrous, not easily removed, with slight bulb ***Amanita*** (***Amanita farinosa*)**

511a (509b) cap 0.3-0.6 cm, silky to innately fibrillose, stem 0.02-0.05 cm at top, fruitbodies brownish lilac, not discoloring when handled or bruised and without an odor, (gills not bluing with PDAB) ***Pseudobaeospora pillodii\****

511b cap and stem typically larger, cap bald, fruitbodies often discoloring black, blue or red when handled or bruised, odor often distinct, (gills discolor blue with PDAB) ***Lyophyllum* and Allies (*Lyophyllum*)**

512a (505a) cap often viscid, fruitbodies usually on humus, volva present young ***Volvariella***

512b cap dry, fruitbodies on wood, volva absent [***Pluteus*]**

\* \* \*

601a (501b) gills thick or waxy-looking, lustrous 602

601b gills not thick or waxy-looking 701

602a (914a) spores smoky to black 603

602b spores white, cream, pinkish-brown, or lilac 604

603a flesh of cap orange, veil fibrillose, gills buff to yellow **Gomphidiceae(*Chroogomphus)***

603b flesh of cap white to pink, veil viscid, gills white to pallid at first, soon grayish

 **Gomphidiaceae (*Gomphidius*)**

604a (602b) gills violet, purple, vinaceous-red, or pinkish-brown, often thick and rather hard as well as brittle, typically distant, stem tough and fibrous, often longitudinally striate [***Laccaria*]**

604b gills usually colored otherwise, typically not hard if brittle, stem fleshy and soft, usually not longitudinally striate 605

605a usually growing on dead Russulaceae, with one of following characteristics: a) cap surface and flesh breaking into powdery mass, b) gills poorly developed or distorted or anastomosing , or c) strong sour to farinaceous odor

 ***Lyophyllum* and Allies (*Asterophora***)

605b not on dead Russulaceae, or if on dead Russulaceae not with powder cap or poorly developed gills or sour to farinaceous odor 606

606a gills white and forking, often red-spotted in age, cap gray

 [**Omphalinoid** **species** (***Cantharellula*** ***umbonata***)]

606b gills not forking or if forking not in consistently dichotomous way 607

607a fruitbodies typically on moss, gills often veined or with anastomosing folds and ridges, cap often lobed or spathulate, fruitbody usually less than 3 cm wide

 [**Omphalinoid** **species** (***Arrhenia***)]

607b fruitbodies with various habitats, gills well-formed, cap size and shape various 608

608a cap, stem, and gills pale tan (rare) to gray-brown to dark umber-brown, cap up to 8 cm wide, hygrophanous, stem 0.3-0.8 cm at top, (amyloid spores, clampless septa) 609

608b fruitbodies often vividly colored or at least colored other than above, if cap is gray-brown to umber-brown, then stem is whitish or greater than 0.8 cm wide at top, (inamyloid spores) ***Hygrophoraceae***

609a cap, stem, and often gills gray-brown to dark umber-brown, cap 2.5-8 cm wide, hygrophanous, cap margin usually striate or inrolled, gills occasionally forked, stem 0.3-0.8 cm wide at top, fairly common ***Pseudoclitocybe*** ***cyathiformis\****

609b cap, stem, and presumably gills pale tan, cap up to 4 cm wide, hygrophanous, stem about 0.5 cm wide at top, rare ***Pseudoclitocybe*** ***oregonensis\****

\* \* \*

701a (601b) gills decurrent or subdecurrent 702

701b gills neither decurrent nor subdecurrent 801

702a stem 0.3-0.5 cm wide at top, cap brown to orange-brown, ribbed, and with small umbo, gills sinuate and serrate, grows on hardwood ***Heliocybe*** ***sulcata\****

702b stem wider or narrower at top, or cap otherwise, or gills otherwise, or not on hardwood 703

703a stem less than 0.5 cm wide at top, often fragile and brittle or sometimes fibrous-pliant or cartilaginous, cap flesh thin usually < 0.2 cm at center, cap often membranous 704

703b stem greater than or equal to 0.5 cm wide at top, fleshy-fibrous or soft, cap flesh greater than or equal to 0.3 cm thick, cap not membranous 732

704a spores white, cream, yellow, orange, lilac, or lilac-gray 708

704b spores pink, pinkish brown, reddish brown, ocher-brown, or purple-brown 705

705a spores pale pink to pale pinkish brown ***Clitocybe*** (***Lepista***)

705b spores pinkish brown, salmon-brown, reddish brown, ocher-brown, or purple-brown 706

706a spores pinkish brown, salmon-brown, or reddish-brown **Entolomataceae**

706b spores ocher-brown to reddish cinnamon brown or rust-brown 707

707a spores ocher-brown to reddish cinnamon brown or rust-brown ***Tubaria\****

707b spores purple-brown [***Psilocybe***]

708a (704a) fruitbodies on dead plant remains or especially twigs, small with cap less than or equal to 1.5 cm wide, whitish to ochraceous, stem insititious or almost insititious and whitish with brownish to brownish-black base **Marasmioid** **species** (***Marasmiellus***)

708b fruitbodies not on dead plant remains or twigs, or caps wider than 1.5 cm, or cap not whitish to ochraceous, or stem not insititious or almost insititious, or stem not whitish with brownish to brownish-black base 709

709a fruitbodies on dead hardwood twigs, cap 0.4-1.2 cm wide and white, stem when present stublike or lateral, rarely central, whitish **Pleurotoid species** (***Cheimonophyllum***)

709b fruitbodies not on dead hardwood twigs, or cap not 0.4-1.2 cm wide, or cap not white, or stem not stublike or lateral, or stem not whitish 710

710a stem base with yellowish to orangish hairs, not exuding juice when cut, stem at top pruinose, granular, or minutely scaly [***Xeromphalina***]

710b stem base not with yellowish to orange hairs, or stem exuding juice when cut, or stem neither pruinose nor granular nor minutely scaly 711

711a usually growing on dead Russulaceae, with one of following characteristics: a) cap surface and flesh breaking into powdery mass, b) gills poorly developed or distorted or anastomosing, or c) strong sour to farinaceous odor

 ***Lyophyllum* and Allies (*Asterophora***)

711b not growing on dead Russulaceae, or neither cap surface breaking into powdery mass, nor gills poorly developed, not odor strong sour to farinaceous 712

712a fruitbodies on moss, cap 2-5 cm wide, hygrophanous gray-brown, often umbilicate, may have farinaceous odor and taste, (round spores with blunt spines), rare [**Omphalinoid** **species** (***Omphaliaster***)]

712b fruitbodies not on moss, or cap not 2-5 cm wide, or cap not hygrophanous gray-brown, or spores not round with blunt spines, or common 713

713a fruitbody reviving when moistened, stem rigid and horny or tough and elastic

 **Marasmioid species** (***Marasmius***)

713b fruitbody not reviving when moistened, stem fleshy and soft, often fragile and breaking easily 714

714a cap with removable bristles or hairs or fibrillose scales, gills adnate to subdecurrent or notched, growing on wood or at least near base of trees, stem often with basally attached black rhizomorphs, annulus usually present ***Armillaria***

714b cap not with removable bristles or hairs or fibrillose scales, or gills definitely decurrent or notched, or growing away from trees, annulus not present 715

715a cap grayish to yellowish-buff and radially striate with darker fibrils and minute pointed scales, gills strongly decurrent, growing on conifer wood, without black rhizomorphs ***Pseudoarmillariella*** ***ectypoides\****

715b cap not grayish to yellowish-buff, or cap not radially striate with darker fibrils and minute pointed scales, or gills not strongly decurrent, or not growing on conifer wood 716

716a either some part of fruitbody bluing or blackening or fruitbodies in large cespitose clusters, stem fleshy, bald, (gills bluing with PDAB)

 ***Lyophyllum* and Allies (*Lyophyllum*)**

716b no part of fruitbody bluing or blackening, and fruitbodies not in large cespitose clusters with fleshy bald stem, (and gills not bluing with PDAB) 717

717a growing on wood, often cespitose or in large numbers, cap appressed-fibrillose, cracked and often lacerate ***Clitocybula\****

717b not growing on wood, or cap not appressed-fibrillose or not cracked 718

718a fruitbody white, whitish cream-colored, or cream-yellowish 719

718b fruitbody more strongly pigmented 722

719a either cap 0.1-3 cm wide, bellshaped and umbonate or papillate, or cap 0.35 to 0.45 cm wide, centrally depressed, micaceous with pruinose stem less than 0.1 cm wide 720

719b cap convex-depressed to slightly umbilicate, but either cap more than 0.45 cm wide, or cap not micaceous, or stem not pruinose or greater than 0.1 cm wide 721

720a cap 0.1-3 cm wide, bellshaped and umbonate or papillate

 **Mycenoid species** (***Hemimycena***)

720b cap 0.35-0.45 cm wide, centrally depressed, micaceous, stem less than 0.1 cm, pruinose **Mycenoid species (*Resinomycena*)**

721a (719b) cap striate, often to disc, margin scalloped or lobed [**Omphalinoid species**]

721b cap not distinctly striate to disc, margin not scalloped or lobed ***Clitocybe***

722a (718b) stem at top pruinose, granular, or minutely scaly, stem base exuding a watery colorless juice when cut **Mycenoid species** (***Hydropus*)**

722b stem at top neither pruinose, nor granular, nor minute, and stem base not exuding a watery colorless juice when cut 723

723a cap 0.4-1.0 cm wide, cap flesh thin, gills whitish to yellowish or buff (may be tinged violaceous) and long-decurrent, stem 1-8 cm long and less than 0.2 cm wide, growing in mosses [**Omphalinoid species** (***Rickenella***)]

723b not with above combination of features 724

724a cap 0.3-2.5 cm, viscid, yellowish, convex with flat to depressed center, gills lilac or pink or bluish, growing on conifer wood

 [**Omphalinoid species** (***Chromosera*** ***cyanophylla***)]

724b not with above combination of features 725

725a cap, stem, and gills pale tan (rare) to gray-brown to dark umber-brown, cap up to 8 cm wide, hygrophanous, stem 0.3-0.8 cm at top, (amyloid spores white in deposit, clampless septa) 726

725b fruitbodies colored other than above, if cap is gray-brown to umber-brown, then stem is whitish or greater than 0.8 cm wide at top, (spores may be amyloid or clamps may be present) 727

726a cap, stem, and often gills gray-brown to dark umber-brown, cap 2.5-8 cm wide, hygrophanous, cap margin usually striate or inrolled, gills occasionally forked, stem 0.3-0.8 cm wide at top, fairly common

 ***Pseudoclitocybe*** ***cyathiformis\****

726b cap, stem, and presumably gills pale tan, cap up to 4 cm wide, hygrophanous, stem about 0.5 cm wide at top, rare ***Pseudoclitocybe*** ***oregonensis\****

727a (725b) cap with gray, gray-brown, olive-brown or blackish brown color, gills decurrent, white and constrasting with cap in color, growing on ground 728

727b not with above combination of features 730

728a cap surface gelatinous or slippery when fresh, umbilicate, grows on burnt soil **Mycenoid species** (***Myxomphalia*** ***maura***)

728b cap surface not gelatinous or slippery when fresh 729

729a (large cystidia scattered to abundant, 44-66 x 9-12 um)

 **Mycenoid species** (***Gamundia leucophylla***)

729b (cystidia if present are small, 25-30 x 7-9 um) **Mycenoid species** (***Fayodia gracilipes***)

730a (727b) cap when young conic to bellshaped or hemispheric, if depressed or umbilicate then with margin appressed to stem when young **Mycenoid species**

730b cap more or less depressed, umbilicate, or funnel-shaped, cap margin not appressed to stem when young 731

731a fruitbody with some pinkish, lilac, or vinaceous tints, gills whitish ***Clitocybe*** (***Lepista***)

731b fruitbody lacking such tints, or if with vinaceous tints then gills vinaceous; gills often cap-colored [**Omphalinoid species**]

732a (703b) spores white, pinkish-cream, cream, yellow, orange-cream 733

732b spores pink, pinkish-brown, reddish-brown, brown, black 746

733a stem base thickened, sclerotium-like, often hollow, cap surface with removable granules or scales ***Squamanita***

733b stem base not thickened and sclerotium like, or cap surface without removable granules or scales 734

734a gills serrate, fruitbody tough and leathery ***Lentinellus*** **&** ***Neolentinus***

734b gills not serrate, fruitbody fleshy and soft 735

735a gills decurrent and forking 736

735b gills decurrent, may anastomose near stem, but not regularly forking 737

736a gills white to pinkish, usually red or red-brown where bruised, cap grayish, dry and umbonate [**Omphalinoid** **species** (***Cantharellula*** ***umbonata***)]

736b cap and gills orange or brown, rarely whitish, gills not turning red or red-brown where bruised, odor mild **Gilled** **boletes** (***Hygrophoropsis***)

736c cap and gills pinkish to cream, gills not turning red or red-brown where bruised, fragrant odor of bubblegum, cinnamon candy or grape soda

 [**Omphalinoid** **species** (***Aphroditeola olida***)]

737a (735b) fruitbody densely cespitose or clustered or in rings, or gills where pressed blackening or bluing or turning red, (and usually bluing with PDAB)

 ***Lyophyllum* and Allies (*Lyophyllum*)**

737b fruitbody habit various, and gills not blackening or bluing or turning red (may turn brown) 738

738a growing on wood, gill edge fringed with large bead-like cells (under hand lens) ***Tricholomopsis***

738b not growing on wood or gill edge not fringed 739

739a cap at least on disc with scattered bristles or removable scales, fruitbody often with black rhizomorphs at base of stem, annulus usually present ***Armillaria***

739b with neither scattered bristles nor removable scales on cap nor black rhizomorphs at base of stem, annulus not present 740

740a (913a) growing on ground, and has one of following features: a) base or stem retains large clump of humus bound up by masses of white mycelium, or b) cap 10-40 cm wide, whitish to yellowish, and sturdy hard flesh has bitter taste ***Leucopaxillus*\***

740b not growing on ground or not with either of the two features 741

741a fruitbodies on buried wood or logs and sticks above ground, stem surface cracked into small scales or furfuraceous ***Clitocybula\****

741b fruitbodies not on wood or stem surface neither cracked into small scales nor furfuraceous 742

742a cap dry yellow 8-20 cm wide, short thick dry yellow stem, growing under conifers ***Cantharocybe gruberi\****

742b cap not dry yellow 8-20 cm wide, or stem not with thick, dry and yellow features, habitat may be different 743

743a spores pinkish-cream ***Clitocybe*** (***Lepista***)

743b spores white 744

744a cap, stem, and often gills gray-brown to dark umber-brown, cap 2.5-8 cm wide, hygrophanous, cap margin usually striate or inrolled, gills occasionally forked, stem 0.3-0.8 cm wide at top, (amyloid spores, clampless septa) ***Pseudoclitocybe*** ***cyathiformis\****

744b not with above combination of features 745

745a cap, stem, and presumably gills pale tan, cap up to 4 cm wide, hygrophanous, stem about 0.5 cm wide at top, (amyloid spores, clampless septa), rare

 [**Omphalinoid** **species** (***Cantharellula*** ***oregonensis***)]

745b not with above combination of features ***Clitocybe***

746a (732b) gills easily removable from cap, brownish or bright yellow 747

746b gills not easily removable from cap or gills not brownish or bright yellow 748

747a cap reddish to purplish-brown or olive-green, cap surface turning blue with KOH, gills bright yellow **Gilled** **boletes** (***Phylloporus***)

747b cap ocher-brown, brown, olive, or black, cap surface not turning blue with KOH, gills brownish **Gilled** **boletes** (***Paxillus***)

748a (746b) spores pale pink to very faintly pinkish-brown or creamy pink ***Clitocybe*** (***Lepista***)

748b spores pinkish brown, salmon-brown, reddish-brown, bright rust-brown, earth-brown, or black 749

749a spores pinkish brown, salmon-brown, or reddish-brown **Entolomataceae**

749b spores bright rust-brown, earth-brown, or black 750

750a spores bright rust-brown, growing on wood, taste bitter ***Gymnopilus***

750b spores earth-brown, black-brown, olive-sepia, or black, if on wood, taste not bitter 751

751a spores earth-brown, terrestrial, rarely on wood ***Agrocybe*** (including ***Cyclocybe***)

751b spores black, black-brown, or olive-sepia, terrestrial 752

752a flesh of cap orange, veil fibrillose, gills buff to yellow

 **Gomphidiaceae(*Chroogomphus*)**

752b flesh of cap white to pink, veil viscid, gills white to pallid at first, soon grayish **Gomphidiaceae(*Gomphidius*)**

\* \* \*

801a (701b) stem 0.1-0.4 cm wide, often fibrous-pliant or fragile and brittle, at times with a brittle or cartilaginous rind and fibrous center, cap flesh usually less than 0.3 cm thick, often membranous 802

801b stem 0.5 cm or more thick, typically fleshy, cap flesh 0.3-0.5 cm or more thick 901

802a with lateral branches on stem, growing on dead mushrooms

 **Collybioid** **species** (***Dendrocollybia***)

802b growing elsewhere, or if on mushrooms lacking lateral branches on stem 803

803a growing on dead mushrooms, growing from sclerotium or with stem less than 0.1 cm wide **Collybioid** **species** (***Collybia***)

803b growing elsewhere, or if on dead Russulaceae, cap surface and flesh breaking into powdery mass, or gills distorted, or sour to farinaceous odor 804

804a usually growing on dead Russulaceae, with one of following characteristics: a) cap surface and flesh breaking into powdery mass, b) gills poorly developed or distorted or anastomosing, or c) strong sour to farinaceous odor ***Lyophyllum* and Allies (*Asterophora***)

804b growing elsewhere, or if on dead mushrooms, not with characteristics above 805

805a spores white, pale cream, pale yellowish or pale ochraceous 809

805b spores pale pink, pinkish, reddish brown, another shade of brown (may be clay-color but not pale ochraceous), gray, or black 806

806a spores pale pink to pinkish-cream or pinkish-buff 848

806b spores salmon-brown, pinkish brown, reddish brown, another shade of brown, gray, or black 807

807a spores salmon-brown, pinkish brown, or reddish-brown **Entolomataceae**

807b spores reddish, clay-colored, cinnamon-brown, rust-brown, rust-yellow, umber, earth-brown, tobacco-brown, purple brown, gray or black 808

808a spores reddish, clay-colored, cinnamon-brown, rust-brown, rust-yellow, umber, earth-brown, tobacco-brown 850

808b spores purple-brown, black-brown, gray, smoky, or black 875

809a (805a) fruitbodies on moss, cap 2-5 cm wide, hygrophanous gray-brown, often umbilicate, may have farinaceous odor and taste, (have round spores with blunt spines), rare [**Omphalinoid** **species** (***Omphaliaster***)]

809b not with above combination of features 810

810a fruitbody fragile, cap usually bellshaped to conic, rarely broadly convex, cap margin typically appressed to stem when young 811

810b fruitbody variable in consistency, cap convex, broadly convex, parabolic or flat 819

811a dry fruitbody reviving when moistened, stem often tough and horny or stiff

 **Marasmioid species** (***Marasmius***)

811b dry fruitbody not reviving when moistened 812

812a stem exuding juice when cut 813

812b stem not exuding juice when cut 814

813a stem and cap exuding watery juice when cut **Mycenoid species** (***Hydropus***)

