



November 2013

## Strophariaceae Naematoloma Notebook 1

L. R. Hesler

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### Recommended Citation

Hesler, L. R., "Strophariaceae Naematoloma Notebook 1" (2013). *L. R. Hesler's Mushroom Notebooks*.  
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NAEMATOLOMA

Key to Sections

(The Section names below are from Singer; the key is partially built on and adapted from Singer's characterization of the Sections.)

1. Annulus none (or rare and then only in certain fasciculate species) . . . . . 2
1. Annulus well developed . . . . . 3
  2. Spores usually well below 10  $\mu$  in length . . . . . Sect. Naematoloma
  2. Spores longer than 10  $\mu$  (9-12  $\mu$  or 14-18[20]  $\mu$ ) . . . . . Sect. Psilocyboides
3. Staining blue . . . . . Sect. Cyanoloma
3. Not staining blue . . . . . Sect. Stropholoma

Sect. Cyanoloma Singer

Spores up to 12  $\mu$ ; annulus well-developed; chrysocystidia numerous; pileus viscid; context and surfaces staining blue. Only one species: N. popperianum Singer.

Sect. Stropholoma Singer

Spores medium or large, often longer than 10  $\mu$ ; annulus developed; chrysocystidia absent or rare. Not staining blue. Only one species: N. squamosum (Pers. ex. Fr.) Singer.

Sect. Naematoloma

Annulus none, or rarely found in some fasciculate species; spores usually much less than 10  $\mu$  long (if 9-12  $\mu$  long, try Sect. Psilocyboides), chrysocystidia on the sides, and sometimes on the edges.

Key to Species

1. Stipe with a pseudorhiza, brownish-fibrillose scaly . . . . . N. radicosum
1. Stipe lacking a pseudorhiza . . . . . 2
  2. Growing on soil in pastures; spores flattened-angular in face view, subellipsoid in profile . . . . . N. campestre
  2. Habitat and spores not as above . . . . . 3
3. Growing on moss; pileus 1-2.5 cm broad, clay colored to Isabella color becoming yellow . . . . . N. polytrichi
3. Growing on or about logs and stumps; pileus of different colors . . . . . 4
  4. Pileus and lamellae with at least some portions greenish-yellow . . . . . 5
  4. Pileus and lamellae not with greenish-yellow colors . . . . . 6
5. Pileus 3-6 cm broad, disc ochraceous orange, margin tinged green; lamellae yellow to greenish-yellow; taste very bitter . . . . . N. fasciculare
5. Pileus 1-3 cm broad; lamellae greenish-yellow then purple brown; taste not recorded; Cuba, Mexico . . . . . N. subviride
6. Growing on hardwood logs and stumps; pileus disc brick-red, elsewhere paler to whitish . . N. sublateritium
6. Growing on conifer wood; pileus colors not as above . . .7

7. Pileus cinnamon to ochraceous tawny or orange rufous;  
stipe base strigose; pileus cuticle of dry hyphae;  
spores 6-7  $\mu$  long . . . . . N. capnoides
  
7. Pileus tawny to orange tawny, becoming yellowish  
olivaceous, margin Isabella color or warm buff;  
stipe densely fibrillose; pileus cuticle a thin  
ixocutis; spores 7-9  $\mu$  long . . . N. dispersum var. dispersum

Sect. Psilocyboides

Annulus none; spores longer than 10 μ (in two species, up to 14-18(20) μ long; chrysocystidia present on the gill-sides, present on the edges in N. longisporum only).

Key to Species

- 1. Spores 14-18(20) μ long . . . . . 2
- 1. Spores 9-12(14) μ long . . . . . 3
  - 2. Growing on débris; pileus pale isabelline, slightly striate to disc; spores smooth under an oil-immersion lens . . . . . N. longisporum
  - 2. Growing in a sphagnum bog; pileus at first pale or a dark brown, then yellowish brown, fading to pale yellow or buff becoming purplish brown with an olive tint, finally Isabella color; spores punctate under an oil immersion lens . . . . . N. udum
- 3. Stipe glutinous; pileus viscid; growing on or among moss in a bog . . . . . N. viscidipes
- 3. Stipe dry; pileus dry to subviscid; growing on soil or in humus . . . . . 4
  - 4. Pileus color when wet dull green and faintly striate, disc olive buff to pinkish buff, paler when dry . . . . . N. olivaceotinctum
  - 4. Pileus color when wet in the brown series, fading to some shade of buff . . . . . 5
- 5. Pileus buffy brown to olive brown when wet, margin even; odor raphanoid . . . . . N. ericeum
- 5. Pileus rusty brown and striatulate, at least when wet; odor not distinctive . . . . . 6
  - 6. Pileus fading to alutaceous (near pinkish cinnamon); stipe more or less 1 mm thick; spores flattened (angular and truncate in face view; subellipsoid in profile); hypodermium not differentiated . . N. potteri
  - 6. Pileus fading to yellowish buff; stipe 1.5-3 mm thick; spores ellipsoid (not angular); hypodermium of large cells . . . . . N. squalidellum

