Key to the Collybioid Members of the Omphalotaceae

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Overview

The 2026 version of the *Collybia* key has undergone major changes due to advances in sequencing results. A couple things come to mind. Way back in the 1990's Dr. Roy Halling gave a presentation on *Collybia* at Dr. Thiers' field camp in the Sierras. He mentioned that most white spored species that had attached gills that weren't decurrent or weren't of large stature like *Tricholoma* were dumped in *Collybia* as a convenience. Genera such as *Calocybe*, *Tephrocybe*, *Flammulina*, *Baeospora*, *Callistosporium*, *Strobilurus*, *Lyophyllum*, and so on were eventually separated out. *Collybia* was now known more for what it wasn't than for what it was.

Danny Miller plays an enormous role in this update, and without his interpretations of the sequence results this key could not have been done. One of the advantages of sequencing is that it shows you the relationships between species. It tells you whether a species is part of a group. For instance *Gymnopus dryophilus* has always been notorious for being variable. So for our northwest collections that had yellowish stipes, Danny had to create *Gymnopus 'dryophilus* PNW09*'.* Whether this evolves eventually into a new species, a new form, a new variety or subspecies will depend on who addresses this group professionally.

This brings up the issue of what species go into the key. We decided that the criterion for admission was a modern sequence result. This is a tricky group to figure out. Taxa we assumed were here turned out not to be here. And other species hitherto only known from Europe did turn up here. We couldn't simply rubber stamp the list we inherited from Helena Kirkwood, as complete as it seemed at the time. Neither did we want to delete them from consideration. So at the end of the key you will find a list of species with photos and brief descriptions that we expect to find here. Some of these were on a list that Dr. Lorelei Norvell composed of Pacific Northwest Collybioids. Others have been found in northern California. Global warming may push them further north. If you do find some taxa from this list, do inform Dr. Ian Gibson, author of MycoMatch, so we can include them in the next key upgrade.

Historically, Elias Fries created the tribe *Collybia* in 1821 for small and white spored species with a fleshy pileus and a hollow stipe. Then in 1838 Fries gave a full diagnosis of the genus *Marasmius*. It turned out that the more modern concept of *Collybia* had a polyphyletic origin,

deriving from different genera. In 1857 Staude first introduced *Collybia* as a genus. Incorporated in it were many species of *Marasmius*. This information is all coming from A Monograph of Marasmioid and Collybioid Fungi from Europe by Antonín & Noordeloos. In it we learn that *Agaricus radicatus* was first suggested as the type for *Collybia*. Then it was discovered that this belonged in *Oudemansiella*. At this point, M.A. Donk jumped in. He selected *Agaricus tuberosus* as the type, and except for a brief sojourn in *Microcollybia*, it remains so to this day. Two species, *Collybia cookei* and *Collybia cirrhata* joined the type selection. Collybias with pinkish spore deposits were sent to Subgenus *Rhodocollybia*. All the larger white spored taxa eventually went to *Gymnopus*. And in 1997, the genus *Dendrocollybia* was erected to account for *Dendrocollybia racemosa*. This joined the small group that contained the type.

In our last Pacific Northwest Collybia key from 2009 we covered four genera: *Collybia*, *Rhodocollybia*, *Dendrocollybia*, and *Gymnopus*. In this key, mainly due to updated work from Dr. Ronald Petersen and Dr. Karen Hughes, we are adding the genera *Connopus*, *Mycetinis, Collybiopsis* (formerly known as *Marasmiellus*)*, Paragymnopus, Pseudomarasmius,* and a species of *Micromphale* (a genus that is going away)*.* Descriptions of taxa in these genera will mostly be abbreviated versions of theirs.

Finally we got around to the Joanne Lennox Collybioids that she partially described in her 1975 doctorate, The Collybioid Fungi of Washington State. We attempted to sequence the whole lot of them. Her work yielded *Gymnopus eneficola* from Idaho and a new species of *Connopus* that so far totally replaces *Connopus acervatus* in the Pacific Northwest. This is referred to here as *Connopus bagleyensis* nom. prov. Lennox

We would like to acknowledge the herbariums at U.B.C., University of Michigan, University of Washington, and the New York Botanical Garden for sending us specimens to have sequenced.

One side note of interest: We were a little over halfway through this project when we found out a new publication from China now placed *Collybia* sensu stricto in the *Clitocybaceae*. The title is Systematic Arrangement within the Family Clitocybaceae: Phylogenetic and Phylogenomic Evidence, Morphological Data and Muscarine Producing Innovation by He, Chen, Bau, Wang & Yang. Published in Fungal Diversity, 2023. I asked Danny if we should abandon our project since the type we were following had left the Omphalotaceae for the Clitocybaceae. Should we embark on a new key that includes *Collybia rivulosa*, *Collybia nuda*, *Collybia personata*, *Collybia tarda*, etc? The decision was that we had gone too far already. Even though the type had fled to another family, we had been working on an important group.

However if we return to Fries's Epicrisis in 1838 we find that "species in the tribe *Collybia* were characterized by white spores, incurved pileus margin, central cartilaginous stipes, and putrescent basidiocarps." We therefore feel justified in adding a mini key for the four species that include the type for *Collybia* that have been sent to the *Clitocybaceae*. (One nom. prov. will be added to that group.) This key will precede the main key.

All in all some 41 species will be added to the key. This is mostly due to Dr. Hughes and Dr. Petersen who published new species in *Mycetinis, Gymnopus*, and *Collybiopsis.* Those with letters and numbers after them are either potential new species or at least representative of a group that needs work. New sequencing results brought these to light. Here is our list of incomings:

Collybiopsis californica

Collybiopsis confluens subsp. *campanulatus*

Collybiopsis eneficola

Collybiopsis sp. '*hasanskyensis*-PNW01'

Collybiopsis sp. 'PNW02'

Collybiopsis sp. 'PNW03'

Collybiopsis villosipes

Connopus bagleyensis nom. prov. Lennox

Dendrocollybia pycnoramella nom. prov.

Gymnopus androsaceus

Gymnopus aquosus

Gymnopus sp. '*aquosus*-PNW04'

Gymnopus barbipes

Gymnopus bulliformis

Gymnopus sp. 'CA01'

Gymnopus sp. 'PNW01'

Gymnopus sp. 'PNW10'

Gymnopus sp. 'PNW11'

Gymnopus sp. 'PNW12'

Gymnopus sp. *'dryophilus*-PNW09'

Gymnopus sp. *'earleae*-PNW05'

Gymnopus fragillior

Gymnopus sp. 'fuscopurpureus-PNW08'

Gymnopus glabrosipes

Gymnopus impudicus

Gymnopus sp.*'polyphyllus*-PNW03'

Gymnopus striatipes

Gymnopus sp.' CA02'

Micromphale arbuticola

Mycetinis applanatipes

Mycetinis salalis

Mycetinis scorodonius form *diminutivus*

Paragymnopus ponderosae

Paragymnopus sp. ‘PNW01’

Paragymnopus sequoiae

Paragymnopus sublaccatus

Peudomarasmius pallidocephalus

Rhodocollybia sp. ‘*maculata*-PNW05’

Rhodocollybia sp. ‘PNW08’

Rhodocollybia prolixa

A number of species that were in the former key that don’t have modern sequence verification will be dropped from this key. These are:

Collybia solidipes

Gymnopus acervatus (misapplied)

Gymnopus biformis

Gymnopus contrarius

Gymnopus dysodes

Gymnopus fuscopurpureus

Gymnopus fusipes

Gymnopus nivalis

Gymnopus spongiosus

Rhodocollybia badiialba (now a synonym of *Rhodocollybia prolixa*)

Rhodocollybia extuberans

Rhodocollybia lentinoides

Rhodocollybia prolixa var. *distorta*

Rhodocollybia unakensis

At the end of the main key there will be a list of species that we suspect are here. We just don't have a modern sequence for them. If any of these are found please notify Danny Miller and Ian Gibson so we can include them in a future key. The work never ends.

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Description of Genera

Collybia – Very small whitish to pale grayish fruiting bodies arising from a sclerotium resembling an apple seed or from the blackened remains of fungi. Caps usually pallid or canescent.

Collybiopsis – As a group, members of this genus can only be told apart from *Gymnopus* phylogenetically.

Connopus – Collybioid species with clustered fruiting bodies, smooth and lubricous caps up to 4 cm wide and glabrous stipes. Usually very hygrophanous.

Dendrocollybia – Fruiting bodies with lateral branches coming off the stipes.

Gymnopus – Medium sized fruiting bodies with white spores, adnate to emarginate gills, and glabrous caps.

Micromphale – A species with a roughened pinkish brown cap, white spores, and blackish brown stipe that turns paler in age. Odor of rotten onions.

Mycetinis – Small Marasmioid fruiting bodies with a garlic odor and incurved cap margins when young.

Paragymnopus – More small Marasmioid fungi that have brownish caps, tri-colored stipes ending in black at the bases, and often a rotten cabbage odor.

Pseudomarasmius – Small Marasmioid fungi with pallid caps and thin dark stipes.

Rhodocollybia – Mostly larger fleshy fruiting bodies with spore deposits ranging from cream to flesh color to pale yellow. Stipes usually terete, fibrous, or deeply furrowed longitudinally. Gills or caps can be rusty spotted.

A Note on the Organization of the Key

Because of the extreme variability of cap colors, stipe texture, spore colors, and even multiple habitats, expect more double and even triple keying than you are accustomed to. For instance, both *Collybiopsis villosipes* and *Rhodocollybia asema* have been described with hygrophanous caps. This may be true but I have yet to observe these caps drying en route to a paler color. They are either totally dark or totally pale. Thus they will be double keyed. Another issue is spore deposit color. It has usually been assumed that Rhodocollybias have pinkish spores. But half the sources list *Rhodocollybia butyracea* with cream colored spores. So some of the Rhodocollybias will also be double keyed here. Because of these discrepancies and the sequence results, we are not creating separate keys for each genus included. This also implies that species with sequences showing a close affinity may be far apart morphologically in this key.

When Kit Scates created the Key Council she wanted to produce keys that anyone could use. She chose not to use microscopic features because there would be folks who couldn't afford a

microscope. In this key we will try to adhere to this idea, using micro features only when there is no other way to separate the taxa.

For those species that have capital letters and numbers attached to them, such as PNW01, we will not attempt to invent a nom. prov. If they turn out to be new species, the less baggage the better. The mycologist authoring the new species should not be influenced by suggestive names from this key. Most if not all of these taxa have been entered in iNaturalist. We will supply iNaturalist numbers after each description if they exist. The sequence should also accompany the iNaturalist number.

It should be acknowledged that several species that we dredged up from iNaturalist finds were not actually described. There was just the photo and the sequence. All we could do is build a description from studying the photo. This is not professional grade. No mention of spore deposit color, odor, taste, and sometimes not even the habitat. These are new species with incomplete information.

And finally a note on the term Omphalotaceae. This implies the genus *Omphalotus*. So in my original version of this key I included *Omphalotus olivascens* which has appeared in southern Oregon.

This immediately raised hackles. How could we even think of including a large fleshy species that fruits in giant clumps and bears no resemblance to anything else in the key? So in this case we reverted to the Friesian concept of *Collybia*, sequence be damned.

Key to the Collybioids in the Clitocybaceae

(They all fruit on the rotting remains of mushrooms.)

1.a.) Whitish fruiting bodies with caps less than ½ cm wide without lateral branches off the stipes……...2

1.b.) Fruiting bodies with lateral branches off the stipes ……4

2.a.) Fruiting bodies arising from seed-like sclerotia ……3

2.b.) Fruiting bodies without seed-like sclerotia……..…..*Collybia cirrhata* (Pers.) Quélet

Caps: 1/3 – 1 cm wide, white becoming warm tan at disc, plano-convex to slightly depressed in age. Usually broadly umbonate to shallowly papillate. Margins translucent-striate. **Gills**: Adnate, white, sub-distant. **Stipe**: 1-5 cm long and 1-2 mm thick. Apex white, then tan to straw color below. Equal, white pruinose over all. Tomentose near base. **Odor & Taste**: Mild. **Substrate**: Gregarious on blackened remains of mushrooms. **Spores**: White, ellipsoid, 5.5-7.5 x 2.5-3.5 μ. **Comment**: Compare with *Collybiopsis californica,* which has darker stipes.

See photo on page 37.

3.a.) With red-brown apple seed shaped sclerotia……..*Collybia tuberosa* (Bull. ex Fries) Kummer

Caps: 1/3 – ¾ cm wide, convex to plane, sometimes depressed at disc. Smooth to pubescent, white to pinkish buff at disc. Sometimes plicate-striate. **Gills**: Adnate to subdecurrent, whitish to pinkish-buff. Close to subdistant. **Stipe**: 1-5 cm long and usually less than 1 mm thick. Whitish to pinkish buff, filiform and flexuous. Pruinose at apex, then strigose at base. Arising from a dark red-brown, apple seed shaped sclerotium. **Odor & Taste**: Mild. **Substrate**: Gregarious on blackened fungal remains or woody humus. **Spores**: White, ovate to lacrymoid in profile, 5-5.5 x 3-3.5 μ.

See photos on page 38.

3.b.) With orange pumpkin seed shaped sclerotia……*Collybia cookei* (Bres.) Arnold

Caps: ¼ – 1 cm wide, plano-convex with decurved margins. Shallowly umbonate at first, slightly depressed with age. White with pinkish buff disc when young. Matte to felty, glabrescent. **Gills**: Adnate, subdistant. White becoming pale pink when dried. **Stipe:** 1-6 cm long and 1 – 1 ½ mm thick. Pale grayish orange to tan at apex becoming pale gray-brown at base. White pruinose becoming subtomentose at base. Arising from an orange brown to yellow orange globose sclerotium that is sometimes wrinkled. **Odor & Taste**: Mild. **Substrate**: Gregarious in humus, rotten wood, or on the blackened remains of mushrooms. **Spores**: White, ovate to ellipsoid, 4.5-5.5 x 2.5-3.5 μ.

See photo on page 37.

4.a.) Stipes with lateral, separated branches up to ½ cm long
……*Dendrocollybia racemosa* (Pers. ex Fries) Petersen & Redhead

Caps: 1/3 – 1 cm wide, convex and then plane with a broad umbo. Margins inrolled in both mature and immature specimens. Color gray-brown, darker at disc. Surface silky, context thin, tough, pliant. **Gills**: Somewhat paler than caps. **Stipe**: 3-5 cm long. Concolorous with cap. Branches extending at right angles to the lower stipe, up to 1 ½ mm long. It arises from a black, shiny, round sclerotium 2.7 mm in diameter. **Substrate**: In clusters on the remains of rotting mushrooms. **Spores**: Whitish, ovate, thin walled, 4-5.5 x 2.5-3 μ. Faintly blue in Melzer's.

See photo on page 39.

4.b.) Stipes with a dense vesture of miniscule white lateral branches ……

……..*...Dendrocollybia pycnoramella* (Siegel & Schwarz nom. prov.)

Caps: 1/5 - 3/5 cm wide, campanulate to convex with a broad umbo, margins shallowly ribbed. Opaque beige-tan to grayish tan, darker at disc. Glabrous. **Gills:** Obscurely attached, pale gray to dingy tan, subdistant and somewhat thick edged. **Stipe**: Up to 2 cm long and 2 mm thick, pale

grayish. Surface densely covered with small white branches with slightly enlarged rounded tips. Arising from a hard black irregularly shaped sclerotium up to 1 cm wide. **Odor & Taste**: Mild. **Substrate**: In clusters on the remains of rotting mushrooms. **Spores**: White to buff, ellipsoid, 4-5 x 2-2.5 µ.

See photo on page 39.

Key to the Collybioids in the Omphalotaceae

1.a.) Species with white to cream colored spore deposits……..…..2

1.b.) Species with pale yellow, pale pink, flesh color, orange buff or straw colored spores ……..…77

2.a.) Species with insititious (hair-like) stipes less than one mm thick (there are species that straddle the 1 mm mark, so look for them in the next key choice too)……..….3

2.b.) Species with stipes 1 mm or more thick ……..…….…… 9

3.a.) With garlic odor ……..……...…….…..4

3.b.) Without garlic odor……...……....5

4.a.) Gills pale tan to ochre-buff ……....*Gymnopus fragillior* (R.Petersen)

Caps: 3/5 – 1 cm wide, plano-convex to slightly depressed at disc. Surface matte, margins slightly tuberculate. Discs brown becoming buff at margins. Context dull orange in Melzer's solution. **Gills**: Adnate, distant, thickish, weakly pseudocollariate. Pale tan to light ochre-buff. **Stipe**: 1 ½ – 2 ½ cm long and 1/3 to ½ mm thick. Equal, hollow, terete. Buff to tan at apex becoming brown below and then blackish brown at base until a minutely hairy collar that is tawny in color. **Odor**: Of garlic. **Taste**: Not recorded. **Substrate**: Scattered in needle duff of probable grand fir on a fallen log. **Spores**: Color of deposit not reported. Broadly ellipsoid to pip shaped at 6.5-7.5 x 3.5-4.5 µ.

See painting on page 40.

4.b.) Gills white to buff ……..

……*Mycetinis scorodonius* forma *diminutivus* (R.Petersen, K.Dyson, J.Ammirati)

Caps: 1/3 – 1 cm wide, convex with inrolled margin at first, then plano-convex with the hint of an umbo. Suede-like surface. Margins sometimes radially puckered. Cinnamon brown at disc, ochre-buff at margin. **Gills**: Adnate to adnexed, attached to a pseudocollarium. White to buff, thickish, often crisped when dried. **Stipe**: 1-3 cm long and .8- 1 ½ mm thick. Insititious, glabrous shiny, terete. Tawny olive at apex becoming ochre-tawny and then brown at base. **Odor**: Strong of garlic. **Taste**: Not recorded. **Substrate**: Gregarious in mulched soil in flower pots. **Spores**: Color not recorded, 8-9.5 x 3.5-4.5 µ. Ellipsoid to subamygdaliform..

See photo on page 40.

5.a.) Associated with ponderosa pine needles and debris……..

