

## *Hygrocybe* (Fr.) P. Kumm.

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*Camarophyllus* (Fr.) P. Kumm., *Gliophorus* Herink, *Cuphophyllus* (Donk) Bon

Frb omphalinoid, clitocyboid, collybioid or tricholomatoid of many colours and with thick gills. Frb with bright colours in red orange and yellow, a few with green or lilac, but subgen. *Cuphophyllus* Donk and sect. *Neohygrocybe* Herink characterised by white, grey, brown and black colours; the brightly coloured species often show a significant variation in colours: entirely red species may occur in orange or even yellow forms and vice versa. Cap 5-120 mm, in most species 20-50 mm, dry and then either smooth, fibrillose, felty or finely scaly, or sticky/wet to distinctly slimy, but these characters are not reliable in frb collected in dry conditions, in most species ± hygrophanous. Gills usually thick and distant with attachment varying from free, over adnexed, emarginate, adnate to decurrent. Stem surface structure varying from dry and then either smooth or fibrillose, to moist and soon drying, to distinctly slimy; a dry and smooth stem is usually ± silky shiny, especially in young and small frb. Smell indistinct, in a few species distinct. Taste neutral except for some bitter or rancid species. Sp deposit white.

Sp subglobose, ellipsoid, ovoid, oblong to cylindrical, in some species a varying proportion shows a median constriction either in front view or both in side- and front view, smooth, hyaline, without iodine reactions. Basidia 25-70 μm long, slender, usually 4-spored, often intermixed with 1-, 2, and 3-spored, and frb with only 2-spored basidia occur frequently in some species. Gill trama structure interwoven in subgen. *Cuphophyllus* Donk, subregular with < 200 μm long cells in subgen. *Pseudohygrocybe* Bon, and regular with very long cells, > 200 μm in subgen. *Hygrocybe*. Cystidia usually absent, but in subgen. *Hygrocybe* trama cells often protrude from gill edge as pseudocystidia, in a few other species hair-like cells often protrude from gill edge and in two species gelatinised cells cover the gill edge. In *H. conica*, *H. olivaceonigra* and *H. acutoconica* the gill edge sometimes is covered by sterile cells which are either basidioles or true cheilocystidia. Pilei- and stiptipellis structure corresponds to the morphology: viscid = ixotrichoderm or ixocutis, sticky = ixocutis intermixed with more ixotrichoderm-like areas, dry and smooth = cutis and felty/scaly = trichoderm.

On soil and probably saprotrophic, mostly in unfertilized, seminatural grassland, but also frequent in other open habitats as heathland, fixed dunes, lawns and bogs, occasionally on rich soil in deciduous scrubs and forests and in moist habitats, e.g. *Alnus*-swamps.

48 species in the Nordic countries, 49 species in the key. *H. viola* Geesink & Bas has also been reported, but omitted here as the identification seems doubtful. Some of the sections and subsections are in need of revision, e.g. subsect. *Squamulosae* (Bataille) Singer. Macroscopic characters important for identification include texture of cap and stem surface and gill attachment. Important microscopic characters include gill trama structure and pellis structure, which correspond to the macroscopic character states. Only *H. pratensis* can be recommended as edible. The number and composition of *Hygrocybe* species are useful as an indicators of grassland quality, and has been used in several countries to survey the conservation value of seminatural grassland.



A wide interpretation of *Hygrocybe* is kept here. However, recent molecular phylogenetic evidence (Matheny et al. 2006) support the point of view that *Hygrocybe* should be split into several genera (e.g. *Cuphophyllus*, *Humidicutis* and *Gliophorus*) which not necessarily form a monophyletic clade.

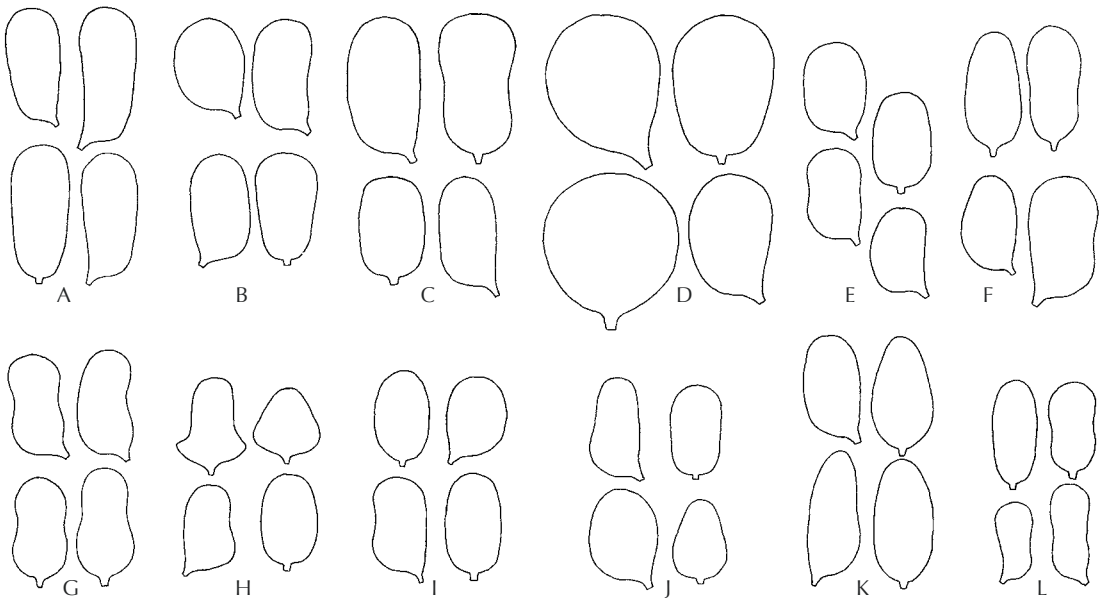
Lit.: Arnolds in Bas et al. 1990, Boertmann 1987, 1990, 1995, Bon 1990, Borgen & Arnolds 2004, Candusso 1997, Jordal 1997, Kristiansen 1981, Ludwig 2004, Newton et al. 2003, Orton 1960, Rald 1985.

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|----|--|--------------|
| 1. | Frb entirely bright red, bright orange or yellow, but cap in a few species dark brown or with black covering or scales | Key A p. 195 |
| -  | Frb entirely white, grey, brown, brownish orange, dull orange or at least with areas with green, blue, lilac or pink   | 2            |
| 2. | Frb with green, blue, lilac, brick red, brownish orange, dull orange or pink colours                                   | Key B p. 205 |
| -  | Frb white, grey, brown or black  | Key C p. 207 |

### Key A: Frb brightly red, orange or yellow

- |    |  |    |
|----|--|----|
| 1. | Frb becoming blackish with age and when handled  | 2  |
| -  | Frb not becoming blackish, but may slowly turn greyish in stem base or cap margin  | 3  |
| 2. | Gills usually $\pm$ reddish; sp oblong to cylindrical, occasionally slightly constricted (fig. 197A), $Q_{av} \geq 2$ ; in moving dunes. Frb turning rather slowly black compared to var. <i>conica</i> . Sp 10-12.5 x 5-6 $\mu$ m. In other characters like var. <i>conica</i> . Autumn; common in temp.-hemib.; DK (LC), FO (Sandoy), NO (NE). – FE 6:419, FNE 1:163, M&J 15, Ves 167.<br><i>H. conica</i> (Schaeff.: Fr.) P. Kumm. var. <i>conicooides</i> (P.D. Orton) Boertm. ( <i>Hygrophorus c.</i> P.D. Orton, <i>Hygrocybe conicooides</i> (P.D. Orton) P.D. Orton & Watling)   |    |
| -  | Gills first whitish, then grey, yellow or rarely reddish; sp ellipsoid, ovoid or phaseoliform, occasionally constricted (fig. 197B), $Q_{av} < 2$ ; in grassland, fixed dunes, roadsides, lawns, swamps and deciduous copses and forest. Cap 5-100 mm, at first $\pm$ acutely conical, later expanded with an umbo, sometimes with a papilla or with lobed margin, at first usually moist or slimy, but soon dry and finely fibrillose, scarlet red, orange to yellow, in some forms bronze, olive brownish or greenish, small forms often translucently striate from margin; gills free or adnexed; stem 15-120 x 2-20 mm, first slimy or moist, but soon dry and more or less fibrillose, yellow orange or concolorous with cap, rarely whitish; flesh turgid and fragile, all parts becoming black or blackish when handled or with age, old and weathered frb may be entirely black. Sp 8.5-10(-12) x 5-6.5(-8) $\mu$ m; basidia either 4- or 2-spored or a mixture; gill trama regular with fusiform cells $\geq 1000$ $\mu$ m long, often protruding from gill edge as pseudocystidia. Summer to autumn; very common in temp.-arc./alp.; DK (LC), IS, FI (LC), FO, NO (LC), SE (LC). – FNE 1:159, 161, M&J 5, R&H 254, Ves 167, ☉.<br><i>H. conica</i> (Schaeff.: Fr.) P. Kumm. var. <i>conica</i> ( <i>Hygrophorus c.</i> (Schaeff.: Fr.) Fr., <i>Hygrocybe riparia</i> Kreisel, <i>H. veselskyi</i> Singer & Kuthan, <i>H. cinereifolia</i> Courtec. & Priou.)<br>Note: a very variable taxon and several infraspecific taxa have been described, some of the better defined include:<br>var. <i>pseudoconica</i> J.E. Lange ( <i>H. nigrescens</i> (Quél.) Kühner s. auct.) is large and robust with a coarsely fibrillose stem; DK. – B&K 3:85, Däh 162, Phil 81:61.<br>var. <i>conicopalustris</i> Arnolds is a tiny red form from moist habitats; DK. – FNE 1:161.<br>var. <i>chloroides</i> (Malençon) Bon has yellow cap and stem; DK, NO. – Däh 158, FNE 1:161. |    |
| 3. | Cap moist, sticky or slimy   | 4  |
| -  | Cap dry  | 18 |
| 4. | Gills free to adnexed  | 5  |
| -  | Gills adnate to decurrent  | 8  |