813b stem exuding colored or white juice when cut, or if stem exuding watery juice then cap not exuding watery juice **Mycenoid species** (***Mycena***)

814a (812b) fruitbody small, soft, dry, cap 0.2-3 cm wide, white to slightly cream-yellowish or slightly ocher-brown, (spores inamyloid)

 **Mycenoid species** (***Hemimycena***)

814b not with above combination of features 815

815a stem granular, hairy-bristly, velvety, or floccose; if stem is merely pruinose, either the cap is pruinose to velvety at least when young, or gills are marginate 816

815b stem bald or pruinose, if pruinose then cap is bald 817

816a stem stiff and pruinose, gills not marginate **Mycenoid species** (***Mycenella***)

816b stem soft and fleshy, velvety to floccose, if stem merely pruinose then gills marginate **Mycenoid species** (***Hydropus***)

817a (815b) (spores appear spiny) 818

817b spores do not appear spiny or spores not examined **Mycenoid species**

818a (large cystidia scattered to abundant, 44-66 x 9-12 um)

 **Mycenoid species** (***Gamundia leucophylla***)

818b (cystidia if present are small, 25-30 x 7-9 um)

 **Mycenoid species** (***Fayodia gracilipes***)

819a (810b) growing on dead hardwood, cap 0.4-1.2 cm wide, white, stem typically lateral to absent but rarely central **Pleurotoid species** (***Cheimonophyllum***)

819b not with above combination of features 820

820a surface of cap and stem granular, fruitbodies ocher-yellow, ocher-brown, orange-brown, red-brown, dingy white, vinaceous, or red-purple, stem typically with floccose annular zone ***Cystoderma***(key including***Cystodermella***)

820b surface of cap and stem not granular, or fruitbodies a different color 821

821a usually growing on dead Russulaceae, with one of following characteristics: a) cap surface and flesh breaking into powdery mass, b) gills poorly developed or distorted or anastomosing, or c) strong sour to farinaceous odor

 ***Lyophyllum* and Allies (*Asterophora***)

821b not growing on dead Russulae or not with any of those characteristics 822

822a stem base with yellowish to orangish hairs [***Xeromphalina***]

822b stem base not with yellowish to orangish hairs 823

823a stem rigid and horny or tough and elastic, reviving when moistened but cap not with long hairs **Marasmoid species** (***Marasmius***)

823b stem not rigid and horny and not tough or elastic, or fruitbody not reviving when moistened after drying; cap hairy or not 824

824a (912a) with one of the following features: a) some part of fruitbody blackening or bluing with bruising, b) in large cespitose clusters with large fleshy stems, c) (gills staining blue with PDAB) ***Lyophyllum* and Allies (*Lyophyllum*)**

824b not with any of the above features 825

825a cap gray, gray-brown, olive-brown or blackish-brown, gills white, growing on ground 826

825b cap or gills a different color, habitat various 828

826a cap surface gelatinous or slippery when fresh, on burnt ground

 **Mycenoid species** (***Myxomphalia*** ***maura***)

826b cap surface not gelatinous or slippery when fresh, not typically on burnt ground 827

827a (large cystidia scattered to abundant, 44-66 x 9-12 um)

 **Mycenoid species** (***Gamundia leucophylla***)

827b (cystidia if present are small, 25-30 x 7-9 um) **Mycenoid species** (***Fayodia gracilipes***)

828a (825b) growing on wood, cones, or dead plant remains 829

828b growing on ground or humus or old mushrooms 840

829a cap usually less than 1.0 cm wide and with long hairs under hand lens, stem threadlike **Marasmioid species** (***Crinipellis***)

829b cap larger or not having long hairs under hand lens, or stem not threadlike 830

830a cap usually less than 1.5 cm wide, whitish, stem insititious or nearly insititious and whitish with brownish to brownish black base, growing on dead plant remains and twigs **Marasmioid species** (***Marasmiellus***)

830b not with above combination of features 831

831a cap viscid to slippery or dry, yellowish to orange, stem velvety to hairy ***Flammulina\****

831b cap dry or slippery but not viscid, various colors, stem tomentose, furfuraceous, pruinose or bald 832

832a fruitbody yellow-brown with olivaceous tint, olivaceous, or green when fresh, becoming deep vinaceous on drying ***Callistosporium*** ***luteo-olivaceum\****

832b fruitbody a different color 833

833a cap whitish, or pale gray, or grayish brown with darker disk; cap appressed-fibrillose, sometimes radially cracked, 1-6 cm wide, gills crowded to subdistant, with moderate breadth, stem not yellowing at base, growth gregarious to cespitose, (spores amyloid) ***Clitocybula\****

833b not with above combination of features 834

834a strong odor of cucumber or fish, dark brown cap with paler margin, gill edge with large cells visible with hand lens ***Macrocystidia*** ***cucumis\****

834b odor different, cap a different color, or gills without fringe under hand lens 835

835a fruitbody with threadlike stem or stem tapering toward base, odor of garlic, onion, or rotting cabbage 836

835b fruitbody with neither threadlike nor tapering stem, or odor different 837

836a (845a) stem insititious **Marasmioid species** (***Micromphale***)

836b stem not insititious **Collybioid** **species**

837a (835b) cap 4-15 cm wide, growing on mouldy foliage, coniferous wood, or buried wood 838

837b cap 0.5-4.0 cm wide, typically from cones but also woody debris 839

838a gill edge ciliate due to large cells under hand lens, stem not rooting ***Tricholomopsis***

838b gill edge not ciliate, stem rooting **Collybioid** **species**

839a (837b) cap flat to convex; gills pallid to violet, narrow and crowded; stem uniform in color **Marasmioid** **species** (***Baeospora***)

839b cap variable in shape; gills white and close; stem white at top becoming yellow to yellow-orange toward base **Marasmioid** **species** (***Strobilurus***)

840a (828b) cap broadly convex becoming flat-convex to flat, often obtusely umbonate, gills abruptly adnexed to adnexed, narrow and crowded, stem round in cross-section, longitudinally striate, and equal [***Melanoleuca***]

840b not with above combination of features 841

841a stem with prominent branches arising at right angles **Collybioid** **species** (***Dendrocollybia***)

841b stem not with branches at right angles 842

842a fruitbodies arising from a sclerotium or growing on dead mushrooms

 **Collybioid** **species** (***Collybia***)

842b fruitbodies neither arising from a sclerotium nor growing on dead mushrooms 843

843a cap less than 1.0 cm wide, with long hairs especially on margin, stem threadlike

 **Marasmoid species** (***Crinipellis***)

843b cap larger or without long hairs, or stem not threadlike 844

844a odor strong of cucumber or fish, dark brown cap with paler margin, cells on gill edge visible with hand lens ***Macrocystidia*** ***cucumis\****

844b odor otherwise, or cap not dark brown with paler margin, or cells on gill edge not visible with hand lens 845

845a odor of garlic, onion, or rotting cabbage 836

845b odor not of garlic, onion, or rotting cabbage 846

846a gills adnate or adnexed, cap flesh thin **Collybioid** **species**

846b gills abruptly adnexed or if adnexed or broadly adnate, cap flesh thick 847

847a gills broadly adnate, spores white ***Clitocybe***

847b gills abruptly adnexed or notched, spores cream to yellow in heavy deposit

 **Collybioid** **species** (***Rhodocollybia***)

848a (806a) stem relatively stiff, odor strong of fish or cucumber, dark brown cap with paler margin, gills with long cells visible under hand lens

 ***Macrocystidia*** ***cucumis\****

848b not with above combination of features 849

849a gills broadly adnate ***Clitocybe***

849b gills abruptly adnexed **Collybioid** **species** (***Rhodocollybia***)

850a (808a) spores dark reddish in mass, stem extremely fragile [***Psathyrella***]

850b spores not dark reddish in mass or stem not extremely fragile 851

851a spores and gills bright rusty brown, growing on wood, taste bitter ***Gymnopilus***

851b spores and gills not bright rusty brown, or not growing on wood, or taste not bitter 852

852a stem long and often rooting, cartilaginous or brittle but with fibrous center, cap typically conic, bellshaped, or convex-bellshaped or at least acutely umbonate, typically viscid ***Phaeocollybia***

852b not with above combination of features 853

853a cap viscid to glutinous 854

853b cap dry to moist 857

854a cap thick and when viscid not striate, growing on ground, stem fleshy to fibrous, spores rust-brown, cortina present and distinct in button stage [***Cortinarius*]**

854b cap thin and striate when moist, growing on ground or wood, stem fragile to horny, spores rust-brown to tobacco-brown or hazel to milky-coffee, cortina absent 855

855a growing on ground, stem horny, spores hazel to milky-coffee ***Stagnicola perplexa\****

855b growing on wood or terrestrial, stem fragile, spores rust-brown to tobacco-brown 856

856a cap white, yellow, violet-gray and pleated to grooved at least young ***Bolbitius*\***

856b cap brown or orange-brown, not pleated or grooved but often striate [***Galerina***]

857a (853b) spores bright rust-brown, rust-yellow, clay-colored, cinnamon-brown 858

857b spores umber-brown or tobacco-brown 873

858a growing on wood, cap granular to scaly ***Phaeomarasmius\****

858b growing on humus or if on wood, cap not granular to scaly 859

859a cortina present and distinctly evident when young [***Cortinarius***]

859b cortina absent, or if present not distinctly evident when young 860

860a cap pleated to furrowed at least when young ***Bolbitius*\***

860b cap not pleated to furrowed 861

861a odor cucumber or fishy, dark brown cap with paler margin, gills whitish to reddish-ocher, stem relatively stiff, velvety ***Macrocystidia*** ***cucumis\****

861b not with above combination of features 862

862a on burnt ground among the moss *Funaria* *hygrometrica*, gills rust-yellow to rust-brown, cap dry, 1-4 cm wide ***Pholiota*** (***Crassisporium***)

862b not with above combination of features 863

863a scattered or in groups or clusters on wood, gills adnate to slightly decurrent, spores ocher to dark reddish cinnamon or rust brown, hygrophanous moist or dry reddish or reddish brown cap and pinkish brownish flesh, cap 1-5 cm with white fibrils especially near margin, base usually with white mycelial mat ***Tubaria\****

863b not with above combination of features 864

864a growing on ground, stem horny, spores hazel to milky-coffee ***Stagnicola perplexa\****

864b growing on wood or terrestrial, either stem not horny or spores some other shade of brown 865

865a cap cuticle cellular, spores with germ pore, cannot be separated reliably without microscope from *Galerina* which has filamentous cap cuticle and spores without germ pore, but dry (may appear moist in wet weather), with hoary sheen or pruinose, may be striate [***Conocybe***]

865b not with above combination of features 866

866a cap margin straight at first, cap typically conic to bellshaped, sometimes convex, cap surface moist to viscid (may appear dry in dry weather), usually without hoary sheen, and often distinctly striate, stem fragile and often pruinose at top [***Galerina***]

866b cap margin at first inrolled to incurved, cap rarely conic, more typically parabolic, stem not as fragile, and not pruinose at top 867

867a (933a) fruitbody collybioid in stature, growing with alder, cap dry to hygrophanous and somewhat scabrous to scurfy, stem narrow, equal and not particularly fragile ***Naucoria\****

867b not with above combination of features 868

868a on burnt ground among the moss *Funaria hygrometrica*, gills rust-yellow to rust-brown, cap dry ***Pholiota*** (***Crassisporium***)

868b not with above combination of features 869

869a membranous partial veil present in button stage, annulus often present in young stages, but often fleeting 870

869b membranous partial veil and annulus absent in all stages, small fruitbodies 871

870a on stumps or wood remains, stem may be scaly below annulus, cap hygrophanous and gray-brown to ocher-brown ***Pholiota*** (***Kuehneromyces***)

870b terrestrial or rarely on wood, stem not scaly below annulus, cap not both hygrophanous and gray-brown to ocher-brown ***Agrocybe***

871a (869b) spores fawn to purple brown, growing on monocots ***Deconica caricicola\****

871b spores another shade of brown or not growing on monocots 872

872a spores deep rust-brown to rust-yellow ***Naucoria\****

872b spores brown, fuscous-brown or olivaceous-umber, cap often with olivaceous tone, growing on wood or plant remains [***Simocybe***]

873a (857b) stem extremely fragile, cap fibrillose, gills often purplish-violet [***Psathyrella***]

873b stem not extremely fragile or cap not fibrillose 874

874a cap olive to olive-brown or yellow-brown, stem pruinose, cortina absent [***Simocybe***]

874b cap greenish, greenish-yellow, yellow-orange to reddish, stem not pruinose, cortina present but often fleeting **Strophariaceae** (***Hypholoma***)

875a (808b, 904b) fruitbodies on monocots, spores fawn to purple brown, fruitbodies small with slender stem typically less than 0.1 cm wide, cap less than 0.7 cm wide, dry not striate ***Deconica caricicola\****

875b fruitbodies not on monocots, or spores another color, or stem greater than 0.1 cm wide, or cap viscid or distinctly striate 876

876a fruitbodies on wet soil under conifers and alders or along margins of bogs among mosses, spores pale purplish-brown, cap 1-3 cm hygrophanous orange-brown shiny striate, stem 0.1-0.2 cm wide, cartilaginous to horny

 ***Mythicomyces*** ***corneipes***\*

876b fruitbodies on wood, dung, or in grass or humus, cap viscid or dry, if stem is less than 0.2 cm wide then very fragile and snaps easily, often striate 877

877a cap dry 878

877b cap moist, slippery, viscid, or slimy 881

878a cortina present in button stage but typically fleeting, stem fleshy to fibrous and not fragile, annulus absent, cap yellow, olivaceous-brown, red, or yellow-brown, fruitbodies on wood or in *Sphagnum* bogs, cap shiny under hand lens **Strophariaceae** (***Hypholoma***)

878b not with the above features, cap surface dull under hand lens 879

879a gills dark brown and spotted, cap dark at first becoming pale, growing in grass ***Panaeolus***

879b gills not dark brown or not spotted, or cap not dark at first becoming pale, or habitat different 880

880a cap pleated-striate ***Coprinoid Species*** (***Pseudocoprinus***)

880b cap not pleated-striate **[*Psathyrella***]

881a (877b) gills mottled with spore maturity, annulus present or absent, cap 2-10 cm wide, pallid to pale ochraceous, growing on dung ***Panaeolus***

881b not with above combination of features 882

882a annulus absent, cap 0.5-2.0 (7.5) cm wide, yellow-brown to brown, at most greasy, at times acutely umbonate to conic **Strophariaceae** (***Psilocybe***)

882b annulus present or absent, cap 2-12 cm wide, white, yellow, brown, reddish, or greenish, often viscid, never acutely umbonate or conic **Strophariaceae** (***Stropharia***)

\* \* \*

901a (801b) spores white to pale cream to yellow 905

901b spores pinkish, rust-yellow, some shade of brown, or black 902

902a spores pink, pinkish-cream, or pinkish buff 921

902b spores pinkish-brown, salmon-brown, some other shade of brown, rust-yellow, or black 903

903a spores pinkish-brown or salmon-brown **Entolomataceae**

903b spores brown, rust-yellow or black 904

904a spores clay-colored, rust-yellow, cinnamon-brown, milky-coffee-brown, dark brown, earth-brown, reddish-brown, rust-brown, umber-brown, or tobacco-brown 922

904b spores purple-brown, blackish-brown, or black 875

905a (901a) gills notched 906

905b gills abruptly adnexed, adnexed, or adnate 908

906a spores white, stem with tough outer rind, broad frequently eroded gills, cap 4-12 cm, nonviscid often radially streaked, and dark brown to grayish-brown or pallid with dark center ***Tricholomopsis*** key(***Megacollybia*** ***platyphylla***)

906b not with above combination of features 907

907a spores white or yellow, stem with brittle or cartilaginous outer rind

 **Collybioid** **species** (***Rhodocollybia***)

907b spores white, pale cream, or cream, stem without a brittle or cartilaginous outer rind 914

908a (905b) stem rooting, tapering to a point and often buried in ground **Collybioid** **species**

908b stem not both rooting and tapering to a point 909

909a stem with sclerotium or bulb-like base that is often hollow but is not marginate, cap with easily removed granules or scales ***Squamanita***

909b stem lacking the combination of sclerotium or bulb like base and cap with easily removed granules 910

910a cap viscid, stem velvety and cartilaginous or brittle, although sometimes quite tough or thick, fruitbodies typically on wood ***Flammulina\****

910b cap not viscid or stem not velvety and cartilaginous or brittle, habitat various 911

911a gill edge ciliate (fringed) due to large cells easily visible under hand lens ***Tricholomopsis***

911b gill edge not fringed 912

912a gills adnate or adnexed, cap flesh thin 824

912b gills abruptly adnexed, or if adnexed to broadly adnate then cap flesh is thick 913

913a gills broadly adnate 740

913b gills abruptly adnexed, or adnexed 914

914a (907b) gills thick and waxy-looking 602

914b gills not thick and waxy-looking 915

915a fruitbody pinkish or purple-red to wine-red, odor mild to farinaceous

 ***Lyophyllum* and Allies** (***Calocybe*)**

915b fruitbody a different color, or odor different 916

916a fruitbodies more or less densely cespitose or in clusters or rings, or gills turning blue or black when bruised, (or gills bluing with PDAB)

 ***Lyophyllum* and Allies (*Lyophyllum*)**

916b not with any of the above features 917

917a growing on wood, gill edge ciliate (fringed) due to large cells visible with hand lens ***Tricholomopsis***

917b not growing on wood, or gill edge not fringed 918

918a cap broadly convex to flat-convex becoming flat, often obtusely umbonate, suede-like to the touch, gills narrow and crowded, stem equal, longitudinally striate [***Melanoleuca*]**

918b not with the above combination of features 919

919a with an inrolled margin at least when young, and has one of following features a) base or stem retains large clump of humus bound up my masses of white mycelium, or b) cap 10-40 cm wide, whitish to yellowish, and sturdy hard flesh has bitter taste ***Leucopaxillus*\***

919b not with an inrolled margin or not having either of those features 920

920a fruitbody pinkish or purple-red to wine-red ***Lyophyllum* and Allies** (***Calocybe*)**

920b fruitbody colored otherwise ***Tricholoma***

921a (902a) stem rooting or tapered at base, longitudinally striate with a cartilaginous rind and fleshy interior, fruitbodies may stain reddish **Collybioid** **species** (***Rhodocollybia***)

921b stem not rooting or tapered and not longitudinally striate, fleshy throughout, fruitbodies not staining reddish ***Clitocybe*** (***Lepista***)

922a (904a) gills readily removed from cap 923

922b gills not readily removed from cap 924

923a cap reddish to purplish-brown or olive-green, cap surface turning blue with KOH, gills bright yellow **Gilled** **boletes** (***Phylloporus***)

923b cap ocher-brown, brown, olive, or black, cap surface not turning blue with KOH, gills brownish **Gilled** **boletes** (***Paxillus***)

924a (922b) spores clay-colored to bright rusty-brown, gills bright yellow to bright rusty-brown, cap more than 1.5 cm wide, brightly colored, taste bitter, growing on wood ***Gymnopilus***

924b not with the above combination of features 925

925a spores dark brown or black-brown, cap bald, greenish, greenish-yellow, reddish-ochraceous, or yellow-brown, taste often bitter, cortina present but often fleeting, fruitbodies on peat, bogs, or wood **Strophariaceae** (***Hypholoma***)

925b not with the above combination of features 926

926a cap 1-5 cm wide, yellow-brown, and with a lighter margin, gills with a whitish edge, stem pruinose at top, odor indistinct, growing on burned wood or burned ground ***Pholiota***

926b not with the above combination of features 927

927a gills with whitish gill edge, stem pruinose at top, spores reddish-brown to clay-colored to umber 928

927b gills without whitish edge, or if so then the stem not pruinose, spores either rust-brown to rust-yellow or umber-brown, earth-brown, milky-coffee-brown, or tobacco-brown 929

928a cap often dry and cracked, surface fibrillose, fibrillose-scaly, or scaly; odor often spermatic or some other distinctive smell like fishy, fruity, green corn, bruised Geranium leaves, or like Lycoperdon flesh ***Inocybe***

928b cap usually viscid, sticky to touch, surface smooth, never cracked or scaly; odor usually like radish but also may be like burnt sugar, saccharine, sweet, orange blossoms, cocoa, or mild [***Hebeloma***]

929a (927b) spores umber-brown, earth-brown, milky-coffee-brown, or tobacco-brown 930

929b spores rust-brown to rust-yellow 931

930a stem dry and without conspicuous scales, cap bald and dry, growing on ground, on dung, on decaying wood, or on wood chips ***Agrocybe*** (including *Cyclocybe*)

930b stem typically scaly, at least on basal part, rarely bald, cap either fibrillose to scaly, or bald and slippery to viscid or slimy, growing typically on wood, wood chips, or rarely on hard-packed soil ***Pholiota***

931a (929b) cap conic to bellshaped, bald, viscid or moist, stem rooting, fruitbodies often clustered to gregarious or nearly cespitose ***Phaeocollybia***

931b not with the above combination of features 932

932a cortina evident in young stages, if cortina overlooked the stem typically either viscid or with fibrils that represent the remnants of the cortina [***Cortinarius*]**

932b cortina not evident in young stages 933

933a fruitbody with yellow-brown, tobacco-brown, red-brown, or umber-brown colors, fruitbodies under alder, willow, birch, or in mosses 867

933b fruitbody variable in color but usually brighter or lighter than above, typically growing on wood, if on humus then not associated with alder, willow, birch, or mosses ***Pholiota***

# DESCRIPTIONS FOR SPECIES NOT ASSIGNED TO OTHER KEYS

*Bolbitius titubans* (Bull.) Fr.

