

ENTHEOGENESIS AUSTRALIS

Reference guide for *Psilocybe subaeruginosa*

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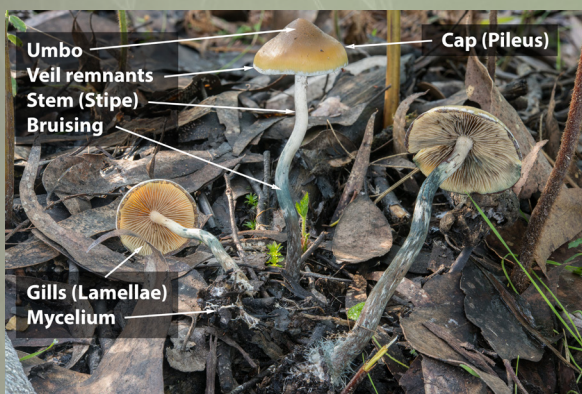


Figure 1. Important features to aid in the identification of *Psilocybe subaeruginosa*. Photo by Tannar Coolhaas

***Psilocybe subaeruginosa* (Cleland 1927)**

(L., *aeruginosa*, full of copper rust; sub, like the species *Stropharia aeruginosa* (Curt.) Fr.)

Autumn in southeast Australia marks the beginning of fungus season; chilly mornings, thick layers of dew, and the appearance of a variety of mushrooms. Among these mushrooms is the species, *Psilocybe subaeruginosa*. Their beautiful caramel brown cap and vivid chalk-white stem with blue markings make *P. subaeruginosa* a very photogenic species. A feature of both *P. subaeruginosa* and *Psilocybe* spp. more broadly are their hygrophane caps. As the caps dry out, they can take on various mixed shades of brown through to yellow. When dry, they often take on a golden hue, hence the confusing common name "Gold Top" - this name is used interchangeably based on locality as it is also used to refer to *Psilocybe cubensis*. Common names for *P. subaeruginosa* include "Sub" or "P.sub".

Habitat

Psilocybe subaeruginosa is a temperate saprotrophic mushroom thought to be endemic to Australia. This species is found in the southern parts of the continent, in Tasmania, Victoria, South Australia, New South Wales, in a small pocket of south-east Queensland, and as an introduced species to south-west Western Australia.



Figure 2. *Psilocybe subaeruginosa*. Photo by Tannar Coolhaas

In general, *P. subaeruginosa* favours the oceanic climate of south-east Australia, where it appears from late March to mid-April following a consistent drop of temperatures below 8 °C, and heavy dews. This species also occurs in drier regions with a Mediterranean climate, where rainfall is required to sufficiently moisten substrates before they can grow, with the season starting around early May. The season extends through to July or August.



Figure 3. *Psilocybe subaeruginosa* growing in Eucalypt bushland. Photo by Jonathan Carmichael

Psilocybe subaeruginosa habitat is primarily wet or dry sclerophyll forest where they grow among, but are not limited to, eucalypt debris and clumps of grass. They tend to be an edge species, often being found on the forest margins, disturbed areas, or the edge of trails growing singly or in groups. *P. subaeruginosa* are known to grow on the fallen debris of bracken fern (*Pteridium sp.*), manfern (*Dicksonia sp.*), and tea tree (*Leptospermum sp.*). These mushrooms also occur within pine plantations (*Pinus radiata*), where they grow on well-decomposed pine mulch, buried woody fragments, and the occasional pinecone.



Figure 4. *Psilocybe subaeruginosa*, large clusters. The blue bruising illustrates how the common confusion with *Cortinarius* spp. can occur. Photo by Tannar Coolhaas

Psilocybe subaeruginosa have the potential to be weedy and are often found growing in parks and gardens. *P. subaeruginosa* readily myceliate woodchip piles which are used for mulch on urban garden beds. A distinctive feature of this species when growing among woody debris is the thick, white, rhizomatic mycelium that "runs" through the substrate and can spread large distances.



Figure 5. *Psilocybe subaeruginosa*. Photo by Tannar Coolhaas

Species Description

Cap: 1-6 cm in diameter. Conical becoming convex, with age upturned, sometimes undulating, often with a small acute umbo. Hygrophanous, Dark to light caramel brown, as the cap dries they become light brown or golden brown, sometimes pale yellow or cream. The edge of the cap is often striate, inturned when young, occasionally with bluish-green blotches. A useful distinguishing feature is that the cap has a separable pellicle - a gelatinous layer that can be peeled off.



Figure 6. A closeup of the separable pellicle of a *Psilocybe semilanceata*. Photo by Caine Barlow



Figure 7. *Psilocybe subaeruginosa*, closeup of the gills. Photo by Tannar Coolhaas

Gills: Adnate to broadly adnexed, moderately close, white to pallid smoky brown becoming brown-grey.

Stem: 5-10cm long, 5mm wide, white, often speckled greenish-blue, becoming dark greyish-brown, slender, often hollow, fibrous. The base is often swollen, sometimes with a mass of white mycelium. When waterlogged, the stem turns brown-grey.