5. Gill trama regular with many cells  $\geq 1000 \mu\text{m}$  long 6  
 - Gill trama subregular with cells  $\leq 250 \mu\text{m}$  long 7
6. Cap narrowly conical at first, later expanded, usually with  $\pm$  acute umbo; stem fibrillose. Cap 10-50 mm, margin often lobed, small frb occasionally low convex, slimy but often drying out, in some collections dry and fibrillose, lemon yellow to orange yellow, occasionally orange or flushed with orange; gills free to adnexed, whitish, pale yellow, occasionally pale orange; stem 35-80 x 2-10 mm, cylindrical, usually straight, sometimes slightly moist, yellow with whitish base, sometimes entirely orange, with orange fibres or orange flushes; flesh rather fragile, rarely becoming grey when cut or bruised particularly in stem base. Sp (8-)10-12.5(-15) x 4.5-6.5(-8)  $\mu\text{m}$ , Q = 1.5-2.5, cylindrical, oblong, slightly phaseoliform and occasionally constricted (fig. 197C); gill trama regular; gill edge usually fertile with pseudocystidia, but in some frb sterile and covered with basidioles, which occasionally are glutinised. Mostly in seminatural grassland on basic soil, also in deciduous scrubs or woods; summer to autumn; occasional, but locally common in temp.-suba.; DK (LC), FI (LC), FO, IS, NO (LC), SE (LC). – B&K 3:97, FNE 1:153, 155, Phil 77g, Svp 12:46, Ves 166.  
*H. acutoconica* (Clem.) Singer var. *acutoconica* (*H. persistens* (Britzelm.) Singer, *H. langei* Kühner, *H. aurantiolutescens* P.D. Orton)  
 var. *konradii* (R. Haller Aar.) Boertm. (*H. konradii* R. Haller Aar., *H. subglobispora* (P.D. Orton) M.M. Moser) differs in globose to broadly ellipsoid sp, (8-)9.5-12(-15) x 6.5-10.5(-12.5)  $\mu\text{m}$ , Q = 1-1.7 (fig. 197D); DK. – FE 6:439, FNE 1:157, M&J 13,16, Svp 12:46, 47.
- Cap hemispherical, convex to plane; stem smooth. Cap (10-)20-70 mm, slimy, lemon yellow to orange yellow or occasionally reddish orange; gills adnexed, lageniform and often broad, whitish at first, later more yellow or orange, paler than stem; stem 20-80 x 4-15 mm, concolorous with cap or paler, surface dry, sometimes wet or slightly slimy, often pruinose at top; flesh in stem brittle. Sp 7-9(-10.5) x 4-5.5(-6.5)  $\mu\text{m}$ , ellipsoid, ovoid or oblong (fig. 197E); gill trama regular with fusiform cells, many  $\geq 1000 \mu\text{m}$  long, often seen as pseudocystidia. In seminatural grassland, lawns and fixed dunes; summer to autumn; very common in temp.-suba.; DK (LC), FI (LC), FO, IS, NO (LC), SE (LC). – B&K 3:81, FNE 1:141, R&H 253, Svp 13:2, Ves 174, .
- H. chlorophana* (Fr.: Fr.) Wünsche (*Hygrophorus c.* (Fr.: Fr.) Fr., *Hygrocybe c.* var. *aurantiaca* Bon, *H. euroflavescens* Kühner)
7. Cap blood red to dark red, sometimes with a narrow yellow margin; stem coarsely fibrillose. Cap 30-150 mm, convex, bell-shaped, broadly conical, finally plane and then often with a broad umbo, sticky to slimy, discolouring to ochre; gills adnexed, sometimes emarginate, cinnamon buff to brownish red with paler margin; stem 30-150 x 5-13 mm, cylindrical, dry, yellow, orange to reddish, fibres usually darker red than flesh, white at base, narrowly fistulose; flesh in stem pale yellowish and white at centre; smell indistinct. Sp (7-)8.5-10(-11) x (4-)4.5-5.5(-7)  $\mu\text{m}$ , oblong to ellipsoid, often constricted (fig. 197F); gill trama subregular; pileipellis a mixture of an ixotrichoderm and an ixocutis. In seminatural, high diversity grassland and fixed dunes; late summer to autumn; occasional, but locally common in temp.-suba., in FI north to PK and with southern distribution; DK (EN), FI (LC), FO, IS, NO (LC), SE (NT). – FNE 1:129, M&J 15, R&H 255, Svp 11:2, 43:50, Ves 172, .
- H. punicea* (Fr.: Fr.) P. Kumm. (*Hygrophorus p.* (Fr.: Fr.) Fr., *Hygrocybe acuta* F.H. Møller)
- Cap yellow to orange; stem  $\pm$  smooth. Cap 20-50 mm, broadly conical, subumbonate to plane with a broad umbo, sticky to slimy, hygrophanity resembling *Kuehneromyces mutabilis*; gills adnexed or emarginate, concolorous with cap or paler; stem 30-85 x 5-15 mm, cylindrical to somewhat clavate, usually yellow and paler than cap and covered with white pruina, especially at the top. Sp (6.5-)7.5-9(-11) x 4-5(-6)  $\mu\text{m}$ , ellipsoid, oblong or phaseoliform, usually more than 50 % of them constricted (fig. 197G); gill trama subregular; pileipellis an ixotrichoderm intermixed with more ixocutis-like areas. In seminatural, high diversity grassland, deciduous scrubs and calcareous *Pinus* forests; late summer to autumn; very rare



Spores: A: *Hygrocybe conica* var. *conicoides*, B: *H. conica* var. *conica*, C: *H. acutoconica* var. *acutoconica*, D: *H. acutoconica* var. *konradii*, E: *H. chlorophana*, F: *H. punicea*, G: *H. aurantiosplendens*, H: *H. mucronella*, I: *H. salicis-herbaceae*, J: *H. subpapillata*, K: *H. coccinea*, L: *H. ceracea*.

in temp.-suba., in FI north to EH; DK (EN), FI (EN), IS, NO (NT), SE (NT). – FE 6:511, FNE 1:131, Jords 9(3), N&S 492, Svp 13:2.

*H. aurantiosplendens* R. Haller Aar. (*Hygrophorus a.* (R. Haller Aar.) P.D. Orton)

- |    |                                     |    |
|----|-------------------------------------|----|
| 8. | Taste bitter or unpleasantly rancid | 9  |
| -  | Taste insignificant                 | 10 |
9. Taste bitter, often easily recognisable by tip of tongue on cap; sp in front view irregularly ellipsoid or almost triangular, irregularly ellipsoid to oblong, and many strongly constricted, almost triangular or with widened base (fig. 197H). Cap 3-35 mm, hemispherical, convex, bell-shaped to conical, at first sticky, soon dry and then mat often with aeriferous fibrils, scarlet, orange red, often with yellow margin, later paler reddish or orange; gills adnate to decurrent with a tooth, occasionally triangular, usually deep orange with paler margin; stem 10-40 x 1-4 mm, at first slimy, later dry and mat and remaining moist for longer time than cap, concolorous with cap or paler. Sp (6-)-7-8.5(-10.5) x (4-)-4.5-6(-7)  $\mu\text{m}$ ; gill trama subregular; pileipellis an ixocutis in young frb, in older a cutis. In seminatural grassland, lawns, fixed dunes and deciduous scrubs, on dry to damp soil; late summer to autumn; occasional in temp.-suba.; DK (NT), FI (NT), FO, NO (LC), SE (LC). – Däh 156, FE 6:631, FNE 1:133, M&J 4, Svp 15:38.

*H. mucronella* (Fr.) P. Karst. (*Hygrophorus m.* Fr., *Hygrocybe reae* (Maire) J.E. Lange)

- Taste very unpleasant bitterish-hot behind tongue and in throat after some minutes of chewing; sp broadly ellipsoid, ellipsoid or oblong, a few occasionally slightly constricted (fig. 197I). Cap 7-45 mm, hemispherical, convex, bell-shaped or umbonate, sticky, scarlet, orange red or even entirely yellow; gills adnate, pale yellow to orange or reddish, usually with paler margin; stem 20-40 x 2-9 mm, at first somewhat sticky or moist, but soon dry and mat. Sp (6.5-)-7.5-9(-10.5) x (4-)-4.5-5.5(-6)  $\mu\text{m}$ ; gill trama subregular; pileipellis a mixture of an ixotrichoderm and an ixocutis. In arctic/alpine dwarf scrub heathland, herb slopes and

subalpine grassland; late summer to autumn; occasional in suba.-arc./alp.; FI (NT), NO (NE).  
– FE 6:507, FNE 1:127.

*H. salicis-herbaceae* Kühner

10. Stem dry 11  
- Stem slimy or moist 13
11. Gill trama regular, with cells up to 800  $\mu\text{m}$  or longer, often seen as pseudocystidia. Cap 5-30 mm, at first bell-shaped, conical or hemispherical, later low convex to plane, often with a central papilla, sticky, scarlet red to orange, translucently striate; gills broadly adnate, slightly emarginate or decurrent with a tooth, pale yellow to orange; stem 20-50  $\times$  2-3 mm, dry and smooth to finely fibrillose, golden yellow to orange and occasionally flushed with red. Sp 7-9(-10)  $\times$  4.5-5.5(-7)  $\mu\text{m}$ , ellipsoid to oblong, sometimes broadly ellipsoid (fig. 197J). In seminatural grassland and lawns; summer to autumn; very rare or possibly overlooked in temp.-bore.; DK (EN), FI (VU), NO (VU), SE (DD). – FE 6:479, FNE 1:147.  
*H. subpapillata* Kühner
- Gill trama subregular, with cells < 150  $\mu\text{m}$  long 12
12. Stem 3-6 mm broad; cap bright red to blood red, rarely orange; sp > 4.5  $\mu\text{m}$  broad. Cap 10-60 mm, hemispherical to bell-shaped, later plane, occasionally with a distinct papilla or umbo, becoming greyish white when weathering, small frb often with narrow yellow margin and translucently striate; gills adnate, occasionally with a decurrent tooth, reddish with yellow margin or entirely yellow to orange; stem 20-70 mm long, cylindrical or in large frb more irregularly compressed and twisted, concolorous with cap or orange to yellow, dry and smooth; flesh rather firm; smell and taste insignificant. Sp (6.5-)-7.5-10(-13)  $\times$  (4-)-4.5-5.5(-7)  $\mu\text{m}$ , rather variable in shape, oblong to ellipsoid and many amygdaloid in front view, rarely slightly constricted (fig. 197K); gill trama subregular; pileipellis an ixotrichoderm intermixed with more ixocutis-like areas. In seminatural grassland, lawns and fixed dunes, less often in deciduous scrubs and forests; autumn; common in temp.-suba.; DK (LC), FI (LC), FO, IS, NO (LC), SE (LC). – B&K 3:83, FNE 1:117, R&H 256, Svp 11:3, Ves 172, ☉.  
*H. coccinea* (Schaeff.: Fr.) P. Kumm. (*Hygrophorus* c. (Schaeff.: Fr.) Fr., *Hygrocybe marchii* (Bres.) F.H. Møller s. Boertmann 1995)
- Stem 1.5-3 mm broad; cap yellow, orange or rarely orange red; sp < 4.5  $\mu\text{m}$  broad. Cap 5-30(-50) mm, at first hemispherical to convex, later low convex to plane, occasionally with slightly depressed centre, sticky, translucently striate and in small frb with translucent eye at centre; gills adnate to decurrent, rather thin and crowded, usually paler than cap; stem 15-50 mm long, concolorous with cap or paler, sometimes with orange base, dry and smooth. Sp (5.5-)-6-8(-10)  $\times$  3-4(-5.5)  $\mu\text{m}$ , oblong to cylindrical, usually > 50 % of them constricted (fig. 197L); gill trama subregular; pileipellis an ixotrichoderm intermixed with more ixocutis-like areas. In seminatural grassland, lawns and fixed dunes, less often deciduous scrubs and forests; late summer to autumn; very common in temp.-arc./alp., but in FI with a southern distribution; DK (LC), FI (LC), FO, NO (LC), SE (LC). – C&D 211, FNE 1:121, Phil 77e, Svp 12:42, Ves 174, ☉.  
*H. ceracea* (Fr.: Fr.) P. Kumm. (*Hygrophorus* c. (Fr.: Fr.) Fr., *Hygrocybe vitellinoidea* Bon, *H. citrina* (Rea) J.E. Lange s. auct.)
13. Gill edge hyaline and slimy 14  
- Gill edge normal and dry 15
14. Sp subglobose to broadly ellipsoid (fig. 201A); subhymenium not gelatinized. Cap 3-20 mm, convex to plane with slightly depressed centre and decurved margin, slimy, chrome yellow fading to ivory white, translucently striate; gills decurrent, arcuate, often broad, yellow and often remaining so after cap is faded, edge hyaline and slimy; stem 15-50  $\times$  1.5-3 mm, distinctly slimy, concolorous with cap; smell occasionally aromatic. Sp 6.5-8(-9)  $\times$  5-7.5  $\mu\text{m}$ ; gill edge sterile, resembling an ixotrichoderm, with clavate terminal cells, 12-45  $\times$  2.5-7  $\mu\text{m}$ ;