**CAP** 1-7 cm across when expanded, ovoid to conic or bell-shaped when young, often becoming flat when old but often retaining a small central umbo; bright yellow to pale yellow, often fading when old; smooth, viscid or slimy when moist, margin striate, often becoming grooved nearly to center; flesh thin, soft; yellowish. **GILLS** free or nearly free, close, narrow, thin, soft, dissolving somewhat in wet weather; straw-colored then then tinged rust and finally deep rusty tawny. **STEM** 3-12cm x 0.2-0.8cm, equal or widening in lower part, hollow, fragile; whitish to pale yellow; often pruinose or flocculose. **VEIL** absent. **ODOR** and **TASTE** indistinct. **FRUITING** single, scattered or gregarious (or even cespitose) on dung, manure, straw, rotting vegetable debris, cultivated ground, grass, and at margins of woods. **DISTRIBUTION** BC, WA, OR, ID. **SPORE COLOR** rusty orange to rusty brown or ocher brown. **MICROSTRUCTURES** spores 10-16 x 6-9 um, elliptic, smooth, truncate from large germ pore; basidia 4-spored; pleurocystidia rare, when present lageniform, cheilocystidia variable, utriform or lageniform with long or short neck, intermixed with a few colorless inflated cells, 30-50 x 14-20 um; clamp connections absent. **REMARKS** Breitenbach & Kränzlin give the opinion that *Bolbitius reticulatus*(Pers.: Fr.) Ricken with a lilac, reticulate-venose cap and *B. variicolor* G.F. Atk., with an olive-yellow to olive-brown, sometimes venose cap, are not separate species but only deviations from the type of *B. vitellinus* (here *B. titubans*) caused by substrate, age, or weather, especially since the microscopic features do not show any marked differences.Another *Bolbitius* reported from the Pacific Northwest is *Bolbitius aleuriatus* with a gray or gray-brown cap. **SOURCES** Watling(1), Arora(1)\*, Lincoff(2)\*, Lincoff(1)\*, Schalkwijk-Barendsen(1)\*, Courtecuisse(1)\*, Barron(1)\*, Breitenbach(4)\*

*Callistosporium luteo-olivaceum* (Berk. & Curt) Singer

**CAP** 1.5-6.5 cm, convex or slightly umbonate becoming flat or shallowly depressed; dark olive to olive brown or olive yellow, often becoming yellower when old and developing dark reddish brown tones when dried; not viscid, often finely scurfy at first but becoming smooth; flesh thin, pallid or yellowish or tinged cap color. **ODOR** mild to pungent or slightly fruity. **TASTE** mild or slightly bitter. **GILLS** notched or adnexed or adnate, close, yellow, tending to redden when dried. **STEM** 2.5-7 x 0.3-1 cm, more or less equal, often flattened; colored like cap or slightly darker, tending to turn deep red-brown from the base up as it dries; smooth to fibrillose or scurfy especially over lower part, sometimes streaked when old. **FRUITING** single, scattered or in small groups or cespitose, on rotten wood under conifers**. DISTRIBUTION** at least BC, WA**. SPORE COLOR** white. **MICROSTRUCTURES** spores 4.5-6.5 x 3-4.5 um according to Arora, (7-8 (8.5) x 3.5 um and larger for 2-spored or 1-spored basidia according to Favre quoted by Redhead), elliptic to nearly round, smooth, inamyloid; pleurocystidia absent, cheilocystidia generally present, rarely exceeding basidia, 10-39 x 2.5-5 um, clavate to filamentous, usually with contorted appearance, sometimes sparingly branched. **REMARKS** stature of a *Collybia* and originally in that genus, but distinguished by olive and yellow coloration and tendency to grow on rotten wood. **SOURCES** Arora, Redhead(23), Lennox.

*Cantharocybe gruberi* (A.H. Sm.) H.E. Bigelow & A.H. Sm.

**CAP** 8-20 cm, convex with inrolled margin; pale yellow to lemon yellow drying darker yellow; dry, unpolished, tomentose at the edge at first; flesh thick, firm, white, unchanging when cut or bruised. **ODOR** radishlike, somewhat sweetish, or like green pepper, or farinaceous. **TASTE** similar to odor or mild. **GILLS** long decurrent, ends unequal at top of stem, close, about 3 tiers of subgills, narrow becoming broad, anastomosing or forming a network at top of stem; colored as cap or paler and duller. **STEM** 3-5 x 1.5-2.5 cm, short and thick, firm, solid; colored as cap or darker yellow; bald. **FRUITING** single, on needle beds and soil under conifers. **DISTRIBUTION** found at least ID (Smith), WA (by Janet Lindgren, Jennifer Schmidt). **SPORE COLOR** white or pale lemon yellow. **MICROSTRUCTURES** spores 11-16 (17.5) x (4.5) 6-7.5 um, elliptic to almost cylindric, smooth, inamyloid; pleurocystidia rare, adjacent to gill edge when present, similar to cheilocystidia in size and shape, cheilocystidia abundant, 33-75 um long, 4-7.5 (1) um broad in swollen portion, usually lageniform to lecythiform, apices branched at times, colorless, thin-walled, smooth; clamps present. **REMARKS** distinctive features are large size, yellow color of dry cap and stem, decurrent close gills that anastomose near stem and are colored as cap or paler and duller, white or pale lemon yellow spore deposit, large elliptic to subcylindric spores, and the presence of cheilocystidia. **SOURCES** Bigelow(1), Smith(17).

*Catathelasma imperiale* (Fr.) Singer imperial cat

**CAP** 10-40 cm, convex to flat with incurved margin at first; blackish brown to dingy brown, dingy yellow-brown, or olive-brown; slightly viscid when moist but soon dry, smooth, fibrillose-scaly, or cracked into scales or plaques; flesh very thick (up to 15cm!) and hard, white. **ODOR** floury. **TASTE** floury or bitter. **GILLS** decurrent, close, narrow in relation to flesh, many forked; pallid or buff to yellowish or pale greenish gray. **STEM** 12-18 x 3-8 cm, thick, narrowing to bluntly pointed base; dingy brown to pinkish buff below the annulus; dry; annulus membranous, two-layered, lower surface often areolate (like cracked mud) while still covering gills, typically forming double ring, the upper one thick, striate above and often flaring, the lower one sheathing stem as a thin membrane or gelatinous zone. **FRUITING** single, scattered, or in groups on ground under conifers (especially spruce and fir). **DISTRIBUTION** BC, WA, OR, ID. **SPORE** **COLOR** white. **MICROSTRUCTURES** spores 10-15 x 4-5.5 um, cylindric, smooth, amyloid; marginal cells on gill edges 37-70 x 2.5-3.5 um, cylindric, some flexuous. **REMARKS** *C. ventricosum* has dingy whitish to grayish cap which is not viscid. **SOURCES** Arora, Phillips, Lincoff(1), Lincoff(2), Courtecuisse, Breitenbach(3)

*Catathelasma ventricosum* (Peck) Singer swollen-stalked cat

**CAP** 7-15(35) cm, dingy whitish to brownish or grayish; dry, smooth, patchy with age; flesh hard, thick, white. **ODOR** reported as not distinctive and as cucumber-farinaceous. **TASTE** mildly unpleasant. **GILLS** decurrent, close to nearly distant, narrow to broad; whitish to buff. **STEM** 5-15 x 2.5-6 cm, short and stout, narrowing toward base and deep in soil; white above double annulus and yellow-brown below it; dry; annulus two-layered flaring, upper layer hairy, lower membranous. **FRUITING** under conifers especially spruce. **DISTRIBUTION** mentioned by Jumpponen et al. for WA, but appears more widely in Pacific Northwest on foray lists. **SPORE** **COLOR** white. **MICROSTRUCTURES** spores 9-12 x 4-5.5 um, elliptic, smooth, amyloid. **REMARKS** *Tricholoma* *magnivelare* somewhat similar but has spicy odor and lacks double veil. *C. imperiale* taller and usually larger than and has sticky dark cap when young. **SOURCES** Phillips, Lincoff(2), Bessette(2), Barron, Jumpponen

*Cleistocybe gomphidioides* (A.H. Sm.) Ammirati, A.D. Parker, & Matheny

**CAP** 5-9 cm across, flat at first with inrolled margin, becoming broadly convex with disc depressed or flat; reddish brown to cinnamon brown on disc, paler toward margin; viscid, with streaks of agglutinated fibrils or scaly or finely tomentose then bald when old, disc with minute scales or minutely areolate, margin at times fringed with veil remnants; flesh thick, firm, whitish or brownish. **ODOR** and **TASTE** strongly rancid farinaceous. **GILLS** short-decurrent or long-decurrent, close to crowded or subdistant, narrow to moderately broad, often forked; pinkish buff to light pinkish brown when young, light gray to gray, darkening when old. **STEM** 3-9 x 0.8-1.5 cm, equal or club-shaped; pale gray, base darkening where handled, appressed fibrillose below ring zone, partial veil apical, thin, fibrillose to submembranous, at times annulate, at times collapsed or disappearing. **FRUITING** single to gregarious under conifers or in mixed forest, August to October. **DISTRIBUTION** found at least WA and ID, but not common. **SPORE COLOR** white. **MICROSTRUCTURES** spores (6.0)7.5-11.8(15.5) x (3.5)4.0-5.5 um, elliptic, smooth, inamyloid; basidia usually 4-spored but rarely 1-3-spored; pleurocystidia and cheilocystidia absent; cap cuticle subgelatinous to gelatinous in KOH; clamp connections present. **REMARKS** *Cleistocybe vernalis* occurs in spring, has a non-gelatinous cap cuticle microscopically, has spores slightly different, and has different molecular data. *Clitocybe gomphidioides* A.H. Sm. and *Clitocybe subvelosa* A.H. Sm. & D.E. Stuntz are synonyms. **SOURCES** Ammirati(12), Bigelow(5), Smith(9).

*Cleistocybe vernalis* Ammirati, A.D. Parker, & Matheny

**CAP** 2-6 cm across, convex at first with incurved margin, becoming depressed with downcurved margin, appressed-fibrillose to squamulose with vinaceous brown fibrils like kid leather over pale pinkish gray background, at times cracked-areolate and/or margin with scattered patches of submembranous veil remnants; flesh thick, firm, pale pinkish gray-brown. **ODOR** strongly farinaceous. **GILLS** decurrent, close, gills more or less equal in number to subgills, narrow; pale pinkish gray. **STEM** 3-6 x 0.7-1.5 cm wide, equal to slightly narrowing downward, at times 2-4 fruitbodies from common base; colored as cap; fibrillose above ring zone, with coarse irregular patches of veil tissue in lower part, annulus submembranous, superior, pale pinkish gray. **FRUITING** single or clustered on soil, late April to mid-May. **DISTRIBUTION** type found in eastern WA. **SPORE COLOR** presumably pale. **MICROSTRUCTURES** spores (6.3)7.4-10.4 x 3.7-4.8 um, elliptic to ovate, amyloid, presumably smooth; basidia 4-spored; pleurocystidia and cheilocystidia absent; cap cuticle not embedded in a gelatinous matrix; clamp connections present throughout. **REMARKS** *Cleistocybe gomphidioides* occurs in fall, has a sub-gelatinous to gelatinous cap cuticle microscopically, and has spores that are slightly different. **SOURCES** Ammirati(12), Trudell(4).

*Clitocybula abundans* (Peck) Singer

**CAP** up to 4cm across, generally about 2cm, convex becoming flat then depressed, margin inrolled at first and remaining arched, often splitting; somewhat hygrophanous, grayish tan to light fuscous, darker fuscous on disc; moist to dry, innately radially fibrillose, only slightly if at all translucent-striate; flesh thin, firm, not tough; whitish. **ODOR** and **TASTE** not distinctive. **GILLS** broadly adnate to subdecurrent, close to normal spacing, rather narrow, thin, white, may be interveined. **STEM** up to 5 cm long and up to 0.5 cm wide, equal or slightly flared at base, generally curved both ways, round, hollow; whitish, thinly pruinose at top or throughout. **FRUITING** tufted on logs or stumps of conifers. **DISTRIBUTION** found at least WA and OR. **SPORE COLOR** white. **MICROSTRUCTURES** spores 4.5-6(6.5) x 3.5-5.5 um, nearly round to ovate, smooth, amyloid; basidia 4-spored. cheilocystidia 33-50 x 7-16 um, basidioid to subsaccate, smooth, colorless, thin-walled; clamp connections present. **REMARKS** *Clitocybula lacerata* is larger, with lacerate cap and gills, and has larger more ovate to elliptic spores and lacks cystidia. **SOURCES** Lennox, Bigelow(3), Barron(1)\*, Breitenbach(3)\*

*Clitocybula atrialba*  (Murrill) Singer black and white Clitocybula

**CAP** 2.5-8(10)cm across, convex at first expanding to flat, disc soon depressed, finally funnel-shaped, margin at first downcurved then elevated; smoky to dark blackish brown, usually streaked with lighter brown and paler on disc; dry to moist at times but not hygrophanous, somewhat hoary or finely matted fibrillose, becoming furfuraceous, margin entire or scalloped, not striate; flesh thin; whitish near disc, cap-colored near margin. **ODOR** and **TASTE** not distinctive. **GILLS** decurrent, ends even and forming a collar on stem top, distant, narrow or broad, occasionally forked when old; grayish to whitish; intervenose, faces venose. **STEM** 5-12.5 cm x 0.3-1.5 cm, base somewhat enlarged; brown, paler when old, diffracted scaly to furfuraceous at top, scales dark, fibrillose streaked downward, top streaked with ridges as continuation from gills, base often with rhizomorphs. **FRUITING** single, scattered or somewhat tufted on buried hardwood or less commonly on hardwood logs and sticks above ground. **DISTRIBUTION** at least BC, WA, OR. **SPORE COLOR** white. **MICROSTRUCTURES** spores (6)7.5-9 x 7-8 um, from 4-spored basidia, round or nearly round, up to 13 x 9 um, from 1- and 2-spored basidia, then broadly elliptic to subovate, smooth, amyloid; pleurocystidia none, cheilocystidia none; clamp connections present **REMARKS** *Clitocybe avellaneialba* has brownish cap and smooth stem, along with inamyloid fusoid spores. **SOURCES** Bigelow(3), Lincoff(2)\*, Arora(1), Bandoni(1).

*Clitocybula familia* (Peck) Singer family Clitocybula

**CAP** 1-4 cm across, hemispheric to convex with margin narrowly incurved at times and slightly exceeding gills, occasionally broadly lobed or faintly grooved but not pellucid-striate, disc may have slight small umbo; watery whitish or faintly smoke-tinged, moisture lost in radiating streaks but no color change; moist, bald to the eye, thinly pruinose under hand lens, margin may be torn when old; flesh white, thin, pliant or brittle. **ODOR** not distinctive. **TASTE** not distinctive or slightly disagreeable.. **GILLS** adnate or notched to nearly free, close or crowded, narrow (up to 0.4cm); white or pale gray. **STEM** 4-8cm x 0.15-0.3cm, compressed and fluted at times, easily splitting longitudinally, hollow; top and middle part white, base dingy and rather grayish at times; white pubescent, base woolly-hairy**FRUITING** cespitose in large clusters on logs and stumps, usually on conifer wood, but occasionally on hardwood. **DISTRIBUTION** in the Pacific Northwest found at least in ID. **SPORE COLOR** white. **MICROSTRUCTURES** spores 3.5-4(5)5 um, round, smooth, amyloid; basidia 4-spored; pleurocystidia and cheilocystidia absent; clamp connections present. **REMARKS** *Clitocybula lacerata* is usually on hardwoods and has larger elliptic spores. *Collybia acervata* is also densely clustered on rotting conifers, but cap of *Clitocybula familia* is watery white to smoky-gray to brownish or tan (never reddish-brown), and stem is white to grayish. *Mycena* species have straight cap margin when young. **SOURCES** Bigelow(3), Phillips(1)\*, Lincoff(2)\*

*Clitocybula lacerata* (Scop.) Metrod

**CAP** 3-6 cm across, convex with inrolled margin, expanding to broadly convex, disc soon depressed, margin thin and soon lacerated or lobed and quite irregular; hygrophanous, dull watery gray when moist, fading as it dries to pallid ashy gray; translucent striate or streaked with dark lines; appressed radially fibrillose; flesh thin, fragile, pallid when faded. **ODOR** and **TASTE** not distinctive. **GILLS** broadly adnate to subdecurrent with a tooth, distant to subdistant, broad, at times anastomosed, thin. dull gray, usually venose. **STEM** 1.5-5 cm x 0.2-0.5 cm, equal or widening downward, hollow, soon deeply furrowed or compressed, cartilaginous, often curved; dingy to pale gray, colored as cap or paler; moist, faintly pruinose at first, soon bald and polished, white cottony mycelioid base. **FRUITING** scattered to gregarious or clustered on logs or stumps of conifers or hardwoods. **DISTRIBUTION** in the Pacific Northwest found at least in ID. **SPORE COLOR** white. **MICROSTRUCTURES** spores 6-8 x 4.5-5.5 um, broadly ovate to elliptic, smooth, amyloid; basidia 4-spored; no cheilocystidia or pleurocystidia; clamp connections present. **REMARKS** *Clitocybula familia* is usually on conifers, usually in tufted clumps and has small round spores. *Clitocybula abundans* similar q.v. *Megacollybia platyphyll*a is significantly larger. **SOURCES** Lennox, Bigelow(3), Breitenbach(3)\*.

