Trial Field Key to **COPRINOID SPECIES** in the Pacific Northwest[[1]](#footnote-1)

Section Coprinus, Section Lanatuli and Section Atramentarii of Coprinus sensu lato

by Dr. Fred Van De Bogart 1981

New format, names in segregate genera, footnotes, and additional species

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COPRINELLUS, COPRINOPSIS, AND PARASOLA

In 1994, molecular research by Hopple, Vilgalys, and others suggested that *Coprinus* *comatus* (the shaggy mane) and *Coprinus sterquilinus* were not closely related to the vast majority of *Coprinus* species. This striking finding has since been confirmed by other researchers. Since *Coprinus comatus* is the species on which the genus is based, the other species needed to be moved to other genera according to the rules of International Code of Botanical Nomenclature (unless a special exception was made).

In 2001, Redhead, Vilgalys, Moncalvo, Johnson, and Hopple published an article in *Taxon* proposing that the remaining species be disposed among three genera: *Coprinellus*, *Coprinopsis*,and *Parasola*. The last was a proposed new genus, but the other two names had been used previously. The nomenclatural reasoning that the first two names were the correct ones was intricate. The story is told in less detail in Redhead's *McIlvainea* article (2000). These names became stabilized when a proposal to change the type of *Coprinus* from *Coprinus comatus* to *Coprinus atramentarius* was defeated in 2007. It should be noted however, that molecular data do not show a clear separation between *Coprinellus* and *Psathyrella*, and more changes are thus expected in future.

*Coprinopsis* are primarily the shaggy scaly species, where the scales fall off easily, or species with patches, or naked species without "hymeniform" cuticles (Redhead(2000)). They include the former *Coprinus atramentarius*, *Coprinus cinereus* and *Coprinus lagopides*[[2]](#footnote-2)*. Parasola* includes a small group related to the former *Coprinus plicatilis*. *Coprinellus* includes the former *Coprinus micaceus* and *Coprinus disseminatus*. The new names are given in the Index to this key, as outlined in the *Taxon* article mentioned above.

Should we use these new names? Redhead, in his 2000 *McIlvainea* article, answered this question. "Do we suggest that you run out and adopt these names immediately? No! Instead be conservative initially, especially in field guides." More than a decade has passed and the division of *Coprinus* appears to have withstood the test of time. It would seem in 2011 that it is reasonable to use the new names, but we have another problem. Many of the names used by Fred Van de Bogart have not yet been recombined into the new genera. Furthermore, his key was organized into sections of *Coprinus* which are no longer current. The original organization of the original key will be retained but the new names will be used where they have been changed.

Key to the sections of former *Coprinus* sensu lato

1a Pileal veil elements mostly filamentous in nature (handlens), sometimes adherent, the scales, patches or layer formed seldom with any mealy character, no pileocystidia or caulocystidia present (handlens) 2

1b Pileal veil elements mealy in nature (handlens) or lacking, never adherent, pileocystidia and caulocystidia may be present (handlens) 5

2a Veil sometimes of a partly mealy nature but always in part filamentous, usually abundant, often adherent and masking actual surface, a cortina sometimes present when young Section Picacei

2b Veil elements either abundant, filamentous in nature, and loose at maturity or scanty and adherent at maturity, no mealy character present 3

3a Veil elements sparse and adherent to the pileal surface and difficult to remove, some brown veil remnants on stipe base below a flaring annular zone

 Section Atramentarii p.12

3b Veil elements mostly abundant and either loose from the first or becoming loose as pileus matures, any veil remnants on stipe base white in color 4

4a Species with a conspicuous annulus or volva, rarely with pleurocystidia (handlens) Section Coprinus p.5

4b Species with no annulus or only an annular line or fringe marking the position of the unexpanded pileal margin on the stipe base, large pleurocystidia present

 Section Lanatuli p.8

5a (1b) Pileocystidia (handlens) present generally on the entire pileal surface or occasionally restricted to a marginal fringe on the edge of the pileus Section Setulosi

5b Pileocystidia not present 6

6a Universal veil present, species medium‑small to large in size Section Micacei

6b Universal veil not present, species small to medium in size Section Hemerobi

COPRINUS, Section COPRINUS

1a Stipe lumen without a weblike or yarnlike mass of loose hyphae inside

 *Coprinus arachnoideus*

**CAP** 1.8-3.0 cm, acorn-shaped; creamy white and becoming pale grey‑tan; veil somewhat scanty, weblike and adherent to pileal surface. **STIPE** 4.0-6.5 cm x 0.22-0.36 cm, lacks the characteristic yarnlike or weblike stuffing; white, glabrous; no annulus present and the volva reduced to a few bits of fibrillose tomentum at the base. **HABITAT** terrestrial.

1b Stipe lumen with a weblike or yarnlike mass of loose hyphae inside 2

2a Species lignicolous *Coprinus alnivorus*

**CAP** 2.0 cm, white, pale brown at apex, short acorn-shaped; veil thin and weblike with a few minute scales; at maturity only these scales persist on the blackened cap. **STIPE** 9.0 cm x 0.4-0.6 cm, with some loose hyphal webbing in the hollow center, surface smooth, white, glabrous; loose white membranous annulus present. **GILLS** large pleurocystidia present (handlens). **HABITAT** lignicolous.

2b Species coprophilous or terrestrial 3

3a Species inhabiting dry semidesert areas, not coprophilous 4

3b Species inhabiting moister climatic areas, sometimes coprophilous 5

4a Pileal universal veil remnant a single stellate patch *Coprinus asterophoroides*

**CAP** at first 2.0-3.0 cm, then 4.0-6.0 cm when mature, at first rounded then hemispherical and finally becoming campanulate, then plane; cap veil white even at maturity, very thick and feltlike, torn into a distinctive stellate patch which persists. **STIPE** 7.0-11.5 cm x 0.3-0.6 cm, hollow and stuffed with a distinct yarnlike strand which persists; smooth, glabrous, white at first, then blackening with maturity; volva reduced to appressed fibrils or occasional small scales on lower part of stipe; no bulbous volvate base present. **HABITAT** terrestrial in dry or desert areas.