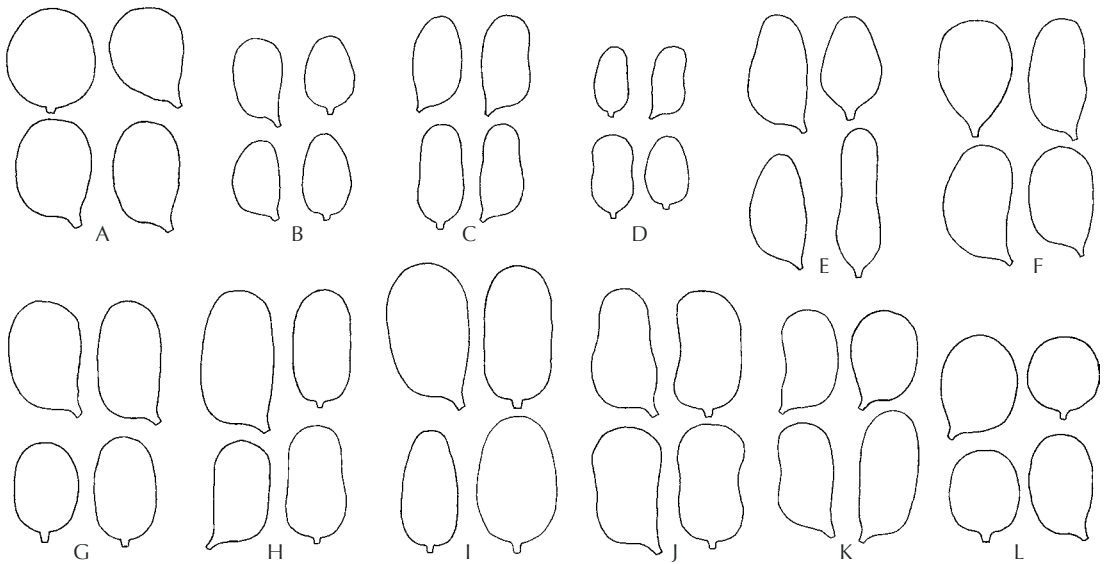


gill trama subregular, cells often strongly inflated; pileipellis an ixotrichoderm; stipitipellis an ixocutis. Mostly in rather wet, open habitats with *Juniperus*, seminatural grassland and heathland near the coast, oceanic; summer to autumn; very rare in temp.-bore.; DK (VU), NO (VU), SE (no recent finds). – Blyttia 60:199, FE 6:619, FNE 1:91, Phil 76c, Svp 13:3, ☉.

*H. vitellina* (Fr.) P. Karst. (*H. luteolaeta* Arnolds)

- Sp ellipsoid, ovoid or oblong (fig. 201B); subhymenium gelatinized. Cap yellow; stem 15-30 x 1.5-4 mm, concolorous with cap and occasional with slightly greyish top; in other characters like in the main variety. In grassland, dwarf scrub heathland and herb slopes; occasional in suba.-arc./alp.; FO, IS, NO (incl. SvB), SE. – AAF 3:9, FE 6:599, FNE 1:87, FG 2.
  - H. laeta* (Pers.: Fr.) P. Kumm. var. *flava* Boertm. (*H. flava* (Boertm.) F. Rune)
15. In lowland habitats in temp.-suba. 16  
 - In arctic/alpine habitats 17
16. Stem distinctly slimy; sp 7-8(-10) x 4-5  $\mu\text{m}$ . Cap 5-30 mm, at first hemispherical, low convex or bell-shaped, later plane and often with  $\pm$  depressed centre, distinctly slimy, lemon yellow to yellow with orange centre and striae, discolouring to greyish when old and weathered, usually distinctly translucently striate and with translucent central eye; gills broadly adnate to slightly decurrent and occasionally somewhat emarginate; stem 15-40 x 1.5-3 mm, yellow to orange. Sp oblong, cylindrical, ellipsoid and often slightly constricted (fig. 201C); gill trama regular with cells 55-510 x 6-25  $\mu\text{m}$ , often seen as pseudocystidia; pileipellis an ixotrichoderm. Mostly in seminatural grassland and lawns, occasional in copses, rarely in deciduous forests on fertile soil; summer to autumn; occasional in temp.-bore.; DK (LC), FI (EN, V, U), NO (LC), SE (NT). – FAD 167E, FE 6:474, FNE 1:134, M&J 3, Svp 12:43.
- H. glutinipes* (J.E. Lange) R. Haller Aar. var. *glutinipes* (*Hygrophorus* g. (J.E. Lange) P.D. Orton, *Hygrocybe citrina* (Rea) J.E. Lange var. g. J.E. Lange, *H. aurantioviscida* Arnolds) var. *rubra* Bon differs in being bright red on cap and stem; DK, NO, SE. – FE 6:475, FNE 1:145.
- Stem not slimy, but moist or wet when fresh; sp (5-)6-7.5 x 3-4(-5)  $\mu\text{m}$ . Cap 3-25 mm, hemispherical to plane, sometimes with depressed centre, sticky, scarlet, reddish orange, orange to yellow; gills adnate to decurrent, yellow to orange, often with a whitish edge; stem 15-55 x 1-3 mm, when fresh moist, but soon dry and mat, concolorous with cap, but often more red, especially at top. Sp ellipsoid, cylindrical to oblong, some of them constricted (< 20 %) in both side- and front view (fig. 201D); gill trama subregular with  $\pm$  inflated elements, to 150  $\mu\text{m}$  long; pileipellis an ixotrichoderm intermixed with an ixocutis; stipitipellis when young a 10-70  $\mu\text{m}$  thick ixocutis. In seminatural grassland, parks and deciduous scrubs and woods; summer to autumn; common in FI, elsewhere occasional in temp.-suba.; DK (LC), FI (LC), FO, NO (LC), SE (LC). – FAD 168C, FE 6:627, FNE 1:123, 125, Svp 12:42, Ves 175.
- H. insipida* (J.E. Lange) M.M. Moser (*Hygrophorus* i. (J.E. Lange) S. Lundell, *Hygrocybe subminutula* Murrill s. auct. Eur.)
17. Sp (7-)8-10(-13) x (4-)4.5-5.5(-7); gills pale; cap only slightly translucently striate, up to 1/3 of radius. Cap 5-30 mm, at first hemispherical or low convex, later plane with  $\pm$  depressed centre, at first slimy, soon dry and mat, chrome yellow, fading to pale yellow and whitish; gills decurrent and arcuate, with dry edge; stem 5-35 x 1-4 mm, yellow to hyaline whitish, at first slimy, soon drying up and becoming smooth and mat. Sp ellipsoid, oblong or amygdaloid, some slightly constricted in front view and often a few elongated (e.g. 12 x 4  $\mu\text{m}$ ) (fig. 201E); gill trama interwoven; gill edge fertile; pileipellis an ixotrichoderm when young and stipitipellis an ixocutis. In fens, grassland, moist dwarf scrub heathland and subalpine *Betula* forests; late summer to autumn; occasional in (bore-)suba.-arc./alp.; FI (LC), FO, IS, NO (LC), SE (LC). – FE 6:387, FNE 1:65, Jordst 14(3), Svp 12:43, ☉.
- H. citrinopallida* (A.H. Sm. & Hesler) Kobayasi (*H. vitellina* (Fr.) P. Karst. s. F.H. Møller)
- Sp on av 6-7.5 x 4-5  $\mu\text{m}$ ; gills yellow; cap usually distinctly translucently striate  
 see *H. xanthochroa* key B 11