..……..……...*Paragymnopus ponderosae* (R. Petersen) J.S. Oliveira

Caps: 1/3 to 1 1/3 cm wide, plane to slightly depressed at disc with inflexed margins. Matte to delicately tuberculate. Margins subtly sulcate-striate. Discs brown paling to light brown at margins. **Gills**: Adnate to adnexed, subdistant, not anastomosing. Subventricose. Pale orange-brown drying to light grayish olive. **Stipe**: 2 ½ – 4 cm long and ½ to 4/5 mm thick. Glabrous, shiny all over, tapering towards base. Dark brown at apex darkening to black below. Associated hair-like black rhizomorphs are attached to nearby substrate with a basal pad, but not attached to stipe base. **Odor & Taste**: Mild. **Substrate**: Gregarious on ponderosa pine needles and debris. **Spores**: Spore color not reported. Dimorphic. Two spore sizes reported. 5.5-7 x 3.5-5 µ and 7-8.5 x 3.5-4.5 µ. Broadly ellipsoid to pip shaped.

See photo on page 41.

5.b.) Associated with other tree hosts or substrates...……...…….6

6.a.) Fruiting on sequoia leaves and twigs …...*Paragymnopus sequoiae* (Desjardin) J.S. Oliveira

Caps: 6-12 mm wide, convex to campanulate, often with sharp umbo, becoming plano-convex in age with a rugulose sulcate to rugulose striate margin. Glabrous, hygrophanous, light brown to brownish orange fading to grayish orange to orange buff in age. Margins paler. **Gills**: Adnate becoming free in age, or attached to a pseudocollarium. Close to subdistant. Pale grayish orange ageing to pale grayish white**. Stipe**: 2- 4 1/3 cm long and .7 – 1 ½ mm wide. Hollow, insititious, equal or tapered towards base. Apex buff pruinose, pubescent below. Pale grayish orange at apex becoming light brown below and darker brown at base. Short, narrow black rhizomorphs scattered at base. **Odor**: Mild to slightly fetid. **Taste**: Strong of garlic-onion. **Substrate**: Gregarious on sequoia leaves and twigs. **Spores**: White, ellipsoid to lacrymoid, 6.5-7.5 x 3-4 µ.

See photo on page 41.

6.b.) Fruiting on other substrates……....7

7.a.) With branched black rhizomorphs arising from an adjacent black pad, not from the stipe base

…….……..……...*Gymnopus quinaultii* (R. Petersen)

Caps: 1/3 – 1 ½ cm wide, plano-convex with short striations. Matte. Brown at disc becoming dull cinnamon buff at margins. **Gills**: Adnate to adnexed, thickish, subdistant, ventricose. Color not stated. **Stipe**: 1 ½ – 3 cm long and 3/4-11/5 mm thick. Equal, hollow, terete. Orange cinnamon at apex, brown below and then blackish at base. Minutely pruinose at apex, more pruinose to barely hispid below. Black rhizomorphs, usually branched, arise from small black adjacent pads. **Odor &**

Taste: Not recorded. **Substrate**: Fruiting on fir and western red cedar needles. **Spores**: Color not given. Inamyloid. Broadly ellipsoid and flattened adaxially. 7.5-9 x 4-4.5 µ.

See photo on page 42.

7.b.) Fruiting on conifer duff ……..…….8

8.a.) Stipes pale brown at apex, black below ……...

……..…..*Gymnopus androsaceus* (Linnaeus ex Fr.) J.L.Mata & R. Petersen

Caps: Up to 1 ½ cm wide, convex with slightly depressed discs and wavy, rugulose margins. Dark pinkish brown at first, fading to pale red brown to ochre brown or nearly buff in age. **Gills**: Adnexed to adnate, distant, sometimes furcate or anastomosing. Whitish at first, then pinkish with yellow or brown tinges becoming brown in age. Edges entire. **Stipe**: 2 ½ – 6 cm long and up to 1 mm thick. Glabrous, shining, filiform. Pale brown at apex, dark red brown to black below. Black rhizomorphs can be present. **Odor & Taste**: Mild. **Substrate**: Gregarious on conifer litter. Common. **Spores**: White, 7-9 x 3.5-4.5 µ. Ellipsoid to amygdaliform.

See photo on page 43.

8.b.) Stipes pale gray-brown at apex, dark brown below…….……

……..….. *Pseudomarasmius pallidocephalus* (Gilliam) R. Petersen

Caps: ½ – 1 cm wide, convex to plano-convex, often with papillate umbo in age. Glabrous, margins striate to sulcate striate. Tan or brownish orange at disc becoming grayish orange at margins fading to whitish orange in age. **Gills**: Adnate to adnexed, subdistant to distant, pinkish buff to whitish orange. **Stipe**: 2-4 cm long and ½ – 1 mm thick. Equal or tapering towards base. Glabrous, shiny. Apex gray-brown to pale brown becoming dark brown below. **Odor & Taste**: Mild. **Substrate**: Gregarious on doug fir, grand fir, spruce, and hemlock needles. **Spores**: White. Ellipsoid to narrowly amygdaliform. 6.6-8.4 x 3.3-4.2 µ.

See photo on page 43.

9.a.) Stipes with a vesture, either pruinose, strigose, pubescent or tomentose……..……..10

9.b.) Stipes seemingly glabrous, can be pubescent when dried…..…….……..……21

(Worthwhile mentioning that some stipes such as those of *Collybiopsis confluens* and *Gymnopus impudicus* appear glabrous in wet weather but pruinose when dried.)

10.a.) Stipes pruinose……..……...11

10.b.) Stipes velutinous, silky, tomentose to matted strigose ……....17

11.a.) Minutely pruinose at apex…….…..... *Gymnopus barbipes* (R. Petersen & K. Hughes)

Caps: ½ – 1 ½ cm wide, applanate (flat), margins striatulate and barely sulcate, incurved when young. Discs dark brown becoming grayish buff to tan at margins. Glabrous. **Gills**: Adnexed to

free or sinuate, subdistant, shallow. Pale brown drying to off-white. **Stipe**: 2 ½ – 6 1/3 cm long and 1 ½ – 2 ½ mm thick. Hollow, terete, brown at apex becoming buff-brown towards base. Minutely vestured at apex. Dingy whitish mycelium at base. **Odor & Taste**: Mild. **Substrate**: Found on leaf litter. **Spores**: Hyaline, inamyloid. 6-6.5 x 2.5-3 µ. Ellipsoid and slightly flattened adaxially.

See photo on page 44.

11.b.) Pruinose vesture covering more of the stipe……12

12.a.) Odor of rotten cabbage ..……13

12.b.) Odors mild or different……..…14

13.a.) Stipes brown to pinkish brown with darker bases……

……*Gymnopus impudicus* (Fr.) Antonín, Halling & Noordeloos

Caps: 1 1/3 – 4 cm wide, convex to plane, sometimes broadly umbonate with a translucent striate margin when moist. Dark brown with a pinkish or reddish tinge ageing to pinkish brown or grayish brown. Glabrous and lubricous. Can have a grayish white bloom at first that vanishes with age. **Gills**: Narrowly adnate, close to subdistant, pale cream becoming pale pinkish to gray-brown. **Stipe**: 2-3 ½ cm long and 1-3 mm thick. Entirely white pruinose. Often compressed or tapering at base. Pinkish yellow at apex, then brown to pinkish brown below with a darker almost black base. Base white tomentose. Flimsy white rhizomorphs present. **Odor & Taste**: Of rotten cabbage. **Substrate**: In small groups on conifer wood chips, humus, and woody debris. **Spores**: White, oblong to lacrymoid, 6.5-9x 3.2-4.5 µ.

See photo on page 44.

13.b.) Stipes pale brick to brick color……...

……..….*Gymnopus erythropus* (Pers. ex Fr.) Antonín, Halling & Noordeloos

Comment: Can sometimes have rotten cabbage odor. See descriptions at 15.b, 35.a and 37.a.)

14.a.) Margins bald or finely striate 2/3 rds of the way to disc……..……15

14.b.) Cap margins strongly sulcate striate or tuberculate……..…16

15.a.) Discs umbilicate……..…….. *Paragymnopus* sp. ‘PNW01’

Caps: Up to 1 cm wide, convex with umbilicate discs. Glabrous, striate 2/3rds of the way to discs. Dark cinnamon at discs with dark cinnamon striations on an ochre ground. **Gills**: Adnate, distant, thickish. Pale ochre, edges entire. Two tiers of lamellulae. **Stipe**: 2-3 cm long and 2 mm thick. Ochre at apex becoming dark tawny below and nearly black at base. Wiry, equal, entire surface beige pruinose with thicker vesture at apex. **Odor & Taste**: Mild. **Substrate**: Scattered on individual hemlock needles under old growth hemlock. **Spores**: Color unobtainable. Narrowly ellipsoid with a snout. 8-9.8 x 3.7-4.4 µ. Q = 2.12. **Basidia**: 2-spored,clavate, 26-32 x 6-8 µ. **Cheilocystidia**: Fusoid to clavate, 30-37 x 5.2-8 µ. **Clamps**: Present in the gill trama. **Comment:**

Needs more microscopic attention. Evidently a 100% match with a find by Dr. Lorelei Norvell which might be found at the University of Tennessee herbarium.

See photos on page 45.

15.b.) Discs not umbilicate..…*Gymnopus erythropus* (Pers. ex Fr.) Antonín, Halling & Noordeloos

Caps: 3-4 ½ cm wide, convex with uplifted margins in age. Glabrous. Margins bald to finely striate. Pale brown to pale rusty tan becoming more ochraceous when dried. **Gills**: Adnexed, close to subdistant. White. Arcuate in age. **Stipe**: 4-6 cm long and 3-4 mm thick. Dark brown to black, apices sometimes dark tawny. Entirely dark pruinose. **Comment**: This version is keyed here because of its blackish stipe. See 35.a. and 37.a. for the more normal descriptions.

See photo on page 63.

16.a.) Stipes buff to tan at apices, black below…….. *Paragymnopus* sp. 'PNW01'

(This collection shares the same DNA as the species at 16.a. described above but has such a morphologically different aspect that it is worth describing separately.)

Caps: Up to 1 cm wide, convex to plane with sulcate margins. Glabrous. Dull rusty to brownish at first. Then buff with tan discs in age. Margins uplifted in age. **Gills**: Adnate to adnexed, thickish, distant. Arcuate. Buff to pale ochre. Edges entire. Two tiers of lamellulae. **Stipe**: 2-3 cm long and up to 2 mm thick. Buff to tan at apex becoming black below. Wiry, equal. Initially coated with buff pruina. **Odor & Taste:** Mild. **Substrate**: Scattered in moss and conifer duff near western red cedar. **Spores**: Deposit color not reported.

See photo on page 45.

16.b.) Stipes pale ochre at apex, red brown below and black at base……

……..…….….. *Collybiopsis sp.*'PNW02'

Caps: 1 ½ – 2 ½ cm wide, shallowly convex to plane with occasionally incurved margins at first, then with depressed discs in age. Margins sulcate striate to tuberculate. Dark red brown at discs becoming flesh ochre at margins. Hygrophanous, fading to ochre with a rusty tinge at disc when drying. Context very thin, concolorous. **Gills:** Adnate, subdistant, shallow. Flesh color. Edges entire. **Stipe**: 3 ½ – 5 cm long and 1-2 mm thick. Stiff, cartilaginous, equal or tapering towards base. Stuffed. Pale ochre at apex, then dark red-brown to almost black below. Entire stipe covered with sparse ochre pruina. Context pale straw color. **Odor & Taste:** Mild. **Substrate**: Gregarious in big troops on hemlock duff. **Spores**: White, inamyloid. Ellipsoid with a bit of a snout. 6.8-7.7 x 3-4 µ.

See photo on page 46.

17.a.) Stipe with matted blond hairs…….... *Gymnopus bulliformis* (R.Petersen)

Caps: 1/3 – 1 2/5 cm wide, convex and flattened over disc or with small umbo. Margins sulcate. Brown fading to cinnamon buff. **Gills**: Adnate to adnexed, subdistant to distant, ventricose in age.

Ochre buff to olive buff becoming brownish in age. **Stipe**: 1 ½ – 3 ½ cm long and ½ – 1 mm thick. Dark brown at juncture with gills, then cinnamon below until Verona brown at base. Heavily vestured with blond hairs from apex to base, producing a matted furry appearance. **Odor & Taste**: Not recorded. **Substrate**: On conifer needles. **Spores**: Color not reported. 7-7.5 x 3.5-4 µ. Ellipsoid and slightly tapered proximally.

See painting on page 46.

17.b.) Stipes without matted blond hairs..……..……..……..18

18.a.) Odor of onion or garlic……...19

18.b.) Odor mild or different……..……...…20

19.a.) Fruiting on salal leaves ……..…*Mycetinis salalis* (Desjardin & Redhead) Redhead

Caps: 1 1/5 -1 3/5 cm wide, plano-convex with scalloped margins. Margins sulcate striate and translucent. Pinkish buff becoming dark brown at disc. **Gills**: Adnexed to adnate, thickish. Buff to cinnamon buff. Edges paler, crenulate to minutely pruinose. **Stipe**: 3 1/3 – 4 ½ cm long and 1-3 mm thick. Insititious, hollow, equal or expanded at base. Silky at apex, then tomentose below until strigose at base. Cinnamon buff at apex becoming dark brick below before black-brown at base. Strap shaped or curly rhizomorphs on leaf surfaces. **Odor & Taste**: Strong of onion or garlic. **Substrate:** Scattered on salal leaves and branches. **Spores:** White, inamyloid. Narrowly pip shaped and curved clavate. 16-18.5 x 4-5 µ.

See photo on page 47.

19.b.) Fruiting on conifer duff …….*Mycetinis applanatipes* (Desjardin) A.W.Wilson & Desjardin

Caps: 1-1 4/5 cm wide, plane to convex with incurved margin at first. Glabrous to rugulose striate at margins. Disc dark red brown to dark brown with margins more grayish brown or grayish orange. Context brownish gray. **Gills**: Adnate to adnexed, thickish, subdistant to distant, attached to a pseudocollarium. Edges entire and wavy. Buff to grayish orange becoming brown when dried. **Stipe**: 3-4 cm long and 1 ½ - 3 mm thick. Equal or tapering towards base. Hollow, terete, Cartilaginous, often cleft lengthwise. Pubescent at apex, velutinous at mid-stipe, tomentous at base. Buff to orange-white at apex, then red brown to brownish gray until dark reddish brown to dark brown at base. **Odor & Taste**: Strong of garlic. **Substrate**: Densely gregarious on needle duff under conifers at altitude. **Spores**: White, inamyloid. Broadly ellipsoid to pip shaped. 8.7-10.2 x 4.8-6 µ.

See photo on page 49.

20.a.) Stipes 2-3 cm long……..*Paragymnopus sublaccatus* (R. Petersen) J.S. Oliveira

Caps: 1/5-4/5 cm wide, convex to plano-convex and slightly tuberculate. Disc pale brown to ochre-buff becoming paler at margins. Minutely varnished in appearance. **Gills**: Adnate, distant, thickish, and pseudo-collariate. Pale tan to light ochre-buff. **Stipe**: 1 4/5 – 2 ½ cm long and 3/5-4/5 mm thick. Equal or slightly expanded at base. Hollow, terete, buff at apex becoming brown below

and then dark rusty brown at base. Minutely shaggy at apex and minutely barbed below. Minute black basal pad at base. **Odor & Taste**: Not recorded. **Substrate**: Fruiting on needles of western red cedar and less commonly of doug fir. **Spores**: Color not reported. Rotund ellipsoid. 7-7.5 x 4-5 µ. **Comment**: Has virtually the same DNA as *Paragymnopus sequoiae.*

See photo on page 47.

20.b. Stipes 4-7 cm long……. ……..……..*Collybiopsis villosipes* (Cleland) R. Petersen

Caps: 1 ½ – 2 ½ cm wide, plane to shallowly umbilicate with irregularly wavy margins. Margins deeply grooved (rugose). Pale rusty ochre. Flaccid. Context thin, flesh color. **Gills**: Adnate to short decurrent. Subdistant, flesh color. Edges entire. **Stipe**: 4-7 cm long and 1 ½ – 2 mm thick. Smooth, wiry, equal, tending to split longitudinally near base. Dark red brown becoming slightly paler at apex. Some strigose hairs at base. Substrate clings to base. **Odor & Taste**: Mild. **Substrate**: Large cluster on dead beach grasses. Also found on conifer duff. **Spores**: White, inamyloid. Ellipsoid, 7-9 x 3.7-5 µ. **Comment**: This species will be double keyed with brown caps and thicker stipes along with a description at 47.b. It was first described from Australia.

See photo on page 48.

21.a.) Caps orange-brown, tawny to red brown or pale rusty ochre……..……..22

21.b.) Caps tan, gray-brown, dark brown, mauve brown, pinkish brown to salmon buff ……..…40

22.a.) Cap margins rugulose or with raised striations…….....23

22.b.) Cap margins bald or barely striate…….……...…….24

23.a.) Cap margins with rusty striations on a straw to tan ground……

……...*Collybiopsis subpruinosa* (Murrill) R. Petersen

Caps: 1-7 cm wide, plano-convex with undulate margins in age. Usually slightly umbilicate or with small umbo. Glabrous becoming nodulose in age. Margins plicate striate almost to disc. Cardboard color to tan with darker rusty striations. Surface covered with a powdery bloom when young. Context thin. **Gills**: Adnate, distant, intervenose. Grayish beige to whitish, rarely with pale brown emarginate edges. **Stipe**: 3-10 cm long and 2-4 mm thick. Equal, tough, wiry, pubescent over entire length. Dark rusty ochre becoming pale grayish orange to tan at apex. Base with white rhizomorphs that cling to substrate. **Odor & Taste**: Mild. **Substrate**: Often massively clustered on wood chips, needle duff or woody debris. **Spores**: White, ellipsoid in face view, lacrymoid in profile. 8.3-10.5 x 3.5-6 µ. **Comment** - This is double keyed at 58.a.