4b Pileal universal veil remnant an irregular patch or several small patches

 *Coprinus xerophilus*

**CAP** 1.6-4.0 cm broad, short acorn-shaped to subglobose then becoming rounded, broadly campanulate and eventually revolute, the apex remaining domelike; white at first then blackening under the veil; veil thick and feltlike, white, in one cap-like piece or in several irregular patches or areolae. **STIPE** 4.0-7.5 cm x 0.25-0.6 cm, hollow with a loose webbing of hyphae stuffing it or occasionally with a slender yarnlike thread in the center; stipe base bulbous with a distinct volvate ridge on its upper surface. **HABITAT** terrestrial in dry or desert areas.

5a (3b) Species coprophilous, sporocarps 1.2‑3.8 cm long prior to expansion 6

5b Species not coprophilous, sporocarps 3.2‑25.4 cm long prior to expansion 8

6a Stipe becoming black at apex after expansion of pileus *Coprinus spadiceisporus*

**CAP** 3.0-3.8 cm long when young, 5.0-6.0 cm broad when mature; white when young, apex pale brown, soon entirely dark greyish brown, surface soon deeply plicate striate; pileal veil of small appressed scales, dingy or dirty white in color, loosening in age. **STIPE** 10.0-12.0 cm x 0.5-0.8 cm, hollow with a loose weblike mass of hyphae in it; white, smooth and glabrous except for a loose tomentum at the base, color soon darkens to light brownish over most of the length and darkens to almost black at the apex; annulus prominent, loose, white, felty in nature. **HABITAT** coprophilous on deer or rabbit dung.

6b Stipe not becoming black at apex 7

7a Stipe white at apex and pale umber at base *Coprinus umbrinus*

**CAP** 2.5‑3.5 cm long when young, acorn-shaped, creamy yellow at margin to umber at apex becoming dark grey; surface at first with many small scales, remaining so only at the apex in maturity. **STIPE** 6.0-15.0 cm x 0.2-0.8 cm, hollow, stuffed with a web of loose hyphae and a yarnlike hyphal strand; white at apex, umber at base; prominent, loose, flaring, submembranous annulus present which appears to be a volva margin dislodged and carried a short distance up the stipe. **HABITAT** coprophilous on horse dung in open pastures.

7b Stipe pink at apex and white at base *Coprinus roseistipitatus*

**CAP** 2.5-3.5 cm long when young, acorn-shaped becoming revolute and somewhat laciniate, pale brown at first then white with brown apex and finally black with whitish striations; surface at first covered with a smooth universal veil which becomes scaly; those scales become evanescent and in large part disappear. **STIPE** 11.5 cm x 0.4-0.65 cm, hollow, stuffed with a thin webbing of hyphae; silky glabrous surface, white at base, in maturity pale pinkish grey at apex, fading to grey when dried; annulus prominent, loose, becoming black on undersurface when mature; substrate covered with a thin but persistent white feltlike mycelium. **HABITAT** coprophilous on rabbit or deer dung in moist hardwood forest.

8a (5b) Stipe up to 50.5 cm long, sporocarps very large *Coprinus colosseus*

**CAP** 13.0-25.4 cm long when young, smaller as lysis proceeds, oblong‑oval becoming broadly campanulate and finally laciniate‑revolute; white at first with brownish tipped scales and brown apex, entire cap darkens with maturity. **STIPE** 35.0-50.5 cm x 1.5-2.5 cm, hollow, with a loose yarnlike thread of hyphae inside; white at first, then darkening as autolysis proceeds; often with rhizomorphs present in the soil at the base; annulus present usually, loose, white. **HABITAT** and **HABIT** terrestrial, on loose soil in brushy deciduous forest in clumps, rare.

8b Stipe up to 32.0 cm long, usually much shorter, sporocarps small to large 9

9a Individual scales of pileal universal veil very small and numerous, pileus size small, 3.0‑3.2. cm long *Coprinus palmeranus*

**CAP** 3.0-3.2 cm long, acorn-shaped, then becoming revolute; at first white with light brown apex soon becoming grey‑white with small scales of the universal veil, at maturity scales tend to become evanescent and vanish. **STIPE** 8.5 cm x 0.3-0.7 cm, hollow, stuffed with a loose webbing of hyphae, base bulbous with a slender subtending rhizomorph, white; annulus present, small, membranous, white. **HABITAT** terrestrial on clay soil in open grassy maple woods. **REMARKS** very similar to *C. comatus* but much smaller.

9b Individual scales of pileal universal veil large and small mixed, not as numerous, pileus size larger, 4.0‑12.0 cm long *Coprinus comatus*

**CAP** 4.0-12.0 cm long, at first ovate‑oblong, becoming campanulate and finally revolute or laciniate or both; at first white with brown tipped scales and apex, soon becoming black with dark brown scales and apex, the scales usually become somewhat evanescent and disappear in part as lysis proceeds. **STIPE** 7.5-19.0 cm x 0.35-2.1 cm, hollow, stuffed with a loosely interwoven yarnlike hyphal thread; base bulbous to abrupt; annulus membranous, large, loose, white, occasionally adheres to stipe base as volva. **HABITAT** terrestrial, widespread on lawns, roadsides, trails, compost heaps, etc.

COPRINUS Section LANATULI

1a Species coprophilous, on compost, or on decayed straw 2

1b Species terrestrial, lignicolous or carbonicolous 5

2a Universal veil of cap thin, weblike and adherent at maturity, sporocarps on compost *Coprinopsis undulata*

**CAP** at first 1.0‑3.1 cm long, becoming 1.0‑3.4 cm wide, long acorn-shaped, then campanulate, at first covered with white to pale tan universal veil, surface pale brown to hygrophanous brown at the apex, becoming dark hygrophanous grey with a brownish tint and dark brownish grey at the apex, becoming slightly plicate‑striate. **STIPE** 2.0‑6.0 cm x 0.15‑0.6 cm, hollow with loose hyphae in upper half of the lumen, white, surface smooth, silky and glabrous, small patches of universal veil at the base in button stages. **SPORE DEPOSIT** soot black. **HABIT** and **HABITAT** on compost in large clusters.