STROPHARIACEAE Singer & Smith

Mycologia 38:503. 1946

Key to Subfamilies

(Adapted from Singer, Agaricales, 1975)

1. Spores deep lilac to fuliginous lilac in deposit when fresh; when mounted in water: water-lilac, amethyst, or livid, or a deep fuscous warm sepia, or purplish brown. When mounted in KOH: often turning deeper chestnut, olive, or chestnut, or brownish red; sometimes lentiform or rhombic in frontal view, usually with a germ-pore . . . . . Subfam. Stropharioideae
  
1. Spores in deposit more brown (rarely deep chocolate, and then the pore narrow and non-truncate, the deposit colors: cinnamon brown, rusty brown, cinnamon ochraceous, yellowish ochraceous, light ochraceous, tobacco brown, with or without a germ pore, rarely rhombic . . . . . Subfam. Pholiotoideae

STROPHARIA (Fr.) Qué1.

Champ. Jura Vosg., p. 141. 1872

Key to Sections

1. Pileus viscid to glutinous . . . . . 2
1. Pileus and stipe dry or sometimes lubricous . . . Sect. MUNDÆ
2. Stipe viscid from a glutinous veil . . . Sect. STERCOPHILA
2. Stipe dry . . . . . Sect. STROPHARIA

SECT. STERCOPHILA

1. Spores 8-9(10) x 4-5(6)  $\mu$ ; pileus conic, honey yellow, olive ochre, or yellowish; pale greenish yellow when dried . . . . . S. semigloboides
1. Spores 10-17 x 7.5-9.5  $\mu$ ; pileus not as above . . . . . 2
2. Pileus hemispheric and not expanding, growing on dung or manured soil (meadows, lawns) . . . S. semiglobata
2. Pileus expanding, growing on soil . . . . . S. Tenn-12183

Sect. STROPHARIA

Key to Subsections

- 1. Spores 6-9  $\mu$  long . . . . . Subsect. Microspora
- 1. Spores 9-12(22)  $\mu$  long . . . . . Subsect. Megasporae

Subsect. Microspora

Key to Series

- 1. Germ-pore present, spore-apex more or less truncate . . . . .  
 . . . . . Series Albo-nitens
- 1. Germ-pore absent . . . . . Series Hardii

Series Albo-Nitens

Key to Species

- 1. Pileus white or slightly buff, disc yellowish; stipe  
 floccose-fibrillose up to the evanescent annulus . . . . .  
 . . . . . S. albonitens
- 1. Pileus rosy-isabelline (pinkish cinnamon) in age with  
 yellowish stains; stipe glabrous, annulus persistent . . . . .  
 . . . . . S. floridana



## Series Hardii

Key to Species

1. Pileus greenish, sometimes becoming yellowish in age . . . . 2
1. Pileus of different colors (not green) . . . . . 3
  2. Pileus with whitish scales on the margin; spores  
7-9  $\mu$  long . . . . . S. aeruginosa v. aeruginosa
  2. Pileus glabrous; spores 6-7.5  $\mu$  long . . . . .  
. . . . . S. aeruginosa v. exsquamosa
3. Pileus glabrous . . . . . 4
3. Pileus tomentose or fibrillose . . . . . 5
  4. Spores 4-6  $\mu$  long; pileus warm buff, yellow or  
honey yellow, with yellow patches or stains; stipe-  
base with one or more white rhizomorphs . . . . S. hardii
  4. Spores 7-9  $\mu$  long; stipe lacking rhizomorphs . . . . .  
. . . . . S. Tenn-16406
5. Pileus dark isabelline, densely tomentose;  
pleurocystidia none . . . . . S. bilamellata v. tomentosa
5. Pileus ochraceous tawny, with fibrillose scale-  
like patches; pleurocystidia ventricose . . . . S. Tenn-10150

Subsect. MegasporaeKey to Series

- 1. Chrysocystidia present . . . . . Ser. Stercoraria
- 1. Chrysocystidia absent . . . . . Ser. Anellariformis  
[Psilocybe?]

Series StercorariaKey to Species

- 1. Spores 9-13  $\mu$  long . . . . . 2
- 1. Spores 12-20  $\mu$  long . . . . . 5
  - 2. Pileus whitish to yellowish, glabrous; annulus  
with well-developed gills (or ridges) on upper  
surface . . . . . S. bilamellata v. filamellata
  - 2. Pileus and annulus not as above . . . . . 3
  - 3. Pileus purplish brown or smoky reddish brown, margin  
white-scaly; lignicolous . . . . . S. hornemannii
  - 3. Pileus paler (pallid, yellowish, bright ochre) . . . . . 4
    - 4. Stipe radicate; chrysocystidia present; pileus  
bright ochre, becoming pallid, glabrous . . . . .  
. . . . . S. siccipes v. radicata
    - 4. Stipe not radicate; chrysocystidia none; pileus  
"antimony yellow" to "ochraceous buff", silky . . . . .  
. . . . . S. siccipes v. siccipes