*Clitocybula oculata* (Murrill) H.E. Bigelow

**CAP** reaching 4.5cm across, convex to flat, slightly depressed; avellaneous (grayish brown), fuliginous (sooty) at center; dry, smooth, finely furfuraceous, margin very thin, entire, even; flesh thin. **GILLS** short-decurrent, distant; white. **STEM** 6cm x 0.5cm, equal, twisted, hollow, with tough rind; whitish with a pale avellaneous tint; furfuraceous. **FRUITING** type single in low woods, probably attached to buried wood. **DISTRIBUTION** type found at Mill City, OR in 1911. **MICROSTRUCTURES** spores 9-12 x 6-9 um, broadly elliptic or oval, smooth, granular, colorless, amyloid; basidia 2-spored; pleurocystidia and cheilocystidia not found; cap cutis consisting mostly of pileocystidia, usually clavate to clavate-bulbous and often pedicellate, sometimes +/- fusoid or cylindric, 19-68 x 6-12.5 um, smooth, with brownish intracellular pigment; clamps present. **REMARKS** *Clitocybula atrialba* is darker in color. **SOURCES** Bigelow(3).

*Deconica caricicola* (P.D. Orton) Redhead

**CAP** 0.3-0.6 cm, convex expanding to nearly flat, margin incurved when young, flaring with age, separable gelatinous cap skin; yellowish brown darkening to rusty yellowish brown, paler marginally, slightly viscid when moist, somewhat striate, sparsely hoary but soon nearly bald; flesh colored as cap. **ODOR** mild. **GILLS** adnate, moderately spaced, moderate breadth, subgills in 2 tiers; buff then tinged with spore color, sometimes with a pinkish tint, with paler edges. **STEM** 0.1-0.3 x 0.02-0.05 cm, central to slightly off-center, curved, equal or widening downwards, arising from a basal pad of whitish cottony mycelium; yellowish brown to umber brown; dry, finely fibrillose to pruinose. **FRUITING** on monocots: *Carex* (sedge), *Juncus* (rush), *Scirpus* (bulrush), grass. **DISTRIBUTION** at least BC. **SPORE COLOR** described as brown vinaceous to fawn or as violaceous umber. **MICROSTRUCTURES** spores 5.5-6.9 x 3-4.5 um, oval to elliptic, smooth, walls pronounced, germ pore well developed, apiculus minute; cheilocystidia abundant, forming a sterile margin, 12-25.5 x 4.5-6 um, colorless, thin-walled, base clavate to short sphaeropedunculate, with an elongated, undulating neck. **REMARKS** characterized by small size and habitat on monocots, well-developed gelatinous layer on ochraceous cap, distinct but small stem, and violaceous umber spore deposit; *D. phillipsii* lacks a well developed gelatinous cap skin, and has paler narrower spores (5-7 x 2.7-3.5 um); *Melanotus caricicola* is a synonym. **SOURCES** Redhead(33), Watling(3); Redhead(9).

*Deconica horizontalis* (Bull.) Noordel.

**CAP** 0.8-1.8 cm, convex to flat-convex, margin incurved at first, often deeply indented on side by stem and somewhat kidney-shaped; yellow brown to orange brown or cinnamon; dry, nearly bald or appressed tomentose, opaque or slightly striate, may appear frosty; flesh up to 0.1 cm, pinkish buff to orange brown, unchanging. **ODOR** faintly aromatic or mild. **TASTE** mild. **GILLS** adnexed to adnate and sometimes with short decurrent teeth, close to subdistant, 2-3 tiers of subgills, narrow becoming moderately broad; light purple brown to pinkish cinnamon, staining dark brown on handling, edges whitish. **STEM** 0.5-1.5 x 0.1-0.5 cm, off-center but not lateral, usually distinctly curved and tapered toward base; brown, often darker than cap, often furry. **FRUITING** old fabrics or old carpets, seat covers of abandoned cars, mattresses, rotting blue jeans, or on wood. **DISTRIBUTION** at least BC, WA, OR. **SPORE COLOR** purple brown to dark brown. **MICROSTRUCTURES** spores 6.4-7.2 (8) x 4-5 um, elliptic to oval or somewhat almond-shaped, with an apical germ pore, smooth; pleurocystidia numerous to scattered, 17-30 (35) x 4-5 um, always embedded but with a protruding neck, easy to overlook, similar in shape to cheilocystidia, often with an apical droplet, cheilocystidia numerous, 15-30 (33) x 4-5 um, clavate, lageniform to ventricose-rostrate, neck often wavy, narrowing at top, thin-walled, often with a golden droplet up to 7 um diameter; clamps present. **REMARKS** features include growth on old fabric or on wood, small size, kidney-shaped dry brown cap, light purple brown to pinkish brown gills that are white-edged and stain dark brown with handling, off-center curved brown furry stem that narrows toward base, and purple brown to dark brown spore deposit; *Melanotus horizontalis* and *Melanotus textilis* are synonyms. **SOURCES** Redhead(18), Sime(1), Redhead(6), Watling(3).

*Flammulina lupinicola* (Redhead & R.H. Petersen) C. Hahn

**CAP** 2-5 cm, convex, occasionally umbonate; hygrophanous, yellow brown to orange brown; striate when wet, thinly viscid. **GILLS** adnate or notched; whitish. **STEM** 2-5 x 0.2-0.7 cm, clustered; orange to orange-brown, whitish at top and dark brown at base; velvety especially on lower part. **FRUITING** on clusters of dead bush lupine, most common on *Lupinus arboreus* (yellow bush lupine). **DISTRIBUTION** known from CA including far north coast and likely in OR. **SPORE COLOR** white. **MICROSTRUCTURES** spores 7-15 x 4-6.5 um, elliptic, cylindric to apple-seed-shaped, smooth, inamyloid. **REMARKS** The habitat is its most obvious character. **SOURCES** Siegel(2)\*.

*Flammulina populicola* Redhead & R.H. Petersen

**CAP** 1.5-3.3 cm, convex, somewhat umbonate; yellow brown to orange brown; somewhat striate, subviscid or pruinose. **GILLS** adnate; whitish. **STEM** 5-8 x 0.2-0.7 cm, fasciculate (bundled); yellow brown, darkening from base upwards becoming blackish brown ultimately; pruinose to velvety. **FRUITING** found most frequently on *Populus tremuloides* (quaking aspen), but occasionally on other substrates. **DISTRIBUTION** widespread in western and central portions of North America, at least WA (Lorelei Norvell, pers. comm.). **SPORE COLOR** presumably white or whitish. **MICROSTRUCTURES** spores 6-8.7 x 3.7-4.8 um elliptic, oval or oboval, smooth, inamyloid; cheilocystidia, pileocystidia and caulocystidia lageniform or ventricose; clamps present. **REMARKS** Features include typically convex, dry to viscid, yellowish to orangish brown cap, whitish gills, pruinose to velvety stem that darkens from base upwards becoming blackish brown ultimately, and microscopic features. It is similar to *F*. *velutipes*, but fruiting bodies of *F. populicola* are more frequently found in clusters or single on the ground (somewhat rooting) at the base of trees, and are microscopically distinguishable by combination of a hymeniform to somewhat hymeniform suprapellis, (like *F. rossica* but not *F. velutipes*) with or without limited apical or basal growths, with typical pileocystidia (nearly always conspicuously projecting, unlike those of velutipes which may become embedded and/or collapse in slime), and short elliptic spores. **SOURCES** Redhead(37).

*Flammulina rossica* Redhead & R.H. Petersen

**CAP** 2-5 cm, convex, somewhat umbonate; ochraceous-buff; viscid, somewhat striate. **GILLS** adnexed or adnate; ochraceous buff. **STEM** pruinose to velvety and darkening from the base up, becoming dark brown ultimately. **FRUITING** most frequently on Salix (willow) or on Populus, but also on other substrates. **DISTRIBUTION** not yet clear, but some collections clustering with the Russian type in some analyses are from western North America (Canada, US). **SPORE COLOR** presumably white or whitish. **MICROSTRUCTURES** spores 7.4-11 x 3.8-4.5 um, elliptic or oval, smooth, inamyloid, colorless; cheilocystidia, pileocystidia and caulocystidia lageniform or ventricose; clamps present. **REMARKS** Features include typically convex, viscid, ochraceous-buff cap, whitish gills, pruinose to velvety stem that darkens from base upwards becoming blackish brown ultimately, and microscopic features. It is similar to *F.* *velutipes* or *F. populicola*, although more frequently with very pale cap, and microscopically distinguishable by combination of hymeniform to somewhat hymeniform suprapellis (as with *F. populicola* but not *F. velutipes*) with or without limited apical or basal growths in some collections, with typical pileocystidia which may be scarce, and elongated elliptic to cylindric spores (usually 9.2-10.3 x 3.9-4.5 um). **SOURCES** Redhead(37).

*Flammulina velutipes* (Curt.ex.Fr.) Singervelvet-foot, velvet-stalk, winter mushroom

**CAP** 1-5 (7) cm, convex to flat or broadly umbonate, margin at first inrolled, often becoming wavy; reddish-brown, orange-brown or yellow-brown, spotting or staining dark brown; smooth, slimy or viscid when moist, cap skin peeling easily from cap, striate half to three-quarters of radius; flesh thin to moderately thick, firm, whitish or yellowish. **ODOR** and **TASTE** mild. **GILLS** adnate to adnexed or notched, subdistant to close, broad; whitish to pale yellow. **STEM** 2-11 x 0.2-0.5 (1.2) cm, equal or wider below, tough, often curved, round in cross-section or flattened, sometimes slightly off-center, smooth and pallid to yellowish to orange-brown when young, but developing a rusty-brown to blackish-brown velvety coating from the base upward, brown rhizomorphs at base. **VEIL** annulus none. **FRUITING** in tufts or clusters on or near stumps, logs, and roots of hardwoods, spring or fall, in the cooler part of the season, often grows through winter. **DISTRIBUTION** at least BC, WA, OR, (Lorelei Norvell, pers. comm.). **SPORE COLOR** white or pale yellow. **MICROSTRUCTURES** spores 6.5-7.5 x 3-4 um, larger from 2-spored basidia, elliptic to cylindric or pip-shaped, smooth, generally with a somewhat thickened wall, inamyloid; pleurocystidia not differentiated; cheilocystidia abundance variable, 26-57 x 9-14 um, ventricose, often pedicellate, tapering gradually upward to an obtuse broad apex, thin-walled; cap has ixotrichoderm (turf-like with gelatinized hyphae) of filamentous to branched and thorny ixohyphidia (gelatinized terminal hyphae). **REMARKS** cultivated as enokitake which looks different; features include smooth, slimy or viscid, yellow-orange to brownish cap, stem which is dark brown and velvety at maturity, at least in its lower part, absence of veil, clustered growth on dead hardwoods, and white spore deposit; similar to *F. populicola* and *F. rossica* which have hymeniform to somewhat hymeniform suprapellis (composed of broadly clavate, ten-pin-shaped, to sphaeropedunculate hyphal tips with scattered pileocystidia), *F. populicola* is more often found in clusters or single on ground (somewhat rooting) at the base of trees, and rossica more frequently exhibits a very pale cap and has elongate spores. **SOURCES** Lennox, Arora\*, Phillips\*, Lincoff(2)\*, Lincoff(1)\*, Ammirati\*, Courtecuisse\*, Bessette(2)\*, Barron\*, Redhead(37).

*Heliocybe sulcata* (Berkeley) Redhead & Ginnssunray mushroom

**CAP** 1-4 cm, convex to flat-depressed, small umbo; brown to orange-brown or cinnamon; ribbed over the gills like a small umbrella, dry, fibrillose becoming appressed scaly; flesh confluent in cap and stem, white. **GILLS** sinuate, close to distant, subgills present, sometimes forked near the stem; bone colored; serrate. **STEM** 1-3 x 0.3-0.6 cm approximately, solid; whitish near top, pinkish tan lower down; fibrillose, lined at top, base with small scales. **VEIL** absent. **FRUITING** on hardwoods, especially dry habitats such as decorticated dry wood in rail fences or debarked fallen trees. **DISTRIBUTION** widely distributed in North America, reported from BC by Schalkwijk-Barendsen. **SPORE COLOR** white to orange buff. **MICROSTRUCTURES** 11-16 (20) x 5-7 um, bean-shaped in profile, presumably elliptic to oblong in face view, pleurocystidia and cheilocystidia 60-90 (110) um, subcylindric; no clamps. **REMARKS** features include convex dry cap with small umbo which is brown to orange brown, ribbed, and fibrillose-scaly, gills serrated as *Neolentinus*, fibrillose dry stem that is whitish near top and pinkish tan lower down, growth on hardwoods, and elongated spores. **SOURCES** Schalkwijk-Barendsen\*, Smith(6), Redhead(6).

*Leucopaxillus albissimus* (Peck) Singer

**CAP** 4-10cm, convex to flattened; pure white, creamy white, or creamy tan; dry, unpolished, sometimes surface minutely scurfy or matted especially at center, margin may be ribbed and downy; flesh thick at disc, *tough, resistant to decay*, white. **ODOR** mild, sweet-spicy, pungent and unpleasant, or like rancid corn meal. **TASTE** mild to bitter. **GILLS** adnate to short decurrent, crowded to subdistant, narrow to broad, sometimes forked, white to cream, sometimes spotted, sometimes becoming yellow. **STEM** 3-7 cm x 1-1.5cm at top, equal to club-shaped or with bulbous base, sometimes off-center; white; white; smooth to scurfy. **FRUITING** single or in groups, under conifers. **DISTRIBUTION** BC, WA, OR, ID. **SPORE COLOR** white. **MICROSTRUCTURES** spores 5.5-8.5 x 4-5.5 um, nearly round to broadly elliptic, with amyloid warts, few or no cystidia. **REMARKS** Singer and A.H. Smith described a number of varieties and forms in 1943. Of these, var. *paradoxus* is regarded by some authors as a separate species. It is said to have an odor like *Tricholoma sulphureum* (burned rubber gym shoes). Var. *lentus* forma *typicus* has sweet-spicy odor and bitter taste, var. *lenta* forma *olympianus* has odor like rancid corn meal and mildly rancid taste, and var. *lentus* forma *furcatus* has mild odor and taste. Var. *piceinus* has pungent, unpleasant odor and bitter taste, and gills that are deeply forked near stem and turn dark yellow with age. Var. *lentus* forma *typicus* and var. *lentus* var. *furcatus* are pure dull white and unchanging, but the others are white to buffy, bruising or darkening in age. Later, another whitish (unchanging) variety, var. *monticola*, was described which had aromatic odor, mild taste, and strongly forking gills. Two other large Pacific Northwest species of *Leucopaxillus* are described for the Pacific Northwest, *L. septentrionalis* Singer and A.H. Smith, and *L. giganteus* (Sowerby) Singer. Both were later included as *Clitocybe* species in Bigelow’s 1982 *Clitocybe* monograph. The information here on *Leucopaxillus* depends on a 1981 key to *Leucopaxillus* written by Judy Roger. **SOURCES** Singer(19), Singer(5).

*Leucopaxillus gentianeus* (Quél.) Kotlaba

**CAP** 4-12 cm across, liver-chocolate to deep red brown, margin paler, convex with broad umbo, margin inrolled and deeply grooved, dry, roughened to slightly scaly surface; flesh whitish, firm. **ODOR** strong, like *Tricholoma* *sulphureum* (old gym shoes). **TASTE** bitter. **GILLS** white, often with reddish spots, close, attached, maybe toothed. **STEM** 4-6 x 1-4 cm, hollow, white, bruising red brown, with bulbous base. **FRUITING** under conifers, clustered. **DISTRIBUTION** BC, WA, OR, ID. **SPORE COLOR** white. **MICROSTRUCTURES** spores 4.3-6 x 3.7-5 um, subglobose, with isolated amyloid warts, cheilocystidia abundant, clavate-fusoid, forked. **REMARKS** *Leucopaxillus amarus* (Alb. & Schwein. ex Fr.) Kühner is said to be a misapplied name, but several varieties were described by Singer & A.H. Smith in 1943. This description is for var. *typicus. Leucopaxillus amarus* var. *roseibrunneus* can be found under conifers but is usually associated with alder: microscopically it has non-staining gills with abundant cheilocystidia that are cylindric-fusoid, flask-shaped or wavy. *Leucopaxillus amarus* var. *bicolor* has less red tints in the brown cap (though pinkish near the margin), and is found only under conifers, usually fir. It has only scattered cylindric cheilocystidia. **SOURCES** Singer(19).

*Leucopholiota decorosa* (Peck) O.K. Miller, Volk & Bessette

**CAP** 2.5-6 cm, hemispherical when very young, becoming broadly convex and nearly flat at maturity, margin incurved and often remaining so at maturity; covered with numerous rusty brown pointed upcurved scales and fibers; dry; flesh firm, moderately thick, white. **ODOR** mild. **TASTE** mild or somewhat bitter. **GILLS** adnexed, close, moderate breadth, with several tiers of subgills; white; edges finely scalloped. **STEM** 2.5-7 x 0.6-1.2 cm, solid, equal or widening downward; white at top, sheathed up to a annular zone with rusty brown, pointed, upcurved scales and coarse fibers. **VEIL** partial veil flaring upward at first, consisting of coarse rusty brown fibers. **FRUITING** in groups or clustered, on decaying wood, typically hardwood. **DISTRIBUTION** found in northeastern North America, but reported from BC by Paul Kroeger. **SPORE COLOR** white. **MICROSTRUCTURES** spores 5-6 x 3.5-4 um, elliptic, smooth, amyloid, thin-walled; cheilocystidia clavate; cap cuticle consists of broad filamentous hyphae up to 24 um in diameter; clamps present. **REMARKS** It is recognized by pointed, recurved, rusty brown scales on cap and stem, white gills, white spore deposit, growth on decaying wood, and clavate cheilocystidia. *Cystoderma* species are somewhat similar but they typically grow on soil and have spherical cells in cap cuticle and partial veil; *Armillaria* species have inamyloid spores and rhizomorphs; *Floccularia* species lack the unique cap cuticle and are terrestrial; *Pholiota* species have brown spores. **SOURCES** Bessette(1)\*.

*Macrocystidia cucumis* (Pers. ex Fr.) Heimcucumber-scented mushroom

**CAP** 1-5 cm, bell-shaped to conical when young, with small umbo; hygrophanous, dark brown to blackish to reddish-brown to orange-brown, the margin often abruptly paler, fading to buff; moist, smooth to velvety or silky; flesh brittle in cap, tough in stem. **ODOR** usually strong and fishy or reminiscent of cucumber. **TASTE** farinaceous. **GILLS** adnexed, close, broad; white or pale ocher or buff or pink; edges fringed minutely. **STEM** 2.5-5 x 0.2-0.4 cm, hollow, fibrous-brittle; similarly colored to cap, paler in upper part; dry, minutely velvety. **FRUITING** single to several in grassy areas, May to December. **DISTRIBUTION** at least BC, WA, OR, not uncommon. **SPORE COLOR** pinkish to ocher-brown to red-brown. **MICROSTRUCTURES** spores 7.5-10 x 4-5 um, elliptic, smooth; pleurocystidia and cheilocystidia large, 60-100 x 12-24 um, lanceolate; cap cuticle of repent, radial hyphae with membrane pigment; clamps present. **REMARKS** features include hygrophanous smooth to velvety cap that is dark brown to reddish brown to orange-brown often with abruptly paler margin, adnexed fringed gills that are white becoming pink, velvety stem colored as the cap, strong fishy-cucumber odor, pinkish to ocher-brown spore deposit, elliptic smooth spores, and large bulbous based lanceolate cystidia that occur on all surfaces. **SOURCES** Lincoff(2)\*, Courtecuisse\*, Arora, Hansen, Breitenbach(3)\*, Stuntz(2).