See photos on page 56.

23.b) Caps and striations uniformly tawny……*Gymnopus* sp. CA01

Caps: 1 ½ – 3 ½ cm wide, convex to plane with depressed discs in age. Margins sulcate-striate halfway to discs. Glabrous, lubricous, margins barely deflexed in age. Dark rusty brown to chestnut, sometimes with pale ochre discoloration at margin. Context thin. **Gills**: Adnexed to almost free, subdistant to distant. Buff flesh color to pinkish brown with pallid edges. Edges entire. **Stipe**: 5-7 cm long and 2-4 mm thick. Wiry, hollow, terete. Glabrous until the rusty tomentum at

base. Tawny to tawny ochre. Sometimes with a buff mycelium mat at base. **Odor & Taste**: Mild. **Substrate**: Scattered in moss and needle duff near doug fir and madrone. **Spores**: White, inamyloid. Ellipsoid in face view, lacrymoid with prominent apiculus in profile. 6.6-9 x 3-4.7 µ.

See photos on page 85.

24.a.) Stipes longitudinally or twisted striate……25

24.b.) Stipes glabrous, velutinous or pruinose……27

25.a.) Fruiting on rotten logs or wood chip mulch……..*Collybiopsis luxurians* (Peck) R. Petersen

Caps: 1-6 cm wide, convex with inrolled margins becoming plano-convex with wavy uplifted margins in age. Glabrous, matte. Reddish brown fading in age to light brown. Often irregularly compressed when fruiting in masses. **Gills**: Adnate to emarginate, crowded, sometimes anastomosing. Pale buff to pinkish buff. Edges entire at first, fimbriate in age. **Stipe**: 4-10 cm long and ½ – 1 cm thick. Buff at apex becoming pale brown below. Dry, flexuous-fibrous and often twisted striate. Tending to split longitudinally. Covered with a fine pubescence that soon wears off. Base white cottony. Sometimes with rhizomorphs. **Odor**: Mild. **Taste**: Slightly acrid. **Substrate**: In cespitose clusters on rotten wood and wood chip mulch. **Spores**: Buff to ivory yellow. Obovoid to ellipsoid and lacrymoid in profile. 6.4-9 x 3.2-4.4 µ.

See photo on page 61.

25.b.) Fruiting on dirt or needle duff……..….26

26.a.) Stipe base strigose (with hairs)..... *Gymnopus striatipes* (Peck) Halling

Caps: 4-7 cm wide, convex with incurved margins becoming plane with uplifted margins in age. Glabrous and moist, cinnamon buff to very pale orange fading to pale ochre buff when dried. Context white. **Gills**: Adnate, crowded to subdistant, intervenose at times. White to buff becoming clay colored when dried. Sometimes with rusty spots. Edges entire. **Stipe**: 5-10 cm long and 4-6 mm thick. Tough, fibrous, hollow, equal or subrooting at base. Longitudinally furrowed and twisted striate.Tan to cinnamon buff becoming cream at apex. Compressed at times. Base tomentose to strigose. White rhizomorphs present. **Odor**: Mild. **Taste**: Mild at first. Soon unpleasant and bitterish. **Substrate**: Gregarious or in cespitose clumps under alder and cottonwood. **Spores**: Pale buff, inamyloid. Obovoid in face view, lacrymoid in profile. 5.4-6.4 x 2-2.8 µ. **Comment**: This is the non hygrophanous version.

See photos on page 64.

26.b.) Stipe base without strigose hairs……..*Rhodocollybia butyracea* (Bull. ex Fr.) Lennox

Caps: 3-7 cm wide, convex to broadly umbonate. Surface smooth with a fatty luster when moist. Dark red brown when young, then dull red brown to dark ochre brown with an olive tinge when old. Context white. **Gills**: Sinuate to almost free, crowded, edges serrated when young, eroded in age. White becoming yellowish on drying. No rusty spotting. **Stipe**: 5-9 cm long and 4-8 mm thick. Longitudinally striate fibrillose. Pinkish brown to yellow brown becoming more reddish brown towards apex in age. Base clavate, white matted tomentose, often with pseudorhiza. **Odor**: Mild to mildly fruity. **Taste**: Mild, rarely raphanoid. **Substrate**: Scattered to loosely cespitose in conifer duff. **Spores**: Cream to pale pink. Ellipsoid, sometimes dextrinoid. 5.6-7.5 x 2.5-4 µ. **Comment**: Spore

colors can vary to buff which is why it is here. The photo gallery will show another collection with a narrower pinkish brick stipe that resembles *Rhodocollybia filamentosa* of Europe. Pointed out to me by Connor Dooley, who found it.

See photos on pages 78-79.

27.a.) Some gills forked ……*Gymnopus* sp. 'PNW01'

Caps: 2-4 cm wide, plano-convex with irregularly lobed margins, faintly striate at first. Glabrous, lubricous, margins uplifted in age. Discs depressed in age. Tawny ochre becoming paler towards margin. A pale ochre-flesh color when dried. Context buff. **Gills**: Adnate to notched, some with decurrent tooth. Crowded, furcate, buff at first, soon tinged a pale flesh color. Edges entire. **Stipe**: 4-4 ½ cm long and 5-8 mm thick. Equal or tapering towards base. Hollow and slightly longitudinally grooved. Apex buff, then pale straw color below until rusty tawny at base. Entire surface minutely white pruinose. Base with copious straw colored mycelium. **Odor & Taste**: Mild. **Substrate**: Scattered or in cespitose clusters in fern debris near grand fir. **Spores**: White, inamyloid. Ellipsoid with a snouty apiculus. 6-8.2 x 3-4.2 µ.

See photo on page 65.

27.b.) Gills not forked……..28

28.a.) Stipes yellow to partially pale yellow……..29

28.b.) Stipes without yellow colors……..30

29.a.) Gills pale yellow…….. *Gymnopus ocior* (Pers.) Antonín & Noordeloos

Caps: 1-4 cm wide, conical becoming convex to plane with low umbo and undulating margins in age. Glabrous, lubricous, dark red brown to orange brown fading hygrophanously to honey yellow. Usually with a thin yellow band at margin. **Gills**: Adnate to emarginate, subventricose. Yellow to whitish straw. Edges pruinose and entire. **Stipe**: 2-6 cm long and 2-5 mm thick. Hollow, glabrous becoming strigose at base. Yellow to yellow ochre, rarely reddish brown. Darker at base. **Odor**: Pleasantly mushroomy. **Taste**: Mild. **Substrate**: Gregarious to densely cespitose on moss, wood chips, or rotten wood. **Spores**: White to buff, ellipsoid to lacrymoid. 5.1-6.3 x 2.5-3.5 µ.

See photo on page 71.

29.b.) Gills whitish……..…… *Gymnopus dryophilus*

Caps: 3-3 ½ cm wide, convex with broad umbo. Glabrous, matte. Margins wavy, inrolled at first. Pale rusty becoming straw color at margins. Context thin, white. **Gills**: Adnate, crowded, white. Arcuate in some specimens. Edges entire. **Stipe**: 4-5 cm long and 3- 4 mm thick. Hollow, terete, glabrous. Pale yellow. Sparse white mycelium at base. **Odor & Taste**: Mild. **Substrate**: Gregarious in leafy debris with hardwoods. **Spores**: White, inamyloid. Ellipsoid in face view, dacryoid in profile, 5-7.8 x 2.8-4 µ. **Comment**: For the PNW09 version, cap colors can vary greatly. However, Danny Miller astutely recognized that they almost all share a yellowish stipe. More variations of the PNW09 are described at 35.a., 37.a., 65.a. and 71.b. The latter was found with alder.

See photo on page 70.

30.a.) Stipes pruinose……..…….31

30.b.) Stipes glabrous…….……..32

31.a.) Stipes with whitish pruina…….. *Collybiopsis confluens* (Pers. ex Fr.) R. Petersen

Caps: 1-4 cm wide, campanulate to convex, sometimes with an obscure umbo. Margins upturned in age. Glabrous, lubricous, reddish brown to cinnamon buff. Context thin, whitish. **Gills**: Adnate to adnexed and close to very crowded. Cream to pinkish buff. Edges entire to fimbriate. **Stipe**: 3-9 cm long and 1 ½ – 4 mm thick. Equal, pliant, tough and occasionally flattened and grooved. Pale cinnamon. Entirely pruinose becoming strigose towards the base. **Odor & Taste**: Mild. **Substrate**: Gregarious and cespitose on leaf litter and humus. **Spores**: White to buff, inamyloid. Ellipsoid to lacrymoid in profile. 7-9 x 3.5-4.4 µ. **Comment**: Stipes appear glabrous in humid weather but exhibit the pruinose surface when they dry out.

See photo on page 60.

31.½.a.) More of the same …….. *Collybiopsis confluens* subsp. *campanulatus* (R. Petersen)

Comment: According to Dr. Petersen, there are no morphological differences between this subsp. and typical *Collybiopsis confluens*. The new subspecies is warranted due to a strong phylogenetic difference.

See photo on page 60.

31.b.) Stipes with ochre-gray pruina ……..*Gymnopus* sp. 'PNW12'

Caps: 2 – 3 ½ cm wide, plano-convex with uplifted margins in age. Glabrous, lubricous, slightly wrinkled at disc. Ochre-orange becoming tawny to vinaceous brown at disc. Margins grooved striate. Context white. **Gills**: Adnexed, subdistant, buff. Some with decurrent tooth. **Stipe**: 3 ½ - 4 cm long and 3- 3 ½ mm thick. Hollow, often compressed and lined, tending to split longitudinally. Orange-ochre becoming buff at apex. Coated with buff to ochre gray pubescence. **Odor & Taste**: Mild. **Substrate**: Scattered clusters in doug fir duff. **Spores**: White, ellipsoid to dacryoid in profile. 5.7-7.2 x 3.7-4.4 µ.

See photo on page 84.

32.a.) Gills thickish, a bit waxy……. *Connopus bagleyensis* nom. prov. Lennox

Caps: 1 ½ – 5 ½ cm wide, plano-covex to depressed at disc, margins slightly inrolled to wavy. Glabrous and lubricous. Dark vinaceous buff to rusty brown becoming tan at margins. **Gills**: Adnate to adnexed or sinuate, close to crowded and ventricose. Thickish and rather waxy. White to pale flesh color or very pale orange. Edges entire. **Stipe**: 3-7 cm long and 2-10 mm thick. Glabrous and terete until the pubescent or matted strigose base. Mauve brown to dark red brown. Hollow, sometimes compressed furrowed, cartilaginous. **Odor & Taste**: Mild, attractive, but generally considered inedible. **Substrate**: In cespitose clusters and gregarious on wood chip mulch, stumps, logs, and buried wood. **Spores**: White to buff, inamyloid. Ellipsoid in face view, lacrymoid in profile, 5.6-7 x 2.5-4 µ. **Comment**: This *Connopus* replaces *Connopus acervatus* in the Pacific Northwest. Joanne Lennox, who should be considered a co-author of it, described the odor as raphanoid. This is her *Collybia bagleyensis* nom. prov.

See photos on page 59.

32.b.) Gills thin, not thick or waxy……33

33.a.) Caps burgundy to dark brick color……..34

33.b.) Caps orange-brown, tawny, or orange……..……..……36

34.a.) Gills pale lemon yellow……...…….…. *Gymnopus 'dryophilus*-PNW09'

Caps: 1 ¼ – 3 ½ cm wide, convex to plane with undulating margins. Dry, glabrous, shiny mauve brown to burgundy, sometimes fading to flesh-tan at margins. Context thin, white. **Gills**: Adnate to adnexed or uncinate. Shallow, very crowded, furcate. Pale lemon yellow with whitish edges becoming ochre yellow when dried. Edges unevenly serrulate with a hand lens. **Stipe**: 2 ¼ – 4 ½ cm long and 3-7 mm thick. Glabrous, hollow, always tapering towards apex. Sometimes obscurely flattened. Pale lemon yellow becoming buff at apex and orange yellow at base. Copious tan to buff mycelium. **Odor & Taste**: Mild. Pleasant. **Substrate**: Cespitose clusters on conifer debris. **Spores**: White. Elliptical in face view, lacrymoid in profile. 5.6-7.3 x 2.9-3.6 µ. **Comment**: This was formerly known as *Collybia luteifolia* for its lemon yellow gills. A beautiful species. Sequencing now aligns it with *Gymnopus dryophilus,* and the yellowish stipe is indicative of PNW09.

See photo on page 67.

34.b.) Gills not yellowish……..……..35

35.a.) Gills white to buff……..…*Gymnopus erythropus* (Pers. ex Fr.) Antonín, Halling & Noordeloos

Caps: ½ – 5 ½ cm wide, convex to plane with margins at first inrolled and then uplifted in age. Red brown when fresh fading hygrophanously to pale brownish buff. Pliant, glabrous, margins slightly rugulose striate when moist. Densely white pubescent on young specimens. Context white. **Gills**: Adnexed, close to subdistant, white to pale cream. Edges entire but eroding in age. **Stipe**: 1 ½ – 5 cm long and 2-8 mm thick. Equal or slightly enlarged at base. Cylindrical to sometimes compressed. Shiny, smooth, stuffed becoming hollow in age. Pale orange at apex, then dark red brown below, sometimes blackening at base. Stipes turn green in KOH. **Odor & Taste**: Mild. **Substrate**: Scattered to cespitose on decaying hardwoods. **Spores**: White to buff, inamyloid. Slightly greenish in alkali. Ovoid to ellipsoid. 6-8.5 x 3.5-4 µ.

See photos on page 62.

35.b.) Gills pale tan to pale straw color……..*Gymnopus* sp. *'earleae*-PNW05'

Caps: 1-2 ½ cm wide, convex to plane, margins uplifted and crinkled in age. Glabrous, lubricous, red brown to chestnut color with a buff to pale ochre band at margins. Hygrophanous, fading to pale rusty ochre from disc first. Context thin. **Gills**: Adnexed to deeply emarginate. Crowded, shallow. Buff tan to buff straw with pallid edges. Edges entire. Becoming gray when dried. **Stipe**: 1½ – 3 cm long and 1-2 mm thick. Wiry, smooth, equal, hollow. Pale tawny to ochre-flesh color. Sometimes with flesh colored mycelium at base. **Odor & Taste**: Mild. **Substrate**: Clustered on mossy conifer logs and in needle duff near hemlock. **Spores**: White, inamyloid. Narrowly ellipsoid

and lacrymoid in profile, 5-7 x 2.4-3.3 µ. **Comment**: This is one of the more common cap color versions.

See photo on page 51.

36.a.) Stipes white at apices and orange below……*Gymnopus* sp. *'dryophilus*-PNW09'

Caps: 1-6 cm wide, convex to plane, sometimes umbonate, usually with depressed discs in age. Margins faintly striate when moist, wavy in age. Pliant, smooth, slightly viscid when moist. Orange ochre to ochre brown fading hygrophanously to pale ochre or ochre pinkish at margins first. Context thin, white. **Gills**: Adnate to sinuate, crowded, thin, white to buff and sometimes yellowing in age. Edges pruinose, subentire. **Stipe**: 3 ½ – 7 cm long and 2-6 mm thick. Equal or slightly expanded at base. Glabrous. Buff at apex then pale orange ochre below, sometimes darkening to ochre brown at base. Abundant white rhizomorphs at base. **Odor & Taste**: Mild. **Substrate**: Scattered to gregarious on humus, wood chip mulch or well rotted wood. **Spores**: White, ovoid to lacrymoid, 5.6-6.4 x 2.8-3.5 µ. **Comment**: Unfortunately we are now looking at a *Gymnopus sp. 'dryophilus*-PNW09' that does not have any yellow on its stipe.

See photo on page 69.

36.b.) Stipes colored differently……..……37

37.a) Stipes pale gray-orange at apices and tawny brick below …….
……*Gymnopus erythropus* (Pers. ex Fr.) Antonín, Halling & Noordeloos

Caps: 1-5 cm wide, convex to plane and broadly umbonate in age with wavy margins. Glabrous and lubricous. Tawny with a thin white band at margins fading hygrophanously to pale ochre in age. **Gills:** Rounded-adnexed, crowded, buff. **Stipe:** 2 ½ - 5 cm long and 3 mm thick. Equal, smooth, wiry, costate. Buff orange-ochre at apex, then red-brown below. Sparse tan mycelium at base. **Odor & Taste:** Mild. **Substrate:** Both cespitose and gregarious on soil near cottonwood. **Comment:** A variable species, cap colors may be affected by changes in soil composition.

See photo on page 62.

37.b.) Stipes unicolorous……..……38

38.a.) Stipe base strigose……..*Gymnopus putillus* (Fr. ex Fr.) Antonín, Halling & Noordeloos

Caps: 2-5 cm wide, plano-convex with depressed discs in age. Margins bald at first, then striate in age. Hygrophanous, red brown fading to pale brown or beige pink in age. Glabrous, slightly greasy to the touch. **Gills**: Free, distant, pale brown. Edges entire. **Stipe**: 2 ½ - 7 cm long and 4-6 mm thick. Tough, cartilaginous, base significantly clavate. Glabrous to slightly fibrillose until the strigose base with buff colored hairs. Reddish brown but paler than cap. Yellowish rhizomorphs sometimes present. **Odor**: Slightly fungoid. **Taste**: Mild. **Substrate**: Found in a line on old conifer bark. **Spores**: White, inamyloid. Broadly ellipsoid, 6.3-8.3 x 3.8-5.1 µ. **Comment**: The sequence shows that this taxon belongs in *Rhodocollybia*. The sequence and morphological features seem to match *Rhodocollybia* sp. 'IN01' according to Geoffrey Kibby at Kew.

See photo on page 86.