2b Universal veil of cap thick, of scales that become very loose at maturity, sporocarps on dung or on wet decayed straw 3

3a Stipe base terminating abruptly into loose mycelium at the substrate surface

 *Coprinus fimetarius[[3]](#footnote-3)*

**CAP** at first 0.2-3.0 cm long, becoming 0.3‑2.4 cm wide, long acorn-shaped, becoming campanulate and eventually revolute; at first greyish white greyish brown with white universal veil [sic], then darkening with age but remaining brown at the apex; cap veil breaks up into loose, somewhat upturned scales. **STIPE** 1.5‑15.0 cm x 0.05‑0.4 cm, hollow, base often slightly enlarged and with a faint annular or volvate zone near the base; surface white, mostly smooth and glabrous. **SPORE DEPOSIT** soot black to deep purplish black or deep brownish black. **HABITAT** coprophilous or on rotting hay or straw.

3b Stipe base terminating in a long tapering usually solid radicating process which is often inserted deeply into the substratum 4

4a Spores 12.5‑15.4 um long *Coprinus macrorhizus* var. *macrorhizus[[4]](#footnote-4)*

**CAP** at first 1.0‑3.6 cm long, becoming 1.5‑4.0 cm wide at maturity, acorn-shaped, then campanulate and eventually revolute; at first white to grey‑white with pale brown or yellow‑brown apex overlain by white universal veil, eventually dark grey to dark grey‑brown at the apex; veil breaks up into loose small scales; some plicate striation develops; surface of the cap lubricous when fresh. **STIPE** 6.0-23.5 cm x 0.1‑0.65 cm, up to 8.0 cm or even more of the stipe length may consist of a radicating pseudorhiza penetrating into the substrate, stipe hollow but rooting base solid with little or no lumen, base somewhat enlarged; stipe surface white, glabrous to thinly fibrillose. **SPORE DEPOSIT** soot black to dark brownish black. **HABITAT** coprophilous or on rotting hay or straw.

4b Spores 7.5‑11.2 um long *Coprinus macrorhizus* var. *microsporus*

As described in *C. macrorhizus* var. *macrorhizus* except that the spores are smaller (7.5-11.2 x 5.0-6.9 um) and the cap apex is yellowish.

5a (1b) Universal veil feltlike or thin and arachnoid (weblike), usually somewhat adherent, breaking into irregular patches 6

5b Universal veil of parallel filaments, usually breaking up into small loose scales or somewhat adherent shredlike remnants 8

6a Species lignicolous, universal veil white *Coprinopsis bubalina[[5]](#footnote-5)*

**CAP** at first 1.0-3.5 cm long, becoming eventually 3.0-6.0 cm wide, rounded oblong at first, becoming campanulate then somewhat revolute; at first covered with white universal veil, but soon revealing a honey-colored, yellow‑tan to light ochre surface, apex of similar color, entire cap blackens at maturity, some plicate striation present; cap flesh buff colored. **STIPE** 1.5‑8.0 cm x 0.4‑1.4 cm, hollow but pithy; whitish buff and bruising tan; surface faintly pruinose, small evanescent remnants of universal veil present near the base. **SPORE DEPOSIT** black. **HABITAT** and **HABIT** lignicolous, on walnut and mulberry slash; solitary to clustered.

6b Species terrestrial, universal veil pale tan to brown 7

7a Cap apex dark greyish brown and becoming almost black at maturity, no annular line at base of stipe *Coprinopsis brunneistragulata*

**CAP** at first 2.0-2.5 cm long, becoming 4.0-6.0 cm wide, ovate, becoming campanulate and finally revolute; at first dark gray with lighter grey universal veil patches and dark greyish brown at the apex, becoming darker grey and brownish black at the apex; some plicate striation present. **STIPE** 10-12 cm x 0.2-0.5 cm, hollow, base nearly abrupt; white or faintly greyish, surface somewhat fibrillose. **SPORE DEPOSIT**brownish black. **HABITAT** and **HABIT** terrestrial, in lawns; solitary. **REMARKS** Autolysis is usually incomplete.

7b Cap apex light brown and becoming medium brown at maturity, faint annular ring present at base of stipe *Coprinopsis alutaceivelata*

**CAP** at first 1.0-2.0 cm long, becoming 1.7-2.9 cm wide, acorn-shaped, becoming campanulate; at first tan with universal veil, apex under the veil is medium brown, at maturity cap surface is yellow-brown and apex is brown; surface eventually plicate‑striate. **STIPE** 1.0‑2.5cm x 0.2‑0.3 cm, hollow; faint annular or volval ring present at the base; white, surface glabrous and silky. **SPORE DEPOSIT**soot black. **HABITAT** and **HABIT** terrestrial, on soil and conifer needle duff; loosely clustered.

8a (5b) Universal veil reddish or almost black 9

8b Universal veil. hyaline or very pallid except at cap apex 10

9a Universal veil remnants almost black, autodigestion restricted to the gill margin, on decaying sticks *Coprinopsis marcida[[6]](#footnote-6)*

**CAP** at first 0.4-0.5 cm long, becoming 1.0 cm wide, acorn-shaped becoming conic, then plano‑convex and finally revolute; at first pale grey or white under a dark grey to greyish black universal veil, becoming pale grey with white striae and dark grey at the apex; becomes deeply plicate‑striate **STIPE** 3.5 cm x 0.06‑0.11 cm, hollow but filled with water, pale grey to translucent straw color, upper surface glabrous, lower surface covered with coarse strigose grey fibrils. **SPORE DEPOSIT** soot black. **HABITAT** and **HABIT** lignicolous in conifer woods on moss-covered wood; solitary. **REMARKS** Autolysis is incomplete: only the gill margins are affected.

9b Universal veil remnants sparse, reddish brown in color, autodigestion lyses most of the pileus, on soil mixed with brown cubical rotted wood *Coprinopsis sylvicola*

**CAP** at first 1.5-2.0 cm long, becoming 1.8‑2.3 cm wide, long and almost cylindrical at first, becoming conic, then campanulate and finally revolute; at first medium grey and medium grey‑brown at the apex, becoming generally dark grey and dark grey‑brown at the apex; universal veil sparse, composed of minute reddish brown scales or filaments; some plicate striation present. **STIPE** 7.0‑9.0 cm x 0.15-0.25 cm, hollow, greyish to dirty white, surface mostly smooth, some appressed scale‑like patches on the lower one‑third. **SPORE DEPOSIT** soot black. **HABITAT** and **HABIT** terrestrial or sublignicolous, on leaves and debris among chunks of rotten conifer wood in a mixed forest; small loosely clustered groups.