18. Cap felty, finely scaly 19  
 - Cap smooth or radially fibrillose 26
19. Stem fibrillose, 5-13 mm broad. Cap 25-100 mm, at first broadly conical, later expanded to low convex, when large often lobed, coarsely radially fibrillose, finely scaly at centre, dry, at first scarlet red, more orange or orange yellow when old, not translucently striate; gills free or adnexed, whitish to pale yellow to orange; stem 20-150 mm long, dry and coarsely fibrillose, red to orange yellow, paler between fibres, flesh yellowish, sometimes slowly turning grey in stem base. Sp 8-10 x 5-6.5  $\mu\text{m}$ , ellipsoid, ovoid, pyriform, a few sometimes constricted (fig. 201F); gill trama regular, with 200-700  $\mu\text{m}$  long, fusiform cells, ends often protruding from gill edge as pseudocystidia. In species rich, seminatural grassland, occasionally in scrubs; late summer to autumn; rare in hemib.-bore., very rare in temp.; DK (EN), FI (EN, V: Karjaa, Mustio, EH: Somero, Häntälä), NO (VU), SE (VU). – FNE 1:149, M&J 7, Phil 75h, Svp 15:41, Ves 173.  
*H. intermedia* (Pass.) Fayod (*Hygrophorus i.* Pass.)
- Stem smooth, < 5 mm broad 20
20. Gills decurrent 21  
 - Gills adnate, occasional with a decurrent tooth 23
21. Cap scales/felt concolorous or yellow when slightly dried out. Cap 3-40 mm, at first low convex, later plane and with  $\pm$  depressed centre and/or with irregularly upturned margin, finely scaly to felty, dry, red, orange or rarely yellow; gills decurrent, pale yellowish white to yellow or even reddish; stem 12-60 x 1.5-5 mm, usually cylindrical, smooth and with silky sheen, dry, concolorous with cap. Sp (7.5-)-9-10.5(-11.5) x (5-)-5.5-7(-9)  $\mu\text{m}$ , ellipsoid, oblong or slightly phaseoliform (fig. 201G); gill trama subregular; pileipellis a trichoderm. In seminatural grassland and in damp forests, especially of *Alnus*, but also *Picea*; summer to late autumn; common in temp.-suba.; DK (NT), FI (LC), FO, NO (LC), SE (LC). – B&K 3:90, FE 6:555, FNE 1:111, M&J 10, Ves 168.  
*H. cantharellus* (Schwein.: Fr.) Murrill (*Hygrophorus c.* (Schwein.: Fr.) Fr., *Hygrocybe lepida* Arnolds)
- Cap scales/felt dark grey to black 22
22. Cap and stem orange or orange yellow; cap scales/felt blackish, occasionally forming a black covering on entire cap; in dry habitats. Cap 8-30 mm, at first low convex, later plane with depressed centre, finely scaly to felty, dry; gills decurrent, pale yellow; stem 15-30 x 2-4 mm, usually cylindrical, smooth, dry. Sp (8-)-9.5-11.5(-12.5) x (4.5-)-5.5-7(-8)  $\mu\text{m}$ , ellipsoid, oblong to slightly phaseoliform (fig. 201H); gill trama subregular; pileipellis a trichoderm, at least at centre, terminal cells with dark brownish intracellular pigment. In acid grassland, pastures, heathland, fens and arctic dwarf scrubs; summer to autumn; occasional in bore.-arc./alp., but common in IS, rare in temp.-hemib.; DK (EN), FI (LC), FO, IS, NO (NT), SE (VU). – FE 6:587, FNE 1:113, Svp 22:29, ☉.  
*H. turunda* (Fr.: Fr.) P. Karst. (*Hygrophorus t.* (Fr.: Fr.) Fr.)
- Cap and stem orange red to red; dark cap scales often confined to the centre of cap; in moist habitats. Cap 6-20 mm, at first low convex, later plane with depressed centre, finely scaly to felty, dry; gills decurrent, whitish or pale yellow; stem 10-70 x 1.5-4 mm. Sp (8-)-9.5-11.5(-13) x (5-)-5.5-6.5(-8)  $\mu\text{m}$ , ellipsoid, oblong to slightly phaseoliform (fig. 201I); gill trama subregular; pileipellis a trichoderm, at least at centre, terminal cells with dark brownish intracellular pigment. In bogs and humid *Pinus* forests, usually among *Sphagnum*, or on dried out oligotrophic lake shores, rarely also in humid grassland; summer to autumn; common in FI, elsewhere occasional in hemib.-suba., rare in temp.; DK (VU), FI (LC), IS, NO (LC), SE (LC). – FNE 1:115, GBW 3:60, Ves 168.  
*H. coccineocrenata* (P.D. Orton) M.M. Moser (*Hygrophorus c.* P. D. Orton)
23. Sp (7-)-9-12(-14.5) x (4-)-5-6.5(-8.5)  $\mu\text{m}$ . Cap 5-50 mm, low convex, then plane, often with



Spores: A: *Hygrocybe vitellina*, B: *H. laeta* var. *flava*, C: *H. glutinipes* var. *glutinipes*, D: *H. insipida*, E: *H. citrinopallida*, F: *H. intermedia*, G: *H. cantharellus*, H: *H. turunda*, I: *H. coccineocrenata*, J: *H. substrangulata*, K: *H. helobia*, L: *H. calciphila*.

slightly depressed centre, finely scaly, at least at centre, dry, orange or orange red, rarely scarlet, usually with concolorous scales, becoming yellow when drying, but sometimes greyish; gills adnate, occasionally with a decurrent tooth, whitish to pale yellow or pale orange; stem 10-40 x 2-4 mm, dry and smooth, concolorous with cap; frb from arctic habitats are small and stout. Sp ellipsoid-oblong to ovoid-oblong, sometimes broadly ellipsoid and many often constricted (fig. 201J); gill trama subregular; pileipellis a trichoderm, at least at centre, sometimes with intracellular brownish content in terminal cells. In temp.-bore. in acid/oligotrophic habitats as fens in fixed dunes and heathland, moist grassland and lake shores, in suba. and arc./alp. in dwarf scrub heathland and fens; summer to autumn; occasional in bore.-arc./alp., rare in temp.-hemib.; DK (VU), FI (DD), IS, NO (LC), SE. – FNE 1:107, Svp 22:28, ☉.

*H. substrangulata* (P.D. Orton) P.D. Orton & Watling var. *substrangulata* (*Hygrophorus* s. P.D. Orton, *Hygrocybe coccineocrenata* (P.D. Orton) M.M. Moser f. *ambigua* Kühner, *H. biminata* Kühner)

var. *rhodophylla* (Kühner) Boertm. differs in being bright red to blood red, particularly the gills; in arc./alp., Greenland and the Alps, but not yet recorded from the Nordic area. – FNE 1:109.

Note: some authors separate small arctic/alpine forms with narrower hairs on stem (3.5-5.5  $\mu\text{m}$  against 6.5-11.5  $\mu\text{m}$ ) as *H. biminata* Kühner.

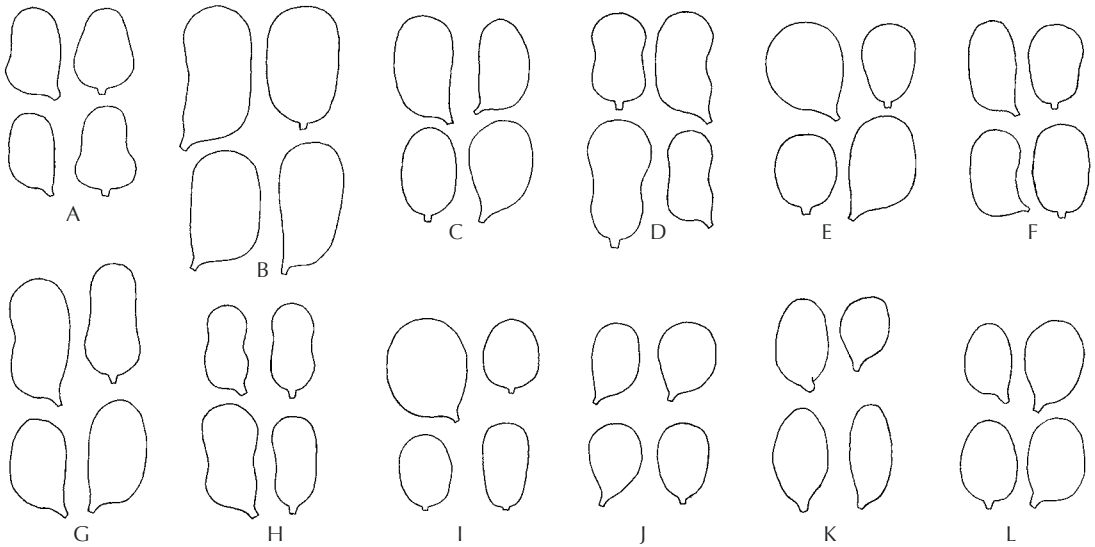
- Sp usually 7-10  $\mu\text{m}$  long 24
- 24. Gill trama cells 150-500  $\mu\text{m}$  long, with tapering ends; smell like garlic, at least after some time in a closed container. Cap 8-25 mm, low convex to plane, often with slightly depressed centre, covered with concolorous often erect and pointed scaly, dry, scarlet red discolouring to dull orange; gills adnate, occasional slightly emarginate or decurrent with a tooth, orange red to pale yellow; stem 10-40 mm x 2-3 mm, dry, smooth, concolorous with cap or paler; flesh fragile. Sp 8-10 x 5-6(-7)  $\mu\text{m}$ , rather variable in shape, broadly ellipsoid, ellipsoid, oblong, obovoid, sometimes concave on one side (fig. 201K); gill trama regular; pileipellis a trichoderm. In seminatural grassland, parks and pastures, often in moist areas, heathland



and deciduous forests; summer to autumn; common in hemib.-bore., occasional in temp. and suba.; DK (NT), FI (LC), FO, NO (LC), SE (LC). – B&K 3:87, FE 6:571, FNE 1:135, Svp 13:6, Ves 169.

*H. helobia* (Arnolds) Bon (*Hygrophorus h.* Arnolds, *Hygrocybe miniatoalba* (Pat.) F.H. Møller s. F.H. Møller)

- Gill trama cells 20-150  $\mu\text{m}$  long, cylindrical; smell indistinct 25
- 25. Sp subglobose to broadly ellipsoid, not constricted (fig. 201L). Cap 3-35 mm, at first hemispherical to convex, later plane, often with depressed centre, scarlet to orange red, often with yellow margin, scales or tomentum concolorous, soon becoming yellow when drying; gills broadly adnate, occasionally decurrent with a tooth, at first often whitish, later yellow to orange; stem 20-40 x 1.5-4 mm, dry and smooth, yellow to orange. Sp 7.5-9 x 5-6(-7)  $\mu\text{m}$ ; gill edge occasionally with protruding hairs. In calcareous grassland, up to 540 m alt.; late summer to autumn; rare in temp.-suba.; DK (EN), NO (VU), SE (NT). – FE 6:551, FNE 1:105, GBW 3:56, Svp 22:28.  
*H. calciphila* Arnolds
- Sp ellipsoid, many widened towards base or constricted in front view (fig. 203A). Cap 6-50 mm, at first hemispherical or convex, later plane and often with depressed centre, covered with fine scales or tufts, at the centre often more felty or tomentose, in older frb often smooth towards the margin, dry, orange red to scarlet red, with concolorous scales, rarely greyish at centre, becoming yellow when dry; gills adnate, occasional with a decurrent tooth, yellow to reddish with paler edge; stem 20-50 x 2-5 mm, cylindrical to plane with longitudinally groove, concolorous with cap or paler, dry, smooth. Sp (6-)7-9(-10) x (4-)4.5-5.5(-6.5)  $\mu\text{m}$ ; gill trama subregular; gill edge usually with protruding hairs, 5-40 x 2-4  $\mu\text{m}$ ; pileipellis a trichoderm. Mostly in acid grassland and heathland, coniferous and deciduous forests, often along tracks, but also on black soil in swamps; summer to autumn; very common in temp., common in hemib.-arc./alp.; DK (LC), FI (LC), FO, NO (LC), SE (LC). – FNE 1:103, M&J 9, R&H 257, Svp 13:6, Ves 169, ☉.  
*H. miniata* (Fr.: Fr.) P. Kumm. var. *miniata* (*Hygrophorus m.* (Fr.: Fr.) Fr., *Hygrocybe m.* (Fr.: Fr.) P. Kumm. var. *microspora* Kühner, *H. strangulata* (P.D. Orton) Svrček, *H. moseri* Bon) var. *mollis* (Berk. & Broome) Arnolds differs in having yellow cap and stem; DK.
- 26. Gills free or adnexed 27
- Gills adnate or decurrent 31
- 27. Stem fibrillose 28
- Stem smooth 29
- 28. Cap dark brown. Cap 25-80 mm, broadly conical, lobed, later expanded with  $\pm$  acute umbo, often with splitting margin, rimose, with paler flesh visible between fibres in old frb; gills free or adnexed, yellow, occasionally orange; stem 35-90 x 3-12 mm, fibrillose, yellow, when older more orange, occasionally with brown fibres. Sp 9-12 x 5-7  $\mu\text{m}$ , ellipsoid to oblong (fig. 203B); gill trama regular, of  $\geq 1000$   $\mu\text{m}$  long, fusiform cells. In seminatural dry grassland, usually after warm summers; summer to autumn; rare in temp.-southern bore., very rare in suba., in IS not since 1935; DK (NT), FI (CR, V: Iniö, EH: Nokia), FO, IS (Ve), NO (EN), SE (VU). – Däh 165, FNE 1:151, M&J 14, Svp 21:43, Ves 165.  
*H. spadicea* (Scop.) P. Karst. var. *spadicea* (*Hygrophorus s.* (Scop.) Fr.) var. *albifolia* (Hesler & A.H. Sm.) Boertm. differs in having white gills and stem; DK.
- Cap yellow or orange see *H. acutoconica* 6
- 29. Cap and often stem bright to deep scarlet; smell sweetish like honey, particularly in drying frb. Cap 20-70 mm, at first  $\pm$  conical to hemispherical, later broadly conical, bell-shaped to plane with an umbo, smooth and mat, dry; gills adnexed, yellow, orange or reddish with paler margin; stem 25-100 x 5-15 mm, dry, smooth, usually with more yellow base, but occasionally entirely yellow, often irregularly twisted and enlarged and with a broad central