*Muscinupta laevis* (Fr.) Redhead, Lücking & Lawrey

**CAP** 0.2-2.0 cm, kidney-shaped, spathulate, or sometimes almost funnel-shaped, soft; white, only slightly discoloring with age; appressed silky tomentose becoming radially and concentrically grooved on drying with fringed margin; flesh thin. **GILLS** spore-bearing surface reduced to fine wrinkling or smooth; white. **STEM** 0.5-1.0 cm, reduced to a lateral strap-like extension of cap, or as a distinct attachment round in cross-section, rarely central; similarly colored to cap; bald. **FRUITING** on or amongst mosses and liverworts, especially *Polytrichum*. **DISTRIBUTION** reported from BC, WA, OR, ID. **SPORE COLOR** white. **MICROSTRUCTURES** spores 3-4 x 2-2.5 um, broadly elliptic, smooth, inamyloid, thin-walled; pleurocystidia abundant, 35-50 x 4-4.5 um with long narrow neck 1.5-2 um broad, thin-walled, often colorless, often terminating in obtuse or somewhat enlarged apices, cheilocystidia similar to pleurocystidia, Moser gives length up to 20 um; clamps absent. **REMARKS** features include small kidney-shaped to spathulate or funnel-shaped white cap, slightly wrinkled or smooth spore bearing surface, short lateral stem, growth on moss, white spore deposit, and small spores. **SOURCES** Watling(2), Moser(1), Redhead(6), Lawrey(1).

*Mythicomyces corneipes* (Fr.) Redhead & A.H. Sm.

**CAP** 1-3 cm, obtusely conic with inrolled margin at first, becoming bellshaped or broadly convex, sometimes umbonate; hygrophanous, orange to orange-brown becoming yellowish brown, fading; moist, bald and polished, margin striate; flesh firm, watery orange brown fading to yellowish. **GILLS** adnate to adnexed and soon seceding, close, 2 tiers of subgills, broad; pallid to whitish becoming light yellowish gray brown. **STEM** 3-5.7 x 0.1-0.2 cm, equal or slightly enlarged at top, cartilaginous to horny; yellowish or pale orange or yellowish brown at top, dark reddish brown below and blackening from base upward; top faintly pruinose, base of stem sometimes with tawny hairs. **VEIL** none. **ODOR** mild to faintly geranium. **TASTE** mild or faintly bitter. **FRUITING** gregarious, along margins of bogs among mosses or on wet soil under conifers and alders. **DISTRIBUTION** BC, WA, OR, ID. **SPORE COLOR** pale purplish brown. **MICROSTRUCTURES** 6-8.5 x 4-5.5 um, oval to elliptic, often with one droplet, punctate under light microscope with short ridges and projections; pleurocystidia abundant, 43-86 x 10-24, walls up to 3 um thick and pale brown to colorless, fusoid-ventricose with obtuse apices which are sometimes incrusted with prominent colorless crystals; cheilocystidia similar but shorter, 37-46 x 10.5-14 um; clamps present. **REMARKS** features include hygrophanous orange-brown moist shiny striate cap, tawny to yellowish cap flesh, close broad gills that are pallid to whitish becoming brownish, shiny cartilaginous to horny stem that is yellowish to tawny, dark reddish brown below and blackening from base upward, tawny basal mycelium, pale purplish brown spore deposit, and microscopic characters including roughened spores and thick-walled cystidia; Stagnicola perplexa has milky coffee spore print instead of pale purplish brown, and has smooth spores and thin-walled cheilocystidia; similar to some Psilocybe species but rough spores and a combination of other unusual features: horny stem, tawny basal mycelium, relatively pale spore deposit, and lack of germ pore. **SOURCES** Redhead(14), Stamets, Arora, Smith(8)\*.

*Naucoria escharioides* (Fr. ex Fr.) P. Kumm.brown alder mushroom

**CAP** 1-4 cm, convex, later expanded or with margin uplifted, may be umbonate; yellowish brown to reddish brown; slightly appressed fibrillose, then often smooth, moist at first, striate or not, **GILLS** crowded to subdistant; light brown, colored similarly to cap. **STEM** 1.5-4 x 0.1-0.4 cm, brittle, pale yellowish brown, turning darker at base; whitish fibrillose. **VEIL** makes stem somewhat white-silky. **ODOR** mild to strongly acidic. **FRUITING** under alder, especially in wet areas. **DISTRIBUTION** found at least BC (as *Alnicola* *melinoides*), OR (by Kauffman 1925, Ammirati 1986, as *N. melinoides*, according to Lorelei Norvell pers. comm). **SPORE COLOR** brownish. **MICROSTRUCTURES** spores 9-12 x 5-6.5 um, roughened; cheilocystidia 35-50 x 8-10 um, often with a bill-like extension, pleurocystidia presumably absent. **REMARKS** also known as *Naucoria* *melinoides* and *Alnicola* *melinoides*; *N. alnetorum* and *N. bohemica* have different cheilocystidia; other *Naucoria* species not included here occur in Pacific Northwest. **SOURCES** Hansen, Moser(1), Lincoff(2)\*, Gamiet(1), Courtecuisse\*.

*Phaeolepiota aurea* (Matt. ex Fr.) Maire ex Konr.& Maubl. gold-cap, golden false Pholiota

**CAP** 7-20 (30) cm, convex to bellshaped, expanding to blunt umbonate or nearly flat; light orange brown to yellow brown; dry, granular to bald (when old, most of the veil particles have weathered away); margin often hung with veil remnants; flesh moderately thick, firm, pallid or yellowish. **ODOR** mild to slightly pungent, or strong and aromatic. **TASTE** mild to slightly astringent (puckering the mouth). **GILLS** adnate to notched or free or with short decurrent tooth, close, moderately broad; pallid becoming colored as cap or darker. **STEM** 10-15 (25) x (1.5) 3-5 (6) cm, widening toward base, stuffed becoming hollow, more or less colored as cap though sometimes darker at top; dry, unpolished, smooth and bald above annulus, but below annulus sheathed with granular covering similar to that of cap; internal flesh whitish or somewhat streaked with orange down center. **VEIL** annulus membranous, colored like cap, granular on lower surface and smooth on upper surface, flaring upwards and outwards, finally hanging, then disappearing when very old. **FRUITING** in groups and clusters, on rich humus and soil, under hardwoods and conifers, on compost and leaf litter, often near the edges of roads under alder. **DISTRIBUTION** BC, WA, ID. **SPORE COLOR** light yellow-brown to orange-buff. **MICROSTRUCTURES** spores 10.7-13 (14) x 5-6 um, somewhat elliptic, smooth or some with minute markings, with one large central oil drop, wall thin and many spores collapsing, no germ pore; pleurocystidia absent or rarely clavate-mucronate and brownish in KOH, 26-30 x 7.5-8.5 um, cheilocystidia absent; clamps present. **REMARKS** no other large brown-spored mushroom is orange-brown to yellow-brown with a granular coating on both the cap and stem. **SOURCES** Smith(3), Arora, Phillips\*, Lincoff(2)\*, Lincoff(1)\*, Ammirati\*, Schalkwijk-Barendsen\*, Courtecuisse\*, Redhead(6), Breitenbach(4)\*.

*Phaeomarasmius erinaceus* (Fr.) Romagn.

**CAP** 0.5-1.4 cm, convex, often becoming flat on disc, or slightly depressed or umbonate; medium to dark rusty brown, dry, densely covered with fibrillose scales, the scales erect and nearly spine-like over the disc, toward the margin somewhat pressed down, the edge usually fringed with hanging fibrils; flesh thin, fleshy-tough, pallid to reddish brown. **ODOR** and **TASTE** mild. **GILLS** adnate, close to subdistant, often becoming broader in the middle, subgills in 2-3 tiers; whitish to orange brown. **STEM** 0.8-1.5 x 0.1-0.2 cm, equal or base somewhat enlarged, central to slightly off-center, pliant and tough, stuffed becoming hollow; pallid brownish in upper part, rusty reddish brown; lower part densely finely scaly, somewhat silky above the fringe left by the broken veil. **FRUITING** single to cespitose (tufted), on fallen or standing barked twigs and branches of hardwoods. **DISTRIBUTION** at least BC, WA. **SPORE COLOR** amberish-ochreous (Redhead), cinnamon color (Watling). **MICROSTRUCTURES** spores 7.2-10.8 x 5.0-6.4 x 5-7.4 um, oval to almost rhomboid in face view, oval to obscurely almond-shaped in side view, smooth, apiculus minute, no germ pore, walls thin to pronounced; basidia 1-spored, 2-spored or 4-spored; cheilocystidia abundant, forming a sterile margin, 26-32 x 6.5-7 um, ventricose to fusoid basally, neck elongated, often undulating, mostly irregularly capitate or branched apically or subacute, colorless above, often brownish and some with walls thickened at base, occasionally with a loose wrinkled membrane over the apex; pleurocystidia scattered, 30-42 x 7-10 um, fusoid-ventricose with subacute apex, colorless, thin-walled, smooth, in some caps apparently absent; clamps regularly present. **REMARKS** recognized by small size, dark rusty brown color, cap with erect scales, and habitat; other species of *Phaeomarasmius* such as *P. granulosus* and *P.* *erinaceellus* may occur in the Pacific Northwest. **SOURCES** Redhead(26), Smith(3), Watling(3), Courtecuisse\*, Redhead(6).

*Pseudoarmillariella ectypoides* (Peck) Singer

**CAP** 2-6 cm across, umbilicate to funnel-shaped; yellow-brown to grayish; radially striate with darker brown to black fibrils and scales; moist; flesh yellowish. **ODOR** and **TASTE** mild. **GILLS** decurrent, subdistant, narrow, sometimes forking; yellowish, sometimes with reddish brown stains when old. **STEM** 2.5-6 x 0.2-0.9 cm; cap-colored or paler, staining brownish where handled; smooth to slightly scurfy. **FRUITING** on decaying conifer wood, especially hemlock. **DISTRIBUTION** in the Pacific Northwest, at least BC and WA. **SPORE COLOR** white. **MICROSTRUCTURES** spores 6.5-9 x 3.5-5 um, elliptic, smooth, amyloids; pleurocystidia and cheilocystidia none; clamp connections present. **SOURCES** Barron(1)\*, Lincoff(2) (as Clitocybe)\*, Bessette(2) (as Omphalina)\*, Bigelow(10) (as Omphalina ectypoides)

*Pseudobaeospora pillodii* (Quél.) S. Wasser

**CAP** 0.3-0.6 cm, convex with a small umbo; lilac to brownish violet; dry, silky, opaque, may be striate when moist; flesh fleshy, colored as cap. **ODOR** and **TASTE** mild. **GILLS** free to adnexed, crowded to subdistant, moderate breadth and broader in middle, subgills in 1 tier; dark lilac-brown. **STEM** 2.0-3.0 x 0.02-0.05 cm, equal with a tapered rooting base, cartilaginous; colored like cap becoming brown; sparsely covered with paler flecks. **FRUITING** rooting in soil under conifers or hardwoods. **DISTRIBUTION** at least BC. **SPORE COLOR** white. **MICROSTRUCTURES** spores 3.5-4 x 2.9-3.1 um, broadly elliptic to nearly round, smooth, a few dextrinoid, walls slightly thickened, no germ pore, usually one droplet; basidia 4-spored according to Redhead, 2-spored according to Hansen for Europe, pleurocystidia and cheilocystidia not mentioned; caulocystidia 25-35 x 9.5-10 um, fusoid to clavate, sometimes constricted centrally, thin-walled, collapsing readily, cap cuticle of radially repent hyphae, 5-25 um broad, with pale brown membrane pigment; clamps absent. **REMARKS** features include small size, lilac to brownish-violet umbonate dry cap, free to adnexed lilac brown gills, slender rooting stem colored as cap and with paler flecks, white spore deposit, and small elliptic to nearly round spores which are smooth and sometimes dextrinoid. **SOURCES** Redhead(30), Moser(1), Hansen, Redhead(5).

*Pseudoclitocybe cyathiformis* (Bull.:Fr.) Singer the goblet

**CAP** 2.5-8 cm, centrally depressed with inrolled margin becoming funnel-shaped or cup-shaped; hygrophanous, dark brown to dark gray-brown, fading when old to grayish or paler brown; bald when moist, somewhat fibrillose or hoary when fading, not viscid, margin often striate or at times grooved when moist; flesh thin, pallid or cap-colored. **ODOR** and **TASTE** mild. **GILLS** adnate but soon deeply decurrent, close to subdistant, narrow to moderately broad, occasionally forked, usually interveined and the faces often veined; pallid to grayish brown or pale brown. **STEM** 3-12 x 0.4-1 cm, off-center at times, equal or somewhat widened in lower part, usually curved, stuffed then hollow, finally compressed (flattened) and fluted; colored like cap or paler, bald when moist, brownish fibrillose streaked over a pallid ground when faded; base sometimes with white rhizomorphs. **FRUITING** single, scattered, gregarious, or subcespitose (somewhat tufted), usually on or near logs and stumps of conifers or hardwoods, sometimes on soil and humus. **DISTRIBUTION** BC, WA, OR, ID. **SPORE COLOR** white. **MICROSTRUCTURES** spores (6.5) 7.5-10.5 (13) x (4) 5-6.5 (7.5) um, elliptic, smooth, inamyloid to very weakly amyloid (blackish to grayish in Melzer's); basidia usually 4-spored, occasionally 1- or 2-spored; pleurocystidia and cheilocystidia presumably absent; clamps absent. **REMARKS** features include depressed hygrophanous dark brown to dark gray brown non-viscid cap, decurrent close pallid gills which become grayish or grayish brown, stem colored as cap or paler, mild odor and taste, white spore deposit, and elliptic smooth amyloid spores; *Cantharellula* *umbonata* has a grayish to grayish brown cap that retains a small umbo, and crowded, narrow, whitish forked gills that stain reddish in age; *Clitocybula* *atrialba* is blackish brown with well-spaced gills, and has dark scurfy scales on stem; *Pseudoclitocybe* *oregonensis* is rare, pale sordid yellowish (“pale isabelline”) when moist, and the cap is not striate. Those species are described in Notes on Omphalinoid Species. **SOURCES** Bigelow(5), Arora\*, Courtecuisse\*, Barron\*, Redhead(5), Breitenbach(3)\*.

*Pseudoclitocybe oregonensis* (Murrill) Singer

**CAP** up to 4 cm, depressed or funnel-shaped; hygrophanous, pale isabelline (pale dingy yellowish brown); bald; flesh thin. **GILLS** short decurrent, subdistant, narrow, arched; "(presumably concolorous with pileus) discolored on drying". **STEM** 5 cm long, 0.5 cm wide, widening downward to enlarged base, fleshy; colored as cap; smooth, bald. **FRUITING** type found on ground in mixed woods in the foothills of the Cascades at 800 and 1200 feet. **DISTRIBUTION** at least OR, rare. **MICROSTRUCTURES** spores 7.5-8.5 x 5.5-6 um, broadly elliptic, smooth, amyloid; basidia 2- and 4-spored; pleurocystidia and cheilocystidia presumably absent; clamps absent. **REMARKS** *Pseudoclitocybe* *cyathiformis* is much more common, with dark brown to dark gray-brown cap when moist. **SOURCES** Bigelow(5).

*Schizophyllum commune* Fr. split-gill

**CAP** 0.5-5 cm, fan-shaped; white to grayish-white, gray or sometimes brownish-gray when wet; dry, densely hairy; flesh tough, leathery to brittle, thin; light brownish or light grayish. **ODOR** mild, pleasant, sourish, like Heterobasidion annosum. **TASTE** pleasant. **GILLS** radiating from point of attachment, well-spaced, brittle, waxy; white to light brownish or light grayish; edges appearing split or grooved lengthwise. **STEM** absent or present only as narrowed basal point of attachment, up to 0.7 cm long and 0.3 cm wide, generally round in cross-section. **FRUITING** scattered or in groups, rows, or fused clusters, on hardwood sticks, stumps, logs, of a broad range of species. **DISTRIBUTION** BC, OR, WA, ID. **SPORE COLOR** white. **MICROSTRUCTURES** spores 6-8 (9) x 2-2.4 (2.8) um, cylindric, smooth, inamyloid, thin-walled; pleurocystidia and cheilocystidia not seen; basidia with clamps, some septa in cap cuticle with clamps. **REMARKS** features include fanshaped whitish hairy caps growing on hardwood and white gills with edges that appear split or grooved lengthwise. **SOURCES** Ginns(4), Ginns(5), Arora\*, Phillips\*, Lincoff(2)\*, Lincoff(1)\*, Schalkwijk-Barendsen\*, Bessette(2)\*, Barron\*, Breitenbach(3)\*.

*Stagnicola perplexa* (Orton) Redhead & A.H. Sm.

**CAP** 0.4-2.5 cm, conic with incurved margin at first, becoming bellshaped to convex with prominent small umbo; brown on disc, orange-brown to yellowish toward margin, moist to lubricous, striate at margin when moist, silky when faded; flesh thin, colored as cap. **ODOR** mild. **TASTE** slightly to intensely bitter. **GILLS** narrowly adnate to narrowly adnexed, often seceding, close, 1-3 tiers of subgills, broader in middle; pallid olivaceous gray to honey-colored or cinnamon. **STEM** 1.5-4.5 x 0.09-2.0 cm, (but photographs do not show a thick stem), often tapered toward base and often curved, horny; reddish brown to black at base and paler toward top; bald, dull or with a luster, yellowish brown mycelium at base. **FRUITING** gregarious, on rotting plant remains (needles, leaves, twigs, bits of wood) in bogs, ditches and in drying temporary pools in coniferous forests. **DISTRIBUTION** at least BC, WA, ID, (according to Redhead), OR (collections by A.H. Smith, Bob Isaacs, according to Lorelei Norvell), rare. **SPORE COLOR** milky-coffee or pale gray brown. **MICROSTRUCTURES** spores 4.9-6.0 (6.4) x 3-3.8 (4.5) um, elliptic to vaguely kidney-shaped, smooth, inamyloid, often with 1 or 2 droplets, lacking germ pore, walls only slightly thickened; cheilocystidia abundant, but not always forming sterile margin, 25-54 x 5-7 um, cylindric to narrowly fusoid, sometimes forked or septate once, thin-walled, colorless, pleurocystidia lacking or present only near the gill edge and similar to cheilocystidia; clamps mentioned for basidia, stem hyphae, and basal mycelium; similar to *Mythicomyces* *corneipes* which has rough spores which are "benzo-brown" (a purplish brown) rather than milky-coffee in deposit, as well as microscopic differences in cystidia; somewhat like *Phaeocollybias* in appearance, but stem not rooting. **SOURCES** Redhead(14).