10a (8b) Cap surface either with no plicate striation or with very little, on sawdust and wood chips *Coprinopsis pachyderma*

**CAP** at first 0.8-1.1 cm long, becoming 1.8‑2.2 cm wide, acorn-shaped, becoming conic, then campanulate and finally revolute and laciniate; at first pale grey‑white and medium brown at the apex, becoming generally darker with maturity; surface faintly striate but with little development of plicate striation; universal veil loose and composed of hyaline to pale brown fibrous scaly remnants; if fresh, small glistening drops present. **STIPE** 6.0‑8.5 cm x 0.2‑0.3 cm, hollow, white, surface silky to slightly wooly at the apex, becoming increasingly wooly towards the base. **SPORE DEPOSIT** soot black. **HABITAT** and **HABIT** lignicolous on wood chips and sawdust; loose groups.

10b Cap surface with noticeable plicate striation and often deeply so, terrestrial or lignicolous 11

11a Autodigestion consumes only about half of each gill, the remainder either drying or petrifying, on greenhouse soil mixtures *Coprinopsis tectispora*

**CAP** at first 1.0-1.4 cm long, becoming 1.0 as wide, long acorn-shaped, becoming conic, then campanulate and finally revolute; at first white, then grey with white veil scales and apex becoming dark grey; finely plicate‑striate; scales of the universal veil become recurved and loose at maturity. **STIPE** 4.0‑5.0 cm x 0.15‑0.3 cm, hollow, white, enlarged at the base and somewhat inserted into the substrate, base with annular zone of fibrils, surface minutely fibrillose. **SPORE DEPOSIT** deep purplish black. **HABITAT** and **HABIT** terrestrial on greenhouse soil; solitary or in loose clusters.

11b Autodigestion of cap complete or nearly so, on soil, litter, wood or woody debris or on charcoal

 12

12a Cap short acorn-shaped when young 13

12b Cap long acorn-shaped when young 14

13a Basidia four-spored, on soil or wood *Coprinopsis lagopides* var. *lagopides*

**CAP** at first 1.5‑3.0 cm long, becoming 3.0‑5.5 cm wide, short acorn-shaped at first, becoming conic, then campanulate and finally revolute; at first pale greyish white to pale brown with concolorous apex, becoming grey to dark brownish grey and dark brownish grey to almost black at the apex; cap surface becomes plicate‑striate very early; veil soon breaks up into small loose hyaline to white scales. **STIPE** 8-15 cm x 0.25‑0.5 cm, hollow, white, surface glabrous or with small fragments of hyphae scattered along it or with small white to pale brown patches on or near the base. **SPORE DEPOSIT** dark brown to soot black. **HABITAT** and **HABIT** terrestrial to seemingly lignicolous on soil, woody debris or on rotting maple stumps; solitary or in small groups.

13b Basidia three-spored, on burnt soil of charcoal *Coprinopsis lagopides* var. *trispora[[7]](#footnote-7)*

As described in C. *lagopides* var. *lagopides* except that the basidia are mostly three-spored and the habitat is recently burned soil and charred debris.

14a (12b) Spores with normal. rounded wall in suprahilar area, no suprahilar depression present *Coprinopsis cinerea* var. *cinerea[[8]](#footnote-8)*

**CAP** at first 1.5-3.5 cm long, becoming 2.0-6.0 cm wide, long acorn-shaped at first, becoming conic, then campanulate and finally campanulate and laciniate; at first white to pale brown and darker brown at apex under a white universal veil layer, becoming dark grey to grey-brown, the veil becoming very small loose scales; striate from the first and becoming deeply plicate-striate. **STIPE** 5.0-18.0 cm x 0.17-0.7 cm, hollow, often enlarged at the base; white; surface glabrous, sometimes with strigose wooly fibrils at the base. **SPORE DEPOSIT** deep brownish black to soot black. **HABITAT** and **HABIT** lignicolous to seemingly terrestrial (from buried wood ?), on soil, forest litter, wood chips, hardwood sticks, twigs, and stumps; solitary or loose clusters.

14b Spores with a pronounced suprahilar depression *Coprinopsis cinerea* var. *depressa[[9]](#footnote-9)*

As described for *C. cinereus* var. *cinereus* except that the spores have a conspicuous suprahilar depression.

COPRINUS Section ATRAMENTARII

1a Cap with prominent brownish striations, but no plicate-striations *Coprinopsis striata*

**CAP** at first 2.0-2.8 cm long becoming 3.0-4.0 cm wide, at first ovate, then conic, then campanulate, and finally revolute, always umbonate; creamy pale tan with prominent radially oriented brown striations from apex to margin, apex brown; no plicate‑striation; no superficial evidence of a veil. **STIPE** 8.0‑10.0 cm x 0.24-0.55 cm, hollow, narrow at base, enlarging to maximum diameter about 1/3 of the way up, white with a few small brown scales on the lower 1/3. **SPORE DEPOSIT** deep brownish black. **HABITAT** and **HABIT** terrestrial, on duff in coniferous forest; solitary or in small groups.

1b Cap with no prominent brownish striations, but sometimes with small plicate-striations 2

2a Cap apex prominently depressed *Coprinopsis depressiceps*

**CAP** at first 2.5.3.5 cm becoming 3.0‑4.5 cm wide, at first subglobose, then rounded conic, center of cap depressed at apex; grey‑brown to dark grey‑brown at the apex, with a few small bits of brown fibrils; no plicate‑striation. **STIPE** 8.0‑10.0 cm x 0.4‑0.9 cm, hollow, long and slender, tapering towards base and apex from the enlarged middle, base rooted deeply into substratum; white above the middle and white with small brown appressed scales below the middle; a small ring‑like flange present on the enlarged middle portion. **SPORE DEPOSIT** dark brownish black. **HABITAT** and **HABIT** terrestrial or sublignicolous, on soil around willow trees; solitary or in small clusters.