Spores: A: *Hygrocybe miniata* var. *miniata*, B: *H. spadicea*, C: *H. splendidissima*, D: *H. quieta*, E: *H. citrinovirens*, F: *H. reidii*, G: *H. phaeococcinea*, H: *H. constrictospora*, I: *H. calyptriformis*, J: *H. pratensis* var. *pratensis*, K: *H. hygrocyboides*, L: *H. laeta* var. *laeta*.

cavity; flesh in stem yellow or orange, rather fragile. Sp (6.5-)7.5-9(-10) x (4-)4.5-5.5(-6)  $\mu\text{m}$ , ellipsoid, ovoid to ellipsoid-oblong (fig. 203C); gill trama subregular, with  $\pm$  inflated elements up to 100  $\mu\text{m}$  long. In seminatural, high diversity grassland and lawns; late autumn; rare in temp.-bore.; DK (EN), FO, NO (NT), SE (NT). – FE 6:539, FNE 1:95, N&S 501, Svp 11:2, Ves 173.

*H. splendidissima* (P.D. Orton) M.M. Moser (*Hygrophorus* s. P.D. Orton)

- Cap and stem yellow or orange; smell like *Lactarius quietus*, herbaceous or insignificant 30
30. Gills yellow to orange, usually more deeply coloured than rest of frb; cap convex, bell-shaped to plane. Cap 10-80 mm, usually dry, although young and fresh frb may be slightly greasy, lemon chrome, dirty yellow to orange, becoming greyish green when faded and eroded; gills adnexed, occasionally adnate or emarginate, often broad; stem 30-90 x 2-8 mm, often irregularly compressed and grooved, dry and smooth, concolorous with cap, usually with orange top, hollow and fragile; smell faint like *Lactarius quietus* or pentatomid bugs, best recorded immediately after picking and from a closed container. Sp (7-)7.5-9(-11) x 4-5 (-6)  $\mu\text{m}$  ellipsoid or oblong, usually > 75 % of them constricted (fig. 203D); gill trama subregular with  $\pm$  inflated cells up to 150(-250)  $\mu\text{m}$  long. In seminatural, high diversity grassland and deciduous scrubs and forests; late summer to autumn; occasional, but locally common in hemib.-suba., in FI north to PK, rare in temp.; DK (EN), FI (LC), FO, IS, NO (NT), SE (VU). – B&K 3:95, FE 6:531, FNE 1:99, Jordst 12(3), Svp 13:3.

*H. quieta* (Kühner) Singer (*Hygrophorus* q. Kühner, *Hygrocybe obrussea* (Fr.: Fr.) Wünsche s. Arnolds)

Note: small, robust forms with dirty orange cap and stem and bright orange gills could be a separate taxon.



- Gills whitish to greenish yellow; cap  $\pm$  conical. Cap 25-90 mm, conical when young, later plane with acute umbo, often irregularly lobed with splitting margin, radially fibrillose, occasionally somewhat scaly at centre, dry, lemon yellow, greenish yellow or orange yellow, sometimes with brownish fibres; gills free or adnexed, with coarsely serrate margin; stem

50-130 x 7-20 mm, at first smooth, later more fibrillose, dry and mat, pale yellow to greenish yellow, often flushed with orange or brownish, very brittle; smell sometimes herbaceous and pleasant. Sp 6.5-8.5(-10) x (4.5)5-6(-7.5)  $\mu\text{m}$ , broadly ellipsoid, ellipsoid to subglobose, occasionally slightly constricted (fig. 203E); gill trama regular, with fusiform cells, 250-600 x 12-30  $\mu\text{m}$ , some of which are seen as pseudocystidia. In seminatural, species rich grassland, often on calcareous ground; autumn; very rare in temp.-southern bore.; DK (EN), FI (EN), FO, NO (EN), SE (VU). – FE 6:459, FNE 1:139, Jordst 12(2), Sienop 113, Svp 15:42.

*H. citrinovirens* (J.E. Lange) Jul. Schäff. (*H. brevispora* F.H. Møller, *H. cystidiata* Arnolds)

31. Gill trama interwoven 32  
 - Gill trama subregular 33
32. Cap dull orange to brownish orange see key B 5  
 - Cap  $\pm$  yellow see 17
33. Frb yellow to orange; smell faint, after some time in a box like *Lactarius quietus*  
 see *H. quieta* 30  
 - Frb orange, orange red or red; smell sweetish and honey-like or indistinct 34
34. With distinct bitter taste or sweetish and honey-like smell 35  
 - With insignificant taste and smell 36
35. Smell sweetish and honey-like, particularly from slightly dried frb; taste insignificant. Cap 10-50 mm, low convex to plane often with slightly depressed centre when old, smooth, dry, orange to orange red, drying out to buff, not or only short translucently striate; gills adnate to  $\pm$  decurrent, paler than cap; stem 20-50 x 2-5 mm, dry and smooth, concolorous with cap or golden yellow. Sp (6-)6.5-8.5(-10) x 4-5(-7.5)  $\mu\text{m}$ , ellipsoid, ovoid, a few occasionally slightly constricted in front view (fig. 203F); gill trama subregular. In seminatural grassland, fixed dunes, lawns and deciduous scrubs, including subalpine *Betula* forests; summer to autumn; common in temp.-suba.; DK (NT), FI (LC), FO, IS (Nm, Na), NO (LC), SE (LC). – FNE 1:93, Phil 77f, R&H 256, Svp 15:42, Ves 175.  
*H. reidii* Kühner (*H. marchii* (Bres.) F.H. Møller s. F.H. Møller)  
 - Smell insignificant; taste bitter see *H. mucronella* 9
36. Cap with a  $\pm$  prominent black covering; gills usually deep orange or bright red and often with salmon hue. Cap 3-25(-50) mm, convex to plane, occasionally with depressed centre, dry, mat and smooth, usually dark red to scarlet with a narrow yellow margin, rarely entirely yellow; gills adnate or  $\pm$  decurrent, often visible below cap margin; stem 10-50 x 1-3(-5) mm, concolorous with cap (except black coating) or paler, dry, mat and smooth, very fragile. Sp (6-)7.5-10(-12.5) x (4-)4.5-5.5(-7.5)  $\mu\text{m}$ , shape variable, ellipsoid to oblong, sometimes constricted or phaseoliform (fig. 203G); gill trama subregular, of chains of cylindrical cells, in fresh frb often with brownish intracellular contents; gill edge with scattered sterile hairs, up to 70 x 2.5  $\mu\text{m}$ . In seminatural grassland, fixed dunes, parks and dried out oligotrophic lake shores; late summer to autumn; occasional in temp.-bore.; DK (NT), FI (LC), NO (NT), SE (NT). – FE 6:527, FNE 1:97, Svp 15:39.  
*H. phaeococcinea* (Arnolds) Bon (*Hygrophorus p.* Arnolds)  
 - Cap without black covering; gills whitish to pale yellow or pale orange. Cap 4-35 mm, hemispherical to plane, sometimes with depressed centre, dry, scarlet to orange; stem 25-50 x 1.5-2 mm, dry and smooth, yellow or orange. Sp (6-)7-9(-11) x (3-)3.5-4.5(-5)  $\mu\text{m}$ , oblong to cylindrical, many (more than 75%) constricted (fig. 203H); gill trama subregular, pileipellis a cutis, in young frb with a thin cover of gelatinised hyphae. In coastal grassland and fixed dunes often near *Salix repens* and often on calcareous ground; late summer to autumn; very rare or possibly overlooked in temp.-suba., occasional in IS; DK (EN), FI (VU), IS, SE (NT). – FNE 1:101, Pers 9: pl. 20 (as *Hygrophorus strangulatus*).  
*H. constrictospora* Arnolds (*H. parvula* (Peck) Murrill s. Hallgrímsson)