38.b.) Stipe base not strigose ……39

39.a.) Gills whitish orange ……..…*Gymnopus earleae* (Murrill)

Caps: 3-4 ½ cm wide, plano-convex with undulate and uplifted margins. Glabrous, margins barely striate. Pale orange-ochre often becoming more tawny at discs. Hygrophanous, fading to pale ochre when dried. **Gills:** Adnexed, deep, subdistant. Whitish ochre-orange. **Stipe:** 4-5 cm long and 3-5 mm thick.Tough, hollow, tapering at base. Dark tawny becoming paler at apex. Glabrous, shiny when young. Often contorted in age. White rhizomorphs sometimes present. **Odor:** Pleasant, like that of *Connopus bagleyensis* nom. prov. **Taste:** Mild. **Substrate:** Cespitose clusters in dirt at a burn site. **Spores:** Buff. **Comment:** This is the only collection in the Collybioids we have found in a burn site. This is a variable species. There is a significant possibility that all of our northwest collections of *Gymnopus earleae* are PNW05. For more typical descriptions, read on.

See photo on page 50.

39.b.) Gills pale ochre-tan…….…….… *Gymnopus sp. 'earleae*-PNW05'.

Caps: Dull ochre-cinnamon with wavy margins. **Gills**: Pale ochre-tan with pallid edges. **Stipes** : 3-5 mm thick, terete, tending to split longitudinally. Buff at apex then pale orange ochre below. The substrate was woody debris off the Spirit Lake Trail on Graham Island, Haida Gwaai, B.C. The collections of PNW05 usually have brownish gills which makes you think of *Agrocybe* until you get a spore print. **Comment:** This version has been confused with *Gymnopus vernus* which so far has not shown up here.

See photo on page 52.

40.a.) Fruiting on madrone bark……..…….*Micromphale arbuticola* (Desjardin)

Caps: 1/3-1 ½ cm wide, plano-convex to slightly umbonate or with depressed discs in age. Margins ruffled to barely sulcate. Different shades of brown becoming pinkish brown to orange tan in age. Finely silky with pale grayish fibrils at first, glabrous in age. **Gills**: Adnate, distant, thickish, sometimes forked. Pinkish tan to dingy tan brown. Edges finely serrulate. **Stipe**: ¼ – 3 cm long and 1-3 mm thick. Curved, cylindrical, often eccentric. Blackish brown becoming pinkish brown in age. Smooth except for a few squamules at apex. **Odor**: Of rotten garlic or slightly fecal. **Taste**: Mild or disgusting like the odor. **Substrate**: Gregarious on madrone bark. **Spores**: Whitish, ellipsoid. 6.5-8 x 3-4.5 µ. **Comment**: This description is lifted from Mushrooms of the Redwood Coast by Siegel and Schwarz. This needs to be moved to *Gymnopus*.

See photo on page 53.

40.b.) Fruiting on other substrates…….41

41.a.) Caps dark brown to mauve brown ……42

41.b.) Caps not as above……..……...……...…48

42.a.) Gills olive-buff bruising pale brown…….……..*Gymnopus glabrosipes* (R. Petersen)

Caps: 4-9 mm wide, convex to plane, glabrous, matte, margins barely sulcate. Dark brown to chestnut brown. Context olive buff bruising pale brown. **Gills**: Adnexed to free, distant, thickish. Olive buff bruising buffy brown. Very few lamellulae. **Stipe**: 2 1/3 – 3 cm long and .7-1 1/5 mm thick. Equal, insititious, terete, shiny smooth. Pale brown at apex, dark brown to black below. Stuffed,

context white. Polished black filiform rhizomorphs, often curly and branched, found at base. **Odor & Taste**: Not recorded. **Substrate**: Fruiting on hemlock needles. **Spores**: Not observed.

See photo on page 55.

42.b.) Gills tan to flesh color to brown or white……..….43

43.a.) Caps react to KOH…….……..……44

43.b.) No reaction from KOH…….……46

44.a.) Caps mauve brown to purple brown…….……45

44.b.) Caps brown to tawny brown……*Gymnopus* sp. 'PNW11'

Caps: 3-3 ½ cm wide, convex with small obtuse umbo and margins slightly grooved-striate, uplifted and often wavy in age. Glabrous, lubricous. Dark tawny brown becoming ochraceous when dried. KOH on cap surface turns it slowly yellow-green. **Gills**: Adnexed to notched, close to subdistant, sometimes subventricose. White. Edges generally entire, but two collections with serrated gill edges. **Stipe**: 4-6 cm long and 3-4 mm thick. White at apex becoming dingy rusty below to dark tawny at base. Some collections entirely dark rusty brown. Sparsely white pruinose until the densely white tomentose to white strigose base. **Odor**: Mild, pleasant like lip balm. **Taste**: Not recorded. **Substrate**: Solitary, gregarious or in clusters in grasses, moss or pine duff. **Spores**: White, inamyloid. With sharp hilar appendage. Not measured.

See photos on pages 65-66.

45.a.) Stipes dark vinaceus brown to black……*Gymnopus* sp. '*fuscopurpureus*-PNW08'

Caps: ¾ – 4 cm wide, plano-convex with slightly inrolled margins. Margins bald except for one specimen with a nodulose-rugulose margin. Glabrous, dark mauve-brown fading hygrophanously to ochre tawny. Context thin, white. **KOH**: Produces a black reaction on the dried cap surface. **Gills**: Adnate, close to subdistant, dark brown to grayish vinaceous. **Stipe**: 3 ½ – 7 cm long and 2 mm thick. Wiry, smooth, equal, hollow. Dark vinaceous brown to black. With buff pruina when young. **Odor & Taste**: Mild. **Substrate**: Scattered on doug fir needle duff. **Spores**: Color of deposit unobtainable. Ellipsoid with narrowed apices. Dacryoid in profile. 6-6.8 x 3-4 µ.

See photos on pages 53-54.

45.b.) Stipes buff to gray at apex, rusty ochre below……. *Gymnopus* sp. 'CA02'

Caps: 1 ½ – 4 ½ cm wide, convex to plane with slightly draped margins. Margins striate to slightly nodulose. Flaccid, glabrous, lubricous. Dark mauve brown to purple black at disc becoming maroon tawny towards margins. Context almost translucent. KOH stains surface dark green. **Gills**: Adnate to adnexed, distant, beige to dingy flesh-tan. **Stipe**: 5 ½ – 8 ½ cm long and 2-3 mm thick. Smooth, equal, terete, then tapering towards base. Buff to grayish at apex, rusty ochre below. Entirely and sparsely white pruinose. Base with buff mycelium. **Odor**: Sweet, fruity. **Taste**: Mild. **Substrate**: Three in deep sawdust and needle duff at base of rotten log in one collection. Also gregarious in conifer duff. **Spores**: White, ellipsoid to sublacrymoid. 6.9-8.6 x 3.4-4.4 µ.

See photos on page 54-55.

46.a.) Odor of rotten cabbage……. *Gymnopus impudicus* (Fr.) Antonín, Halling & Noordeloos

(See description at 13.a.)

46.b.) Odor different……47

47.a.) Stipes sparsely pubescent ……..*Gymnopus* sp. 'PNW10'

Caps: 2- 4 cm wide, plane to convex. Glabrous, brown to rusty brown sometimes paling to tan towards margins. **Gills**: Adnexed, distant, pallid tan to flesh color with buff emarginate edges. Edges entire. Thickish, lacerate in age. **Stipe**: 2-3 ½ cm long and 3-4 mm thick. Buff at apex becoming straw yellow below and then orange brown at base. Sometimes flattened at apex. Clavate and rounded at base. Entire length sparsely pubescent. Base sometimes with whitish tomentum. Sparse white rhizomorphs present. **Odor & Taste**: Not reported. **Substrate**: Scattered on leafy debris or conifer duff. Associated with garry oak, madrone, and doug fir. **Spores**: Color not reported.

See photos on pages 86-87.

47.b.) Stipes glabrous……*Gymnopus sp. 'earleae*-PNW05'

Caps: 2-3 cm wide, convex with wavy margins. Glabrous, lubricous, dark brown with tawny discs. Pale straw colored bands at the slightly furrowed margins. **Gills**: Adnexed, subdistant, buff to grayish. **Stipe**: 2 ½ – 3 cm long and 3 – 3 ½ mm thick. Equal, terete, buff to buff-flesh color, a bit darker towards base. **Odor**: Mild. **Substrate**: Cespitose clusters on wood chip mulch. **Spores**: White. **Comment**: There is a significant possibility that all of our northwest collections of *Gymnopus earleae* are PNW05.

See photo on page 52.

48.a.) Caps buff to tan with rusty discs……..……49

48.b.) Caps colored differently……..……51

49.a) Odor of garlic gone bad……..……*Gymnopus sp. 'polyphyllus*-PNW03'

Caps: 2 ½ – 6 cm wide, convex and umbonate with incurved margins at first becoming plane or with depressed discs in age. Margins sometimes undulate, lacerate in age. Surface smooth, dry. Rusty to reddish brown at disc and flesh color to tan beyond. Finally whitish over all with a tawny or vinaceous brown disc. Context thin, white. **Gills**: Adnate to abruptly sinuate to free. Buff, crowded, very thin. Sometimes furcate and anastomosing. Edges entire. **Stipe**: 3-5 cm long and 2-5 mm thick. Tan gray to brown below. A light grayish pruinose vesture present at apex, then densely tomentose towards base. Equal or tapering at apex or base. Pliant, hollow. **Odor & Taste**: Of garlic gone bad. **Substrate**: Gregarious to subcespitose on hardwood leaf litter, logs, and stumps. **Spores**: White, inamyloid; subellipsoid to lacrymoid in profile, 5.6-7 x 2.8-3.4 µ.

See photo on page 58.

49.b.) Odor mild……..….50

50.a.) Caps up to 2 ½ cm wide, broadly conical at first……*Gymnopus* sp. *'aquosus*-PNW04*'*

Caps: 2-2 ½ cm wide, broadly conical, glabrous, viscid drying to lubricous. Margins striatulate. Pale ochre with a rusty tinge becoming buff at margins. **Gills**: Adnexed to barely attached, crowded, white. Edges entire. **Stipe**: 6-7 cm long and 4 mm thick. Pale ochre, smooth, terete, hollow, and tending to split longitudinally. **Odor & Taste** : Mild. **Spores**: Buff, amyloid. **Substrate**: A pair in leafy humus and grass. **Comment**: This description derives from one collection only.

See photo on page 73.

50.b.) Caps larger than 2 ½ cm wide……...*Gymnopus aquosus* (Bull. ex Fr.) Antonín & Noordeloos

Caps: 2 ½ – 6 ½ cm wide, hemispherical to convex, then plane with a shallowly depressed disc. Margins undulate in age, usually translucent striate to disc. Glabrous, lubricous, pale ochre-orange with whitish margins. Hygrophanous, fading to almost buff. **Gills**: Adnate to emarginate, subventricose, crowded. White to cream color. Edges entire, with pruinose coating. **Stipe**: 1 ½ – 7 cm long and 2-3 ½ mm thick. Cylindrical or enlarged at base. Glabrous, very pale yellow at apex, pale orange below. Context pale yellow. If mycelium present, pinkish-ochraceous. **Odor**: Agreeably fungoid. **Taste**: Mild. **Substrate**: Gregarious in humus, hardwoods, and grasses near paths. **Spores**: White, oblong to ellipsoid in face view, lacrymoid in profile. 5.5-7.5 x 2.7-3.5 µ. **Comment**: Essentially a pallid version of typical *Gymnopus dryophilus* that fruits in the spring.

See photo on page 73.

51.a.) Caps tan, brown, gray brown to ochre brown……...…….52

51.b.) Caps colored differently……...……..62

52.a.) Gills very distant, yellowish..…….……*Collybiopsis peronata* (Bolton) R. Petersen

Caps: 1 ¾ – 4 ½ cm wide, convex with inrolled margins. Glabrous to innately fibrillose. Dry, dull ochre brown with rusty tinges. Context sulphur yellow. **Gills**: Adnate, distant. Pale yellowish tan at first, then a darker ochre yellow in age with yellow emarginate edges. Edges entire. **Stipe**: 2 ½ – 4 cm long and 6-10 mm thick. Dry, matte, entirely tomentose. Equal, stuffed, pale flesh color at apex becoming buff-straw below, and then more sulphur yellow at base. White tomentum at base. Context yellow. Copious white rhizomorphs present. **Odor**: Mildly woodsy. **Taste**: Latently mildly acrid. **Substrate**: Gregarious in wood chips and needle duff under old growth doug fir. **Spores**: White, inamyloid. **Comment**: Yet another variation of this alien invader. Extensive research has revealed this is not named after Eva Peron after all.

See photo on page 75.

52.b.) Gills close to crowded…….…53

53.a.) Stipe with rounded ball at stipe base……..….*Gymnopus earleae* Murrill

Caps: 1 – 3 ½ cm wide, convex with hint of an umbo at first, then with discs slightly depressed. Margins wavy in age, not striate. Glabrous, matte. Pale gray-brown to dark tan with ochre spot at disc. **Gills**: Adnexed, very crowded, dingy buff to tan. Edges entire. **Stipe**: 2 ¼ – 3 ¼ cm long and 1-2 mm thick. Glabrous, wiry, equal, terete. Rusty brick to tawny ochre. Base is a spherical ball with tufted orange hairs that capture adherent soil. Sparse buff mycelium present. **Odor & Taste**: Mild. **Substrate**: Scattered in needle duff near hemlock and western red cedar. **Spores**: Deposit unobtainable. Ellipsoid with sharp apiculus in face view. Lacrymoid in profile. 5.6-7.2 x 2.6-3.6 µ.

Comment: This is the collection that closest fits Murrill's original description from Alabama. He made a big deal out of the ball at the stipe base. This is a variable species. More versions elsewhere in the key.

See photo on page 49.

53.b.) Stipes lacking rounded 'ball' at stipe base……..…54

54.a.) Gills white to buff…….55

54.b.) Gills tan, ochre, pale brown tinged flesh color or orange-gray…….59

55.a.) Caps go green with KOH…….… *Collybiopsis* sp. 'PNW03'

Caps: 2-4 cm wide, convex with margins uplifted in age. Glabrous, dark brown to ochre brown becoming paler at margins. Caps go green in KOH. **Gills**: Adnate, ochre, deep, distant. Edges entire. **Stipe**: 3 cm long and 3-5 mm thick. Ochre becoming buff at apex. Equal. Fuzzy velutinous. **Odor**: Like oyster mushrooms. **Taste**: Sweet. **Substrate**: In clusters in dirt near conifers. **Spores**: Not recorded.

See photo on page 66.

55.b.) No green reaction on caps with KOH…….56

56.a.) Stipes sulcate-striate……..…….57

56.b.) Stipes strigose, pubescent or bald…….58

57.a.) Stipes tawny brown, paler at apex……*Rhodocollybia asema* (Fr.) Bendiksen & Dima

Caps: 2 ¼ – 5 ½ cm wide, convex, olive-ochre brown with rusty discs and incurved margins. Glabrous. Context buff gray. **Gills**: Adnexed, deep, subdistant. White. Serrate in age. **Stipe**: 3 ½ – 5 cm long and 1 – 1 ½ cm thick. Tough, cartilaginous, longitudinally sulcate-striate. Expanded at base. Tawny brown becoming paler at apex. White tomentum at base. **Odor & Taste**: Not reported. **Substrate**: Scattered in needle duff under conifers. **Spores**: Buff. Ovoid in face view, lacrymoid in profile. 6.9-7.8 x 3-4 µ. **Comment**: This *Rhodocollybia* can have smooth stipes or sulcate stipes. It is here because this collection had buff spores.

See photo on page 79.

57.b.) Stipes pale orange-straw, buff at apex……..…*Rhodocollybia subnigra* Lennox

Caps: 2 ½ – 6 cm wide, convex to irregularly domed or obtusely umbonate. Lubricous when wet, matte to almost fibrillose when dry. Dark reddish brown to brown appearing innately streaked. Context thick, whitish to pinkish cream. **Gills**: Adnexed to deeply sinuate, white, some forking near cap margin. Edges crenulate, lacerate in age. **Stipe**: 3-10 cm long and 1-2 1/8 cm thick. Tough, fibrous, striate-grooved, tending to split longitudinally. Expanded at base and sometimes radicating which lends it a fusiform appearance. Apex finely pruinose. Buff at apex, pale orange below. Base with white tomentum. **Odor & Taste**: Mild. **Substrate**: Scattered in conifer duff. **Spores**: White, dextrinoid. Narrowly ovate to ellipsoid. 6.5-7.5 x 3-4 µ. **Comment**: Joanne Lennox found the odor

to be strong like moldy cinnamon. These are her spore measurements. I found longer spores at 7.9-8.8 µ in length.

See photo on page 83.

58.a.) Cap margins deeply grooved halfway to disc……
……..*Collybiopsis subpruinosa* (Murrill) R. Petersen

Caps: 2-3 cm wide, convex to domed, glabrous, thin, and furrowed to disc. Dark tan. Context buff. **Gills**: Adnate, close to subdistant, buff. Edges entire. Three tiers of lamellulae. **Stipe**: 4 cm long and 2 mm thick. Upper third buff, lower 2/3rds gray brown. Wiry, entirely buff pruinose. White tomentum at base. Some sparse white mycelium present. **Odor & Taste**: Mild. **Substrate**: Scattered and confluent on wood chips. **Spores**: White, inamyloid. Ellipsoid, some flattened adaxially. 8.5-11 x 4.8-5.2 µ. **Comment**: This is double keyed at 23.a. with thicker stipes and rusty-tawny striated caps.

See photos on page 56.

58.b.) Cap margins shallowly rugulose in age…….…….. *Collybiopsis* '*hasanskyensis* PNW01'

Caps: Up to 1 cm wide, campanulate at the button stage, then convex to draped. Margins undulate in age. Glabrous, lubricous, margins shallowly grooved in age. Tan to very pale brown. **Gills**: Adnexed to almost free. Distant, deep, ventricose, and very thick. White. Edges entire. **Stipe**: 1 – 1 ½ cm long and 3 - 3 ½ mm thick. Always tapering towards base. Glabrous. Buff at apex, then pinkish flesh color below. Eventually darkening to red brown at base. **Odor & Taste**: Not recorded. **Substrate**: Scattered over a sycamore trunk covered in moss. **Spores**: Color not reported. Long elliptic with hilar appendages noticeably narrower at proximal end. 7.5-11 x 4-5.5 µ.