2b Cap apex plane or umbonate 3

3a Spores broadly ovate-ellipsoidal to subglobose *Coprinopsis pinguispora*

**CAP** at first 3.5-4.0 cm long, becoming 3.0-4.0 cm wide, at first broadly conic-ovate, then spreading conic, never revolute; grey-brown to brown at the apex and eventually becoming entirely dark sordid brown; no plicate-striation and only a few small brown adherent fibrillose scales. **STIPE** 7.0-11.0 cm x 0.4-0.8 cm, hollow, broadest at a point 1/3 of the way up; white except for a few brownish adherent scales on the lower third; a narrow ring-like flange present on the enlarged portion of the stipe. **SPORE DEPOSIT** dark brown. **HABITAT** sublignicolous on clay soil at the base of alder trees.

3b Spores ellipsoidal or narrowly ellipsoidal, never subglobose 4

4a Cap apex rounded, flattened, or truncate, never umbonate, veil scanty

 *Coprinopsis atramentaria* var. *atramentaria*

**CAP** at first 2.0-6.5 cm long, becoming 3.0-8.0 cm wide, shape variable at first, globose, subglobose, short acorn‑shaped, ovate, later becoming subconic, then broadly rounded conic and often finally revolute or laciniate, never umbonate; light grey‑tan and medium brown at apex at first, becoming darker and then blackening prior to lysis; poorly developed plicate‑striation sometimes present, surface varies from smooth and glabrous to partially covered with small brown appressed scales. **STIPE** 3.0-17.5 cm x 0.25‑1.0 cm, hollow, slightly enlarged about 1/3 of the way up, a ring‑like flange present on this enlarged area; white above the enlarged area and white with small brown appressed scales below it. **SPORE DEPOSIT** deep brownish black. **HABITAT** and **HABIT** terrestrial or sublignicolous or even lignicolous and most often found near or on well rotted wood. Solitary to densely caespitose. **REMARKS** Large pleurocystidia are visible (with a handlens) between the gills.

4b Cap apex either umbonate or veil abundant and forming areolate patches 5

5a Cap apex umbonate, veil scanty *Coprinopsis atramentaria* var. *acuminata[[10]](#footnote-10)*

As described in *C. atramentaria* var. *atramentaria* except that there is a prominent umbo on cap..

5b Cap apex not umbonate, veil thick and often forming areolate patches

 *Coprinopsis atramentaria* var. *crassivelata[[11]](#footnote-11)*

As described in *C. atramentaria* var. *atramentaria* except that the universal veil is much more abundant and breaks up into areolate patches on the cap surface

COMMON COPRINOID SPECIES NOT INCLUDED IN KEY

Dr. Van De Bogart treated only the Sections Coprinus, Lanatuli, and Atramentarii of the former Coprinus sensu lato in his key. There are numerous other species, but the following are commonly encountered and recognizable. Descriptions are derived from Smith(1949), Moser(1983), Arora (1986), Phillips(1991), Hansen et al.(1992), and Breitenbach & Kränzlin(1995).

Incidentally, microscopic details of the species Dr. Van De Bogart treated in his key are available in his articles from *Mycotaxon* given in the References, or from the CD "MatchMaker: Mushrooms of the Pacific Northwest." The latter also contains descriptions of some other less commonly identified species of *Coprinus* (in the wide sense) that are not included in this key.

*Coprinellus disseminatus* (Pers.: Fr.) J.E. Lange

This species has been called little helmet, fairy bonnet, or crumble cap. It is included in Section Setulosi. Features include small size, delicate consistency, pale colors when young, translucent pleated cap, failure to deliquesce, growth in crowded troops, and black spore deposit. Microscopically there are elliptic spores, cheilocystidia are rare to scattered, and the cap surface has large pileocystidia. **CAP** 0.5-1.0(1.5) cm across, bluntly conic becoming bell-shaped, then sometimes convex; whitish or buff with honey-brown center, becoming more grayish toward margin when old; deeply striate or pleated to center and translucent when mature, pruinose to minutely scurfy when young; flesh very thin and fragile. **GILLS** adnate to adnexed, readily seceding, 16-20 reaching stipe; broad; at first white but soon ash-gray, finally black or slightly paler; not deliquescing. **STIPE** 1.5-4 cm x 0.05-0.2 cm, thin, equal, hollow, very fragile, often curved; white or buff; with minute hairs at first, becoming smooth. **HABIT** and **HABITAT** in large dense groups (sometimes hundreds), on or near stumps or decayed wood or debris, or on buried wood, usually in woods or grassy areas. **SPORE DEPOSIT** dark brown to blackish. **MICROSTRUCTURES** spores 7-10 x 4-5 um, elliptic; basidia 4-spored, trimorphic; pleurocystidia none, cheilocystidia rare to scattered, clavate to saccate, 60-80 x 10-20 um, occasionally fusoid-ventricose and similar to pileocystidia, paraphyses 10-12 x 8-11 um; large pileocystidia 100-215 x 10-20 um with rounded apices and cylindric above a slightly ventricose base; caulocystidia more or less similar to pileocystidia and readily collapsing; clamp connections not seen. **REMARKS** Other species in Section Setulosi (with pileocystidia best seen at the youngest stages) occur in the Pacific Northwest. One of them, *Coprinellus impatiens* (now *Tulosesus impatiens*),is described below. According to Arora, *Coprinellus impatiens* differs in being slightly larger with crowded, at least somewhat deliquescent gills, and in occurring usually in smaller groups of up to twelve.