**Key B:** Frb green, blue, lilac, brick red, dull orange, brownish orange or pink

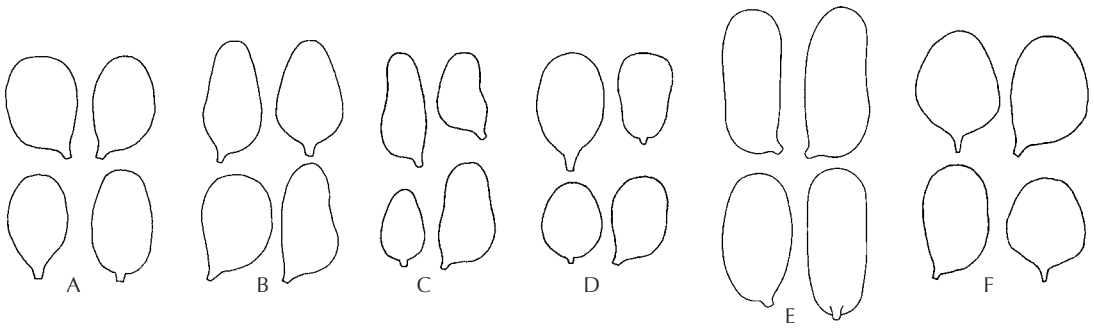
1. Cap and stem dry, or occasionally somewhat moist 2  
- Cap and/or stem distinctly slimy 6
2. Cap conical to plane with an umbo; gills adnexed or free 3  
- Cap plane to almost funnel-shaped; gills decurrent 4
3. Frb blackening when handled and old; stem  $\pm$  fibrillose see *H. conica* key A 2  
- Frb not blackening when handled or with age; stem smooth. Cap 25-70 mm, at first narrowly conical, irregularly lobed, later expanding with splitting margin and acute umbo, slightly greasy to dry, pale lilac, rose, flesh pink, discolouring to brownish pink or fading to whitish; gills white, free to adnexed, splitting lengthwise; stem 30-120 x 5-15 mm, cylindrical, dry, white or pale rose. Sp 6-9 x 4-7  $\mu\text{m}$ , broadly ellipsoid to ellipsoid-oblong (fig. 203I); gill trama regular, with  $\geq 1000 \mu\text{m}$  long cells. In seminatural, high diversity grassland; autumn; very rare in temp.-hemib.; DK (CR), FO, NO (CR). – B&K 3:80, Däh 166, FNE 1:137, Phil 74b, Ves 166, .
- H. calyptriformis* (Berk. & Broome) Fayod ('*calyptraeformis*', *Hygrophorus c.* Berk. & Broome)  
Note: frb with white cap and stem are referred to *f. nivea* (Cooke) Bon.
4. Frb greyish, getting a distinct pink hue when old and drying see *H. roseascens* key C 22  
- Frb with yellow and lilac colours 5
5. Cap not hygrophanous, 30-120 mm, at first hemispherical, low convex or broadly conical, later plane, often with a broad umbo and upturned margin when old, dry and mat, dull orange, brownish orange, apricot or buff; gills deeply decurrent, paler than cap, buff or cream; stem 30-150 x 4-20  $\mu\text{m}$ , often tapering downwards, finely aeriferous fibrillose, dry and mat, usually paler than cap and dull orange, buff to cream; flesh at centre of cap thick. Sp (5-)5.5-6.5(-7.5) x (3.5-)4-5(-5.5)  $\mu\text{m}$ , Q = 1.1-1.8, Qav = 1.2-1.4, ellipsoid to subglobose (fig. 203J); gill trama interwoven; pileipellis a cutis with some trichoderm-like elements. Mostly in seminatural grassland, pastures, lawns, fixed dunes, but also in deciduous woods and scrubs; summer to late autumn; common in temp.-arc./alp., in FI less common in northern parts; DK (LC), FI (LC), FO, IS, NO (LC), SE (LC). – B&K 3:76, Däh 146, FNE 1:41, Phil 72a, Ves 162, .
- H. pratensis* (Pers.: Fr.) Murrill var. *pratensis* (*Hygrophorus p.* (Pers.: Fr.) Fr., *Camarophyllus p.* (Pers.: Fr.) P. Kumm., *Cuphophyllus p.* (Pers.: Fr.) Bon)  
- Cap hygrophanous, 10-33 mm, low convex to bell-shaped, later plane and often with distinct umbo, dry and smooth, orange with a brownish flush or orange brown, translucently striate halfway to centre; gills decurrent, buff to cream with reddish brown flush, paler with age; stem 30-75 x 2-4.5 mm, dry and covered with aeriferous fibrils, buff to cream, with reddish or orange tinge. Sp (6-)7-9(-10.5) x (3.5-)4.5-5.5(-6.5)  $\mu\text{m}$ , Q = 1.3-2.2, Qav = 1.6-1.7, ellipsoid to oblong (fig. 203K); gill trama interwoven, in places subregular; pileipellis a cutis. In grassland; rare in suba.-arc./alp.; SE.  
*H. hygrocyboides* (Kühner) Arnolds (*Camarophyllus h.* Kühner, *Cuphophyllus h.* (Kühner) Bon)
6. Gills decurrent, with a slimy, hyaline edge. Cap 10-50 mm, low convex, later plane with slightly depressed centre, slimy, pale brownish orange, dull orange, at first occasionally olive greyish, often with paler margin, translucently striate; gills pale greyish, occasionally with lilac or olive hue; stem 15-60 x 2-4 mm, concolorous with cap and often with greyish top; flesh rather tough; smell unpleasant, like burnt rubber. Sp (5-)6-7(-8.5) x (3.5-)4-4.5(-5)  $\mu\text{m}$ , ellipsoid, ovoid or oblong (fig. 203L); gill edge sterile and covered with gelatinised and densely packed cheilocystidia; subhymenium gelatinized (unique in the genus); pileipellis an ixotrichoderm; gill trama subregular; basidia often with medallion clamps. Mostly in acid seminatural grassland, heathland and fixed dunes; summer to autumn; very common

in temp.-hemib., common in bore., occasional in arc./alp.; DK (LC), FI (LC), FO, NO (LC), SE (LC). – B&K 3:89, FNE 1:85, M&J 2, Svp 11:6, Ves 170.

*H. laeta* (Pers.: Fr.) P. Kumm. var. *laeta* (*Hygrophorus l.* (Pers.: Fr.) Fr., *Gliophorus l.* (Pers.: Fr.) Kovalenko)

- Gills adnate or emarginate, edge not slimy 7
- 7. Frb green or greenish, at least at stem top. Cap 5-60 mm, hemispherical, bell-shaped to almost plane, distinctly slimy, at first usually with bright green to olive green colours, but occasionally without green and then ochre yellow, bright yellow or even bluish or brownish, hygrophanous and drying to pale pinkish, ± translucently striate; gills ventricose and usually slightly emarginate, concolorous with cap or paler; stem 20-60 x 2-8 mm, distinctly slimy, concolorous with cap, but in some forms entirely whitish, pale bluish or with a faint lilac hue. Sp 7-9.5 x 5-6 µm, ellipsoid to ovoid (fig. 207A); basidia often with medallion clamps; gill trama subregular with cells up to 150 µm long. In seminatural grassland, fixed dunes, lawns, deciduous forests, scrubs, etc.; summer to late autumn; common in temp.-suba.; DK (LC), FI (LC), FO, IS, NO (LC), SE (LC). – B&K 3:98, FE 6:614, 615, FNE 1:81, Svp 11:4, 43:30, Ves 171, ☉.
- H. psittacina* (Schaeff.: Fr.) P. Kumm. var. *psittacina* (*Hygrophorus p.* Schaeff.: Fr., *Gliophorus p.* (Schaeff.: Fr.) Herink)
- Frb without green 8
- 8. Frb pink, brick or brownish red 9
- Frb brown and/or blue or lilac 10
- 9. Frb pink; gills and stem paler than cap. In other characters like the main variety. In seminatural grassland; autumn. UK. – Cke 937 (905) A (as *Hygrophorus sciophanus*).
- H. psittacina* (Schaeff.: Fr.) P. Kumm. var. *sciophanoides* (Rea) Boertm. (*H. sciophanoides* (Rea) P.D. Orton & Watling)
- Frb with darker colours. Cap rust to brownish red, often with paler margin; gills pale orange to brick red, sometimes with olive or salmon hue; stem concolorous with cap or paler, occasionally with greyish or olive top; in other characters like the main variety. In seminatural grassland; summer to autumn; rare in temp.-bore.; DK, NO (NE), SE (NA). – Däh 152, FE 6:610, FNE 1:83, GBW 3:72, Ves 171.
- H. psittacina* (Schaeff.: Fr.) P. Kumm. var. *perplexa* (A.H. Sm. & Hesler) Boertm. (*Hygrophorus p.* A.H. Sm. & Hesler, *Gliophorus p.* (A.H. Sm. & Hesler) Kovalenko, *Hygrocybe sciophana* (Fr.) P. Karst.)
- 10. Cap chestnut brown with lilac hue see *H. psittacina* 7
- Cap bluish or lilac 11
- 11. Cap bluish; stem often whitish; in lowland pastures see *H. psittacina* 7
- Cap lilac, yellow or a mixture of these; stem ± lilac; in arc./alp. fens and grassland 12
- 12. Cap translucently striate less than half the radius; sp 8-10(-12) x 5-7 µm. Cap 5-25 mm, low convex with incurved margin, later plane with ± depressed centre, often with crenate margin, at first distinctly slimy, soon drying and becoming mat, at first bright yellow to brownish orange, later pale yellow, buff, lilac or a mixture of these colours, weathered frb opaque greyish to white; gills decurrent, occasionally broadly adnate, yellow to lilac; stem 10-40 x 1-3 mm, at first slimy, lilac or occasionally partly yellow. Sp ellipsoid, oblong, ovoid or amygdaloid (fig. 207B); gill trama interwoven. In bogs and fens, moist dwarf scrub heathland and grassland; late summer to autumn; occasional in northern bore.-arc./alp.; FI (LC), FO, NO (LC), SE (LC). – FE 6:394, FNE 1:69, M&J 16, P,R&V 75, Seiniop 116, ☉.
- H. lilacina* (P. Karst.) M.M. Moser (*Agaricus l.* C. Laest. nom. illeg., *Omphalia l.* P. Karst., *Hygrophorus l.* (P. Karst.) M. Lange, *Gliophorus l.* (P. Karst.) Kovalenko)
- Cap translucently striate more than half the radius and with a translucent central eye; sp





Spores: A: *Hygrocybe psittacina* var. *psittacina*, B: *H. lilacina*, C: *H. xanthochroa*, D: *H. irrigata*, E: *H. olivaceonigra*, F: *H. ingrata*.

(4.5-)5-7.5(-8) x 3-5(-5.5)  $\mu\text{m}$ . Cap 5-25 mm, at first low convex, soon umbilicate, with in-curved margin, later plane with depressed centre, at first slimy, soon drying and becoming mat, pale yellow, yellow, orange yellow, brownish yellow to violaceous grey, often a mixture of these, becoming whitish when drying out; gills decurrent, pale violaceous grey to pale yellow, with dry edge; stem 10-60 x 1.3-2 mm, at first viscid, dry and mat when old, pale yellow to hyaline whitish, sometimes with violaceous grey areas, particularly at the top. Sp ellipsoid to amygdaloid, often slightly constricted (fig. 207C); gill trama interwoven. In fens, dwarf scrub heathland and grassland; late summer to autumn; occasional in suba.-arc./alp.; FI (LC), FO, IS, NO (LC). – FNE 1:67.

