

A FIELD KEY TO THE HYGROPHORACEAE OF SOUTH-EASTERN AUSTRALIA

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Sixty-nine taxa within the Hygrophoraceae of south-eastern Australian have been published or are in the process of publication. This number is expected to rise because more undescribed species can be expected in the geographical regions already examined and the Tasmanian species have yet to be fully assessed. When the anticipated new species from the Australian tropics and the southern and western portions of the continent are added to the species already known, a total of about 150 taxa for the Australian Hygrophoraceae is confidently expected.

The published keys to the Hygrophoraceae (Young & Wood 1997) used systematic characters dependent upon microscopic features. Such features are not applicable in the field where the only characters that can normally be applied are those visible with at most a hand lens. Field keys are therefore easier to use, but may not operate satisfactorily under some conditions because many taxa can only be differentiated completely using micro-characters.

This field key uses pileus principal colour and viscosity in order to separate single taxa or small groups of taxa. Subkeys are then used to further reduce the groups. Note that field characters for the Hygrophoraceae frequently change as the basidiomes mature: choose both a young and a mature specimen when using the key. Viscidity is here defined as the state of the pileus when the basidiome is still less than half matured: viscosity is a character that can change abruptly with age or local weather conditions.

In the body of the keys, any taxon designated as *H. sp.* belongs to genus *Hygrocybe*. The single species belonging to each of the genera *Hygrophorus* and *Camarophyllopsis* both have their generic names given in full. Descriptions of most taxa can be found in Young & Wood (1997). The new names and descriptions of species A–J are currently in press but a reference list will be provided after their publication. The author is anxious to obtain feedback on use and accuracy of the key.

Key to Groups of Taxa Using Pileus Colour and Viscidity

- A. Pileus white or cream; may have brown tints at centre
 - 1. Surface viscid to glutinous Subkey 1
 - 2. Surface dry Subkey 2

- B. Pileus yellow to orange
 - 1. Surface viscid to glutinous Subkey 3
 - 2. Surface dry Subkey 4

- C. Pileus pink without a trace of red
 - 1. Surface viscid to glutinous **H. iropus**
 - 2. Surface dry **No known taxa fit this grouping**

- D. Pileus red
 - 1. Surface viscid to glutinous Subkey 5

- 2. Surface dry Subkey 6
- E. Pileus lilac, or with lilac margins
 - 1. Surface viscid to glutinous No known taxa fit this grouping
 - 2. Surface dry Subkey 7
- F. Pileus green
 - 1. Surface dry, viscid or glutinous Subkey 8
- G. Pileus brown
 - 1. Surface dry, viscid or glutinous Subkey 9
- H. Pileus black
 - 1. Surface viscid to glutinous No known taxa fit this grouping
 - 2. Surface dry See Subkey 4, couplet 2

Subkey 1 - Pileus white or cream, may have brown tints at the centre; viscid to glutinous

- 1. Lamellae adnexed to almost free; stipe without surface droplets *H. leucogloea*
- Lamellae broadly adnate to arcuate; stipe usually with surface droplets.. *Hygrophorus involutus*

Subkey 2 - Pileus white or cream, may have brown tints at the centre; dry

- 1 Lamellae free and often splitting medially under a pileus radial split.....*H. mavis*
- Lamellae adnate or arcuate to decurrent, never splitting as noted above2
- 2(1) Stipe orange to red..... *H. anomala*
- Stipe white to cream3
- 3(2) Pileus convex with involute margins, never striate..... *Hygrophorus involutus*
- Pileus convex but depressed or umbilicate, often striate, never with involute margins4
- 4(3) Pileus strongly striate; pure white or grey-white, smooth under x10 lens*H. virginea*
- Pileus not striate; cream or with brownish tints, felty under x10 lens*H. rodwayi*

Subkey 3 - Pileus yellow to orange; viscid to glutinous

- 1. Pileus distinctly conical.....2
- Pileus convex, may be umbilicate5
- 2(1) Lamellae cherry red becoming orange-yellow; stipe colours similar *H. cerasinomutata*
- Lamellae pale yellow, orange, or yellow becoming orange; stipe always yellow3
- 3(2) Lamellae ascending4