*Tulosesus impatiens* (Fr.) D. Wächt. & A. Melzer

Features include a small orange-brown to grayish beige pleated cap which dries whitish, gills which deliquesce slowly, a whitish stipe, growth in leaf litter, and black spore deposit. Microscopically there are elliptic spores and abundant cheilocystidia and the cap surface has pileocystidia. **CAP** 1-4 cm across, ovoid to bluntly conic when young, becoming broadly bell-shaped or convex or remaining bluntly conic, occasionally with small obtuse umbo; hygrophanous, yellowish to dark honey-color, fading as it dries to gray-beige or whitish, becoming gray-brown to sooty in moist condition but fading to whitish; moist, pleated-striate to the disc, disc a translucent zone when fresh and moist; flesh thin, fragile. **GILLS** deliquescing slowly if at all, ascending adnate but readily seceding, broad, 25-31 reaching stipe; light yellowish at first, becoming blackish brown; edges whitish-fringed. **STIPE** 2-10 cm x 0.1-0.4 cm, equal or nearly so, hollow, fragile to moderately pliant; pallid dingy yellowish to grayish, becoming whitish when old; surface very slightly pruinose or downy or fibrillose and appearing dull to satiny. **HABITAT** on foliage or leaf litter, often in small groups of up to twelve. **SPORE DEPOSIT** black. **MICROSTRUCTURES** spores 8.5-11 x 5-7 um, elliptic, smooth, distinct apical pore; basidia 4-spored, trimorphic; paraphyses, 18-20 x 10-15 um, inflated, colorless, pleurocystidia none, cheilocystidia abundant, 43-68 x 10-15 um (according to Smith(1949), but Moser (1983) says between 70 and 90 um), colorless, thin-walled, fusoid-ventricose, apices acute; pileocystidia scattered, 40-100 x 9-15 um, fusoid-ventricose, colorless above ventricose part, below with the wall thickened and pale tawny in some, colorless in others; caulocystidia abundant, similar to pileocystidia except that their walls are thin and colorless throughout; clamp connections not seen. **REMARKS** *Coprinellus impatiens* (Fr.) J.E. Lange was moved along with other species in Section Setulosi to *Tulosesus* as a result of molecular research. ‘Tulosesus’ is an anagram of ‘Setulosus’.

*Coprinellus micaceus* (Bull.: Fr.) Vilgalys, Hopple & Jacq. Johnson

This species is sometimes called the glistening inky-cap or the mica-cap, in reference to the fine shiny mica-like particles that are appear to be sprinkled on the fresh cap. It is included in the Section Micacei. Other features include a tan to rusty-yellow striate cap, pallid gills which soon become gray or brownish, then black, slender white stipe, gregarious growth on dead wood, and dark brown to black spore deposit. Microscopically there are elliptic to miter-shaped spores, cheilocystidia and pleurocystidia. **CAP** 1-4cm high, 1.5-5 cm across when expanded, ovoid becoming bell-shaped, then expanding to convex; tan to yellow-brown, orange-brown, or cinnamon-brown (margin often paler), becoming grayer when old; surface sprinkled at first with minute glistening whitish particles which often disappear when old, striate at least halfway to center, margin usually split when mature; flesh thin, soft, whitish to olive-brown. **GILLS** adnate to adnexed or free; broad; 52-80 reaching stipe; whitish soon becoming gray or brownish, finally black, deliquescing partly or completely; edges whitish-fringed. **STIPE** 3-8(12) cm x 0.2-0.6 cm, equal or nearly so, fragile, hollow, white or discoloring buff; pruinose; sometimes a slight basal ring present. **HABITAT** in clusters on stumps, roots, rotting woody debris, or buried wood. **SPORE DEPOSIT** dark brown to black. **MICROSTRUCTURES** spores 6.5-11 x 4-6.3 um, elliptic to miter-shaped, smooth, often flattened somewhat, truncate from a central germ pore; basidia 4-spored, 22-31 x 6-10 um; pleurocystidia 70-100 x 50-70 um, vesicular to elliptic, cheilocystidia 20-90 x 20-75 um, vesicular to clavate; veil on the cap surface of spherical cells, in part brownish, encrusted or thick-walled, only occasional septa with clamps; setae on stipe apex. **REMARKS** The smaller *Coprinellus disseminatus* is somewhat similar in appearance but is translucent. *Coprinopsis atramentaria* is fleshier with thicker stipe, grayish cap, and gills that turn lavender-gray then black.

*Coprinopsis nivea* (Pers.) Redhead, Vilgalys & Moncalvo

**CAP** 1.5-4cm across, 2-3.5cm high, somewhat cylindric then conic-bellshaped, later flattened with margin curved up or down; completely covered at first with snow-white, powdery to hairy-floccose veil, cap center often cream to pale ochraceous, toward margin becoming grayish and striate; flesh thin thin and membranous. **GILLS** free or adnexed, broad, white becoming black, edge white-fringed. **STEM** 5-12 cm x 0.2-0.8 cm, widening slightly downwards with base somewhat thickened, hollow, fragile, white-mealy on a whitish background. **HABITAT** single or a few together; on dung of horses and cattle. **SPORE DEPOSIT** very dark brown to black. **MICROSTRUCTURES** spores 12-19.0 x 10-15 x 7.5-11 microns, lemon-shaped in face view, elliptic in side view; basidia 4-spored. basidia 4-spored, 25-40 x 12-16 microns, surrounded by 5-7(8) pseudoparaphyses; pleurocystidia abundant, 50-150 x 25-65 microns, ovoid to ellipsoid or vesiculose, cheilocystidia 30-80 x 15-50 microns, similar to pleurocystidia; veil made up of nearly spherical elements 28 to 100 microns wide; clamp connections sparse, probably just pseudoclamps **REMARKS** *Coprinopsis nivea* is characterized by the very large spores which are lemon-shaped in face view and elliptic in side view. Other features include its snow-white color due to a mealy-powdery veil (composed of spherocysts) that can be wiped off, white gills that turn black, slender white stem, and growth on cow patties and horse manure.

*Parasola plicatilis* (Curtis: Fr.) Redhead, Vilgalys & Hopple

This species is sometimes called the pleated inky-cap or Japanese parasol. It is included in the Section Hemerobi. Features include delicate pleated cap, narrow gills attached to a collar at the stipe and tending to wither rather than deliquesce, and growth on ground. Microscopically, there are elliptic to miter-shaped or lens-shaped spores, cheilocystidia and pleurocystidia. **CAP** 0.5-1.5 cm high, 1-3 cm across when expanded, oval or cylindric to conical when young, broadly convex or flat when old or with uplifted margin; buff to yellow-brown, usually with darker disc-shaped center, when old becoming grayish except for center; deeply grooved (pleated) nearly to center, no veil remnants; flesh very thin, fragile. **GILLS** free but attached to a collar around stipe top, 30-44 reaching stipe, narrow to broad; soon gray and eventually black, but tending to wither rather than liquefy. **STIPE** 3-7.5 cm x 0.1-0.3 cm, equal or nearly so, small bulb at base, hollow, very fragile, smooth, white or buff. **HABITAT** solitary, scattered or in small groups in grass, in woods, along paths etc. **SPORE DEPOSIT** black. **MICROSTRUCTURES** spores 10-13 x 6-10 um, elliptic to miter-shaped or lentiform (lens-shaped), smooth, with eccentric germ pore; basidia 4-spored, 25-40 x 11-16 um; pleurocystidia 70-125 x 20-35 um, cylindric to ventricose, cheilocystidia 35-60 x 16-25 um, lageniform to clavate or vesicular; cap cuticle of vesicular cells 25-40 x 14-25 um, some septa with clamps. **REMARKS** *Coprinellus* *disseminatus* is smaller, occurs in larger numbers, and is easy to distinguish microscopically. Many other Coprinoid species have cap patches or hairs.