*H. xanthochroa* (P.D. Orton) M.M. Moser (*Hygrophorus* x. P.D. Orton)

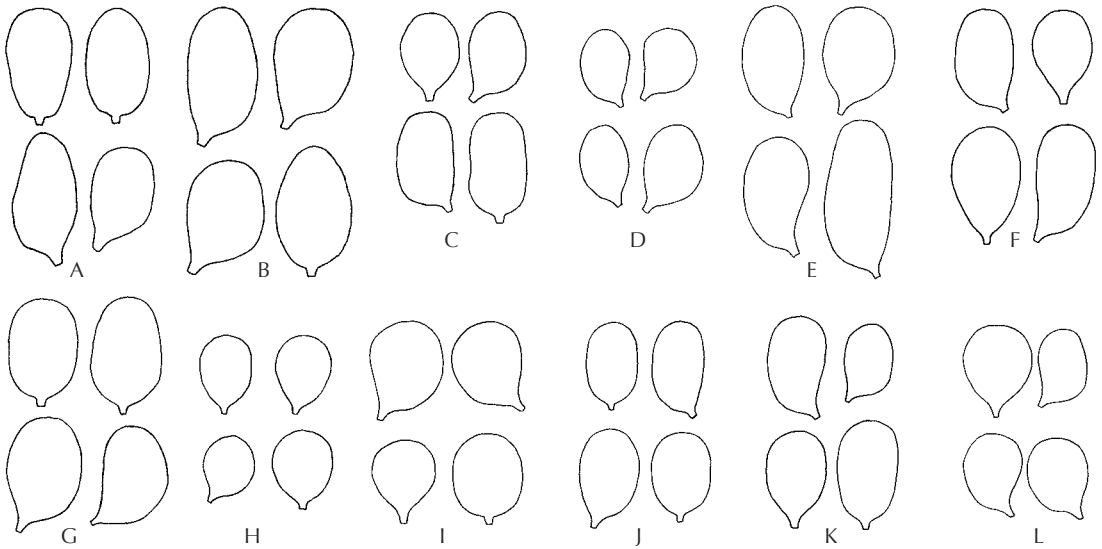
### Key C: Frb white, grey, brown or black

1. Gills free, adnexed or adnate, occasionally with a decurrent tooth 2
  - Gills decurrent 12
2. Cap and stem distinctly slimy 3
  - Cap and stem not slimy, but may be somewhat sticky or moist 4
3. Cap dark brown, occasional with lilac; stem white see *H. psittacina* key B 6
  - Cap and stem grey brown, grey, steel grey or even almost white. Cap 10-50 mm, broadly bell-shaped, hemispherical to  $\pm$  plane when old, viscid,  $\pm$  translucently striate near margin; gills adnate to short decurrent, whitish or pale grey; stem 30-100 x 3-5 mm, viscid. Sp (5-)6.5-8(-9) x (3.5-)4.5-5(-6)  $\mu\text{m}$ , ellipsoid, broadly ellipsoid or ovoid, occasionally a few slightly constricted (fig. 207D); gill trama subregular with  $\pm$  inflated cells, up to 140  $\mu\text{m}$  long; pileipellis an ixotrichoderm; basidia often with medallion clamps. In seminatural grassland and fixed dunes, more rarely in rich coniferous and deciduous forests; summer to autumn; occasional in temp.-bore.; DK (LC), FI (LC), FO, NO (LC), SE (LC). – B&K 3:102, Däh 150, FNE 1:89, Phil 73e, Ves 170, .
- H. irrigata* (Pers.: Fr.) Bon (*Hygrophorus* i. (Pers.: Fr.) Fr., *H. unguinosa* (Fr.: Fr.) P. Karst.)
4. Gills free to adnexed; smell indistinct 5
  - Gills adnexed, emarginate to adnate; smell often distinctly nitrous, farinaceous or unpleasant like *Tricholoma album* 7
5. Frb blackening with age and when handled. Cap 30-50 mm,  $\pm$  conical, greenish white, olive-green, with more brownish centre; gills free or adnexed, pale greenish white to greenish grey; stem 40-100 x 3-6 mm, whitish to greyish white, somewhat striate-fibrillose. Sp 9-14.5 x 4.5-5.5  $\mu\text{m}$ , cylindrical to oblong (fig. 207E); cheilocystidia clavate or fusiform 30-50 x 13-20

$\mu\text{m}$ . In grassland and fixed dunes. UK. – FE 6:415.

*H. olivaceonigra* (P.D. Orton) M.M. Moser (*Hygrophorus o.* P.D. Orton)

- Frb not blackening 6
- 6. Cap dark brown; stem and gills yellow or white see *H. spadicea* key A 28
- Cap, stem and gills white see *H. calyptriformis* key B 3
- 7. Smell distinctly nitrous 8
- Smell absent or different 9
- 8. Cap smooth, but often irregularly uneven or cracked, buff or yellowish brown, often with whitish margin, when old chestnut brown to dark brown; flesh slowly reddening when bruised. Cap 20-60 mm,  $\pm$  convex, rarely with depressed centre, dry; gills adnate or emarginate, at first cream, gradually more brown with age, occasionally with dark edge; stem 30-110 x 5-20 mm, in large frb often irregularly twisted and compressed, dry, smooth, at first cream, becoming brown with age, hollow; smell nitrous, particularly when cut, but rather faint compared to *H. nitrata*. Sp (6-)7-9(-10) x (4-)5-6.5(-7)  $\mu\text{m}$ , broadly ellipsoid to ellipsoid, often a few subglobose present as well and these often in front view with angular base (fig. 207F); gill trama subregular, with  $\pm$  inflated elements, up to 215  $\mu\text{m}$  long. In seminatural grassland; summer to autumn; rare in temp.-bore.; DK (EN), FI (EN, U: Helsinki, Pornaisten-niemi), FO, NO (NT), SE (VU). – FE 6:647, FNE 1:77, M&J 17, Svp 2:60, Ves 164.  
*H. ingrata* J.P. Jensen & F.H. Møller
- Cap at first smooth, but becoming finely scaly with age, grey brown; flesh not reddening. Cap 20-70 mm, convex to plane, dry; gills adnate or emarginate, pale greyish or buff with paler margin; stem 20-60 x 3-6 mm, smooth and dry, buff or greyish brown often with paler top and base; smell distinctly nitrous. Sp (7-)8-9(-10) x (4-)4.5-5.5(-6)  $\mu\text{m}$ , ellipsoid, oblong to broadly ellipsoid (fig. 209A); gill trama subregular with  $\pm$  inflated cells, up to 260  $\mu\text{m}$  long. In seminatural grassland and deciduous scrubs, at roadsides in forests and in fixed dunes; summer to autumn; occasional in temp.-suba.; DK (NT), FI (LC), FO, IS, NO (LC), SE (LC). – FNE 1:75, M&J 17, R&H 251, Svp 2:61, Ves 164,  $\odot$ .  
*H. nitrata* (Pers.) Wünsche (*Hygrophorus n.* (Pers.) Fr., *Hygrocybe murinacea* (Bull.: Fr.) P. Kumm. s. auct.)
- 9. Smell farinaceous; sp cylindrical, amyloid see *Porpoloma metapodium* p. 412
- Smell absent or unpleasant like *Tricholoma album*; sp ellipsoid, non-amyloid 10
- 10. Frb dark; flesh reddening. Cap 20-90 mm, at first hemispherical to bell-shaped, later more irregularly convex, broadly conical or almost plane, smooth, but when old often cracked and  $\pm$  scaly, dry, at first dark grey brown, later dark sepia grey, dark grey to almost blackish; gills adnexed, often very broad and thick, sepia grey, grey brown to dark grey, but usually paler than cap; stem 30-120 x 7-25(-30) mm, irregularly furrowed and compressed in large frb, dry, smooth and fibrillose when old, concolorous with cap and hollow; flesh slightly paler than surface and turning reddish when cut or bruised; smell unpleasant and sometimes slightly nitrous. Sp (7-)7.5-9(-11) x 5-6(-7)  $\mu\text{m}$ , ellipsoid, broadly ellipsoid to ellipsoid-oblong (fig. 209B); gill trama subregular, with cells up to 400  $\mu\text{m}$  long, some with brownish contents. In seminatural, high diversity grassland; summer to autumn; rare in temp.-bore.; DK (EN), FI (CR, V: Rymättylä and EH: Nokia), NO (VU), SE (EN). – B&K 3:96, FNE 1:79, Phil 73f, Svp 2:60, Ves 165,  $\odot$ .  
*H. ovina* (Bull.: Fr.) Kühner (*Hygrophorus o.* (Bull.: Fr.) Fr., *Hygrocybe nitiosa* (A. Blytt) M.M. Moser)
- Frb whitish, greyish or brown; flesh usually unchanged, but occasionally turning pink 11
- 11. Frb greyish or whitish. Cap 20-80 mm, at first broadly conical to bell-shaped, later  $\pm$  plane with small umbo or papilla, smooth, at first slightly sticky, soon dry, sometimes finely fibrillose or even finely scaly at centre, pale greyish white to dark brownish grey, often with



Spores: A: *Hygrocybe nitrata*, B: *H. ovina*, C: *H. fornicata*, D: *H. pratensis* var. *pallida*, E: *H. russocoriacea*, F: *H. virginea*, G: *H. colemanniana*, H: *H. canescens*, I: *H. flavipes*, J: *H. lacmus*, K: *H. cinerella*, L: *H. roseascens*.

darker centre; gills adnexed, adnate to emarginate, thin, medium spaced, white or pale grey; stem 20-70 x 3-20 mm, dry and fibrillose, occasionally finely scaly, particularly at base, white and sometimes with rusty spots or scales near base; flesh, cap margin and gills occasionally turning slowly pink when cut or bruised; smell sometimes unpleasant, resembling *Tricholoma album*. Sp (6-)7-8.5(-9.5) x (4-)4.5-5.5(-6)  $\mu\text{m}$ , ellipsoid, broadly ellipsoid or ovoid, a few occasionally oblong or phaseoliform (fig. 209C); gill trama subregular, with cells up to 150  $\mu\text{m}$  long. In seminatural grassland, fixed dunes and deciduous scrubs, mostly on calcareous soil; autumn; occasional in hemib.-suba., in FI rare in hemib.-bore., rare in temp.; DK (EN), FI (VU), FO, IS, NO (NT), SE (LC). – FE 6:643, FNE 1:73, N&S 495, R&H 252, Svp 2:61,64.

***H. fornicata*** (Fr.) Singer var. ***fornicata*** (*Hygrophorus* f. Fr., *Hygrocybe clivalis* (Fr.) P.D. Orton, *H. streptopus* (Fr.) Bon)

var. ***lepidopus*** (Rea) Boertm. & N. Barden differs by appressed red brown scales on the cap; UK.

- Frb brown see *Camarophylloopsis schulzeri* p. 189
- 12. Stem distinctly slimy 13
- Stem dry 14
- 13. Gill edge hyaline and slimy; frb orange brownish see *H. laeta* key B 6
- Gill edge dry; frb yellowish or whitish see key A 36
- 14. Cap white, cream or ivory, occasionally very pale yellowish 15
- Cap grey, greyish brown, pale buff, reddish brown, occasionally only at centre 17
- 15. Cap dry, not hygrophanous; sp (5-)5.5-6.5(-7) x (3.5-)4-4.5(-5)  $\mu\text{m}$ . Cap at first dry and pruinose, white or ivory white, often with buff or cream centre, not translucently striate; gills white or ivory white to pale buff; stem  $\pm$  fibrillose, concolorous with cap; flesh in cap thick; smell indistinct. Sp ellipsoid, broadly ellipsoid to subglobose (fig. 209D); in other characters like the main variety. In seminatural grassland; autumn; rare in temp.-hemib.; DK, NO, SE. – B&K *Camarophyllus* 1, FE 6:363, FNE 1:43.