- Lamellae adnate..... **H. chromoxantha**
- 4(3) Lamellae becoming either orange or becoming orange **H. persistens**
- Lamellae remaining yellow **H. austrolutea**
- 5(1) Stipe bright orange, orange-red or red **H. anomala**
- Stipe yellow to pale apricot yellow, orange tints sometimes at the very apex..... 6
- 6(5) Stipe viscid (choose young specimens) 7
- Stipe dry (choose young specimens) 8
- 7(6) Lamellae bright yellow, margins with gluten thread (use x10 lens) **H. chromolimonea**
- Lamellae with apricot pink tints, without gluten thread **Hygrophorus involutus**
- 8(6) Lamellae adnexed to very narrowly adnate **H. chlorophana**
- Lamellae broadly adnate, often with decurrent tooth or arcuate **H. dromedensis**

Subkey 4 - Pileus yellow to orange; dry

- 1 Some part of the basidiome becomes black when bruised 2
- No part of the basidiome becomes black when bruised..... 3
- 2(1) Pileus coated with loose, black fibrils; latex exudes from cut tissues..... **H. astatogala**
- Pileus and stipe without loose, black fibrils; latex absent **H. conica**
- 3(1) Associated with sphagnum moss; lamellae at first white with red margins; pileus finely velvety (at least at the centre)..... **H. dorothyi**
- Habitat various; lamellae not at first white with red margins; pileus smooth..... 4
- 4(3) Pileus distinctly conical 5
- Pileus convex..... 7
- 5(4) Lamellae adnexed or ascending 6
- Lamellae very broadly adnate and may have small, decurrent tooth..... **H. aurantiocampanula**
- 6(5) Lamellae always yellow with age **H. luteoconica**
- Lamellae orange or yellow then becoming orange..... **H. persistens**
- 7(4) Pileus and stipe at first covered by a white, delicate, powdery layer..... **H. austropratensis**
- Pileus and stipe without delicate white layer..... 8
- 8(7) Lamellae white to faintly cream; stem white to off-white **H. unispora**
- Lamellae and stipe tinted apricot to light orange..... **H. aurantiopallens**

Subkey 5 - Pileus red; viscid to glutinous

- 1 Some part of the basidiome blackening if bruised.....**H. conica**
 No part of the basidiome blackening if bruised.....2
- 2(1) Lamellae adnexed to adnate with at most a decurrent tooth.....3
 Lamellae arcuate to decurrent 11
- 3(2) Stipe red.....4
 Stipe yellow to orange-yellow with pink tints at most6
- 4(3) Pileus conical..... **H. cerasinomutata**
 Pileus convex.....5
- 5(4) Lamellae narrowly adnate; stipe viscid..... **H. subminutula**
 Lamellae broadly adnate with decurrent tooth; stipe dry or very slightly sticky..... **H. sylvaria**
- 6(3) Stipe very viscid to glutinous.....7
 Stipe dry to very slightly sticky.....8
- 7(6) Lamellae orange-yellow **H. minutula**
 Lamellae very light cream-buff.....**H. wilsonensis**
- 8(6) Pileus convex.....**H. sp. Otwl**
 Pileus conical.....9
- 9(8) Stipe diameter 2-3 mm, lamellae and stipe with pink tints **H. erythrocala**
 Stipe diameter 4-11 mm, lamellae and stipe with or without pink tints.....10
- 10(9) Pileus strongly striate and splitting radially..... **H. rubrolutea**
 Pileus not striate and not splitting radially **H. xanthopoda**
- 11(2) Lamellae yellowish with pink tints **H. hayi**
 Lamellae white**H. lanecovensis**

Subkey 6 - Pileus red; dry

- 1 Some part of the basidiome blackening when bruised2
 No part of the basidiome blackening when bruised.....3
- 2(1) Pileus covered with loose, black fibrils; latex exuded from cut tissues **H. astatogala**
 Pileus and stipe without loose, black fibrils; no latex produced from cut tissues.....**H. conica**

