

# Psilocybe semilanceata: Europe's Magic Mushroom



*A photographic guide to Psilocybe semilanceata & its cousin, by Jake Walker.  
Courtesy of r/Semilanceata*

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## **A Personal Statement Regarding P. semilanceata**

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## An Introduction to *Psilocybe semilanceata* (Liberty Cap)



Figure 1, a small group of *Psilocybe semilanceata*.

*Psilocybe semilanceata* (*P. semilanceata* or ‘Liberty Cap’) is a species of fungus belonging to the *Psilocybe* genus in the Fungi Kingdom. It is famously known for producing the psychoactive compounds psilocybin, psilocin and baeocystin; earning the famed title of a “magic mushroom.”

*P. semilanceata* is widely distributed around the planet, often found in Northern, Central and Eastern Europe, Northern Asia and some areas of North America and Oceania.

The commonly used nickname ‘Liberty Cap’ originates from the unique shape of the species’ cap, which resembles the Phrygian cap; a piece of clothing worn by a variety of cultures during the 1700s.

Psychedelic use of this mushroom dates back centuries to 1799, when it was first documented to have hallucinogenic effects on an unsuspecting family of Londoners. Since then, many thousands of people have reported on its strong psychoactive properties.

Although this fungus is so common across many countries, it is still incredibly under-studied and is notoriously hard to cultivate in artificial conditions, with less than a handful of successful attempts. After beginning preparations and work on this guide in Autumn of 2022 and finally being able to share it with you in the Autumn of 2023, here is my best attempt at sharing with you my knowledge of *Psilocybe semilanceata* and the identification of the species.

## Section 1: Where & When?

### Section 1a: Where?

Their habitat consists only of grass fields, more commonly those with acidic - neutral soil pH and inhabited and fertilised by mammals such as sheep, cows, horses etc. *P. semilanceata* is saprobic, meaning it only feeds off of decaying plant matter; specifically the roots of common grass species.



Figure 2, a large patch of *P. semilanceata*.



Figure 3, an area in a wild field which fruits thousands of Liberty Caps each year.

In Figure 3 you can see consistently green, short grass with occasional tufts of species from the *Juncus* genus, commonly referred to as 'rush', situated across the area. In my experience, fields where areas are moderately subject to these mounds of rush are (in my opinion) far more supportive of *Psilocybe semilanceata* growth. However, when encountering this rush more consistently, the number of Liberty Caps begins to decrease.



Figure 4, a group of *Psilocybe semilanceata* growing in between rush leaves.

### **Section 1b: When?**

Normally in Britain and surrounding land such as Ireland, Scandinavia and the rest of Northern Europe, this mushroom is in season through the autumn months of September - November. Liberty Caps fruit when the average temperatures drop to around the 15° C day and below 10° C night range.

Heavy rain followed by a 1-3 day period of dry weather will usually stimulate fruiting of this mushroom, as this amount of time gives the hosting network of mycelium below the ground enough time to respond to the water and is mindful of the speed of Liberty Cap growth from pin to maturity, which usually takes 1-2 days.



Figure 5, a young *P. semilanceata* shielded within the grass.

## **Section 2: What to Look For**

### **Section 2a: The Basics**

So, you've found a spot; and are experiencing fruiting conditions. What next?

*P. semilanceata* is a small, yet slender mushroom, it can be found to be anywhere between 4-15cm long and usually maintains a flexible stipe with a width of under 5mm. It mostly displays a conical cap which is commonly said to resemble a witch's hat or the shape of a bell.



Figure 6, a small grouping of 6 *P. semilanceata* specimens.

## Section 2b: The Cap



Figure 7, a fresh *P. semilanceata* specimen.

As displayed in Figure 7, *P. semilanceata* caps are conical in shape, roughly resembling a cone and commonly display a papilla (commonly referred to as a 'nipple') on top, however this sometimes isn't as prominent as usual; leaving the cap with a more rounded shape. Their caps commonly curve inwards around the bottom of the cap, where there is usually a dark ring, pulling towards the stipe.