*Stereopsis humphreyi* (Burt) Redhead & Reid

**CAP** single or rarely 2 or 3 per stem, 0.6-2.9cm wide, becoming kidney-shaped to funnel-shaped, cleft on one side to the stem, often with convoluted (markedly wavy) margins, membranous and soft; dull white on upper surface; dry, silky when young, nearly smooth to wrinkled, later most becoming obscurely zoned-ridged and often minutely floccose scaly or rough towards stem. **SPORE-BEARING** **SURFACE** surface on the underside of cap decurrent, demarcated from stem; creamy white; nearly smooth but sometimes when old with low radiating wrinkles or more prominent furrows. **STEM** 1-3cm x 0.1-0.3cm, stuffed to hollow, tough, pliant; white (but with age faintly cinnamon); velvety, a few bald except at base, base with hairs. **FRUITING** gregarious, on mossy needle beds, cones, twigs, fern fronds, and mosses, in coniferous forest. **DISTRIBUTION** at least BC, WA, (Redhead), OR (Lorelei Norvell, pers. comm.). **MICROSTRUCTURES** spores 6.5-9 x 3.5-5.5 um, narrowly to broadly oval to elliptic, smooth, inamyloid, prominent oblique apiculus, walls thin to pronounced, mostly with one droplet; basidia (3-)4-spored; cystidia none; clamp connections present. **REMARKS** features include white dry fruitbody with kidney-shaped to funnel-shaped cap, often with convoluted margins, smooth or almost smooth spore-bearing surface underneath, and upright lateral stem. **SOURCES** Redhead(46).

*Tapinella atrotomentosa*(Batsch) Sutara(=*Paxillus atrotomentosus*)velvet pax

**CAP** 4-15(20) cm across, convex becoming flat or centrally depressed, margin at first inrolled; yellowish brown to reddish brown becoming dull brown to blackish brown; dry, velvety becoming smoother; flesh thick, firm, whitish to yellowish, yellowish brown, or buff. **GILLS** close or crowded, usually decurrent, often forked or veined near stem; cream, tan, yellowish, or yellowish brown, dingy yellowish, staining brownish. **STEM** 2-9(12) cm x 1-3(5) cm, usually off-center or even lateral, solid, tough; brown to blackish brown, top may be paler; velvety. **VEIL** absent. **ODOR** mild to slightly fetid. **TASTE** mild to bitter or acrid. **FRUITING** single or in groups or tufts on conifer stumps or decayed wood of conifers or madrone, July to October. **DISTRIBUTION** BC, WA, OR, ID. **SPORE COLOR** yellowish to brownish , may have slight olive tint. **MICROSTRUCTURES** spores 4.4-6.5 x 3-4.5 um, elliptic, smooth, inamyloid or some dextrinoid. **SOURCES** Arora(1)\*, Trudell\*, Phillips\*, Lincoff(1)\*, Breitenbach(3)\*

*Tapinella panuoides*(Batsch) E.-J. Gilbert **(=***Paxillus panuoides*) fan pax

**CAP** 1.5-7(10) cm across, petal-shaped to fan-shaped, margin often lobed and at first incurved; buff to dingy yellowish, yellow-brown, or olive-yellow; dry to moist, minutely downy becoming smooth; flesh thin, soft, whitish to yellowish brown. **GILLS** radiating from base of cap, close, often crimped and forked or cross-veined; pale or dingy yellowish to yellowish brown or pinkish buff. **STEM** absent or as asmall, laterally attached base. **VEIL** absent. **ODOR** mild. **TASTE** mild to slightly bitter. **FRUITING** single or in groups or clusters on coniferous logs, stumps, and debris, timber, wood chips, or humus rich in wood breakdown products, May to November. **DISTRIBUTION** BC, WA, OR, ID. **SPORE COLOR** light brown to yellowish buff to brown or yellowish brown. **MICROSTRUCTURES** spores 4-6.5 x 3-4.5 um, elliptic, smooth, inamyloid or many dextrinoid. **REMARKS** The color of the spore deposit is helpful in distinguishing fruitbodies of similar shape (*Panus, Panellus, Pleurotus, Lentinellus, Hohenbuehelia, Phyllotopsis*), and the crimped, forked, veined gills are helpful too (*Crepidotus*). **SOURCES** Arora\*, Bessette(2)\*, Breitenbach(3)\*, Trudell.

*Tetrapyrgos subdendrophora* (Redhead) Horak

**CAP** 0.5-1.2 cm, circular to ear-shaped, convex; whitish; somewhat translucent, minutely hoary. **GILLS** pseudogills, anastomosing, up to 0.2 cm distant; white. **STEM** short lateral; gray; minutely hoary. **FRUITING** on grasses and *Rubus* canes in dense enclosing vegetation. **DISTRIBUTION** at least BC, OR, coastal, rarely collected. **SPORE COLOR** presumably whitish. **MICROSTRUCTURES** spores 8-10 x 6-7 um, triangular, pyramidal, or tetrahedron-like in shape, colorless, inamyloid, sometimes guttulate; tibiiform cystidia abundant on pseudogills. **SOURCES** Redhead(10), Redhead(6).

*Tubaria confragosa* (Fr.) Kühner ringed Tubaria

**CAP** 1-5 cm, broadly convex to more or less flat or slightly uplifted; hygrophanous, brown to winy-brown or reddish-brown when moist, drying buff; moist or dry but not viscid, smooth or often appearing hoary at first (from thin layer of whitish fibrils or minute scales), especially toward margin, margin striate when moist; flesh thin, fragile, colored as cap. **GILLS** adnate to slightly decurrent, close; cinnamon to rusty-brown to reddish-cinnamon to brown. **STEM** 2-8 x 0.15-0.6 cm, equal or wider in lower part, soon hollow; colored like cap or paler, whitish and silky above annulus, usually brownish with fibrils or a few small scales below the annulus, base typically with white mycelial mat. **VEIL** usually forming a membranous, often flaring superior annulus, but sometimes disappearing or leaving only a fibrillose zone. **FRUITING** scattered or in groups or troops. on rotting logs, fallen branches, twigs, herbaceous stems, debris, sawdust, usually of hardwoods. **DISTRIBUTION** BC, WA, OR. **SPORE COLOR** brown to dark reddish-cinnamon. **MICROSTRUCTURES** spores 6.5-9 x 4-6 um, elliptic, smooth; cheilocystidia abundant. **REMARKS** *T. furfuracea* is similar but lacks an annulus, is slightly smaller, and is less likely to be clustered. **SOURCES** Arora\*, Lincoff(2)\*, Courtecuisse\*, Bessette(2)\*, Barron\*.

*Tubaria furfuracea* (Pers. ex Fr.) Gillet fringed Tubaria

**CAP** 1-3 (4) cm, convex becoming flat or slightly depressed, may have small umbo; hygrophanous, gray-brown to reddish-brown, cinnamon-brown, or tan when moist, fading to buff or whitish as it dries; smooth to finely fibrillose or often with minute flecks and patches, not viscid, margin striate when moist; flesh thin, brownish to pale pinkish brown. **ODOR** mild or faintly spicy or sourish. **TASTE** mild. **GILLS** adnate to slightly decurrent, close, broad; cream becoming pale yellowish brown to reddish brown. **STEM** 2-6 x 0.1-0.4 cm, equal or slightly wider in lower part, fragile; colored more or less as cap or paler; sometimes with whitish flecks, fibrillose, base usually with whitish mycelium. **VEIL** whitish, fibrillose, fleeting. **FRUITING** scattered to gregarious, on ground, sticks, and woody debris in wet places, in late fall (needs cool temperatures). **DISTRIBUTION** at least BC, WA. **SPORE COLOR** ocher-brown to pale ocher. **MICROSTRUCTURES** spores 6.5-9.3 x 4-5.5 um, elliptic to cylindric-elliptic, smooth, light yellow; pleurocystidia not seen, cheilocystidia 23-53 x 5-9 um, cylindric to somewhat lageniform or flexuous (curved both ways), occasionally subcapitate; clamps mentioned for cap cuticle and basidia. **REMARKS** *T. confragosa* is similar but usually forms a membranous superior annulus on stem, is slightly larger, and is more likely to be cespitose (tufted). The *Tubaria* species in the Pacific Northwest need more work: precise identification is difficult and distributions are uncertain. **SOURCES** Arora\*, Phillips\*, Lincoff(2)\*, Schalkwijk-Barendsen\*, Courtecuisse\*, Bessette(2)\*, Barron\*, Breitenbach(4)\*, Murrill(3).

*Tubaria punicea* (A.H. Sm. & Hesler) Matheny, Ammirati, et P.-A. Moreau Christmas Tubaria

**CAP** 1.0-5.0cm across, convex, disc at times with a low, blunt umbo; wine red to blood-red but shading lighter toward margin; dry, shiny, translucent striate at margin, when young covered by silky white veil, later finely fibrillose to smooth; flesh reddish brown. **GILLS** adnate to slightly decurrent, broad, moderately close; deep vinaceous becoming brown with a vinaceous tinge. **STEM** 1.5-9.0cm x 0.2-0.6cm, round in cross-section to compressed, at times slightly widened toward the base, wine-red with white base; covered with silky white veil when young, later fibrillose or twisted-fibrillose. **VEIL** when young the silky white veil shows on the cap and the stem. **ODOR** unremarkable. **FRUITING** on rotten wood or base of *Arbutus menziesii* (Pacific Madrone), typically in hollowed bases of large trees (sometimes damaged by fire); late fall or winter. **DISTRIBUTION** BC, OR, CA. **SPORE COLOR** cinnamon brown. **MICROSTRUCTURES** spores (6.5)7.0-10.0 x 4.0-6.0 um, slightly wider in face view, elliptic, smooth, thick-walled; pleurocystidia present only as scattered pseudocystidia, cheilocystidia in clusters on gill edge, (25)30-65(80) x 4-12(16) um, versiform, short clavate to ovate, 15-30 x 7-10 um, ventricose at the base with a long, narrow flexuous neck and subacute apex, utriform to dumbbell-shaped with enlarged apex as broad as the ventricose portion and rarely with a secondary septum in the constriction; clamp connections present. **SOURCES** Matheny(6), Smith(3)

*Tubaria vinicolor* (Peck) Ammirati, Matheny, et Vellinga

**CAP** 1.0-5.0cm, conic-umbonate with incurved edge, expanding but margin remaining incurved; more or less hygrophanous, rich dark red, vinaceous, maroon red, or brighter red in places, cap edge sometimes pinkish vinaceous from veil fibrils; moist at first, almost velvety tomentose to matted fibrillose, bald when old, some veil fibrils near margin, and margin becoming somewhat striate; flesh somewhat fragile, colored as cap surface or duller; in stem dull reddish vinaceous. **GILLS** adnate to slightly decurrent, moderately crowded to subdistant, 20 reaching stem, up to 0.6cm broad, subgills 3-9 between neighboring gills; pink when becoming, darker red and browner; edges white-fringed. **STEM** 2.8-7.0cm x 0.25-0.5cm at top, base 0.55-0.7cm wide, cylindric to narrowly club-shaped, with a cortinate partial veil; pale pinkish vinaceous to pink, in lower part some areas more red from handling; longitudinally innately fibrillose to slightly striate, with white mycelium at the base, a few fibers remaining on mature stem where veil detaches. **VEIL** no ring, a few veil fibrils remaining on mature stem where veil detaches. **ODOR** and **TASTE** fungus-like, mild or astringent. **FRUITING** single, gregarious or cespitose in disturbed sites with introduced vegetation such as *Eriobotrya japonica* (Japanese plum). **DISTRIBUTION** at least WA. **SPORE COLOR** dark yellow brown to orange-brown. **MICROSTRUCTURES** spores 7.0-9.0 x 4.0-5.6(6.0) um, slightly wider in face view, elliptic, smooth, thick-walled., without germ pore; basidia (2)4-spored; pleurocystidia none, cheilocystidia in clusters on gill edge, 33-52 x 5.5-9.5 um, irregularly cylindric, widest at apex; clamp connections present. **REMARKS** *Tubaria punicea* is similar but occurs in hollowed bases of *Arbutus* in natural habitats. **SOURCES** Matheny(6)

# AUTHORITIES AND SYNONYMS FOR DESCRIPTIONS

Bolbitius titubans (Bull.) Fr. Epicr. syst. mycol. (Upsaliae): 254 (1838) [1836-1838]

Callistosporium luteo-olivaceum (Berk. & Curt) Singer Lloydia 89: 117. 1946; = Callistosporium luteofuscum Singer; = Callistosporium elaeodes Bon; = Callistosporium xanthophyllum Bon; = Callistosporium favrei Singer; = Callistosporium graminicolor Lennox; = Callistosporium psilocybe Murrill & Singer in Singer

Cantharocybe gruberi (A.H. Sm.) H.E. Bigelow & A.H. Sm. Mycologia 65: 486. 1973; Clitocybe gruberi A.H. Sm.; Laccaria gruberi Singer

Catathelasma imperiale (Fr.) Singer Rev. Mycol. 5: 9. 1940

Catathelasma ventricosum (Peck) Singer

Clitocybula abundans (Peck) Singer Sydowia 15: 53. (1961) 1962; Collybia abundans (Peck) Sacc.; Fayodia abundans (Peck) Singer

Clitocybula atrialba (Murrill) Singer Sydowia 15: 53. (1961) 1962; Clitocybe atrialba Murrill; Fayodia atrialba (Murrill) Singer

Clitocybula familia (Peck) Singer Sydowia 15: 53. (1961) 1962; Baeospora familia (Peck) Singer; Fayodia familia (Peck) Singer

Clitocybula lacerata (Scop.) Metrod Rev. Mycol. (Paris) 17: 87. 1952; Collybia lacerata (Scop.) Gillet; Fayodia lacerata (Scop.) Singer

Clitocybula oculata (Murrill) H.E. Bigelow Mycologia 65: 1114. 1973; Clitocybe oculata Murrill; Hydropus oculatus (Murrill) Singer

Deconica caricicola (P.D. Orton) Redhead Index Fungorum 5: 1. 2012; == Melanotus caricicola (P.D. Orton) Guzman; == Psilocybe caricicola Orton

Deconica horizontalis (Bull.) Noordel. Ost. Z. Pilzk. 18: 199. 2009; Melanotus horizontalis (Bull.) P.D. Orton; Melanotus textilis Redhead & Kroeger Mycologia 76(5): 868. 1984

Deconica phillipsii (Berk. & Broome) Noordel. [as 'philipsii'], Ost. Z. Pilzk. 18: 199. 2009; ; Melanotus phillipsii (Berk. & Broome) Singer

Muscinupta laevis (Fr.) Redhead, Lücking & Lawrey Mycol. Res. 113(10): 1167. 2009; Cyphellostereum laeve (Fr.) D.A. Reid

Flammulina lupinicola (Redhead & R.H. Petersen) C. Hahn Mycol. bavarica 17: 12. 2016

Flammulina populicola Redhead & R.H. Petersen Mycotaxon 71: 288. 1999

Flammulina rossica Redhead & R.H. Petersen Mycotaxon 71: 290. 1999

Flammulina velutipes (Curt.ex.Fr.) Singer; Collybia velutipes (Curt. ex Fr.) P. Kumm.

Heliocybe sulcata (Berkeley) Redhead & Ginns Trans. mycol. Soc. Japan 26: 359. 1985; == Lentinus sulcatus Berkeley

Leucopaxillus albissimus (Peck) Singer

Leucopaxillus gentianeus (Quel.) Kotlaba; Leucopaxillus amarus (Alb. & Schwein. ex Fr.) Kuehner (misapplied name)

Leucopholiota decorosa (Peck) O.K. Miller, Volk & Bessette; Armillaria decorosa (Peck) A.H. Sm. & Walters

Macrocystidia cucumis (Pers. ex Fr.) Heim Treballs del Museu de Ciencies Naturals el Barcelona 15: 127. 1934.

Mythicomyces corneipes (Fr.) Redhead & A.H. Sm. Can. J. Bot. 64: 643. 1986; Psilocybe corneipes (Fr.) Karsten

Naucoria escharioides (Fr. ex Fr.) P. Kumm.; Alnicola melinoides (Bull.:Fr.) Kühner

Phaeolepiota aurea (Matt. ex Fr.) Maire ex Konr. & Maubl.; Pholiota aurea (Fr.) P. Kumm.; Togaria aurea (Fr.) W.G. Smith; Lepiota pyrenacea Quél.

Phaeomarasmius erinaceus (Fr.) Romagn. Rev. Mycol. 2 (N.S.): 195. 1937; Phaeomarasmius aridus (Pers.) Singer; Pholiota erinacea (Fr.) Rea; Naucoria badia Murrill; Crinipellis alnicola Murrill

Pseudoarmillariella ectypoides (Peck) Singer Mycologia 48: 725. 1956; Clitocybe ectypoides (Peck) Sacc.; Omphalina ectypoides (Peck) H.E. Bigelow

Pseudobaeospora pillodii (Quél.) S. Wasser Flora Fungorum RSS Ucrainicae, Basid. Agar., Acad. Sci. RSS UCR., Kiev. p.220. 1980; Collybia pillodii Quél.

Pseudoclitocybe cyathiformis (Bull.:Fr.) Singer; Clitocybe cyathiformis (Fr.) P. Kumm.; Clitocybe poculum (Peck) Saccardo; Cantharellula cyathiformis (Fr.) Singer; Omphalia cyathiformis (Fr.) Kühner & Romagn.

Schizophyllum commune Fr. Syst. Myc. 1: 330. 1821

Stagnicola perplexa (Orton) Redhead & A.H. Sm. Can. J. Bot. 64: 645. 1986; Phaeocollybia perplexa Orton

Stereopsis humphreyi (Burt) Redhead & Reid Can. J. Bot. 61: 3088. 1983; == Craterellus humphreyi Burt

Tapinella atrotomentosa (Batsch) Sutara Ceska Mykol. 46(1-2): 50. 1992; Paxillus atrotomentosus Fr.

Tapinella panuoides (Batsch) E.-J. Gilbert Les Livres du Mycologue Tome I-IV, Tom. III: Les Bolets: 68. 1931; Paxillus panuoides Fr.

Tetrapyrgos subdendrophora (Redhead) Horak Sydowia 39: 103. 1986; Campanella subdendrophora Redhead

Tubaria confragosa (Fr.) Kühner

Tubaria furfuracea (Pers. ex Fr.) Gillet

Tubaria vinicolor (Peck) Ammirati, Matheny, et Vellinga Mycologia 99: 580. 2007; Naucoria vinicolor Peck 1909.