Figure 8. *Psilocybe subaeruginosa*, closeup of the cap with the partial veil. Photo by Beau Meister

Partial veil: Cobweb-like white veil when young, occasionally leaving faint traces of a white ring around the edges of the cap.

Spore print: Purple-black. In very rare cases, spore prints can be brown due to a mutation that inhibits the purple pigments.

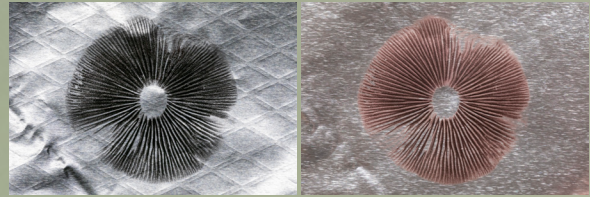


Figure 9. Closeup of a *Psilocybe subaeruginosa* spore print. Photo by Jonathan Carmichael

To highlight the contrast of the black/purple colour of the spore print, the spore print is lit from above on the left, and lit from behind and or the side on the right.

All parts of *Psilocybe subaeruginosa* will bruise blue where damaged.

It should be noted that this species is incredibly variable in its appearance, with caps appearing in a variety of shapes and shades of brown to yellow. The stem can vary in thickness and length, sometimes growing straight and other times twisting. *P. subaeruginosa* can be confused with various toxic genera that look similar and grow in the same habitat.

History



Figure 10. *Psilocybe subaeruginosa* from Cleland (1934). Illustration by E.R.C

The species *P. subaeruginosa* was formally described in 1927 by mycologist John Burton Cleland, but little interest was paid to the species until the 1970s. Articles from the Sydney Sunday Telegraph and the Canberra Times in 1969 reported that people were consuming *P. cubensis* in southern QLD and northern NSW for their hallucinogenic effects. In 1970, Picker and Rickards identified that the *P. subaeruginosa* contained psilocybin.

In 1992 Chang and Mills compared the species *P. subaeruginosa*, *P. australiana*, *P. eucalypta*, and *P. tasmaniana* and made them synonymous, merging the four into the single species *P. subaeruginosa*. In 1995, Johnston and Buchanan removed *P. tasmaniana* from this grouping but otherwise maintained this synonymy. The synonymous grouping has been debated by many, including Paul Stamets (1996). Given the variations in morphology across its range in south-east Australia, there are now calls for a review of the species.

There is no recorded traditional consumption, or taboo, relating to *P. subaeruginosa* by First Nations Australians. Psilocybin has a long history of consumption throughout a variety of Central American cultures but was not known to the public until popularisation of psilocybin mushrooms in the late 1950s (Wasson, 1957). The first published Australian reports of *Psilocybe* consumption were anecdotal reports of hippies and surfers picking *P. cubensis* (Allen, Merlin and Jensen, 1991). There is currently growing public interest in *psilocybin*, relating to results of early-phase clinical trials. These results suggest that psilocybin-assisted therapy may support significant and sustained symptom relief in patients suffering from depression, anxiety, substance-use disorders and obsessive-compulsive disorders (Bright and Williams, 2018).

Pharmacology

Psilocybe subaeruginosa are among the most potent *Psilocybe* spp. Psilocybin content by dry weight is reported to be between 0.06% - 1.93%, with psilocin being between 0.0% - 0.17% (Perkel, 1980). It is suspected that the species contains additional indole alkaloids, including baeocystin, nor-psilocybin, aeruginascin, and monoamine oxidase inhibitors (MAOI).

The consumption of psilocybin- and psilocin-containing fungi often results in psychoactive effects commonly associated with the "classical" psychedelics. Effects generally occur rapidly (10–30 minutes) and include sensory changes that may be visual, auditory, and/or tactile. An altered sense of time and space, and feelings of euphoria are common. Other symptoms may include confusion, anxiety, ataxia (loss of coordination), pupil dilation, nausea, vomiting, parasthesia (a prickling sensation), tachycardia, hypertension, cardiac arrhythmias and myocardial ischaemia (reduced blood flow to the heart) (Pouliot and May, 2021; Erowid, 1997).

The same symptoms may be caused by a number of psilocybin- and psilocin-containing species not limited to *Panaeolus cyanescens* (= *Copelandia*), *Panaeolus foenicisii* (= *Panaeolina*), and *Psilocybe cubensis*.

Safety

Wood lover paralysis: Wood lover paralysis involves muscle paralysis occurring after consuming *Psilocybe* spp. that grow on wood, including but not limited to *P. subaeruginosa*, *P. azurescens*, and *P. cyanescens*. Some people report experiencing a loss of muscle strength and motor control that can persist into the following day. There is currently no known explanation.

Wood lover paralysis should not be confused with the overwhelming effects of a strong psilocybin dose and can occur even at low levels of psychedelic intensity. Wood lover paralysis is a distinct physiological effect. Fortunately, the effect is known to be temporary, usually wearing off after 24 hours. For the unprepared, this paralysis can be an anxiety-inducing experience.

Psilocybe subaeruginosa lookalike species:

***Galerina* spp.** Caramel-brown cap, brown stem with an annulus. Rust-brown spore print. Poisonous, potentially deadly.