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GLOSSARY

annular - resembling a ring or referring to a ring, as in an annular zone on stem

annulus - ring on stem

areola (plural areolae) - small area bounded by cracks

areolate - with a pattern like dried cracked mud

autodigestion - self-digestion

autolysis - self-digestion

caespitose - growing in close groups or close clusters or tufts (may be from a common base, but stems not joined together)

carbonicolous - growing on burned ground

clavate - like a caveman's club; when used of cystidia, implies that the part that extends outward beyond the hymenium is thicker

coprophilous - growing on dung

cuticle - the cap skin or surface layer of cells

deliquesce - melt into liquid

deliquescent - melting into a liquid

equal - of a stem, the same diameter throughout its length

evanescent - soon disappearing, fleeting

glabrous - bald, without hairs or raised fibers or scales or raised patches

globose - spherical, like a globe

hyaline - colorless

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

hymeniform - resembling a hymenium (spore-bearing surface) in form

inflated - enlarged in some part

laciniate - of cap, cut into radial bands at the margin

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

lignicolous - living in, on, or out of wood

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

obtuse - blunt, not pointed; greater than a right angle

paraphysis (plural paraphyses) - in *Coprinus*, flattened broad sterile cells between the basidia, to be distinguished from cheilocystidia and pleurocystidia which are longer in relation to their width

pileal - pertaining to the cap (pileus)

pileocystidium (plural pileocystidia) - sterile cell on the surface of the cap

pileus - cap of a mushroom

plane - having a flat surface

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

pruinose - looking finely powdered or finely granular

pseudorhiza - a long rootlike extension of the lower stem

radicating - forming a root

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

revolute - rolled back: when used of cap, means rolled back upward

rhizomorph - cordlike strand of twisted hyphae present around base of stem

saccate - shaped like a sac

scurfy - surface covered with branlike particles resembling scales

seceding - refers to gills that have separated in their attachment to the stem and have the appearance of being free

seta (plural setae) - pointed, elongated, thick-walled sterile cells

sordid - dingy-looking

sporocarps - fruiting bodies

stellate - star-shaped

strigose - having long stiff hairs

sub- - prefix meaning nearly, more or less, somewhat, slightly

terrestrial - appearing to grow from the ground, or on the ground, as opposed to growing on wood

tomentum - a covering of densely matted woolly hairs

trimorphic - of three forms

um - one thousandth of a millimeter, same as micron

ventricose - wider in the middle

vesicular - of cystidia, with entire cell swollen or appearing inflated like a large sac or bladder (vesicle), with only the base abruptly tapered

INDEX OF INCLUDED SPECIES

(alphabetically by species epithet)

 Coprinus alnivorus Bogart Sec. Coprinus **- 2a** **5**

 Coprinopsis alutaceivelata (Bogart) Redhead, Vilgalys & Moncalvo

 Sec. Lanatuli - **7b** **9**

 synonym - Coprinus alutaceivelatus Bogart

 Coprinus arachnoideus Bogart Sec. Coprinus **- 1a** **5**

 Coprinus asterophoroides Bogart Sec. Coprinus **- 4a** **5**

 Coprinopsis atramentaria (Bull.: Fr.) Redhead, Vilgalys & Moncalvo

 Sec. Atramentarii **- 4a** **12**, 14

 synonym - Coprinus atramentarius (Fr.) Fr.

 Coprinopsis atramentaria var. acuminata Sec. Atramentarii **- 5a** **13**

 Coprinopsis atramentaria var. crassivelata Sec. Atramentarii **- 5b** **13**

 Coprinopsis brunneistragulata (Bogart) Redhead, Vilgalys & Moncalvo

 Sec. Lanatuli - **7a** **9**

 synonym - Coprinus brunneistragulatus Bogart

 Coprinopsis bubalina (Bogart) Redhead, Vilgalys & Moncalvo

 Sec. Lanatuli - **6a** **9**

 synonym - Coprinus bubalinus Bogart

 Coprinopsis cinerea (Schaeff.: Fr.) Redhead, Vilgalys & Moncalvo

 Sec. Lanatuli - **14a** 3, **11**

 synonym - Coprinus cinereus (Schaeff.: Fr.) S.F.Gray

 Coprinopsis cinerea var. depressa Sec. Lanatuli - **14b** **11**

 Coprinus colosseus Bogart Sec. Coprinus **- 8a** **6**

 Coprinus comatus (O.F. Müll.: Fr.) Pers. Sec. Coprinus **- 9b** 3, **6**

 Coprinopsis depressiceps (Bogart) Redhead, Vilgalys & Moncalvo

 Sec. Atramentarii **- 2a** **12**

 synonym - Coprinus depressiceps Bogart

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 Coprinus fimetarius Linn. per Fr. Sec. Lanatuli - **3a** **8**

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 Coprinellus impatiens (Fr.) J.E. Lange

 Pseudocoprinus impatiens (Fr.) Kühner

 Coprinopsis lagopides (P. Karst.) Redhead, Vilgalys & Moncalvo

 . Sec. Lanatuli - **13a** 3, **11**

 synonym - Coprinus lagopides P. Karst.

 Coprinopsis lagopides var. trispora Bogart Sec. Lanatuli - **13b** **11**

 Coprinopsis lagopus (Fr.: Fr.) Redhead, Vilgalys & Moncalvo 3

 synonym - Coprinus lagopus (Fr.) Fr.