Liberty Caps are hygrophanous, meaning their caps change colour depending on moisture levels. When wet, they are caramel brown in colour and have dark striations visible to the naked eye; sometimes referred to as 'ribs', running uniformly down the cap.



Figure 8, *P. semilanceata* specimen beginning to fade in colour due to their hygrophanous nature.

Depicted in Figure 8 is an example of the hygrophanous process which Liberty Caps undergo. As they begin to dry out, the cap loses its brown colour from top-down in a 'ripped' uneven pattern; replacing the caramel colour with a light, straw-like tone. This is when Liberty Caps become easier to spot with the naked eye, and usually begins after a short period without rain

Getting familiar with the pattern which *P. semilanceata* takes during the hygrophanous drying process can be immensely helpful as many common lookalikes of Liberty Caps also have and display hygrophanous properties.





Figure 9, a drying *P. semilanceata* specimen.

Figure 9 shows a Liberty Cap which has become lighter in colour due to dehydration. As you can see, all of its striations are no longer visible and there also remains a dark ring left encircling the base of the cap (not present on all specimens).

At this stage, they are at their easiest to spot with the naked eye and are highlighted amongst the grass.

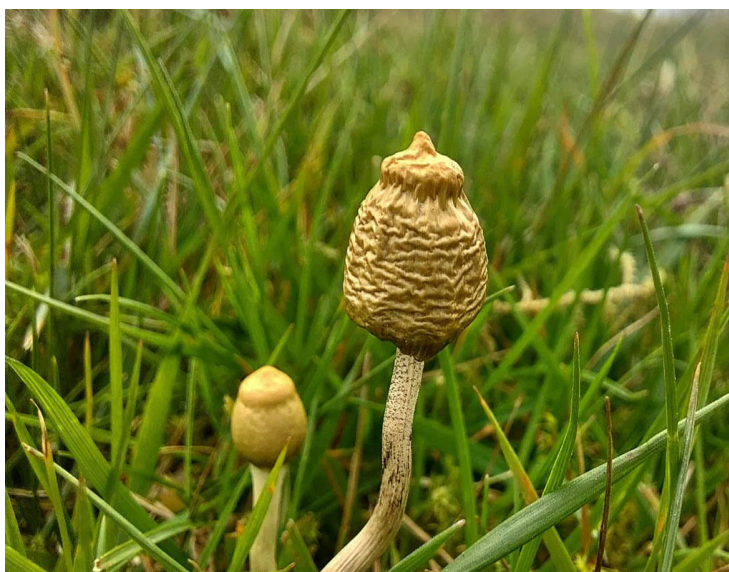


Figure 10, a 'golden dry' *P. semilanceata* specimen.

Finally, the 'golden dry' level of dehydration in Figure 10 occurs when the mushroom is severely starved of moisture and is nearing the end of its lifespan. This usually occurs after a couple days without rain in well-draining soil.

### Section 2c: Mycelium, Gills & Spores

Mycelium is the hosting organism of mushrooms, it is a complex network of threads and nodes which form the mushroom to act as a fruiting body.



Figure 11, *P. semilanceata* mycelium colonising an agar dish in 2022.

You will often see nodes of mycelia (plural of mycelium) at the base of the stipe if the mushroom is removed from the ground. They will appear as fuzzy, bright white clumps of matter as shown in Figure 12.



Figure 12, *P. semilanceata* specimens with nodes of mycelia at the base of the stipe.

Spores are the reproductive key to basidiomycete fungi (mushrooms), they are microscopic particles that are released from the fruiting body (the mushroom) via the (in our case) gills in order to spawn more mycelium. Matured *Psilocybe semilanceata* spores (and therefore their gills) are a deep purple to dark brown colour.

I would describe the density of Liberty Cap gills as lightly crowded, they maintain even gaps between one another despite their quantity. The gill attachment is adnexed, meaning the gills attach to the stipe at the top of the cap, making them quite narrow/steep.