- 3(1) Lamellae adnexed to adnate with at most a decurrent tooth4
 Lamellae arcuate to decurrent10
- 4(3) Pileus conical, may be papillate.....5
 Pileus convex, may be depressed or umbilicate6
- 5(4) Stipe yellow**H. cystidiorubra**
 Stipe red**H. siccitatopapillata**
- 6(4) Stipe yellow with at most orange tints **H. tidbillensis**
 Stipe red or orange red, may be yellow at base7
- 7(6) Stipe yellow at base; lamellae clear rosy pink with yellow margins **H. kandora**
 Stipe base red; lamellae white, orange or yellow with pink tints, margins concolorous8
- 8(7) Lamellae white, old specimens may have cream tints **H. kula**
 Lamellae yellow, orange (with or without pink tints) or (rarely) lilac-tinted9
- 9(8) Pileus finely velvety (at least at the centre); pileus margins even or only slightly crenulate;
 lamellae yellow to orange and usually with pink tints**H. miniata**
 Pileus smooth; margins deeply crenulate; lamellae drab cream, rarely lilac-tinted.....
 **H. sanguineocrenulata**
- 10(3) Pileus with finely velvety surface at least at the centre 11
 Pileus without finely velvety surface and completely smooth.....12
- 11(10) Associated with sphagnum; lamellae white then yellow, lamellae margins red then
 orange**H. dorothyi**
 Not associated with sphagnum; lamellae yellow, margins concolorous.....**H. cantharellus**
- 12(10) Lamellae red **H. flammans**
 Lamellae yellow, orange or pink13
- 13(12) Lamellae bright yellow **H. sp. LC1**
 Lamellae pale orange or pink14
- 14(13) Lamellae pink; stipe > 30 mm long **H. firma**
 Lamellae pale orange; stipe < 25 mm long..... **H. bolensis**

Subkey 7 - Pileus lilac or with lilac margins; dry

- 1 Lamellae green **H. lilacinovirida**
- Lamellae lilac 2
- 2(1) Pileus orange brown with lilac margins **H. anomala**
- Pileus lilac 3
- 3(2) Pileus conical to umbonate; lamellae adnexed to narrowly adnate **H. lewellinae**
- Pileus convex to umbilicate 4
- 4(3) Stipe base yellow; pileus bright artificial pinkish mauve or pinkish lilac; pileus surface finely velvety under a hand lens **H. cheelii**
- Stipe base lilac; pileus delicate lilac without any pink tints; pileus surface smooth and not finely velvety under a hand lens **H. reesiae**

Subkey 8 - Pileus green; dry, viscid or glutinous

- 1 Pileus viscid or glutinous 2
- Pileus dry 5
- 2(1) Lamellae bright lime green; dried material remains dull green **H. pseudograminicolor**
- Lamellae white or at most with green tints; dried material generally brick pink 3
- 3(2) Lamellae with a fine glutinous thread to the margins (use hand lens) **H. graminicolor**
- Lamellae without a fine glutinous thread to the margins (use hand lens) 4
- 4(3) Pileus deep grass green, strongly pellucid striate **H. stevensoniae**
- Pileus pale, dull green, not striate **H. vallomarginata**
- 5(1) Lamellae orange **H. taekeri**
- Lamellae green or yellow 6
- 6(5) Stipe white **H. woodii**
- Stipe yellow or green, sometimes with orange tints 7
- 7(6) Stipe pallid green; pileus convex **H. helicoides**
- Stipe yellow, may have orange tints; pileus conical **H. viridiconica**

Subkey 9 - Pileus brown; dry, viscid or glutinous

- 1 Pileus viscid or glutinous 2
- Pileus dry 3

2(1) Pileus conical.....	H. bubalinoviscida
Pileus convex to depressed or umbilicate.....	H. graminicolor
3(1) Pileus scaly with fibrillose squamules or simply fibrillose.....	4
Pileus smooth.....	5
4(3) Stipe white; lamellae grey and unchanging when bruised.....	H. fuliginosquamosa
Stipe brown; lamellae yellow, margins becoming reddish when bruised.....	H. lawsonensis
5(3) Lamellae adnexed to adnate.....	6
Lamellae arcuate to decurrent.....	9
6(5) Lamellae lilac to violet.....	H. lilaceolamellata
Lamellae not lilac to violet.....	7
7(6) Lamellae white; stipe light brown.....	H. badioclavata
Lamellae yellow; stipe white or yellow-orange.....	8
8(7) Stipe white; pileus convex.....	H. woodii
Stipe yellow-orange; pileus broad conical.....	H. aurantipes
9(5) Lamellae lilac to violet.....	H. lilaceolamellata
Lamellae not lilac to violet.....	10
10(9) Lamellae grey-cream; stipe colours similar.....	H. watagensis
Lamellae orange-grey; stipe orange.....	H. hypospoda

Reference

- Young, A.M. & Wood, A.E. (1997). Studies on the Hygrophoraceae (Fungi, Homobasidiomycetes, Agaricales) of Australia. *Australian Systematic Botany* **10(6)**, 911–1030.