***Hypholoma fasciculare*.** Grows in dense clusters, brown cap with a distinctive green around the margin. Purple-black spore print, poisonous.

***Cortinarius* sp.** Various *Cortinarius* sp. are reported as lookalikes, often from the blue colour that fades over time, resembling blue bruising. Rust-brown spore print, poisonous.

***Leratiomyces ceres*.** Orange-red cap, veil remnants at the margin and on the surface. Greyish gills. Stem orange-red or pale yellow in colour. Purple-black spore print, poisonous.



Figure 11. Group of *Leratiomyces ceres* (top) and *Psilocybe subaeruginosa* (below) in close proximity. Photo by Konan Farrelly-Horsfall

Legal issues

Under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) the removal of any biological material from public land without a collection permit is illegal and may result in a fine. There is the possibility of an additional offence if police are notified.

Psilocybe spp. contain psilocybin and psilocin, and both substances are classified as Schedule 9 substances. Being found in possession of psilocybin-containing mushrooms is illegal in Australia and may lead to a fine and criminal conviction, with the possibility of jail time. Cultivation is considered the manufacture of a Schedule 9 substance.

Emergency assistance

If you experience an emergency in Australia, always phone 000. Information about poisoning can be accessed by phoning the national poisons hotline on 131 126.

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Field Guides for south-east Australia

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Harm reduction resources

<https://www.betterhealth.vic.gov.au/health/healthyliving/fungi-poisoning>

<https://www.erowid.org/plants/mushrooms/mushrooms.shtml>

<https://dancesafe.org/magic-mushrooms/>

Glossary

P.	<i>Psilocybe</i> .
Sp.	Species – singular
Spp.	Species – plural
Myceliolate.	To colonise.
Spore print.	Made by placing mushroom cap gills down on a surface.
Hygrophanous.	Colour change in response to water loss or absorption.
Annulus.	A ring around a mushroom stem.
Adnate.	Gills mostly attached to mushroom stem.
Adnexed.	Gills narrowly attached to mushroom stem.
Cartilaginous.	Tough or fibrous texture.

Conical.	Cone-shaped.
Convex.	Curved upwards.
Undulating.	Moving smoothly up and down.
Umbo.	The raised centre of a mushroom cap.
Pellicle.	The outermost layer of a mushroom cap.
Striate.	Ridges in a mushroom cap caused by pressure from mushroom gills.



Psilocybe subaeruginosa, Photo by Tannar Coolhaas

Disclaimer

This document cannot cover all information regarding this diverse area of study. This document is only a starting point and should be used in conjunction with other evidence concerning ethnobotanical plants, fungi and related compounds.

Ethnobotanicals and ethnomycologicals have risks and benefits and should always be treated with caution and respect. Some practices and ideas associated with the use of ethnobotanicals are embedded in cultural and religious traditions.

Research, due diligence, and caution are essential. Ensure to understand local laws, traditions, and sustainability before working with any ethnobotanicals

Who we are

Entheogenesis Australis (EGA) is a charitable, educational organisation established in 2004. We provide opportunities for critical thinking and knowledge sharing on ethnobotanical plants, fungi, nature and sustainability.

We also encourage gardening and the conservation of plants, fungi and seeds that have a traditional relationship with humankind. We aim to celebrate culture, science, art, politics, and community around medicine plants through our conferences, workshops and resources.

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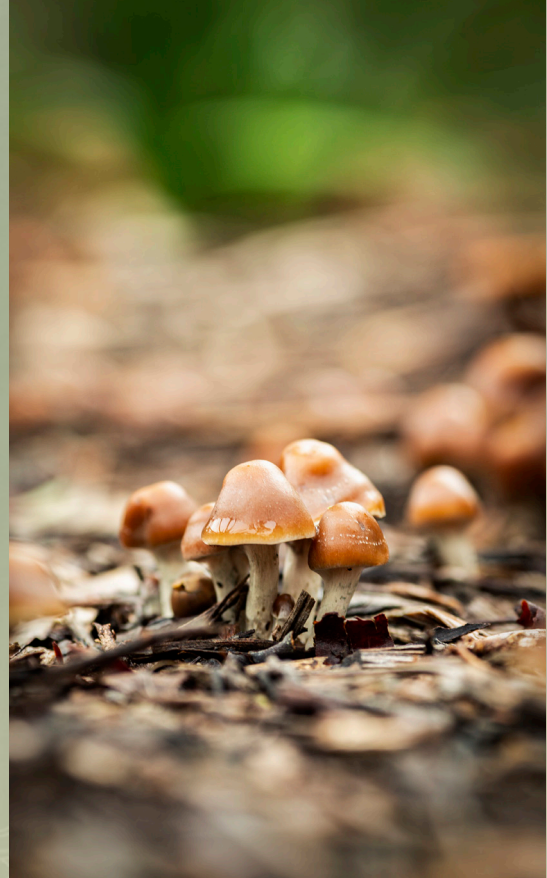


Psilocybe subaeruginosa, Artistic photograph by Jonathan Carmichael

Reference images of *Psilocybe subaeruginosa*



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