***H. pratensis*** (Pers.: Fr.) Murrill var. ***pallida*** (Cooke) Arnolds (*Hygrophorus* p. (Pers.: Fr.) Mur-

rill var. *p.* Cooke, *Hygrocybe berkeleyi* (P.D. Orton) P.D. Orton & Watling, *Cuphophyllus b.* (P.D. Orton) Bon, *Camarophyllus berkeleyanus* Clemençon, *H. ortonii* Bon

- Cap sticky to greasy, hygrophanous; sp > 7 µm long 16
- 16. Smell strong like Russia leather or cedar wood. Cap 5-30 mm, at first low convex, later plane, usually with ± depressed centre, slightly sticky, ivory white, pale buff, occasionally pale cinnamon buff or with yellow tinge, ± translucently striate; gills decurrent, whitish; stem 12-40 × 15-4 mm, smooth, dry, concolorous with cap. Sp (6-)7.5-9(-10) × 4.5-5.5(-6) µm, Qav = 1.6, ellipsoid to ovoid to oblong (fig. 209E); gill trama interwoven. In seminatural grassland, often near the coast, in fixed dunes, pastures and at roadsides; late autumn; occasional in temp.-bore., but rare in FI, rare in suba.; DK (NT), FI (EN), FO, IS (Na, Au), NO (NT), SE (NT). – B&K 3:77, Däh 143, FE 6:375, FNE 1:46, M&J *Camarophyllus* 4.  
*H. russocoriacea* (Berk. & T.K. Mill.) P.D. Orton & Watling (*Hygrophorus r.* Berk. & T.K. Mill., *Cuphophyllus r.* (Berk. & T.K. Mill.) Bon, *Camarophyllus r.* (Berk. & T.K. Mill.) J.E. Lange)
- Smell insignificant. Cap 10-70 mm, at first hemispherical, low convex or broadly conical, later plane with ± depressed centre and irregularly upturned margin, occasionally with a small umbo, in moist conditions sticky, but soon dry and mat, small frb distinctly translucently striate, white, ivory white or cream, occasionally with ochre or pale brownish tinge, hygrophanous and becoming chalk white when dried out; gills decurrent, white, occasionally more ochre than cap and stem; stem 20-60 × 2-10 mm, dry and smooth, in large frb somewhat fibrillose, concolorous with cap; taste insignificant; infections by microorganisms may cause pink spots, completely dark purplish colouration and / or smell of coconut. Sp (6-)7-8.5(-9) × (4-)4.5-5(-6) µm (fig. 209F); gill trama interwoven; pileipellis an ixocutis. In seminatural grassland, lawns, pastures, deciduous scrubs, fixed dunes, roadsides; late summer to late autumn; very common in temp.-arc. / alp.; DK (LC), FI (LC), FO, IS, NO (LC), SE (LC). – B&K 3:103, FNE 1:49, R&H 249, Phil 76b, Ves 162, ☉.  
*H. virginea* (Wulfen: Fr.) P.D. Orton & Watling var. *virginea* (*Hygrophorus v.* (Wulfen: Fr.) Fr., *Camarophyllus v.* (Wulfen: Fr.) P. Kumm., *Hygrocybe nivea* (Scop.) Murrill, *Cuphophyllus n.* (Scop.) Bon, *H. subradiata* (Schumach.) P.D. Orton & Watling)  
Note: very variable in size and stature, and some subspecific taxa have been described:  
var. *fuscescens* (Bres.) Arnolds differs in having a ± distinct central brownish spot on the cap. – B&K *Camarophyllus* 3, FE 6:371, FNE 1:51, N&S 496, Svp 44:53.  
var. *ochraceopallida* (P.D. Orton) Boertm. differs in the cap being uniformly pale café-ou-lait, buff or pinkish buff and the stem being fibrillose and pale greyish covered with white, easily removable layer. In seminatural often lime rich grassland; rare in temp., but probably overlooked; DK, SE.
- 17. Cap reddish brown, dark chestnut brown to dark café-ou-lait brown. Cap 7-50 mm, at first convex to bell-shaped, later plane, often with conspicuous umbo, lubricous in moist conditions, occasionally paler margin and darker striate, hygrophanous; gills decurrent, often strongly intervenose, paler than cap; stem 20-50 × 3-7 mm, dry and fibrillose, whitish and often somewhat shiny and covered with a white, removable coating. Sp (6-)7.5-9(-10) × (4-)5-6(-7) µm, Q = 1.2-1.9, Qav = 1.4-1.5, ellipsoid to broadly ellipsoid (fig. 209G); gill trama interwoven; pileipellis an ixocutis. In seminatural, often lime rich grassland, less often in deciduous scrubs; autumn; rare in temp.-suba.; DK (EN), FI (VU, A, V), IS, NO (VU), SE (NT). – B&K 3:84, FE 6:331, FNE 1:55, N&S 494, Ves 163.  
*H. colemanniana* (A. Bloxam) P.D. Orton & Watling (*Hygrophorus c.* A. Bloxam, *Camarophyllus c.* (A. Bloxam) Ricken, *Cuphophyllus c.* (A. Bloxam) Bon)
- Cap grey, bluish grey, greyish brown, café-au-lait or buff 18
- 18. Cap pale café-ou-lait, buff or pinkish buff see *H. virginea* var. *ochraceopallida* 16
- Cap grey, bluish grey or grey brown 19
- 19. Cap dry, not translucently striate or hygrophanous. Cap 20-40 mm, low convex with

incurved margin to plane, ± broadly umbonate, at first somewhat felty to tomentose, grey to bluish grey, with greyish white areas, when young with a violaceous tinge, occasionally with dark spots; gills decurrent, intervenose, pale grey, violaceous grey, becoming paler with age; stem 25-50 x 3-7 mm, dry and mat, greyish like cap and covered with a whitish layer. Sp (4.5-)5-6 x 4-5 μm, broadly ellipsoid to subglobose (fig. 209H); gill trama interwoven. In seminatural grassland; autumn; very rare in temp.-bore.; NO (EN), SE (EN). – FNE 1:45, N&S 503.

*H. canescens* (A.H. Sm. & Hesler) P.D. Orton (*Hygrophorus* c. A.H. Sm. & Hesler, *Camarophyllus* c. (A.H. Sm. & Hesler) Singer)

- Cap usually slimy, greasy or sticky, translucently striate and hygrophanous 20
- 20. Expanded cap usually > 20 mm; stem with or without yellow at base 21
- Expanded cap usually < 20 mm; stem without yellow at base 22
- 21. Stem fibrillose, lower quarter or third pale yellow, but not always in small frb; sp mostly subglobose (fig. 209I). Cap 20-50 mm, broadly conical or low convex, later plane to funnel-shaped, occasionally with a low umbo, lubricous in moist conditions, translucently striate, especially in small frb, grey-brown to ash grey, occasionally with violaceous tinge, hygrophanous, discolouring to pale greyish, buff or whitish from centre; gills decurrent, often intervenose at base, grey with paler margin; stem 20-50 x 3-8 mm, cylindrical and tapering downwards, pale greyish, in young frb with fugacious white covering. Sp 6-7.5 x 5-6 μm, Qav = 1.1-1.3; gill trama interwoven, pileipellis an ixocutis at least in young frb. In seminatural grassland; late summer to autumn; occasional in temp.-bore.; DK (EN), FO, IS, NO (NT), SE (NT). – FE 6:335, FNE 1:58, M&J *Camarophyllus* 3, N&S 503, Ves 163.
- H. flavipes* (Britzelm.) Bon (*Hygrophorus* f. Britzelm., *Camarophyllus* f. (Britzelm.) Clémençon, *Cuphophyllus* f. (Britzelm.) Bon, *H. radiata* Arnolds s. Boertmann p.p.)
- Stem smooth, without yellow; sp mostly broadly ellipsoid (fig. 209J). Cap 25-60 mm, low convex, umbonate or broadly conical at first, later ± plane, sticky and slimy in moist conditions, ash grey, pale mouse grey, bluish grey, translucently striate, hygrophanous, discolouring to pale greyish and subsequently buff from centre; gills decurrent, often intervenose, pale grey, bluish grey or dark grey, often with paler margin; stem 30-70 x 3-6 mm, dry, whitish with ± grey or violaceous tinge, at base occasionally cream or buff; smell usually like *Cystoderma carcharias*; taste unpleasant, acidulous or rancid, especially in cap cuticle. Sp (6-)7-8(-8.5) x (4-)4.5-6(-6.5) μm, Qav = 1.3-1.5; gill trama interwoven; pileipellis an ixotrichoderm. In seminatural grassland, fens and pastures, often on calcareous soil; summer to autumn; rare in temp.-arc./alp.; DK (EN), FI (NT), NO (NT), SE (VU). – B&K 3:88, FNE 1:57, N&S 502, R&H 250, Svp 2:64, ☉.
- H. lacmus* (Schumach.) P.D. Orton & Watling (*Cuphophyllus* l. (Schumach.) Bon, *H. cinerea* (Fr.) P.D. Orton & Watling, *H. subviolacea* (Peck) P.D. Orton & Watling)
- 22. In suba.-arc./alp. habitats; sp ellipsoid to ovoid, occasionally broadly ellipsoid or elongated, some slightly constricted (fig. 209K). Cap 5-30 mm, low convex, with somewhat involute margin, later plane with ± depressed centre, only indistinctly striate, when old somewhat scaly, dry, dark brown, grey brown, dark grey, often paler outwards, hygrophanous and fading to pale grey or even whitish, occasionally with a lilac tinge; gills ± decurrent, pale grey to grey brown with paler margin and sometimes with lilac tinge; stem 5-30 x 1-4 mm, dry and slightly fibrillose, almost white to pale grey or cinnamon buff, often with a white, removable covering. Sp (6-)6.5-8(-9) x (4-)4.5-5.5(-6) μm, Qav = 1.4-1.6; gill trama interwoven to subregular; pileipellis a cutis. In fens, bogs and moist heathland; summer to autumn; occasional in middle bore.-arc./alp., but very rare in IS; FI (DD), IS (Na), NO (LC), SE (LC). – FE 6:327, FNE 1:63, M&J *Camarophyllus* 2.
- H. cinerella* (Kühner) Arnolds (*Camarophyllus* c. Kühner, *Cuphophyllus* c. (Kühner) Bon)
- In temp.-hemib. habitats; sp subglobose to broadly ellipsoid (fig. 209L). Cap 5-20 mm, low convex to plane, at centre finely scaly to tomentose, dry, indistinctly translucently striate,



grey, grey brown, drying out pale grey with pink tinge; gills  $\pm$  decurrent, pale grey to almost white; stem 10-30 x 1-2 mm, slightly fibrous, silvery white. Sp 5-7.5(-8.5) x 4-6(-7.5)  $\mu\text{m}$ , Qav = 1.2; gill trama interwoven; pileipellis a trichoderm, at least at centre. In deciduous scrubs and probably also seminatural grassland; summer to autumn; very rare in temp.-hemib.; DK (CR), NO, SE.

*H. roseascens* E. Ludw. & J.G. Svensson (*H. radiata* Arnolds s. Boertmann p.p.)