 Coprinus macrorhizus Pers. per Rea Sec. Lanatuli - **4a** 3, **8**

 Coprinus macrorhizus var. microsporus (Hongo) Bogart Sec. Lanatuli - **4b** **9**

 Coprinopsis marcida (Bogart) Redhead, Vilgalys & Moncalvo

 Sec. Lanatuli - **9a** **10**

 synonym - Coprinus marcidus Bogart

 Coprinellus micaceus (Bull.: Fr.) Vilgalys, Hopple & Johnson 3, **14**

 synonym - Coprinus micaceus (Fr.) Fr.

 Coprinopsis nivea (Pers.) **14**

 synonym - Coprinus niveus (Pers.) Fr.

 Coprinopsis pachyderma (Bogart) Redhead, Vilgalys & Moncalvo

 Sec. Lanatuli - **10a** **10**

 synonym - Coprinus pachydermus Bogart

 Coprinus palmeranus Bogart Sec. Coprinus **- 9a** **6**

 Coprinopsis pinguispora (Bogart) Redhead, Vilgalys & Moncalvo

 Sec. Atramentarii **- 3a** **12**

 synonym - Coprinus pinguisporus Bogart

 Parasola plicatilis (Curtis: Fr.) Redhead, Vilgalys & Hopple 3, **14**

 synonym - Coprinus plicatilis (Fr.) Fr

 Coprinus roseistipitatus Bogart Sec. Coprinus **- 7b** **6**

 Coprinus spadiceisporus Bogart Sec. Coprinus **- 6a** **5**

 Coprinopsis striata (Bogart) Redhead, Vilgalys & Moncalvo

 Sec. Atramentarii **- 1a** **12**

 synonym - Coprinus striatus Bogart

 Coprinopsis sylvicola (Bogart) Redhead, Vilgalys & Moncalvo Sec. Lanatuli - **9b** **10**

 synonym - Coprinus sylvicola Bogart

 Coprinopsis tectispora (Bogart) Redhead, Vilgalys & Moncalvo

 Sec. Lanatuli - **11a** **10**

 synonym - Coprinus tectisporus Bogart

 Coprinus umbrinus Cke. & Massee sensu Rea Sec. Coprinus **- 7a** **6**

 Coprinopsis undulata (Bogart) Redhead, Vilgalys & Moncalvo Sec. Lanatuli - **2a** **8**

 synonym - Coprinus undulatus Bogart

 Coprinus xerophilus Bogart Sec. Coprinus **- 4b** **5**

- END -

1. The key, written for the Pacific Northwest Key Council by Dr. Van De Bogart as “Trial Field Key to Coprinus”, is based on work done in partial fulfillment of PhD requirements at the University of Washington and published in *Mycotaxon* (see References). The *Mycotaxon* articles refer to “THE GENUS COPRINUS IN WESTERN NORTH AMERICA” with an article on each of the sections Coprinus, Lanatuli, and Atramentarii, and include two species not found in British Columbia, Washington, Oregon, or Idaho, those now named *Coprinopsis bubalina* (Montana) and *Coprinopsis marcida* (California). [↑](#footnote-ref-1)
2. Dr. Van de Bogart does not include *Coprinus lagopus* in his key to species of the Section Lanatuli in western North America. In *Mycotaxon* 8: p.283, he notes when discussing *C. fimetarius*, "Confusion over the identity and name of this species and *C. macrorhizus*, *C. lagopus*, and *C. cinereus* apparently has existed since the earliest attempts at solving the taxonomy of these similar-appearing fungi." In the 2001 *Taxon* article referred to above, the names *Coprinus fimetarius* and *Coprinus macrorhizus* are not among those recombined.

Incidentally, although *Coprinopsis* has the feminine gender, "lagopus" is a noun and therefore does not change form to agree with the genus name. The proposed new name is *Coprinopsis lagopus*, while *Coprinopsis atramentaria* and *Coprinopsis cinerea* reflect the feminine gender of the genus. [↑](#footnote-ref-2)
3. A notable feature of *Coprinus fimetarius* is dung habitat, but the name *Coprinus fimetarius* has been used for *Coprinopsis lagopus* (Fr.) Fr. which may fruit on woody debris. Breitenbach & Kränzlin give *Coprinus fimetarius* (L.) ex Fr. p.p. as a synonym of *Coprinus radiatus* (Bolton: Fr.) Gray (which is now *Coprinopsis radiata* (Bolton) Redhead, Vilgalys & Moncalvo). *Coprinus fimetarius* sensu auct. brit. is given as a synonym of *Coprinopsis cinerea* (Schaeff.) Redhead, Vilgalys & Moncalvo in the online Index Fungorum accessed January 24, 2008. If the species concept is still valid it should be moved to *Coprinopsis*. [↑](#footnote-ref-3)
4. The online Index Fungorum accessed January 24, 2008 gives *Coprinus cinereus* var. *macrorhizus* (Pers.) Fr. and *Coprinus fimetarius* var. *macrorhizus* (Pers.) Sacc. as synonyms of *Coprinopsis cinerea* (Schaeff.) Redhead, Vilgalys & Moncalvo. If the species were judged valid it would have to be moved to *Coprinopsis*. [↑](#footnote-ref-4)
5. This species was described from Lafayette, Montana, and has not been reported from British Columbia, Washington, Oregon, or Idaho. [↑](#footnote-ref-5)
6. This species was described from Montana and has not been reported from British Columbia, Washington, Oregon, or Idaho. [↑](#footnote-ref-6)
7. This variety has not formally been recombined. [↑](#footnote-ref-7)
8. The inline Index Fungorum, accessed January 24, 2008, lists among the synonyms of *Coprinopsis cinerea* (Schaeff.) Redhead, Vilgalys & Moncalvo the following other taxa: *Coprinus fimetarius* var. *cinereus* (L.) F., *Coprinus fimetarius* var. *macrorhizus* (Pers.) Sacc., *Coprinus fimetarius* sensu auct. brit., and *Coprinus macrorhizus* (Pers.) Rea. [↑](#footnote-ref-8)
9. This variety has not formally been recombined. [↑](#footnote-ref-9)
10. This variety has not been formally recombined. [↑](#footnote-ref-10)
11. This variety has not been formally recombined. [↑](#footnote-ref-11)