See photo on page 82.

59.a.) Stipes entirely white pruinose……..…..*Collybiopsis confluens* (Pers. ex Fr.) R. Petersen

Caps: 2-5 ¼ cm wide, shallowly convex with a broadly papillate umbo. Glabrous, whitish becoming buff to pale rusty tan at discs. Margins lacerate in age. Context thin, pliant, tough. **Gills**: Adnexed, very crowded, buff to buff flesh color. **Stipe**: 3 ½ – 8 cm long and 3-5 mm thick. Dark flesh color covered with a dense vesture of white pruina. Hollow, frequently compressed, tough, bases often confluent. **Odor & Taste**: Mild. **Substrate**: Gregarious and in clusters in moss and needle duff. **Spores**: Buff, ellipsoid to slightly lacrymoid, 7-8.2 x 3-4.3 µ. **Comment**: A very pallid cap version of this species. This is double keyed at 31.a.

See photo on page 61.

59.b.) Stipes glabrous to strigose……..……60

60.a.) Stipes lavender to vinaceous brown……..…*Connopus bagleyensis* nom. prov. Lennox

Caps: 2 ½ – 5 ¼ cm wide, plane to shallowly depressed with finely striate margins when moist. Margins uplifted in age. Glabrous, lubricous, and hygrophanous, fading from orange brown to pale ochre buff from margins first. Context thin, ochre. **Gills**: Adnexed, subventricose. Pale ochre tan. Edges entire, but lacerate in age. **Stipe**: 3 ½ – 6 cm long and 3-8 mm thick. Glabrous, hollow, tending to split longitudinally. Equal but sometimes flattened near base. Lavender to vinaceous

brown with buff flesh tomentum at base. Diminutive white mycelium sometimes present. **Odor & Taste**: Mild and pleasant. **Substrate**: Scattered or in clumps near hemlock. **Spores**: White, inamyloid. Narrowly ellipsoid. 6.4-9 x 3-4 µ. **Comment**: This is a description of a hygrophanous version of this taxon.

See photo on page 58.

60.b.) Stipes brown to ochre-brown ……..…….61

61.a.) Stipes dark brown becoming pale brown at apex……..
……*Collybiopsis villosipes* (Cleland) R. Petersen

Caps: 1 – 2 ½ cm wide, plano-convex with depressed or umbilicate discs in age. Margins incurved at first, then decurved in age and rugulose striate one third of the way to disc. Glabrous. Dull dark brown to reddish brown fading in age to pale brownish gray. Context thin, buff. **Gills**: Adnate to adnexed, crowded to subdistant, occasionally anastomosed and intervenose. Light grayish brown to grayish orange with buff slightly fimbriate edges. Sometimes darkening in age. **Stipe**: 3-6 cm long and 1 ½ – 4 mm thick. Central to sometimes eccentric, compressed to terete. Sometimes curved and with a subbulbous base. Apex pale brown becoming darker brown below. Velutinous becoming strigose at base. Arising from a mat of white mycelium. **Odor**: Mild. **Taste**: Mild to suddenly unpleasant. **Substrate**: Scattered to densely gregarious and cespitose on leaf litter or grassy areas under conifers. **Spores**: White to buff, inamyloid. Ellipsoid in face view, inequilateral in profile, 6.5-10.5 x 3.5-4.5 µ. **Comment**: Confused for decades with *Gymnopus fuscopurpureus* which ironically might not be in the Pacific Northwest. Common.

See photo on page 48.

61.b.) Stipes rusty ochre to orange brown……..…*Collybiopsis peronata* (Bolton) R. Petersen

Caps: 2 ½ – 6 cm wide, convex to plane, often with broad umbo and irregularly lobed margins. Smooth to innately fibrillose, sometimes plicate at margins. Ochre-cinnamon to pinkish brown with paler margins. Hygrophanous, fading to cardboard color in age. Context white to pale yellow. **Gills**: Almost free, subdistant, sometimes forked near stipe attachment. Ochre to yellowish to pinkish brown, sometimes with lilac tints. Edges entire or whitish granulose fringed. **Stipe**: 3-7 ½ cm long and 3-8 mm thick. Smooth or floccose at apex becoming fibrillose striate below. Usually expanded at base. Ochre brown to dingy yellowish, often more orange brown towards base. Base densely or sparsely strigose, covered with buff to straw colored hairs. **Odor**: Pleasant, spicy. **Taste**: Unpleasant, latently acrid. **Substrate**: In dense groups on forest litter, both conifer and hardwood debris. **Spores**: White, ellipsoid to subcylindrical, 8.5-10 x 3-4 µ. **Comment**: A popular edible in Bhutan where it fruits twice as large. When two elderly women were asked how they cooked it, they added peppers. Wasn't hot enough for them.

See photo on page 74.

62.a.) Caps flesh-tan to flesh-brownish…….63

62.b.) Caps colored otherwise……66

63.a.) Gills brown to gray-brown……..*Gymnopus sp. 'earleae*-PNW05'

Caps: 1-1 ½ cm wide, plano-convex, sometimes with crinkled margins. Glabrous, shiny. Pale brown or grayish tan with pale orange-straw discs. Margins with thin pallid tan to buff band. Context thin. **Gills**: Adnexed-sinuate, close. Tan to gray brown to brown with pallid edges. **Stipe**: 2 ½ – 3 cm long and 1-2 mm thick. Smooth, wiry, equal. Pale rusty straw. Some with a rounded bulb at base with matted brown hairs. **Odor**: Mild. **Taste**: Sweetish. **Substrate**: Scattered in moss near salal and conifers. **Spores**: Buff. Ellipsoid with a 'snout'. 5.8-7 x 3-3.5 µ. **Comment**: The brownish gills and pale tan band at the cap margins help identify this PNW05. The hard 'ball' at the stipe bases was also featured in Murrill's original description of *Gymnopus earleae.* This may be the second recording of it for PNW05.

See photo on page 52.

63.b.) Gills buff to pale ochre-tan……..…..64

64.a.) Stipes lined longitudinally (costate).....*Gymnopus striatipes* (Peck) Halling

Caps: 2-5 cm wide, convex to plane with slightly inrolled margins becoming uplifted in age. Glabrous, opaque, buff to pale ochre-tan or pale flesh color. Context thin, white. **Gills**: Adnate, subdistant, cream. Edges entire. **Stipe**: 4 ½ – 6 cm long and ¾ – 1 1/3 cm thick. Expanded at apex and base. Tough, fibrous, often lined to costate or with chalk white striations. Base white tomentose above matted mycelia. Substrate clings to base. **Odor**: Mild. **Taste**: Faintly sweetish, then latently slightly bitter. **Substrate**: Scattered and confluent in leaf litter. **Spores**: White, dextrinoid. Narrowly ellipsoid. 4.2-5 x 2.5-3 µ. **Comment**: This species is double keyed with more orange caps at 26.a.

See photos on page 64.

64.b.) Stipes smooth……..……..65

65.a.) Stipes pale brick color……..……

……...*Gymnopus erythropus* (Pers. ex Fr.) Antonín, Halling & Noordeloos

Caps: 1 – 3 ½ cm wide, plano-convex with slight depression at disc in age. Tan becoming pale rusty tan at disc and with a white band at margin. Dry, matte, nodulose becoming rugulose at margins. Context thin. **Gills**: Adnexed. White to buff. Close to subdistant. **Stipe**: 2-6 cm long and 2 ½ – 4 mm thick. Wiry, smooth, equal or tapering at apex. Brick red at base becoming paler brick above and then ochre-straw at apex. Pruinose from base to apex. Almost black when dried. **Odor & Taste**: Mild. **Substrate**: Scattered and confluent on twigs and wood chips. **Spores**: Buff, ellipsoid. 6.8-9.8 x 4-6 µ. **Comment**: This appears to be a pallid version of a species that normally has brick colored caps. More descriptions at 15.b., 35.a. and 37.a.

See photos on page 63.

65.b.) Stipes vinaceous brown……*Connopus bagleyensis* nom. prov. Lennox

Caps: 2 ½ – 5 ¼ cm wide, plane to shallowly depressed with finely striate margins when moist. Margins uplifted in age. Glabrous, lubricous, and hygrophanous, fading from orange brown to pale ochre buff from margins first. Context thin, ochre. **Gills**: Adnexed, subventricose. Pale ochre tan. Edges entire, but lacerate in age. **Stipe**: 3 ½ – 6 cm long and 3-8 mm thick. Glabrous, hollow, tending to split longitudinally. Equal but sometimes flattened near base. Lavender to vinaceous brown with buff flesh tomentum at base. Diminutive white mycelium sometimes present. **Odor &**

Taste: Mild and pleasant. **Substrate**: Scattered or in clumps near hemlock. **Spores**: White, inamyloid. Narrowly ellipsoid. 6.4-9 x 3-4 µ. **Comment**: This is a description of a hygrophanous version of this taxon.

See photo on page 58.

66.a.) Caps vinaceous brown……67

66.b.) Caps with other colors……68

67.a.) Odor of almond extract……..…….... *Rhodocollybia subsulcatipes* (A.H. Smith) Lennox

Caps: 5-8 cm wide, convex to plane with inrolled margins at first, then margins uplifting and tending to split in age. Shiny glabrous with translucent striate margins when moist. Opaque when faded. Deep vinaceous brown to rusty vinaceous fading hygrophanously to pale vinaceous. Context thin, firm, vinaceous brown. Gills: Nearly free, subdistant, slightly ventricose. Pale grayish vinaceous becoming dull vinaceous in age. **Stipe**: 6-10 cm long and 1 – 1 ½ cm thick. Stuffed, smooth to longitudinally sulcate. Rusty vinaceous at apex becoming darker below. Tapering at base to a long pseudorhiza. **Odor**: Of almond extract. **Taste**: Mild. **Substrate**: Gregarious on humus. **Spores**: White, inamyloid. Subglobose, 5-5.5 x 4.5-5 µ.

See photo on page 84..

67.b.) Odor pleasant of baked bread……..…*Connopus bagleyensis* nom. prov. Lennox

Caps: 1 ½ – 5 ½ cm wide, plano-covex to depressed at disc, margins slightly inrolled to wavy. Glabrous and lubricous. Dark vinaceous buff to rusty brown becoming tan at margins. **Gills**: Adnate to adnexed or sinuate, close to crowded and ventricose. Thickish and rather waxy. White to pale flesh color or very pale orange. Edges entire. **Stipe**: 3-7 cm long and 2-10 mm thick. Glabrous and terete until the pubescent or matted strigose base. Mauve brown to dark red brown. Hollow, sometimes compressed furrowed, cartilaginous. **Odor & Taste**: Mild, attractive, but generally considered inedible. **Substrate**: Cespitose and gregarious on wood chip mulch, stumps, logs, and buried wood. **Spores**: White to buff, inamyloid. Ellipsoid in face view, lacrymoid in profile, 5.6-7 x 2.5-4 µ. **Comment**: This *Connopus* replaces *Connopus acervatus* in the Pacific Northwest. Joanne Lennox, who should be considered a co-author of it, described the odor as raphanoid. This is her *Collybia bagleyensis* nom. prov.

See photos on page 59.

68.a.) Caps caramel color…….*Rhodocollybia asema* (Fr.) Bendiksen & Dima

Caps: 2 ½ – 6 cm wide, plano-convex with faintly striate margins at first, then with uplifted margins in age. Glabrous, lubricous, caramel color. Context thin. **Gills**: Adnexed to almost free. White, crowded, edges minutely serrulate. **Stipe**: 6 ½ – 8 ½ cm long and 4-9 mm thick. Hollow, white, glabrous. Equal or expanding to form a clavate base. Fragile, tending to split longitudinally. Base with sparse white mycelium. **Odor & Taste**: Mild. **Substrate**: Gregarious in fern debris near hemlock. **Spores**: Buff, dextrinoid. **Comment**: A common color form. Keyed out here because of the buff spores.

See photo on page 81.

68.b.) Caps whitish, coral pink or mustard yellow……..…69

69.a.) Caps coral pink……*Gymnopus* '*dryophilus*-PNW09'

Caps: 2 – 2 ¾ cm wide, convex to plane. Glabrous, lubricous, margins barely inrolled. Coral pink to pinkish tan with pale orange spot at disc. Context white. **Gills**: Adnate to adnexed, crowded, yellowish buff. Edges entire. **Stipe**: 5-8 ½ cm long and 7 mm thick. Equal until expanded and flattened sometimes at base. Glabrous, hollow, white to pale yellow at apex becoming darker yellow below and then yellow orange at base. Coarse buff to flesh colored rhizomorphs present. **Odor & Taste**: Mild. **Substrate**: Scattered in a lawn. **Spores**: White. Narrowly ellipsoid, 5.4-7.1 x 2.8-4 µ. **Comment**: The common feature shared by most *Gymnopus dryophilus* PNW09's are the yellowish stems. I have heard they are temporarily being referred to as *var. flavipes.*

See photo on page 68.

69.b.) Caps with other colors……70

70.a.) Caps mustard yellow……*Collybiopsis peronata* (Bolton) R. Petersen

Caps: 5 ½ – 6 ½ cm wide, plane to convex with flattened to obtuse umbo. Glabrous at disc with faintly rugulose margins. Mustard yellow at disc becoming pale ochre brown towards margins. **Gills**: Adnexed, subdistant, pale yellow to bright yellow becoming flesh-tan close to attachment to stipe. Edges entire. **Stipe**: 7 ½ – 8 cm long and ½ – 1 cm thick. Glabrous or grooved at apex becoming spongy tomentose towards base. Tough, cartilaginous, expanded at base. Pale yellow to yellow with flesh colored tinges. Context bright yellow. Base with white rhizomorphs that cling to substrate. **Odor**: Mild. **Taste**: Latently peppery. **Substrate**: Solitary and cespitose on conifer duff captured in a crevice of a rotten cedar log. **Spores**: White, inamyloid. Ellipsoid to lacrymoid with prominent hilar appendage. 7.7-10 x 3.8-4.4 µ. **Comment**: This is an alien invader from Europe that for awhile took over the Pacific Northwest. There were bound to be variations. There is a more representative description of this species at 61.b.

See photo on page 74.

70.b.) Caps whitish, some with flesh colored hues……..71

71.a.) Gill edges serrate to serrulate……..72

71.b.) Gill edges never serrate (saw toothed).....74

72.a.) Caps, gills and stipes can have rusty spotting……... 73

72.b.) Fruiting bodies without rusty spotting……..…*Rhodocollybia asema* (Fr.) Bendiksen & Dima

Caps: 3-5 cm wide, convex with small umbo, dry, glabrous, whitish to pale cardboard color with a flesh colored tinge at disc. Context thin, buff. **Gills**: Adnexed to sinuate, crowded, white. Edges minutely serrulate with a hand lens. **Stipe**: 4-5 ½ cm long and 3-5 mm thick. Equal and sometimes curved. Wiry, glabrous, hollow. Pale cardboard color becoming more ochre at base. Apex sometimes white pruinose. Context white. Pallid tan rhizomorphs sometimes present. **Odor**: Mild. **Taste**: Acidulous and a bit bitter. **Substrate**: Scattered in needle duff under doug fir. **Spores**: Dark cream to flesh color. Ellipsoid in face view, dacryoid in profile. Often with a distinct plage. 6-10 x 3-5

µ. **Comment**: This species has at least four distinct cap colors, this white capped version the rarest of them all.

See photo on page 82.

73.a.) Caps up to 3 ½ cm wide, pale ochre-flesh color……*Rhodocollybia sp.* '*maculata*-PNW05'

Caps: 2 ½ - 3 ½ cm wide, campanulate to convex with blunt umbo. Glabrous, lubricous, margins lacerate in age. Pale ochre-flesh color with some rusty spotting. Context buff, thin. **Gills:** Adnate, crowded, buff. Seceding in age. Edges serrulate to entire when young. **Stipe**: 9 ½ - 13 cm long and 4-5 mm thick. White, hollow, smooth, tending to split longitudinally. Some red brown stains at mid stipe. Terete, equal until tapering at base. **Odor**: Pleasant. **Taste**: Mild. **Substrate**: Solitary and cespitose in needle duff near doug fir. **Spores**: Dark buff, inamyloid. Subglobose, 6-7 x 5-6 µ. Q = 1.23. **Comment**: The sequence showed this is just a smaller and thinner version of the following *Rhodocollybia maculata.*

See photo on page 76.

73.b.) Caps up to 9 cm wide, white to buff……*Rhodocollybia sp. 'maculata*-PNW05'

Caps: 4-9 cm wide, convex to nearly plane in age, surface smooth, felt-like. White to buff, usually with random rusty spots at disc. Context white, firm. **Gills**: Notched, thin, crowded, white to pale pinkish buff, soon with reddish to rusty stains. Edges serrate, then eroded in age. **Stipe**: 4-20 cm long and 5-12 mm thick. Equal, tough, fibrous, hollow. Tapering abruptly at substrate. White developing rusty spots near base. Dense white mycelium usually present. **Odor**: Mild. **Taste**: Rather grim. Bitterish. **Substrate**: Gregarious in leaf litter, humus, and conifer duff in mixed woods. **Spores**: Buff or pinkish. Subglobose with a prominent apiculus and a shallow suprahilar depression. 5-7 x 4.5-6 µ. **Comment**: This has a different DNA profile than the type species in Europe, but is morphologically the same. It is here because it can have cream colored spores.

See photos on page 75.

74.a.) Stipe base felty to densely wooly…..…..*Collybiopsis eneficola* (R. Petersen) R. Petersen

Caps: 1-2.4 cm wide, plane to convex with inrolled margin, matte to slightly fuzzy. Margins not striate. White to buff, sometimes with pinkish tinge at disc. **Gills**: Adnate with slight decurrent tooth. Subdistant, thickish, ventricose. White discoloring in age to cinnamon buff. Edges entire, but eroded in age. **Stipe**: 3-5 ½ cm long and 1 ½ – 5 mm thick. Equal or slightly expanded at apex and base. Terete or longitudinally grooved. White becoming pale grayish upon drying. White granular vesture at apex becoming felty below and then densely woolly at base. **Odor**: Slightly farinaceous according to Lennox.**Taste**: Mild. **Substrate**: Gregarious in mixed woods dominated by birch. **Spores**: Hyaline, inamyloid. Ellipsoid to somewhat flattened adaxially. 7.5-9 x 3-4.5 µ.