GLOSSARY

abrupt - of the bulb at the base of a stem, flaring out suddenly from the stem thin, sterile margin

abruptly adnexed - see adnexed

adnate - referring to gills, attached to the stem without a notch, and usually implies broad attachment, the lower edge of the gill being attached at the line at which a straight gill edge would intersect the stem

adnexed - refers to gills that are narrowly attached to the stem: the gill edge curves gradually upward along the inner half of the gill and is attached to the stem by a narrow upper portion of the gill; if abruptly adnexed, gill edge curves abruptly upwards to stem but makes contact with stem in straight line (does not curve as in sinuate attachment)

agaric - mushroom with gills

amyloid - staining bluish to gray to black in Melzer's reagent

anastomose - join together to form a network

angular - 4 to 7 sided, with corners or angles

annulus - ring or collar of tissue on stem formed by ruptured of the veil that initially joins the stem to the cap edge

annular - pertaining to the annulus

apex, plural apices - top, highest part

apical - near top

apiculus - nipple-like projection; nipple-like projection on spore which corresponds to the area that was attached to the sterigma of the basidium

appressed - flattened down

appressed-fibrillose - with fibrils that are pressed down flat against surface

apud - indicates a name published by one author in the work of another

arched - forming an arch, curved or arc-like; of gills, means that the middle of the lower edge of the gill is higher than its ends, same as arcuate

atomate - a powdered surface consisting of minute shiny particles

bald - no warts or hairs, or raised scales, fibers or patches, same as glabrous and as used here equivalent to naked

basal - near the base

basidia - plural of basidium

basidiomycete - fungus belonging to Basidiomycetes

basidium, plural basidia - cell on which spores form in Basidiomycetes

bell-shaped - in the shape of a bell (like the Liberty bell), with rounded top and flaring lower edges

bolete - member of the Boletales, (related to Boletus, Suillus, Leccinum etc.) which have soft pores or gills easily detached from the underside of the cap

bracket - a fungus widely attached at right angle to a vertical surface of wood

breadth - of gills, height of gill from cap attachment to edge

brittle - breaking easily, rigid and breaking with a snap; of stem, forms a sharp non-fibrous edge when broken

broad - when used of gills, refers to the height (depth) of the gill, which may be narrow, moderately broad or broad

buff - a pale yellow toned with gray-brown, i.e. a dingy yellowish brown or very pale tan

bulb - a part shaped like the underground part of an onion or daffodil or similar plant

bulbous - having a bulb or bulging area; of stem, with an enlarged base

button - young fruiting body before it has opened up

cantharelloid - resembling the genus *Cantharellus*, with veins or folds not gills on the spore-bearing surface

capitate - with a head or cap, abruptly enlarged at top

cartilaginous - of tissue, tough, like cartilage, not fibrous; of stems: firm, tough and pliant (flexible), sometimes used even of fragile stems and implying brittle, not pliant

caulocystidium, plural caulocystidia - sterile cell located on the stem

cellular - composed of rounded cells, not threadlike ones

cespitose - growing in tufts or close clusters from a common base, but not grown together

cheilocystidium, plural cheilocystidia - sterile cell located on the edge of the gill

chlamydospores - thick-walled asexual spores formed by breaking up of hyphae

cilium, plural cilia - hair-like outgrowth

ciliate - having a fringe of hair-like ciliae; appearing fringed

cinnamon - a light brown with a little pink

clamp - clamp connection, a small tubular elbow-like bypass across the walls between fungal cells

clavate - like a caveman's club; when used of stems, implies base is thicker and stem tapers upward; when used of cystidia, implies part that extends outward beyond the hymenium is thicker, same as club-shaped

clay-colored - dull ochraceous-cinnamon brown

close - of gill spacing, nearly touching but with visible space between, intermediate between crowded and distant, the order being crowded, (subcrowded), (subclose), close, subdistant, distant

clustered - growing together, either very close or from a common base

collybioid - resembling in general form a mushroom of the genus *Collybia* in the former sense that included *Rhodocollybia* and *Gymnopus*, typically with expanded caps (convex to broadly convex to flat) often with downcurved to incurved margin, cartilaginous or brittle stems not more than two or three times in length the diameter of the caps, without annulus

compressed - of a stem, elliptical to flattened in cross section

concentric - having rings or circular zones

concolorous - having the same color

confluent - going towards the same point

conic - shaped like a cone

conical - shaped like a cone

conifer - cone-bearing tree

contorted - twisted out of normal shape

convex - regularly rounded, domed, like an inverted bowl

convoluted - intricately folded, twisted, or coiled

corrugated - shaped into alternating ridges and grooves

cortina - a web-like or silky veil extending from the cap margin to the stem in young mushrooms of certain species, soon disappearing or leaving remnants on stem or cap margin

cortinate - with a cortina, weblike

cracked - surface having split in some way

crimped - compressed into small folds

crowded - of gill spacing, very close, touching or with almost no space between, the order being crowded, (subcrowded), (subclose), close, subdistant, distant

cuticle - the cap skin or surface layer of cells; same as pellis, and thought by some to be incorrectly used in this situation as it refers in botany to the waxy surface of certain leaves

cylindric - of the same diameter throughout its length; of stem, terete (not compressed); of spores, according to one set of criteria ratio of length to width 2-3: less would be oblong, more would be bacciliform

cystidium, plural cystidia - a sterile cell frequently of distinctive shape, at any surface of a fruiting body, classified by 1) position: pileocystidium (cap), pleurocystidium (gill face), cheilocystidium (gill edge), caulocystidium (stem), 2) form: leptocystidium (smooth, thin-walled, without discernible contents), lamprocystidium (thick-walled), metuloid (thick-walled encrusted), 3) contents: chrysocystidium (like leptocystidium but with highly staining contents), gloeocystidium (thin-walled, usually irregular, contents colorless or yellowish and highly refractile) etc., 4) origin: pseudocystidia (derived from a conducting element, oily contents), macrocystidium (arising deep in the flesh of Lactarius or Russula), 5) often further described by shape

debarked - of dead wood without the bark, same as decorticated

decorticated - of dead wood without the bark

decurrent - refers to gills or pores that run down the stem, in the case of gills, the attachment at stem is wider than average height of gill

depressed - of cap, having the middle lower than the edge; of gills, sinuate; depressed adnate refers to an adnate gill with a portion of the gill lower than its outer edge

dextrinoid - staining yellowish brown or reddish brown in Melzer's reagent

dichotomous - repeatedly dividing or forking in pairs

differentiated - developed so as to be different from surrounding cells; of cystidia, distinguishable from surrounding cells

disc - center of the cap

distant - of gill spacing, meaning the gills are spaced far apart, the order being crowded, (subcrowded), (subclose), close, subdistant, distant

dry - surface not sticky or slimy or hygrophanous, feeling as if there is no moisture on surface

earth-brown - a vaguely defined color referring to the color of soil

elastic - springing back to its original shape

elliptic - like an oblong circle, referring to the outline (as opposed to the three dimensional shape) of a spore, according to one set of criteria, ratio of length to width is 1.15-1.60

elongate - of spores, same as oblong, at least according to one definition

embedded - of cells in the spore bearing surface, arising deep within that surface, or not protruding from it

equal - of a stem, the same diameter throughout its length, cylindric; of gill, broad (high) to same extent throughout length or alike in length

eroded - of the margins of cap or gills, developing irregular jagged edges as a result of deterioration, irregularly broken

even - of cap margin, means not wavy or lobed; of gill edges, means not toothed, eroded, fringed etc; of surface of cap, stem or spores means without striations, elevations or depressions

ex - from, first published validly by second author

expanding - of cap, spreading out as it develops

face - of gills, the side as opposed to the edge (margin)

farinaceous - of odor, with the smell of fresh ground meal from whole grain, especially wheat, same as mealy; of texture, mealy, with a loose powdery appearance

ferrous sulphate - a chemical used to test for color changes in certain fungal groups such as Russula, Pholiota and Ramaria

fibrillose - composed of delicate fibers (fibrils) which are long and evenly arranged on the surface

fibrillose-scaly - composed of fibrils and scales

fibril - thin thread-like fiber

fibrous - composed of tough, stringlike tissue

filamentous - composed of hyphae (threadlike cells); thin and threadlike in shape

flat-convex - convex in shape but somewhat flattened

flat-depressed - generally flattened but somewhat depressed toward the center of the cap

fleeting - quickly disappearing, used here as equivalent to evanescent or fugacious

flesh - the tissue of cap or stem, not including the surface, often referred to as the context, a term here used in discussing the microscopic examination

fleshy - soft as opposed to tough; having significant substance

flexuous - of the stem, or of cystidia, curved alternately in opposite directions

floccose - with easily removed cottony or woolly tufts; woolly or cottony; having the appearance of cotton flannel; with a soft cottony texture

fluted - of stem, with longitudinal ridges

forking - of gills, dividing into two or more branches as they go away from stem

free - refers to gills that are not attached to stem

fringed - with a border of parallel threads or fibers, so that the edge is somewhat jagged and not smooth

fruitbody - the whole reproductive structure of a mushroom including cap, stem, and spore-bearing surface

furfuraceous - scurfy, surface covered with branlike particles resembling scales, coarser than granular

fuscous - color of a very dark storm cloud: variously described as combinations of gray, brown, purple, or black

fusoid - somewhat spindle-shaped, almost spindle-shaped or fusiform

fusoid-ventricose - tapered toward both ends but distinctly enlarged in the middle

gelatinize - become gelatinous

gelatinous - jelly-like in consistency or appearance; applied to tissue whose hyphae become partially dissolved and glutinous in wet weather and when mounted in water under the microscope appear more transparent and wider, loosening from one another

glutinous - slimy, having a highly viscid gelatinous layer, more than viscid

greasy - slippery or oily but not viscid (sticky) or slimy, same as lubricous

gregarious - growing in close groups but not tufted or clustered

group - of fruitbodies, a cluster of fungi growing close to each other but not attached; when applied to the Latin name of a fungus, of taxonomically related similar species typified by a particular species, as in Inocybe lanuginosa group

guttulate - of spores, containing an oil droplet or droplets

habit - description of the way that fruitbodies grow in relation to each other; may also describe the general external and characteristic appearance of fruitbodies

habitat - the natural place of growth

hairy - covered by an arrangement of fibrils or mycelial strands resembling hairs

hardwood - any tree that is not a conifer

herbaceous - said of those flowering plants that die annually at least down to the roots (i.e. non-woody flowering plants)

hirsute - covered with long stiff hairs

hispid - covered with long rough hairs or bristles, coarser or stiffer than hirsute

hoary - covered with dense silky down; canescent; with a silvery sheen as if covered with frost

hollow - of stem, having the flesh empty of fibrils, as opposed to solid or stuffed

horny - hard and brittle in texture, homogeneous in texture and difficult to section

humus - decaying organic material in or on soil

hydnoid - with teeth on the spore-bearing surface

hygrophanous - cap surface changing color markedly as it dries, usually having a water-soaked appearance when wet and turning a lighter opaque color on drying, often with a clear demarcation

hymeniform - resembling a hymenium in form

hypha, plural hyphae - thread-like fungal cell

hyphal - pertaining to a hypha

inamyloid - remaining clear or becoming yellow in Melzer's reagent, not amyloid or dextrinoid

incrusted - covered with a thin, hard crust; of hyphae, with matter located on their outer wall; of cystidia, covered with crystalline or amorphous deposit, particularly at the top

incurved - of cap margin, curved inwards toward stem, but less than inrolled

innate - usually of fibrils of scales, meaning that they are not raised from the surface or readily removed from it

inrolled - of cap margin, rolled inwards so that the edge of the margin is actually points toward gills

insititious - of stem, devoid or any fibrils or hyphae at point of attachment to substrate

interveined - of gills, connected by "veins" (ridges) that run between gills

KOH - potassium hydroxide, an agent commonly used to revive dried mushroom material, or show chemical reactions on the surface of the mushroom, or chemical reactions under the microscope

lacerate - irregularly torn

lageniform - of cystidia, swollen at the base with the middle and top part tapered into a long beak, like a gourd, therefore gourd-like

lanceolate - like a lance, many times longer than broad, and tapering

lateral - of a stem, attached to the side of the cap

lecythiform - of cystidia, wide at base with middle tapered into narrow neck and top swollen into a head, like a bowling pin (lecythiform refers to a Greek stoppered bottle)

lens - a hand magnifying glass

lepiotoid - resembling the genus *Lepiota*

lobed - with rather large, rounded divisions on the margin

long-decurrent - with the gills extending a long way down the stem

lubricous - used sometimes to mean greasy or slippery but not viscid or slimy; sometimes used to mean slimy

marasmioid - resembling the genus *Marasmius*

margin - the edge of the cap or gills

marginate - having a distinct margin: when discussing gills the edge has a different color; when discussing the bulb on a stem indicates a flange (circular ridge) at the top of the bulb

median - of a ring, near the middle of stem

membranous - like a membrane or skinlike or somewhat like bathroom tissue

micaceous - like flecks of mica

mild - not with distinctly marked quality

mixed - referring to forests containing both conifer and broadleaved trees

monocot - flowering plant belonging to Monocotyledoneae, including grasses, rushes, sedges, lilies, palms

mottled - spotted, as in the uneven ripening of spores on gills in the genus Panaeolus

mycelial - consisting of mycelium

mycelium - network of fungal cells extending into the substrate and massing together to form fruitbody; basal mycelium may appear at the base of the stem in a form similar to what occurs in the substrate

mycenoid - resembling the genus *Mycena*, cap conic to bell-shaped, gills not usually decurrent, stem cartilaginous to fragile, without annulus

narrow - of gills, the opposite of broad, refers to the height of the gill, which may be narrow, moderately broad or broad

nodulose - of spores, covered with bumps

notched - refers to gills that are uncinate or sinuate (or sometimes also to gills that are abruptly adnexed), as if a wedge of gill had been removed near the stem: if the line of the bottom edge of the gill curves down sharply, gills are uncinate, if it curves gradually toward the stem reaching it more or less horizontally, gills are sinuate

oblong - of spores, elongated with approximately parallel sides; according to one set of criteria, ratio of length to width is 1.6-2: shorter would be elliptic and longer cylindric

oboval - oval with narrower end closer to the attachment

obtuse - blunt, not pointed

ocher - between warm buff and yellow, to brownish orange

ochraceous - ochre-yellowish, yellow-orange with a brownish tinge

olivaceous - olive gray-brown; with an olive shade

omphalinoid - resembling the traditional genus *Omphalina*, smaller mushroom with depressed cap center, decurrent gills, and cartilaginous stem

opaque - not transparent or translucent, often used of cap margin where gills do not show through as striations

oval - like the outline of an egg

ovate - similar to oval but some regard as more pointed at the narrower end

pallid - very pale in color, almost a dull whitish

papilla, plural papillae - small nipple-like protuberance

papillate - with small nipple-like protuberance(s)

parabolic - of cap, with the height greater than the width, the top rounded

partial veil - inner veil of tissue which joins the stem to the cap edge at first in some species of mushrooms, and often breaks to leave a ring (annulus) on stem and remnants hanging from the cap margin

PDAB - a solution of p-diaminobenzaldehyde in 70% ethanol

pedicellate - of cystidia, with a slender stalk

pellicle - an upper surface layer on cap surface that can undergo gelatinization, making the cap viscid (sticky) to the touch; often it can be peeled away from the cap, may be thought of as covering the cuticle; same as cuticle or as thinner and more definite

pers. comm. - personal communication

pileocystidium or pilocystidium (plural pileocystidia, pilocystidia) - cystidia occurring on surface of cap

pileus - cap of a mushroom

pleurocystidium (plural pleurocystidia) - a sterile cell (cystidium) located on the face (side) of a gill

pleurotoid - resembling in general form the genus *Pleurotus*, may be applied to any gilled mushroom either without a stem or with a stem attached in a lateral or off-center manner

pliant - being pliable without breaking, flexible, not rigid or firm

pruinose - looking finely powdered or finely granular

pseudocystidia (plural pseudocystidia) - cystidium-like cell derived from a conducting element, embedded or not projecting

pseudogills - gill-like structures on spore-bearing surface

punctate - marked with dots consisting of hollows, depressions, spots, raised-joined scales, or agglutinated fibrils, all very small

recurved - curved back: when used of cap margin or scales means curved back upward

refractive - of hyphal or cystidial contents, light-deflecting

repent - of hyphae, prostrate, lying flat

reviving - said of fruiting body which shrivels in dry weather or when dried and takes on its natural shape when wet

rhizomorph - cordlike strand of twisted hyphae present around base of stem, often dark colored

rhomboid - having or nearly having the shape of a rhombus; a parallelogram with angles that are not right angles, and unequal adjacent sides

ring - annulus, collar of tissue on stem formed by ruptured of the veil that initially joins the stem to the cap edge

rudimentary - underdeveloped, not mature

rust - fungus belonging to Uredinales, an order containing many fungi that cause diseases of cereal crops

saccharine - very sweet or sugarlike

scabrous - roughened by short projecting rigid scales

scale - piece of tissue on surface that is not especially elongated, differentiated from surface by color or by projecting from it

scalloped - edged with small rounded lobes

scaly - with scales

scattered - growing with other fruitbodies but at a greater distance from each other than would be considered gregarious

sclerotium - a knot or firm frequently rounded mass of hyphae, usually underground, sometimes giving rise to mycelium or a fruiting body

scurfy - surface covered with branlike particles resembling scales, same as furfuraceous

seceding - refers to gills that have separated in their attachment to the stem and have the appearance of being free, often leaving longitudinal lines on the stem where the gills were once connected

sensu - in the sense of

separable - said of stem or gill easily removed from cap

septate - partitioned with cross-walls

sequestrate - describes fruiting bodies that have evolved from those that forcibly discharge spores to a closed or underground form in which spores are retained until it decays or is eaten by an animal, the word 'sequestrate' referring to spores which have been sequestered (hidden).