- 5. Pileus fulvous, becoming blue where bruised, floccose scaly . . . . . S. cyanescens
- 5. Pileus straw to yellowish, not becoming blue, glabrous . . . 6
- 6. Pleurocystidia lecythiform; pileus chamois with a yellow tint; veil none . . . . . S. Tenn-5022  
[Psilocybe?]
- 6. Pleurocystidia present as chrysocystidia, rare in one species (No. 12183) . . . . . 7
- 7. Pileus straw-colored, tinged pale orange; veil very large but leaving no annulus . . . . . S. ambigua
- 7. Pileus yellow to "Naples yellow"; veil leaving a scanty, fugacious annulus . . . . . 8
- 8. Stipe radicate; growing on sandy soil; spores 13-16 μ long . . . . . S. Tenn-12183
- 8. Stipe not radicate; growing manure or manured soil; spores 16-32 μ long . . . . . 9
- 9. Pileus cream colored, hemispheric and not expanding; odor mild, taste slightly bitter; cheilocystidia ventricose . . . . . S. stercoraria
- 9. Pileus yellow, conic-subacute; odor foetid, taste not distinctive; cheilocystidia as chrysocystidia . . . . .  
. . . . . S. umbonatescens  
[ = S. luteonitens? ]

Series AnellariformisKey to Species

1. Pileus pallid, disc tawny; stipe radicate . . . . .  
 . . . . . S. anellariformis
1. Pileus distinctly colored; stipe not radicate . . . . . 2
  2. Annulus large, flaring, fragments sometimes  
 remain attached to pileus margin; pileus golden  
 ochre, convex then plane . . . . . S. magnivelaris
  2. Annulus, pileus color and shape not as above . . . . . 3
3. Pileus fauve-orange, acuminate-mammillate; spores  
 9-12  $\mu$  long; hypodermium cellular . . . . . S. thrausta  
 [ squamosa v. thrausta ]
3. Pileus ochraceous tawny or chestnut, conic-convex,  
 then expanding; spores 12-15  $\mu$  long; hypodermium  
 hyphoid . . . . . S. squamosa v. squamosa

Sect. MUNDAEKey to Subsections

1. Spores 4-8.5(9)  $\mu$  long . . . . . Subsect. Microsporae
1. Spores 9-12(19)  $\mu$  long . . . . . Subsect. Megasporae

Subsect. MicrosporaeKey to Species

1. Spores 7-8.5(9)  $\mu$  long . . . . . 2
1. Spores 4-6  $\mu$  long . . . . . 6
  2. Germ pore present; apices truncate . . . . . 3
  2. Germ pore absent . . . . . 4
3. Pileus 6-12 cm broad, pinkish buff to cinnamon, becoming cinnamon buff or tawny olive, margin reticulate-pitted . . . . . S. rugomarginata
3. Pileus 1-4 cm broad, isabelline, center fulvous, margin smooth . . . . . S. troyana
4. Pileus scaly or tomentose, at least at first . . . . . 5
4. Pileus always glabrous . . . . . S. Tenn-40288  
(also Tenn-6617)
5. Pileus 6-15 cm broad, ground color warm buff, fibrillose scaly; veil leaving a submembranous annulus . . . . . S. kauffmanii
5. Pileus 1-2 cm broad, rich reddish-brown, margin paler, at first yellow-tomentose then glabrescent; veil leaving fibrils on the stipe, not forming a ring . . . . . S. subbadia

- 6. Pileus castaneous, disc darker, squamulose;  
stipe white, becoming yellowish brown where  
bruised . . . . . S. alachuana  
[Agaricus rhoadsii?]
  
- 6. Pileus "chamois", margin white; stipe white,  
unchanging . . . . . S. Tenn-23797

Subsect. MegasporaeKey to Species

1. Spores (12)14-18  $\mu$  long . . . . . 2
1. Spores (8)9-13(14)  $\mu$  long . . . . . 4
  2. Pileus 5-15 cm broad, sayal brown with a  
rinaceous tint, or cinnamon drab; annulus  
double, the lower split tooth-like . . . S. rugoso-annulata
  2. Pileus 2-5 cm broad; the annulus not as  
above . . . . . 3
3. On dung; stipe more or less radicate; spores  
obscurely angular . . . . . S. merdaria
3. On soil; stipe not radicate; spores not  
angular . . . . . S. magnivelaris
4. On dung or manured soil; pileus white,  
disc straw-colored . . . . . S. melanosperma
4. On soil (not on dung) . . . . . 5
5. Taste farinaceous; pileus yellowish-white or  
cream-colored . . . . . S. campestris
5. Not with the above combination of characters . . . . . 6
  6. Pileus at first light brown, becoming  
isabelline to melleous, finally umbrinous . . . S. elegans
  6. Pileus not of the above colors . . . . . 7
7. Pileus whitish to ochre or citron-yellow;  
germ-pore small (spores not truncate);  
cheilocystidia of two kinds: (a) chryso-  
cystidia, (b) clavate . . . . . S. coronilla
7. Pileus isabelline (pinkish cinnamon); germ-  
pore broad and spore truncate; cheilocystidia  
clavate or subpyriform (no chrysocystidia) . . . S. australis