See photo on page 71.

74.b.) Stipe base bald……..……..75

75.a.) Stipe pinkish to flesh color……..…….. *Collybia bakerensis* (A.H. Smith)

Caps: 1 4/5 – 3 3/4 cm wide, plano-convex with incurved margin becoming decurved in age. Dry, glabrous, sometimes granulose to appressed fibrillose. White, sometimes with pale orange to pinkish tint. **Gills**: Adnate to adnexed or notched. Crowded, white flushed pink in age. Edges entire. **Stipe**: 1-2 cm long and 1-3 ½ mm thick. Equal or slightly clavate with a subbulbous base. Often curved. White pruinose to pubescent becoming pinkish to grayish red in age. Bruising faintly yellowish on handling. **Odor & Taste**: Mild. **Substrate**: Scattered to gregarious on the undersides of bark and rotten wood of fir. **Spores**: White, ellipsoid, 5.5-7.5 x 3-4.5 µ. **Comment**: Should be moved to the genus Collybiopsis.

See photos on page 72.

75.b.) Stipes bicolorous or yellowish……..……76

76.a.) Stipes yellowish……..……*Gymnopus sp.* '*dryophilus*-PNW09'

Caps: 3-3 ½ cm wide, convex with broad umbo. Glabrous,matte. Margins wavy, inrolled at first. White with pale rusty tinge at disc. Context thin, white. **Gills**: Adnate, crowded, white. Arcuate in some specimens. Edges entire. **Stipe**: 4-5 cm long and 3-4 mm thick. Hollow, terete, glabrous. Pale yellow. Sparse white mycelium at base. **Odor & Taste**: Mild. **Substrate**: Gregarious in leafy debris with hardwoods. **Spores**: White, inamyloid. Ellipsoid in face view, dacryoid in profile, 5-7.8 x 2.8-4 µ. **Comment**: For the PNW09 version, cap colors can vary greatly. However, Danny Miller astutely recognized that they almost all share a yellowish stipe.

See photo on page 69.

76.b.) Stipes white at apex, dark vinaceous brown or rusty below……

……..*Collybiopsis californica* (Desjardin) R. Petersen

Caps: ¼ - 1 ½ cm wide, plano-convex with tuberculate margins at first. Margins uplifted in age. Buff becoming pale salmon to dark flesh color at disc. **Gills**: Adnate to short decurrent, close to subdistant. Buff ageing to pale flesh color with white emarginate edges. Edges entire. **Stipe**: 1 ½ - 3 cm long and ¼ - 2 mm thick. White at apex only. Dark vinaceous brown to rusty brown below, then dark brown at base. Glabrous, always tapering towards base. **Odor & Taste**: Mild. **Substrate**: Scattered on hemlock needles and dirt near hemlock. **Spores**: White, amyloid. Long ellipsoid or narrowly dacryoid in profile. Roughly 7.5 x 2.5 µ. **Comment**: Sequence may be the same as that of *Marasmiellus pluvius*, in which case the name 'pluvius' would have preference.

See photos on page 57.

77.a.) Caps red brown, tawny, chestnut to vinaceous red……..……...78

77.b.) Caps brown, dark tawny brown to ochre-flesh color……..……..…83

78.a.) Odor of almond extract……..……..…...*Rhodocollybia oregonensis* (A.H. Smith) Lennox

Caps: 4-10 ½ cm wide, convex to shallowly umbonate with slightly wavy margins. Glabrous to faintly fibrillose at disc. Subviscid when moist. Dark brick to dark vinaceous brown fading towards margin. Obscurely silvery spotted when dried. **Gills**: Sinuate, crowded, white to pale orange

becoming yellowish when drying. Frequently stained with rusty brown spots. Edges serrate and eroded in age. **Stipe**: 6 ½ – 20 cm long and ½ – 3 cm thick. Grooved striate and readily splitting longitudinally. White but soon staining rusty brown especially near the base. Buried for about half its length. Bits of rotten wood cling to it. **Odor**: Strong of almond extract. **Taste**: Mild to unpleasant. **Substrate**: Gregarious to cespitose on rotten conifer logs and debris. **Spores**: Pale orange, endosporium dextrinoid. Ovate, 6-8 x 3.5-4 µ.

See photos on page 89.

78.b.) Odors mild or different……...…….……..79

79.a.) Stipes striate-grooved longitudinally…..…….80

79.b.) Stipes not striate-grooved……..……..…82

80.a.) Gills with reddish spots……..…*Rhodocollybia maculata* var. *fulva* (Lennox)

Caps: 1 ¾ - 2 ¾ cm wide, conical to broadly conical expanding to convex with papillate umbo. Margins remain slightly inrolled and even. Glabrous, drying matte and unevenly. Dark vinaceous red drying hygrophanously paler. Context relatively thick over disc. **Gills**: Narrowly adnate to sinuate, thin, crowded, shallow. White with conspicuous reddish spots. Edges entire. **Stipe**: 3 ½ - 6½ cm long and 3-5 mm thick. Equal, stuffed, striate-grooved. Pale flesh color staining rusty red. Base with white and yellow rhizomorphs. **Odor & Taste**: Mild. **Substrate**: In cespitose clusters on wood. **Spores**: Color unrecorded. We are guessing pinkish here. Dextrinoid. Ovate, 5.5-6.5 x 3.5-4 µ.

See photo on page 78.

80.b.) Gills without reddish spots…….……..……81

81.a.) Taste latently bitter, unpleasant……

……..*Rhodocollybia prolixa* (Hornem. ex Fr.) Antonín & Noordeloos

Caps: 2 ½ – 11 cm wide, plane to convex with a broad shallow umbo and frayed margins in age. Glabrous and lubricous becoming matte when dry. Vinaceous brown to dark brick to red brown drying somewhat lighter. Context white, soft. **Gills**: Sinuate and crowded, white becoming yellowish on drying. Edges serrate, eroded in age. **Stipe**: 5-11 cm long and 5-9 mm thick. Fibrous and fistulose. Pruinose at apex, grooved striate below, sometimes tapering abruptly at base and almost rooting. Flesh color at apex, then darkening below to vinaceous tan and staining reddish brown. Abundant white rhizomorphs at base. **Odor**: Faintly fungoid to pungent. **Taste**: Latently bitter and unpleasant. **Substrate**: Gregarious and loosely cespitose on rotten logs or thick needle duff. **Spores**: Buff to light orange with dextrinoid endosporium. Globose. 3.5-5.5 x 3-4.5 µ. **Comment**: It was discovered that *Rhodocollybia badiialba* shared the same sequence with *Rhodocollybia prolixa* of Europe, which is the earlier name and therefore has preference. The above description is that of our northwest *R. badiialba* with colored spores. The *R. prolixa* of Europe has buff colored spores.

See photos on page 88.

81.b.) Taste mild……..……..*Rhodocollybia butyracea* (Bull. ex Fr.) Lennox

(See description at 26.b. This collection had flesh colored spores)

See photos on page 78.

82.a.) Stipes smooth……..……..……...*Rhodocollybia asema* (Fr.) Bendiksen & Dima

Caps: 1 ¼ – 6 ½ cm wide, campanulate at first, then plano-convex with obtuse to subpapillate umbo. Glabrous, lubricous, margins faintly striate when moist. Tawny with a whitish band at margins. Context ochre. **Gills**: Adnate, crowded, some forked near stipe attachment. White turning yellowish when dried. Edges unevenly serrulate. **Stipe**: 4 ¼ – 7 cm long and 6-9 mm thick. Glabrous, hollow, equal until expanded at base. Pale tan to straw color. White tomentum at base. Copious tan rhizomorphs bind to needle duff. **Odor & Taste**: Mild. **Substrate**: Scattered in needle duff under fir and hemlock. **Spores**: Flesh colored, inamyloid.

See photo on page 80.

82.b.) Stipes wooly strigose near base……..

…….*Rhodocollybia prolixa* (Hornem. ex Fr.) Antonín & Noordeloos

Caps: 2 ½ - 3 cm wide, campanulate to convex with obtuse umbo and slightly incurved margins becoming undulate in age. Glabrous, lubricous, rusty ochre. **Gills:** Adnexed, distant, deep. Buff, subventricose. Edges entire. Three tiers of lamellulae. **Stipe:** 2-3 cm long and 3-4 ½ mm thick. Equal or tapering towards base. Pale tawny. Smooth at apex, then strigose wooly below. Vesture whitish. Heavily matted at base. **Odor & Taste:** Mild. **Substrate:** Gregarious in an irrigation ditch in a pasture along the Mt. Baker Highway, Washington. **Spores:** Deposit color unobtainable. Broadly ellipsoid with prominent snout. 8-10.5 x 5-7.5 µ. Q = 1.47. **Basidia**: Clavate, two-spored, 32-33 x 7-8 µ. **Cheilocystidia:** Elongated clavate, fusiform or strangulated fusoid. 37-39 x 8-15 µ. **Clamps:** Present in gill trama, pileipellis, and on the caulocystidia. **Pileipellis:** Subhymeniform with random irregularly clavate to vesiculose elements 8-12 µ wide emerging from branched, interwoven hyphae 3-6 µ wide. **Pileal Trama:** Of interwoven hyphae 2-9 µ wide. **Stipitipellis:** Of vertically parallel hyphae 4-7 µ wide. With intracellular pigmentation. **Caulocystidia:** Entire stipe covered with interwoven hyphae 2-4 µ wide. Also seen were clusters of irregularly cylindric hyphae with knobs and branches at 4-8 µ wide. **Comment:** After multiple efforts with very poor material, this collection sequenced to *Rhodocollybia prolixa*. As one can see, there are some differences with our normal understanding of this species, especially in the interwoven stipe vesture (unless it is vegetative matter crawling up the stipe.) This is the ant that came to the picnic.

See photos on pages 87-88.

83.a.) Caps brown to dark tawny brown……...84

83.b.) Caps buff to yellowish…….85

84.a.) Fruiting in cespitose clusters ……..…….*Rhodocollybia* sp. ‘PNW08’

Caps: 3-6 cm wide, broadly conical to convex with obtuse umbo. Glabrous, margins often draped, not striate. Hygrophanous, dark brown to dark tawny brown fading to ochre brown when dried. Caps turn green in KOH. **Gills**: Adnate to adnexed, very crowded, narrow, buff. Edges uneven, ragged. **Stipe**: 5-10 ½ cm long and 3-7 mm thick. Hollow, pliant, tough. Entirely dingy white or

white at apex becoming rusty brown near base. **Odor**: Mild to faintly fruity. **Taste**: Slightly bitter. **Substrate**: In cespitose clusters with spruce. **Spores**: Color not supplied (we are assuming pinkish here). Lacrymoid in profile. 7-9.5 x 3.4-4.2 µ. Q = 2.16.

See photo on page 83.

84.b.) Fruiting solitary to gregariously……..…. *Rhodocollybia asema* (Fr.) Bendiksen & Dima

Caps: 3-5 cm wide, broadly convex, glabrous and lubricous. Dark brown when fresh. Sometimes with a white line at margin. Quickly fading to tan when dried. **Gills**: Adnexed, white, crowded. Edges serrate. **Stipe**: Smooth, pale ochre to pale brown. (Formerly known as *Rhodocollybia butyracea var. asema,* it differs from *R. butyracea var. butyracea* in its browner cap colors along with the other colors shown here.

See photo on page 80.

85.a.) Gills yellow……..……..…. *Rhodocollybia maculata* var. *scorzonerea* (Fr.) Lennox

Caps: 3 ½ – 12 cm wide, plano-convex with broad umbo becoming depressed in age with slightly recurved margins. Glabrous, buff to yellowish, darkening in age. With random rusty stains and watery spots. Context thick, pale buff to yellowish. **Gills**: Adnate to emarginate, crowded, buff to yellowish with occasional rusty spots. **Stipe**: 3 ½ – 17 cm long and ½ – 4 cm thick. Equal until subradicating at base. Markedly longitudinally sulcate striate in age. Buff at apex, more yellow below at maturity. Rusty stains especially near the base. **Odor**: Faintly fragrant. **Taste**: Bitter. **Substrate**: Scattered on decayed conifer wood. **Spores**: Pinkish buff to yellowish, dextrinoid. Ovate to ellipsoid. 7-8.5 x 4.5-5 µ. **Comment**: Sequencing has shown that this taxon can also have buff gills.

See photo on page 77.

85.b.) Without yellow gills……...…86

86.a.) Gills with rusty spots or stains; serrated at first……..…*Rhodocollybia* sp. '*maculata*-PNW05'

Comment: This is here because Trudell, Mohatt & Siegel report it with pinkish yellow spores. You can find the description at 73.b.

See photos on page 75.

86.b.) Gills not having the combination of serrations at first and rusty spots or stains…….87

87.a.) Caps with flesh-brown to pinkish tinges or blotches……... 88

87.b.) Caps without blotches..…….89

88.a.) Stipes darkening to flesh-tan near base. ……..……

……..……*Rhodocollybia maculata* var. *scorzonerea* (Fr.) Lennox

Caps: 3-8 cm wide, convex with eroded margins in age. Watery buff with random pinkish to pale brick colored tinges. Smooth, matte. Margins slightly wavy**. Gills**: Adnexed to adnate, close to

subdistant. White to buff, no rusty staining. Edges not serrate. Three tiers of lamellulae. **Stipe**: 5-9 cm long and ½ - 1 cm thick. Equal. Buff becoming flesh color near base. **Odor & Taste**: Not recorded. **Substrate**: Gregarious in moss under conifers. **Spores**: unobtainable. **Comment**: This collection had no yellow gills. A gift from the sequencing.

See photo on page 77.

88.b.) Stipes remaining white at bases (may have rusty red stains).....*Rhodocollybia maculata* var. *occidentalis* Lennox

Caps: 2.6-11 cm wide, convex to nearly plane at maturity, sometimes with undulate margins. Whitish tinged with pale pinkish buff, but darkening in age at disc. Surface moist, dull, faintly pruinose. Pale rusty brown spotting usually present, becoming clear at margins. Context buff, thick over discs and abruptly tapering at margins. **Gills**: Sinuate to emarginate, rather waxy, crowded, white to pale orange. Edges entire at first, eroded in age. **Stipe:** 4 ½ - 15 cm long and 1-2 cm thick. Whitish staining rusty red over lower half. Base tapering abruptly into a short pseudorhiza. Stuffed becoming hollow in upper half in age. Often compressed or sulcate-striate to furrowed at maturity. Surface faintly pruinose at first. Sparse white rhizomorphs at base. **Odor**: Faint, pleasant. **Taste**: Mild at first, then awful, rather bitter. **Substrate**: Gregarious to cespitose in thick needle duff or much decayed conifer wood. **Spores**: Flesh color, dextrinoid, narrowly ovate to ellipsoid. 6.5-11 x 4-6 µ. **Comment**: Can be confused with *Rhodocolybia maculata* var. *scorzonerea* when the latter has no yellowing of gills or stipe.

See photo on page 76.

89.a.) Caps buff becoming pale rusty at disc……..*Gymnopus dryophilus* (Bull. ex Fr.) Murrill

Caps: 4-4 ½ cm wide, broadly convex with margins slightly uplifted in age. Watery, glabrous. Buff becoming pale rusty at disc. Context translucent buff. **Gills**: Adnate and seceding. Subdistant, deep, white to buff. Edges entire. **Stipe**: 3 - 3 ½ cm long and ¾ - 1 cm thick. Hollow and tapering towards base. Buff at apex becoming rusty below and then brownish tawny near base. Some rusty spotting also visible. **Odor**: Fragrant, sweet, fruity. **Taste**: Mild. **Substrate**: A pair in conifer duff under hemlock. **Spores**: Orange-buff. Subglobose, thick-walled. 8-9.1 x 6-7 µ. Q = 1.34. **Comment**: This is double keyed here because this collection had orange-buff spores.

See photo on page 70.

89.b.) Caps pale ochre-flesh color…….. *Rhodocollybia asema* (Fr.) Bendiksen & Dima

Caps: 3-7 cm wide, convex to broadly convex with wavy margins, often with obtuse umbo. Glabrous, lubricous, margins faintly striate. Pale ochre-flesh color paling slightly at margins. Context thin, white. **Gills**: Adnate, very crowded, white. Edges serrulate, eroded in age. **Stipe**: 5 ½ – 7 cm long and 4-10 mm thick. Hollow, smooth, expanding slightly at base. Terete, buff. Some cottony tomentum at base. **Odor**: Pleasant, sweetish. **Taste**: Mild to unpleasant. **Substrate**: Gregarious in conifer duff near western red cedar. **Spores**: Flesh color. **Comment**: A common coastal variant that belongs in the key.

See photo on page 81.

The Photo Gallery

(You can use iNaturalist to view the photographic range of many of these species, including limiting your search to observations backed by DNA sequencing.)