serrate - saw-toothed to almost ragged

sessile - lacking a stem

sheathlike - of an annulus, clinging to the stem and opening upwards

short-decurrent - with the gills extending only a short distance down the stem

siderophilous - of basidia, with granules that darken when heated in acetocarmine

sinuate - of gill attachment, refers to gills with a lower edge that curves up close to the stem then curves back to reach the stem more or less horizontally

slimy - having a thick layer of slime, more than viscid

smooth - of a surface, without projections; of spores or cystidia, not spiny or warty or rough or ridged

smut - member of Ustilaginales, an order which includes fungi pathogenic to cereal crops

solid - not hollow; feeling hard

spathulate - shaped like a spatula or spoon, oblong with a narrowing base

spermatic - resembling the odor of human sperm or semen

sphaeropedunculate - spherical with a short stem

spindle-shaped - narrowing evenly from middle to both ends

spine - long slender sharp projection

spore - reproductive cell or "seed" of a fungus, produced on specialized cells, which in gilled mushrooms are usually basidiospores on the gills

spore print or spore deposit - a visible deposit of spores in the natural situation or obtained by allowing a gilled mushroom to drop spores onto white paper for a few hours or overnight

stature - characteristic shape

stem - the column supporting the cap in most mushrooms, more correctly called the stipe

sterile - not producing spores

streaked - having faint lines or bands, used when appressed fibrils appear like bands or faint lines

striate - marked with lines usually radiating on cap and more prominent near margin when moist, or parallel vertical on stem

strigose - having long stiff hairs

stuffed - containing loose material in the interior, not hollow or solid

sub- - a prefix attached to many terms to mean near, nearly, more or less, somewhat, slightly; below or under

subdecurrent - of gills, meaning short decurrent or nearly decurrent or somewhat decurrent (i.e. intermediate between adnate and decurrent, when attachment extends slightly further down stem than when adnate)

subdistant - of gill spacing, intermediate between close and distant, the order being crowded, (subcrowded), (subclose), close, subdistant, distant

subgills - the short gills that do not span the entire distance from margin to stem, also called lamellulae

substrate - the material that a fungus is growing on and in

subviscid - slightly sticky, thinly viscid

superior - of an annulus, forming on the upper part of the stem

suprapellis - the outermost layer of the pellis

synonym - another name for the same species, especially an earlier or illegitimate name not currently used for the species

tan - leather-colored, similar to undressed leather

tawny - approximately the color of a lion, between yellow brown and rusty brown; used by some as more orange, fox-colored

terrestrial - appearing to grow from the ground, or on the ground, as opposed to growing on wood

thick - term used for width of stem, depth of cap flesh, or the distance between the faces of one gill

tibiiform - of cystidia, somewhat ventricose (wider in middle) with long narrow neck and apex swollen into a head, supposedly like the tibia bone

tier - in reference to subgills, group of subgills, interspersed with gills usually at regular intervals, each tier being of roughly a certain length

tissue - a group of hyphae which are similar in shape or form

tobacco-brown - the color of tobacco as it is found in a cigar or cigarette

tomentose - covered with soft hairs, often soft densely matted hairs, like a woollen blanket

tomentum - a covering of densely matted woolly hairs

toothed - serrate on the edges; toothlike on the edges; of gills, with toothlike edges or decurrent by a short tooth

tough - strong, able to resist stress

trama - the tissue under the surface cell layers of cap, stem, or gills, or between the tube wall layers of polypores, usually referring to the flesh (context) as seen through the compound microscope

translucent - transmitting light diffusely, semitransparent

troops - hundreds to even thousands of fruiting bodies growing within a few square yards

tufted - as used here, the same as cespitose; may also be used to mean a small cluster or stems clustered with a common base

type - the element on which the descriptive matter fulfilling the conditions of valid publication of a scientific name is based; in the case of mushroom species, the collection of fruiting bodies from which the original concept of the taxonomic group (e.g. family, genus, species, variety, etc.) is derived

um - abbreviation for micrometer (micron), which is a thousandth of a millimeter

umber - a deep dull dark brown, smoky brown; earth brown sometimes with a very slight reddish tinge

umbilicate - refers to a cap with a narrow, moderate to deep depression in center which may or may not have a small umbo in the bottom

umbo - a raised knob or mound at the center of the cap

umbonate - having a raised knob or mound at the center of the cap

uncinate - refers to gills with a lower edge that curves up as it comes close to the stem, then abruptly curved down to leave a "tooth" on stem, not proceeding further down stem than the imaginary line running straight along the lower gill edge to the stem, but sometimes used as equivalent to "decurrent with tooth"

undulating - wavy

uplifted - the margin of the cap turning upward

veil - referring either to the partial veil which joins the stem to the cap edge at first, and often breaks to leave a ring on stem and remnants hanging from the cap margin, or the universal veil which initially covers the whole fruiting body including the top of the cap, always breaking and sometimes leaving fragments on the cap or the stem, or a volva at the base of the stem

vein - thick blunt shallow fold on spore-bearing surface that may look somewhat gill-like if prominent; small folds on the faces of gills or between them; any vein-like structure

ventricose - wider in the middle

verrucose - with warts; or with outgrowths smaller than if warted but larger than if verruculose (as used here, warty includes verrucose and verruculose)

vinaceous - the color of red wine or red wine stains; a paler or grayish red; dull pinkish brown to dull grayish purple

violaceous - of some violet hue

virgate - markedly streaked or striate, usually with dark-colored groups of fibrils, giving the appearance of bearing many small twigs

viscid - sticky but not slimy or lubricous: the mushroom usually feels somewhat slimy or slippery when wet but when dry may need to be wetted slightly to feel sticky; sometimes used to include slimy

volva - the remains of the universal veil found at the base of the stem, usually in the form of a sac, collar or concentric rings

volvate - with a volva

wart - bumpy outgrowth found on caps, stems, and spores, which on caps and stems is generally somewhat wider than high

winy - the color of red wine or red wine stains; a paler or grayish red; dull pinkish brown to dull grayish purple; here used as equivalent to vinaceous

zonate - with circular bands or layers of differing colors or ornamentation

zoned - same as zonate

#

# REFERENCES

Ammirati, Joseph, McKenny, Margaret, Stuntz, Daniel. 1987. *The New Savory Wild Mushroom*. University of Washington. [Ammirati(1)]

Ammirati, Joseph F., Andrew D. Parker, and P. Brandon Matheny. 2007. *Cleistocybe*, a new genus of Agaricales. Mycoscience 48: 282-289. [Ammirati(12)]

Arora, David. 1986 *Mushrooms Demystified*. Second Edition. Ten Speed Press, Berkeley. [Arora(1)]

Bandoni, R.J.. 1976. *Guide to Common Mushrooms of BC*. rev. color ed. B.C. Prov. Mus. Handb. [Bandoni(1)]

Barron, George. 1999. *Mushrooms of Northeast North America*. Lone Pine Press, Edmonton Alberta. [Barron(1)]

Bessette, Alan E., Bessette, Arleen R., Miller, Orson K. Miller, Hope H. 1995. *Mushrooms of North America in Color: A Field Guide to Seldom-Illustrated Fungi*. Syracuse University Press. [Bessette(1)]

Bessette, Alan E., Bessette, Arleen R., Fischer, David W. 1997. *Mushrooms of Northeastern North America*. Syracuse University Press. [Bessette(2)]

Bigelow, Howard E. 1959. "Notes on Fungi from Northern Canada." *Can. J. Bot*. **37**: 769-779. [Bigelow(11)]

Bigelow, Howard E. 1973. "*Cantharocybe*, a new Genus of Agaricales." *Mycologia.*  **65**: 485-488. [Bigelow(1)]

Bigelow, Howard E. 1973. “The Genus *Clitocybula*.” *Mycologia* **65**: 1101-1116. [Bigelow(3)]

Bigelow, Howard E. 1979. "Notes on *Fayodia* ss. lato." *Mycotaxon* **9**(1): 38-47. [Bigelow(4)]

Bigelow, H.E. 1982. *North American Species of Clitocybe, Part 1*. Vaduz, West Germany: J. Cramer. and 1985. *North American Species of Clitocybe, Part 2*. Vaduz, West Germany: J. Cramer. [Bigelow(5)]

Bigelow, Howard E. 1982. Species Described in *Clitocybe* by C.H.Peck and W. A. Murrill. Sydowia Annales Mycologici Ser. II 35 [Bigelow(10)]

Breitenbach, J., Kränzlin, F. 1986. *Fungi of Switzerland Volume 2 Non-gilled Fungi.* Edition Mykologia Lucerne. [Breitenbach(2)]

Breitenbach, J., Kränzlin, F. 1991. *Fungi of Switzerland Volume 3 Boletes and Agarics First Part*. Edition Mykologia Lucerne. [Breitenbach(3)]

Breitenbach, J., Kränzlin, F. 1995. *Fungi of Switzerland Volume 4 Agarics Second Part*. Edition Mykologia Lucerne. [Breitenbach(4)]

Brunner, Ivano L. and Orson Miller Jr. 1988. *Calocybe fallax*: its ecology and cultural behaviour. *Mycotaxon* **33**: 41-50.

Corner, E.J.H.. 1966. *A Monograph of Cantharelloid Fungi*. Oxford University Press. [Corner(1)]

Courtecuisse, R., Duhem, B. 1995. *Mushrooms and Toadstools of Britain & Europe*. Collins Field Guide Harper Collins, London. [Courtecuisse(1)]

Gamiet, S. and S.M. Berch. 1992. "Fungi of old-growth forests in British Columbia." Northwest Environ. 8(1): 168-170. [Gamiet(1)]

Gibson, Ian. MatchMaker: Mushrooms of the Pacific Northwest CD-ROM.

Ginns, J. 1974. "Schizophyllum commune". *Fungi* *Canadenses* No. 42. Agriculture Canada. [Ginns(4)]

Ginns, J., M.N.L. Lefebvre. 1993. *Lignicolous Corticioid Fungi (Basidiomycota) of North America Systematics, Distribution, and Ecology*. The Mycological Society of America Mycologia Memoir No. 19. American Phytopathological Society Press. St. Paul, Minnesota. [Ginns(5)]

Hansen, Lise, Henning Knudsen editors. 1992. *Nordic Macromycetes. Volume 2*. Nordsvamp, Copenhagen. [Hansen, L.(2)]

Jumpponen, Ari, James M. Trappe, Efrén Cázares. 1999. Ectomycorrhizal fungi in Lyman Lake Basin: a comparison between primary and secondary succession sites. Mycologia 91(4): 575-582. [Jumpponen(1)]

Læssøe, Thomas, Gary Lincoff, Neil Fletcher. 1998. *Mushrooms*. Eyewitness Handbooks. Stoddart Publishing, Toronto. [Læssøe(1)]

Largent, David L., Timothy J. Baroni. *How to Identify Mushrooms to Genus VI: Modern Genera*. Mad River Press. 1988.

Lennox, Joanne Williams. 1979. "Collybioid Genera in the Pacific Northwest." *Mycotaxon* **9**(1): 117-231. [Lennox(1)]

Lincoff, Gary. 1981. *Simon and Shuster’s Guide to Mushrooms*. Simon & Shuster, New York. [Lincoff(1)]

Lincoff, Gary. 1995. *National Audubon Society Field Guide to North American Mushrooms*. Knopf, New York. [Lincoff(2)]

Maas Geesteranus, R.A. 1992. *Mycenas of the Northern Hemisphere I & II*. North-Holland, Amsterdam. [Maas Geesteranus(1)]

Matheny, P. Brandon, Else C. Vellinga, Neale L. Bougher, Oluna Ceska, Pierre-Arthur Moreau, Maria Alice Neves, and Joseph F. Ammirati. 2007. “Taxonomy of Displaced Species of *Tubaria*.” *Mycologia* **99**(4): 569-585. [Matheny(6)]

Moser, M. 1983. *Keys to Agarics and Boleti*. Translated by S. Plant. Publisher Roger Phillips, London. [Moser(1)]

Murrill, W.A. 1912. "The Agaricaceae of the Pacific Coast - II." *Mycologia* **4**: 231-262. [Murrill(3)]

O'Dell, Thomas E., Joseph F. Ammirati, and Edward Schreiner 1999. "Species richness and abundance of ectomycorrhizal basidiomycete sporocarps on a moisture gradient in the *Tsuga* *heterophylla* zone". *Can J. Bot*. 77: 1699-1711. [O'Dell(1)]

Petersen, Ronald H. 1992. "Further notes on mating systems in *Melanotus*." *Mycotaxon* **45**: 331-341. [Petersen(1)]

Phillips, Roger. 1991. *Mushrooms of North America*. Little, Brown, & Co., Boston. [Phillips(1)]

Redhead, S.A. 1974. "A New Species of *Campanella* from North America." *Mycologia* **66**: 183-187. [Redhead(10)]

Redhead, S.A. 1980. "*Melanotus caricicola". Fungi* *Canadenses* No. 189*.* Agriculture Canada, Ottawa. [Redhead(33)]

Redhead, S.A. 1980. "*Phaeomarasmius erinaceus." Fungi* *Canadenses* No. 175. Agriculture Canada, Ottawa. [Redhead(26)]

Redhead, S.A., R. Singer. 1981. "*Resinomycena* gen. Nov. (Agaricales), an Ally of *Hydropus, Mycena and Baeospora*." *Mycotaxon* **13**(1): 150-170. [Redhead(17)]

Redhead, S.A. 1982. "The systematics of *Callistosporium luteo-olivaceum*." *Sydowia, Annales Mycologici Ser.* II. **35**: 223-235. [Redhead(23)]

Redhead, S.A. 1982. "*Pseudobaeospora pillodii.*" *Fungi* *Canadenses* No. 217. Agriculture Canada, Ottawa. [Redhead(30)]

Redhead, S.A., D.A. Reid. 1983. "*Craterellus humphreyi*, an unusual *Stereopsis* from western North America." Can. J. Bot. **61**: 3088-3090. [Redhead(47)]

Redhead, S.A., Paul Kroeger 1984. "*Melanotus textilis*, a new fabric- and wood-inhabiting North American agaric." *Mycologia*, **76**(5): 868-872. [Redhead(18)]

Redhead, S.A. 1984. "Additional Agaricales on wetland Monocotyledonae in Canada." *Can. J. Bot*. **62**: 1844-1851. [Redhead(9)]

Redhead, S.A., Smith, A.H. 1986. "Two new genera of agarics based on *Psilocybe corneipes* and *Phaeocollybia perplexa*." *Can. J. Bot*. **64**: 643-647 [Redhead(14)]

Redhead, S.A. 1989. "A biogeographical overview of the Canadian mushroom flora." *Can. J. Bot*. **67**: 3003-3062 [Redhead(6)]

Redhead, S.A. 1997. *Macrofungi of British Columbia: Requirements for Inventory*. Ministry of Forests of British Columbia. [Redhead(5)]

Redhead, S.A. 1999. "New species, varieties and combinations in the genus *Flammulina.*" *Mycotaxon* **71**: 285-294. [Redhead(37)]

Schalkwijk-Barendsen, Helene M.E. 1991. *Mushrooms of Western Canada*. Lone Pine, Edmonton. [Schalkwijk-Barendsen(1)]

Siegel, Noah, and Christian Schwarz. 2016. *Mushrooms of the Redwood Coast - A Comprensive Guide to the Fungi of Coastal North California*. Ten Speed Press. Berkeley. [Siegel(2)]

Singer, Rolf, A.H. Smith. 1942 (published 1943). A Monograph on the Genus *Leucopaxillus* Boursier. Pap. Mich. Acad. Sci. 85-132. [Singer(19)]

Singer, Rolf. 1947. Additional Notes on the Genus *Leucopaxillus*. Mycologia 39: 725-736. [Singer(5)]

Singer, Rolf. 1986. *The Agaricales in Modern Taxonomy* 4th Edition. Koeltz Scientific Books, Koenigstein, Germany. [1975 edition is Singer(4)]

Smith, Alexander H. 1944. "New North American Agarics." *Mycologia* **36**: 242-262. [Smith(17)]

Smith, Alexander H. 1947. *North American Species of Mycena*. University of Michigan. [Smith(1)]

Smith, A.H. 1949 *Mushrooms in Their Natural Habitats*. University of Michigan Press, Ann Arbor. [Smith(15)]

Smith, Alexander H., Daniel E. Stuntz. 1950. "New or Noteworthy Fungi from Mt. Ranier National Park." *Mycologia* **42**: 80-134. [Smith(9)]

Smith, Alexander H., L.R. Hesler. 1968. *North American Species of Pholiota*. Hafner Publ., New York. [Smith (3)]

Smith, Alexander H. 1975. *A Field Guide to Western Mushrooms*. University of Michigan Press, Ann Arbor. [Smith(8)]

Smith, Alexander H., Smith Helen V., Weber, Nancy S. 1979. *How to Know the Gilled Mushrooms*. Wm. C. Brown Company, Dubuque, Iowa. [Smith(6)]

Stamets, Paul. 1996. *Psilocybin Mushrooms of the World*. Ten Speed Press, Berkeley. [Stamets(1)]

Stuntz, D.E., B.F. Isaacs. 1962. "Northwestern Fungi I." *Mycologia* **54**: 272-297. [Stuntz(2)]

Trudell, Steve, Joe Ammirati. 2009. *Mushrooms of the Pacific Northwest*. Timber Press. [Trudell(4)]

Watling, R. *British* *Fungus Flora Agarics and Boleti 3 Bolbitiaceae*  Royal Botanic Garden, Edinburgh. [Watling(1)]

Watling, R., Norma M. Gregory. 1987. *British Fungus Flora Agarics and Boleti 5 Strophariaceae and Coprinaceae* Royal Botanic Garden, Edinburgh. [Watling(3)]

Watling, R., Norma M. Gregory. 1990. *British Fungus Flora Agarics and Boleti 6 Crepidotaceae, Pleurotaceae and other pleurotoid agarics* Royal Botanic Garden, Edinburgh. [Watling(2)]

INDEX

GENUS AND SPECIES KEY ENTRIES

BOLBITIUS Fr. 504, 856, 960

 B. titubans (Bull.) Fr.

CALLISTOSPORIUM Singer

 C. luteo-olivaceum (Berk. & Curt.) Singer 832

CANTHAROCYBE H.E. Bigelow & A.H.Sm.

 C. gruberi (A.H.Sm.) H.E. Bigelow & A.H.Sm. 742

CATATHELASMA Lovejoy 316

 C. imperiale (Fr.) Singer

 C. ventricosum (Peck) Singer

CLITOCYBULA (Singer) Metrod 717, 740, 833

 C. abundans (Peck) Singer

 C. atrialba (Murrill) Singer

 C. familia (Peck) Singer

 C. lacerata (Scop.) Metrod

 C. oculata (Murrill) H.E. Bigelow

DECONICA (W.G. Sm.) P. Karst. 109

 D. caricicola (Orton) Guzmán 871, 875

 D. horizontalis Bull.:Fr.

D. phillipsii (Berk. & Broome) Noordel.

FLAMMULINA P. Karst. 831, 910

 F. lupinicola (Redhead & R.H. Petersen) C. Hahn

 F. populicola Redhead & R.H. Petersen

 F. rossica Redhead & R.H. Petersen

 F. velutipes (Curt. ex Fr.) Singer

HELIOCYBE Redhead & Ginns

 H. sulcata (Berkeley) Redhead & Ginns 702

LEUCOPAXILLUS Boursier 740, 919

 L. albissimus (Peck) Singer

 L. gentianeus (Quél.) Kotlaba

LEUCOPHOLIOTA (Romagn.) O.K. Mill., T.J. Volk & Bessette

 L. decorosa (Peck) O.K. Miller, T.J. Volk & Bessette 352

MACROCYSTIDIA Joss.

 M. cucumis (Pers. ex Fr.) Heim 834, 844, 848, 861

MUSCINUPTA Redhead, Lücking & Lawrey

 M. laevis (Fr.) Redhead, Lücking & Lawrey 10

MYTHICOMYCES Redhead & A.H.Sm.

 M. corneipes (Fr.) Redhead & A.H. Sm. 876

NAUCORIA (Fr.) P. Kumm. 354, 867, 872

 N. escharioides (Fr. ex Fr.) P. Kumm.

PHAEOLEPIOTA Maire ex Konrad & Maubl.

 P. aurea (Matt. ex Fr.) Maire ex Konr.& Maubl. 305, 330

PHAEOMARASMIUS Scherff. 110, 337, 858

 P. erinaceus (Fr.) Romagn.

PSEUDOBAEOSPORA Singer

 P. pillodii (Quél.) S. Wasser 511

PSEUDOARMILLARIELLA (Singer) Singer

 P. ectypoides (Peck) Singer 715a

PSEUDOCLITOCYBE (Singer) Singer

 P. cyathiformis (Bull.:Fr.) Singer 609, 726, 744

SCHIZOPHYLLUM Fr. 102

 S. commune Fr.

STAGNICOLA Redhead & A.H.Sm.

 S. perplexa (Orton) Redhead & A.H. Sm. 855, 864

STEREOPSIS D.A. Reid

 S. humphreyi (Burt) Redhead & D.A. Reid 9

TETRAPYRGOS E. Horak 116

 T. subdendrophora (Redhead) Horak

TAPINELLA E.-J. Gilbert

 T. atrotomentosa (Batsch) Šutara

 T. panuoides (Batsch) E.-J. Gilbert

TUBARIA (W.G.Sm.) Gillet 322, 707, 863

 T. confragosa (Fr.) Kühner

 T. furfuracea (Pers. ex Fr.) Gillet

 T. punicea (A.H. Sm. & Hesler) Matheny, Ammirati, et P.-A. Moreau

 T. vinicolor (Peck) Ammirati, Matheny, et Vellinga

- END -