Collybia cirrhata – photo by Alan Rockefeller



Collybia cookei – photo by Dr. Richard Morrison



Collybia tuberosa



Collybia tuberosa – photo by Luke Mikler – iNaturalist # 313860855



Dendrocollybia racemosa – photo by Lauren Ré



Dendrocollybia pycnoramella nom. prov. *Noah Siegel*



Gymnopus fragillior



Mycetinis scorodonius forma *diminutivus* – Photo by Yi-Ming Wang



Paragymnopus ponderosae – photo by Dr. Ronald Petersen



Paragymnopus sequoiae – photo by Reagan Peschke



Gymnopus quinaultii – photo by Nils Nelson



Gymnopus androsaceus



Pseudomarasmius pallidocephalus – photo by Matthew Koons – iNaturalist # 187847010



Gymnopus barbipes – photo by Renée Lebeuf



Gymnopus impudicus



Paragymnopus sp. ‘PNW01’



Paragymnopus sp. ‘PNW01’ – photos by Yi-Min Wang



Collybiopsis sp. ‘PNW02’ – iNaturalist # 58444905



Gymnopus bulliformis



Paragymnopus sublaccatus – photo by Matthew Koons



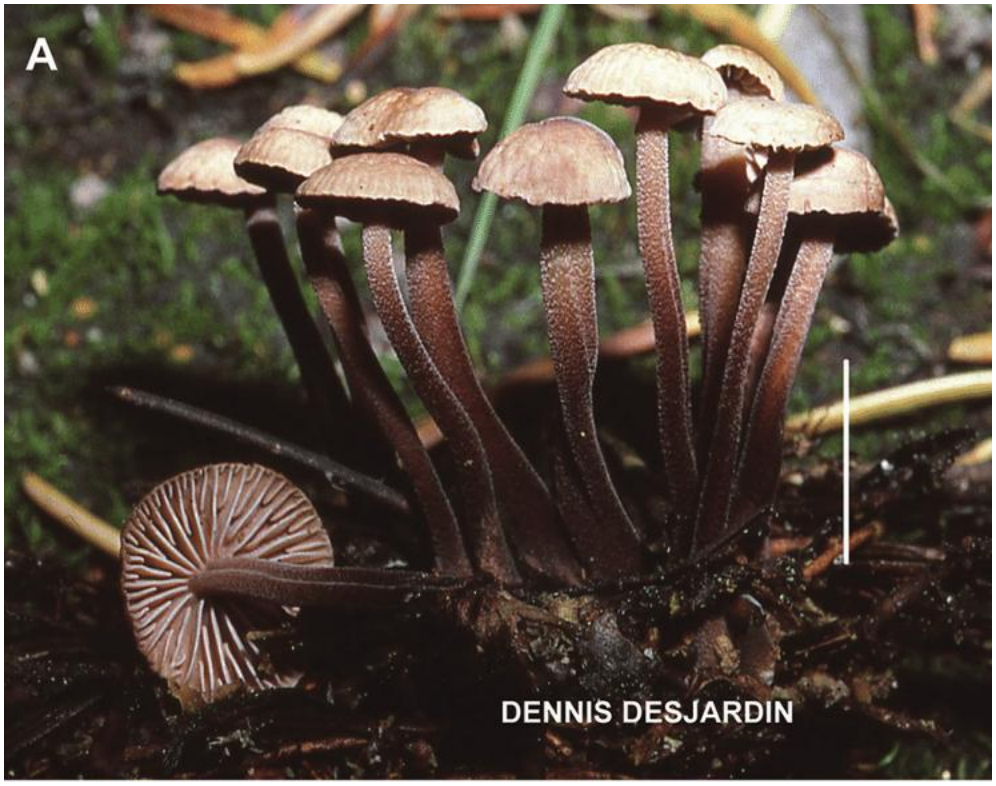
Mycetinis salalis



Collybiopsis villosipes – photo by Bea Jagelski



Collybiopsis villosipes – iNaturalist # 198229713



Mycetinis applanatipes – photo by Dennis Desjardin



Gymnopus earleae – iNaturalist # 80950174



Gymnopus earleae – iNaturalist # 79586918



Gymnopus earleae – iNaturalist # 108764569



Gymnopus sp. 'earleae-PNW05' – iNaturalist # 58432502



Gymnopus sp. 'earleae-PNW05*'* – iNaturalist # 58392446



Gymnopus sp. ‘*earleae*-PNW05’ – iNaturalist # 330270065



Gymnopus sp. ‘earleae-PNW05’ – photo by Ed Barge – iNaturalist # 293709168



Micromphale arbuticola – photo by Noah Siegel



Gymnopus sp. *'fuscopurpureus*-PNW08' – iNaturalist # 115959513



Gymnopus sp. '*fuscopurpureus*-PNW08' – photo by Drew Parker – iNaturalist # 182413419



Gymnopus sp. *'*CA02' – iNaturalist # 58389260



Gymnopus sp. *'*CA02' – iNaturalist # 58468104



Gymnopus glabrosipes – photo by Matthew Koons



Collybiopsis subpruinosa – iNaturalist # 198229286



Collybiopsis subpruinosa – iNaturalist # 58429560



Collybiopsis californica – iNaturalist # 143113059



Collybiopsis californica – iNaturalist # 323716889



Gymnopus sp. '*polyphyllus*-PNW03' – photo by Colin Meyer



Connopus bagleyensis nom. prov. *Lennox* – iNaturalist # 58452263



Connopus bagleyensis nom. prov. Lennox – photo by Yi-Ming Wang



Connopus bagleyensis nom. prov. Lennox – photo by Dr. Richard Morrison



Collybiopsis confluens subsp. *campanulata* – iNaturalist # 131146317



Collybiopsis confluens – iNaturalist # 330269265



Collybiopsis confluens – iNaturalist # 58444684



Collybiopsis luxurians



Gymnopus erythropus – iNaturalist # 58450929



Gymnopus erythropus - iNaturalist # 58445222



Gymnopus erythropus – photo by Jonathan Frank – iNaturalist # 36354785



Gymnopus erythropus – iNaturalist # 330269595



Gymnopus striatipes



Gymnopus striatipes – photo by Jairul Rahaman



Gymnopus sp. ‘PNW01’ – iNaturalist # 131145799



Gymnopus sp. ‘PNW11’ – photo by Rudy Diaz – iNaturalist # 195553164



Gymnopus sp. ‘PNW11’ – photo by Rudy Diaz – iNaturalist # 182843167



Collybiopsis sp. ‘PNW03’ – photo by Jonathan Frank – iNaturalist # 51625122



Gymnopus sp. '*dryophilus*-PNW09' – iNaturalist # 159932489



Gymnopus sp. '*dryophilus*-PNW09'



Gymnopus sp. '*dryophilus*-PNW09'



Gymnopus sp. '*dryophilus*-PNW09' – iNaturalist # 198230761



Gymnopus sp. ‘dryophilus-PNW09’ – iNaturalist # 101289907

(This photo shows a *Gymnopus* sp. ‘*dryophilus*-PNW09’ that does not have a yellow stipe. This is unfortunate. Makes it hard to key out with certainty.)



Gymnopus sp. ‘*dryophilus*-PNW09’ – iNaturalist # 79696904



Gymnopus dryophilus – iNaturalist # 58370825



Gymnopus dryophilus



Gymnopus ocior – iNaturalist # 58377655



Collybiopsis eneficola – photo by Renée Lebeuf



Collybia bakerensis



Collybia bakerensis



Gymnopus aquosus



Gymnopus sp. '*aquosus*-PNW04' – iNaturalist # 143110306



Collybiopsis peronata



Collybiopsis peronata – iNaturalist # 58388109



Collybiopsis peronata – iNaturalist # 58465588



Rhodocollybia sp. '*maculata*-PNW05'



Rhodocollybia sp. '*maculata*-PNW05' – iNaturalist # 115957053



Rhodocollybia maculata var*. occidentalis* – iNaturalist # 83226624



Rhodocollybia maculata var. *scorzonerea*



Rhodocollybia maculata var. *scorzonerea* - iNaturalist # 83226901



Rhodocollybia maculata var. *fulva* – Photo byNAMA copyright



Rhodocollybia butyracea – iNaturalist # 129776982



Rhodocollybia butyracea – iNaturalist # 198230444



Rhodocollybia asema – iNaturalist # 58356141



Rhodocollybia asema – iNaturalist # 112438599



Rhodocollybia asema



Rhodocollybia asema – iNaturalist # 148350509



Rhodocollybia asema – iNaturalist # 58354260



Rhodocollybia asema – iNaturalist # 79693484



Collybiopsis sp. '*hasanskyensis*-PNW01' – photo by Pi-Yu Emerald Chung



Rhodocollybia sp. ‘PNW08’ – photo by Joe Matanzas



Rhodocollybia subnigra – iNaturalist # 115960822



Rhodocollybia subsulcatipes – iNaturalist # 188208125 - photo by Nils Nelson



Gymnopus sp. ‘PNW12’ – iNaturalist # 143111725



Gymnopus CA01 – iNaturalist # 79703070



Gymnopus CA01 – iNaturalist # 79700108



Gymnopus putillus – iNaturalist # 231103220



Gymnopus sp. ‘PNW10’ – photo by Harte Singer



Gymnopus sp. ‘PNW10’ – photo by Sadie Hickey – iNaturalist # 187661430



Rhodocollybia prolixa – iNaturalist # 58355082



Rhodocollybia prolixa



Rhodocollybia prolixa – iNaturalist # 126350043



Rhodocollybia oregonensis – iNaturalist # 129765996



Rhodocollybia oregonensis – photo by Christian Schwarz – iNaturalist # 147340475

The ‘To Be Looked For’ List

This is a list of Collybioid fungi that we hope readers will be on the lookout for. It comprises species that probably have been found in the Pacific Northwest before but lack a modern sequence verification. It also includes species that have been found in northern California and could cross the border into Oregon any day. If any of these are found, please contact Ian Gibson or Danny Miller so we can get them sequenced for the next Collybioid key.

Collybiopsis pg. 361#13

Collybiopsis quercophila

Gymnopus alkalivirens

Gymnopus brassicolens

Gymnopus fusipes

Gymnopus fuscopurpureus

Gymnopus hariolorum

Gymnopus quinaultii

Gymnopus subsulphureus

Mycetinis copelandii

Mycetinis scorodonius

Rhodocollybia maculata var. *immutabilis*

Rhodocolybia maculata var. *nigra*



Collybiopsis pg. 361#13 – iNaturalist # 58381005

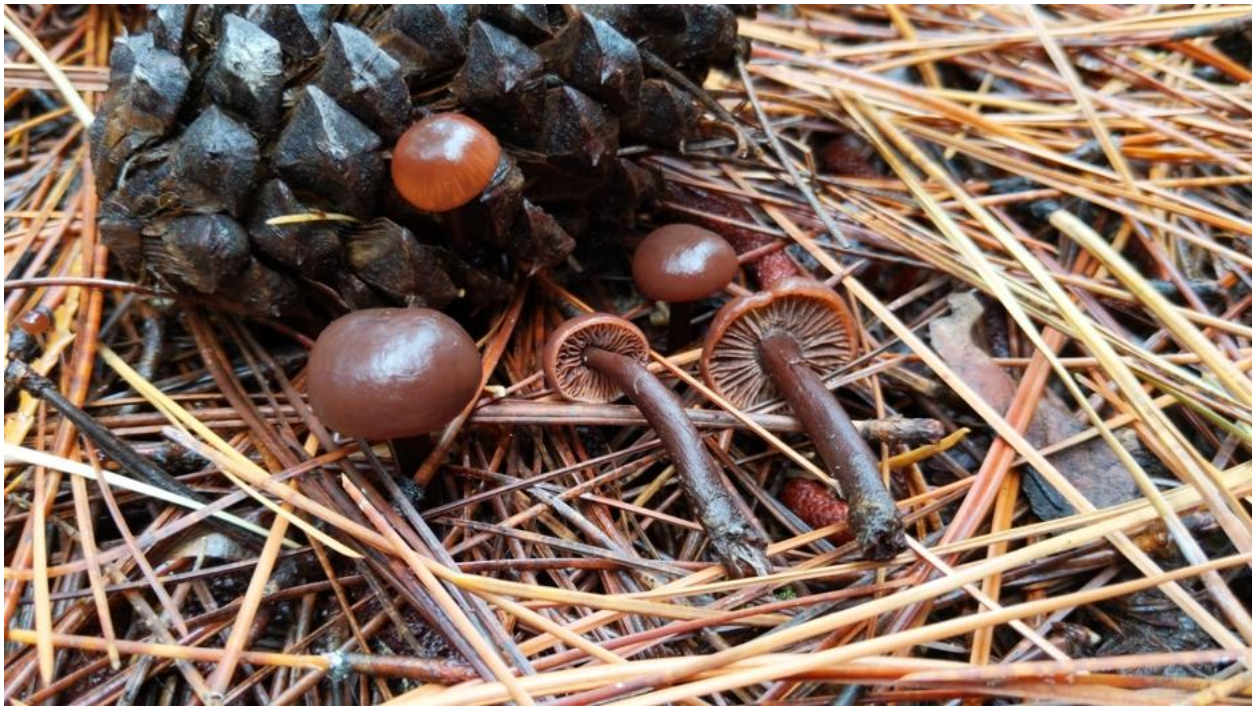
Caps: 1 - 1 1/2 cm wide, campanulate to convex with inrolled margins at first becoming striate in age. Glabrous, shiny, black becoming dark brownish black towards margins. **Gills:** Adnate, distant,dark mauve with buff edges. Edges entire. Three tiers of lamellulae. **Stipe :** 3 ¼ - 5 ½ cm long and 1 ½ - 2 mm thick. Vinaceous brown at apex darkening to vinaceous black below. Equal, glabrous, hollow. Minutely and sparsely pubescent. Base with sparse pale gray mycelium. **Odor & Taste:** Mild. **Substrate:** Scattered in needle duff with old growth hemlock and doug fir. **Spores:** Deposit color unobtainable. Inamyloid, narrowly ellipsoid in face view, lacrymoid in profile. 6.1-7.2 x 2.9-3.4 µ. Q = 2.14. **Basidium:** Only one measured. Cylindrical, 4-spored, 21 x 4.2 µ. **Cheilocystidia:** Often in clusters, slenderly clavate to acuminate, rarely with basal knobs or subcapitate, 30-42.9 x 4.6-5.7 µ. **Clamps:** Present in the gill trama, bases of basidioles and stipitipellis. **Gill Trama**: Of parallel hyphae up to 10 µ wide, often branched and with protrusions. Some with coarsely encrusted or banded walls. Pigmentation also intracellular. **Pileipellis:** A cutis of roughly parallel and branched hyphae 2.6-5.7 µ wide. Some walls coarsely encrusted, others with a dark brown wash. **Subpellis:** Of interwoven and branched hyphae. **Stipitipellis:** Of vertically parallel hyphae 3-7.2 µ wide, some lightly encrusted. **Caulocystidia:** Large clusters of strangulated cylindrical hyphae intertwined at apices and bases. Also isolated cylindrical flexuous hyphae 2-7 µ wide and up to 100 µ long. **Comment:** This collection, which appears related to *Collybiopsis villosipes,* glistens like

obsidian in the conifer duff. A miserable photo for a truly striking species. This was found at Deception Pass Park on November 6. 2004.



Collybiopsis quercophila – photo by Candido Sos – iNaturalist # 331404794

Caps: Up to 1 cm wide, campanulate to plano-convex in age with crenulate margins. Buff with pinkish brown to pale red brown discs. Margins becoming radially rugulose on drying. **Gills**: Broadly adnate to emarginate, distant, slightly intervenose in age. White. Edges uneven but entire. **Stipe**: 1 ½ - 3 ½ cm long and ¼ - ½ mm thick. Pale ochre at apex, then dark red brown below. Filiform, slightly pruinose all over at first, then glabrous or twisted grooved in age. Dark red brown rhizomorphs abundant. **Odor & Taste**: Mild. **Substrate:** Gregarious on fallen leaves of chestnut and especially oak. **Spores**: White, ellipsoid to narrowly lacrymoid. 7-10 x 3-6.5 µ. **Comment**: Found in northern Californica. Expected to drift north into the extensive oak forests of southern Oregon.



Gymnopus alkalivirens – photo by Alan Rockefeller

Caps: 1-2 ¾ cm wide, campanulate to plane with enrolled margins at first becoming convex with a low umbo and nearly sulcate margin in age. Glabrous, lubricous, dark vinaceous brown fading hygrophanously to red brown at disc and pallid cinnamon at margins. Context whitish with a reddish flush. KOH stains caps dark green. **Gills:** Narrowly adnate, crowded, sometimes intervenose. Dark pinkish brown to dark flesh color becoming blackish when dried. Edges entire or slightly undulate. **Stipe**: 3-8 cm long and 2-5 mm thick. Terete, equal or slightly enlarged at base. Dark vinaceous brown to black. Glabrous, hollow, pliant, often curved. Brownish tomentum at base. **Odor & Taste:** Mild. **Substrate:** Solitary to cespitose on decaying leaves, moss, woody debris or old fern hummocks. **Spores:** White, inamyloid. Narrowly ellipsoid to subcylindric in face view, lacrymoid in profile, 5.4-6.5 x 2.2-3.2 µ. **Comment** : I believe I had found this back on May 27, 1985 at Crystal Springs, Washington. Gregarious on rotten alder. I subsequently lost the collection so no hope of getting a sequence. The above collection was found by Alan In McCloud, California, close to the Oregon border.



Gymnopus brassicolens – photo by Alan Rockefeller

Caps: 1 ½ - 4 ½ cm wide, plano-convex with obtuse umbo and wavy margins, deflexed in age. Translucently striate when moist. Dark red brown to orange brown fading hygrophanously to ochre brown . Context brownish. **Gills**: Narrowly adnate to almost free, crowded to subdistant, white to pinkish brown and darkening in age. Edges entire, often undulate. **Stipe:** 1 ½ - 7 ½ cm long and 1-4 mm thick. Straw color at apex, then dark reddish brown until almost black at base. Tapering towards base and often compressed. Entire surface finely white pruinose. Basal tomentum white to yellowish. **Odor:** Of rotten garlic or cabbage or even sewage. **Taste:** Equally foetid. **Substrate:** Gregarious on dead leaves and rotten wood of deciduous and conifer trees. **Spores:** White, inamyloid. Oblong to subcylindrical, 5.5-7.5 x 2.5-4 µ. Q = 2.10. **Comment:** Has been found in northern California with oak. Thanks to global warming, expected to move north into Oregon.



Gymnopus fuscopurpureus – photo by Alan Rockefeller

Caps: 1 ½ - 3 cm wide, plano-convex with reflexed margins in age. Glabrous, margins grooved-striate to striate.Dark red brown to purple brown or dark rusty ochre fading hygrophanously to pale red brown or pinkish cinnamon. Context thin, concolorous. Surface turns green with KOH. **Gills**: Adnexed to adnate, subdistant, dark brown with pinkish tinge or pinkish brown with pallid edges. Edges entire. **Stipe**: 3-8 cm long and 2-4 mm thick. Red brown to dark brown, sometimes turning black at base. Longitudinally grooved, often compressed at apex. Minutely pruinose at apex becoming densely tomentose below. Hairs and tomentum red brown.**Odor & Taste**: Mild. **Substrate**: Scattered in needle duff in mixed woods or saprotrophic in humus and coarse litter. **Spores**: White, amyloid. Ellipsoid to lacrymoid with prominent apiculus. 6.5-8.7 x 3.1-4.7 µ. **Comment**: Has been found in California and expected to drift north eventually.



Gymnopus fusipes

Caps: 3-8 cm wide, broadly conical becoming convex to plane with low umbo. Dark red brown to rusty brown fading to cinnamon flesh color when drying. Margins translucent striate when moist. Smooth to slightly rugulose in age. Surface shiny, often with rusty to yellowish spots. **Gills:** Adnate to emarginate, subdistant, pale gray brown to tan becoming dark brown to red brown in age. Usually with rusty spots. Edges entire. **Stipe:** 5-11 cm long and 1-2 cm thick. Fusiform and longitudinally sulcate, often curved or twisted, glabrous or fibrillose. Pallid at apex becoming dark reddish brown below. Base tapered, originating from a root-like black sclerotium. **Odor:** Mild to sweetish. **Taste**: Mildly fungoid. **Substrate:** Solitary or in compact clusters around roots and stumps of oak, chestnut, birch or beech. **Spores:** White to buff. Oblong to ellipsoid, 5.4-6.6 x 3.2-3.8 µ. Q = 1.70. **Comment:** I may have found this in Forks with birch in early October, 1987. My photo was among the most out of focus I ever shot and the collection was subsequently lost.



Gymnopus hariolorum – photo by Eva Skific

Caps: 2-5 cm wide, campanulate becoming convex to plane with obtuse umbos or depressed discs and straight margins in age. Dark ochre brown to rusty brown at discs becoming pale pinkish brown at margins. Hygrophanous, drying to sordid whitish. Context white. **Gills:** Adnexed to almost free, fairly crowded, pale buff. Edges entire. **Stipe:** 4-8 cm long and 3-5 mm thick. Equal or expanded at base and apex. Slightly grooved longitudinally, stuffed at first, then hollow in age. Whitish becoming pale yellow brown near base. Upper half white pruinose, white tomentose below and then white strigose at base. **Odor**: Of sewage or rotten cabbage. **Taste:** Most likely similar. **Substrate:** Gregarious to subcespitose on humus and birch litter in mixed woods. **Spores:** White, amyloid. Ellipsoid to cylindric, 5.5-7.5 x 2.5-3.5 µ. **Comment:** It is here because A.H. Smith is purported to have found it at Priest River, Idaho.



Gymnopus quinaultii – photo by Nils Nelson

Caps: ⅓ - 1 ½ cm wide, plano-convex with short striations, matte, brown at disc becoming dull cinnamon buff at margins. **Gills**: Adnate to adnexed, thickish, subdistant and subventricose. Pale brownish cinnamon. Two tiers of lamellulae. **Stipe**: 1 ½ - 3 cm long and ¾ - 1 ¼ mm thick. Equal, hollow, terete; orange cinnamon at apex becoming brown below and then blackish at base. Minutely pruinose at apex, then more pruinose to barely hispid below. Black rhizomorphs commonly branched arise from small black adjacent pads. **Odor & Taste**: Not recorded. **Substrate**: Fruiting on fir and western red cedar needles. **Spores**: Presumed to be white, amyloid. Plump ellipsoid and flattened adaxially. 7.5-9 x 4-4.5 µ. Q = 1.99. **Comment**: Found already in Oregon and Washington by Nils Nelson. We just need a sequence to go with it.

tr 

Gymnopus subsulphureus – photo by Sava Krstic

Caps: 1 ½ - 4 cm wide, convex with incurved margins when young, sometimes with broad umbo, becoming plane in age with even or undulate margins. Margins translucent striate when wet. Glabrous, lubricous when moist, silky when dry. Pale yellow darkening to yellow ochre or rusty ochre at disc. Context thin, whitish to yellowish. **Gills:** Adnexed to almost free, crowded, edges entire or slightly fimbriate. Colors variable from white to straw yellow to orange buff to orange. **Stipe:** 1 ½ - 9 ½ cm long and 2-7 mm thick. Equal or flared at base and apex. Glabrous becoming longitudinally striate with larger specimens. Pale yellow from apex to base when young, darkening uniformly to tawny ochre in age. Pinkish ochre rhizomorphs sometimes present. **Odor:** Mild to fragrant. **Taste:** Fungoid to bitter. **Substrate:** Gregarious to cespitose in small clusters on rotten wood or soil beneath conifers and hardwoods. **Spores:** White to cream, inamyloid. Ellipsoid, 5.5-6.5 x 2.5-3.5 µ. **Comment:** Has been reported from the Pacific Northwest before. We just need a sequence.



Mycetinis copelandii

Caps: ⅘ - 2 ½ cm wide, convex with incurved margins at first. Margins translucently striate becoming rugulose striate in age. Pale to dull brown at disc becoming whitish at margins. Hygrophanous to buff brown overall. **Gills:** Adnate to adnexed, close to subdistant, subventricose, thickish, shallow. Buff to pale cinnamon pink, often with vinaceous brown spots.Occasionally pseudocollariate. **Stipe:** 2 ½ - 6 ½ cm long and 1-4 mm thick. Terete to compressed, equal or tapered at base, sometimes rooting. Tough, pliant, stuffed becoming hollow in age. Apex pale cinnamon pink, then brown below becoming blackish at base. Pruinose at apex, pubescent below, then tomentose at base. Obscure flattened black rhizomorphs at base, occasionally branched. **Odor:** Strong of garlic. **Taste:** Persistent of garlic. **Substrate**: Densely gregarious to cespitose on decaying oak and chinquapin leaves. **Spores:** White, inamyloid. Clavate and curved with rounded ends in profile. 13-17 x 3-4 µ. Q = 3.29. **Comment:** Found evidently by Noah Siegel near Willamette, Oregon. We just need a sequence.



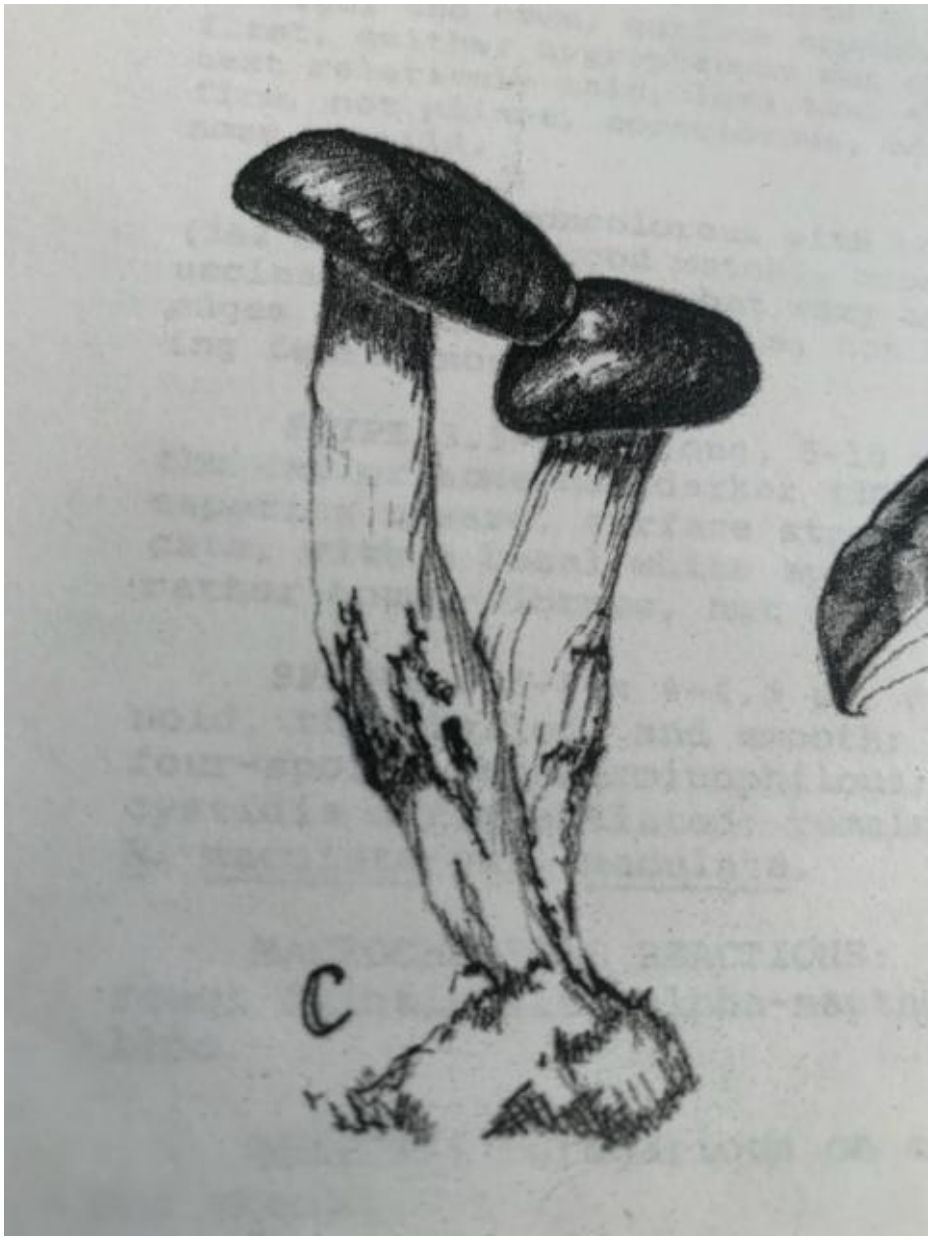
Mycetinis scorodonius

Caps: 1-3 cm wide, almost hemispherical at first, then plano-convex with slightly depressed discs and wavy margins. Glabrous and hygrophanous. Orange brown at discs becoming more ochre at margins, paling uniformly in age. Margins radially rugulose to almost sulcate in age. **Gills:** Adnexed to adnate with a thin pseudocollarium. Subdistant and slightly intervenose in age. Buff to orange white to pale ochre buff. Edges entire and minutely pruinose. **Stipe**: 4-6 cm long and ½ - 1 ½ mm thick. Terete, hollow, tapering towards base. Buff to pale brown at apex becoming orange brown to brown below. Sparsely pruinose at apex, then glabrous below. Fine rusty tomentum at base. **Odor & Taste:** Of garlic. **Substrate:** Clustered to gregarious on needle duff and old leaves. **Spores:** White, inamyloid. Ovate to amygdaliform, 8-10 x 4-4.5 µ. Q = 1.93. **Comment:** The above collection was found at Trout Lake, Washington. Unfortunately it wasn't retained. Needs sequencing for verification.



Rhodocollybia maculata var. *immutabilis*

Caps: 2 ½ - 3 ¼ cm wide, convex expanding to nearly plane in maturity, margins straight and even. Pale grayish cream with no color change upon drying. Surface slightly pruinose at first. Context thin. **Gills:** Broadly adnate, subdistant, thick. Grayish cream, not staining. Edges entire, not eroding in age. **Stipe:** 3 ½ - 5 cm long and ½ - 1 cm thick. Hollow, tapering towards apex. Grayish cream, streaked longitudinally striate. Some appressed white tomentum at base. **Odor:** Faintly sweet. **Taste:** Mild. **Substrate:** Gregarious on conifer duff. **Spores:** Deposit color not reported. Dextrinoid. Ellipsoid in profile, ovate in face view, 6.5-8 x 4-4.5 µ. **Comment:** Failed to sequence. Found near Steven's Pass, Washington in the fall.



Rhodocollybia maculata var. *nigra* – illustration by Joanne Lennox

Caps: 2 ¾ - 4 cm wide, plano-convex, shiny dark brown to black, unchanging when drying. Context thick, firm, rather tough. **Gills:** Emarginate, shallow, subdistant, thickish. Cream to peach color, neither spotted nor staining. Edges entire. **Stipe:** 7-7 ½ cm long and 1 ¼- 1 ½ cm thick. Enlarged at base and then radicating. White at apex, yellow below. Grooved striate in age. No rusty staining. Buried for half its length in much decayed wood. **Odor:** Sweet. **Taste:** Pleasant becoming bitter. **Substrate:** Cespitose on much decayed wood. **Spores:** Deposit color not reported. Dextrinoid. Ellipsoid, 7-8 x 4.5-5 µ. **Comment:** This strikingly colored *Rhodocollybia* failed to sequence. It was found at the Dalles campground in southern Washington in the fall.

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Glossary

acrid - sharp tasting, worse than peppery.

adnate - when the gills meet the stem at a right angle.

adnexed - when the gills are narrowly attached to the stem.

amygdaliform - almond shaped.

alkali - a solution consisting mainly of potassium hydroxide or ammonium hydroxide

amyloid - turning blue in Melzer's solution.

anastomosed - connected by a fusion of smaller cross gills.

apiculus - a short, sharp point at the basal end of a spore.

arcuate - gills that arch inwardly.

astringent - a taste causing the mouth to pucker.

benzaldehyde - aroma of peach kernels.

campanulate - bell shaped.

canescent - becoming densely covered with whitish or grayish down or becoming hoary.

carpophore - the whole fruiting body.

cartilaginous - tough, but breaking with a snap.

cespitose - growing in tufts or close clusters from a common base.

clavate - thick towards the base, club like.

compressed - of a stipe, elliptical to flattened in cross section.

context - flesh of cap or stem.

corticate - possessing a rind-like outer layer.

costate - grooved longitudinally.

crenulate - finely scalloped.

cyanophilous - readily absorbing a blue dye, like cotton blue.

cylindrical - evenly rounded.

dacryoid - tear shaped.

decurrent - gills that run down the stipe.

decurrent tooth - gills that have a small break below point of attachment and then run slightly down the sem.

decurved - when referring to a cap margin or scales means curved downward.

dextrinoid - staining reddish brown or yellowish brown in Melzer's solution.

emarginate - a kind of gill attachment where the gills are abruptly adnexed or sinuate with a notch near the stem.

endosporium - the innermost layer of the spore wall.

entire - smooth gill edges.

equal - the same diameter of a stipe throughout a length.

even - of a cap margin, means not lobed or wavy.

even - of a gill edge, means not toothed, eroded or fringed.

fibrillose - composed of delicate fibrils which are long and evenly arranged on the surface of cap or stipe.

fibrous - composed of tough string-like tissue.

filiform - thread-like.

fimbriate - minutely fringed gill edges.

fistulose - hollow.

flexuous - crooked, bent in different directions.

floccose - loose, cottony tufts on stem or cap.

frondose - pertaining to broadleaf trees.

furcate - forked.

fusiform - spindle shaped, narrowing from a thicker middle at both ends.

fusoid - also spindle shaped.

glabrous - smooth.

granulose - covered with granules.

gregarious - growing in company. Very social.

hyaline - colorless.

hygrophanous - cap surface changing color markedly as it dries, usually having a water soaked

appearance when wet and turning a lighter opaque color when drying.

inamyloid - remaining clear or turning yellowish in Melzer's solution.

intervenose - having veins in the spaces in between the gills.

isabelline - a dingy yellowish brown. The color of the undergarments of Queen Isabella of Spain, which were seldom changed.

KOH - potassium hydroxide, an agent commonly used to revive dried fungal material and expand microscopic features.

lacrymoid - tear-shaped.

lamellulae - the shorter gills that do not stretch all the way from stem to cap margin.

lobed - having rather large, rounded divisions of the cap margin.

lubricous - greasy, slippery, buttery or oily.

marcescent - able to revive when moistened in water after having been dried.

membranous - like a membrane, skin-like.

mycelium - a mass of hyphae or fungus filaments at the base of a stem.

nomen dubium - a dubious name, one of uncertain sense.

oblong - longer than wide but usually less than twice as long.

opaque - dull.

ovate - more or less egg shaped.

papillate - with a sharp nipple-like protrusion on the center of the cap.

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

pellicle - a cuticle that is viscid and peels easily.

plicate - pleated, folded like a fan.

pruina - superficial powder.

pruinose - looking finely powdered.

pseudorhiza - a long root-like extension of the stem base.

pubescent - covered with short, soft, downy hairs.

radicating - forming a root.

raphanoid - odor of radishes.

recurved - curved back, usually referring to a cap margin or cap scales.

reflexed - upturned cap margin.

revolute - pertaining to cap margin, rolled back or upwards.

rhizoid - hypha radiating from the stem base.

rhizomorphs - cord-like strands of twisted hyphae present around stem base.

rugose - coarsely wrinkled.

rugulose - finely wrinkled.

saprophytic - fruiting on dead organic matter.

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

seceding - gills separating from the stem in age.

serrate - saw-toothed, ragged.

serrulate - minutely serrate.

stipe - stem.

striate - lined or minutely furrowed.

strigose - long, coarse, thickish hairs on a stipe.

sub - a prefix denoting ‘nearly’ or ‘more or less’.

substrate - the material the fungus is growing on.

sulcate - grooved.

suprahilar depression - a smooth, rounded depression on the inner side of a spore.

taxon - a species.

taxa - more than one species.

terete - perfectly rounded like a PVC pipe.

tomentose - covered with soft hairs, often densely matted hairs like a woolen blanket.

tomentum - a covering of densely matted woolen hairs.

tuberculate - wart-like or knob-like swellings.

type - the actual mushroom upon which the species concept was founded.

umbilicate - a depression in the center of the cap.

umbo - a raised knob at the cap center.

umbonate - having an umbo.

uncinate - barely hooked decurrent.

undulate - wavy, usually referring to a cap margin.

ventricose - swollen in the middle., often referring to gills that hang down.

vinaceous - the color of wine stained cloth.

viscid - slimy when moist, sticky when dry.

zonate - marked with concentric bands of color.

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