Figure 13, *P. semilanceata* gills.

The colour of their gills can vary however, depending mainly on two factors: the maturity of their spores (the younger they are, the lighter they are) and how many spores are left within the gills (the more spores are released from the gills, the less spores there are to saturate the gills)

## Section 2d: The Stipe

The 'stipe' is the correct mycological term for the stalk-like structure which supports the cap. *P. semilanceata* has a long, fibrous stipe which is flexible and does not easily break under pressure like many other species do. It usually has slight kinks in its shape giving it a 'wiggly' appearance. Their stipes are usually cream (off-white) to straw (pale yellow) in colour but can be stained darker by spores deposited from the gills.



Figure 14, a fresh *P. semilanceata* specimen with an exemplary stipe.

Upon close-up inspection, Liberty Cap stipes also have reflective areas on the surface of the stipe. I am not sure what these milky blotches are, but I believe there is a possibility they could be remnants of mycelia from the early stages of the fruit's production.



Figure 15, a macro shot of a *P. semilanceata* stipe.

In Figure 15 we can see an example of the fibrous texture which their stipes possess. A rugged surface which is made up by a vertical, linear structure.

Also in view are the blotches of dark material randomly dotted about, these are in fact spore deposits which have caught the stipe when they have been ejected from the gills.



Figure 16, *P. semilanceata* spore deposits.

Expanding on spore deposits, they often form in a linear structure as visible in Figure 16. However, spore deposits are not always present on Liberty Caps and aren't a great method of identification.

## **Section 2e: Separable Gelatinous Pellicle**

The term 'separable gelatinous pellicle' refers to a gelatinous membrane which encases the surface of the cap on *Psilocybe semilanceata*, most other psilocybin-containing species and a considerable amount of non-psilocybes. Because of this, contrary to popular opinion amongst the Liberty Cap community, I believe the presence of a pellicle to not be the excellent identification method for novices that it is said to be.



Figure 17, the separable gelatinous pellicle being peeled from a *P. semilanceata* specimen.

In Figure 17 you can see a Liberty Cap that has been torn apart, revealing the pellicle separating from the surface. The pellicle is usually present up until the 'golden stage' of dehydration.

## **Section 3: Morphological Variety**

### **Section 3a: What is Morphological Variety?**

Now that you are familiar with the 'witch's hat' shape of their cap and their overall slender profile, we will now explore morphological variety of this species.

I would personally define 'morphological variety' of this species as common differences between specimens that can be observed with almost all Liberty Caps that you find. This level of variety remains mild however, as these specimens are still easily identifiable as *P. semilanceata* to people with an amateur level of experience in Liberty Cap ID; though novices may struggle with these appearances.

Most general morphological variety is a result of the environment in which the specimen is exposed to and has developed in. Anything and everything can



influence the appearance of these mushrooms during their development, to name a few; the wind, the temperature, the pH levels of the soil, the length of the grass, the amount of exposure to sunlight, the excess/lack of moisture in the soil etc.

### Section 3b: Examples of Morphological Variety



Figure 18, A handful of *P. semilanceata* specimens found in wet conditions.

Pictured above is a handful of Liberty Caps that were found in very wet conditions, after consecutive days of rain. There are a few things we can take from these specimens.

Firstly, you will immediately notice that the caps are considerably reflective and appear to be well saturated, this is the pellicle on the surface of the cap which has absorbed an excess of moisture. When a separable gelatinous pellicle is in this state it will have a drastically weaker and more 'mushy' complexion as opposed to the usually flexible and sticky state, hence 'separable **gelatinous** pellicle.'

Secondly, we can see that the caps on these mushrooms are broader and more convex in shape as opposed to their well-known conical default (the witch's hat shape), this is a result of excess moisture being drawn into the cap, causing inflation and over-tension around the base of the cap (the edge closest to the gills); which in the end results in splits in the base and a release of tension, causing the cap to come to rest in a convex shape.

Next, you should notice that all specimens in Figure 18 are dark in colour; going back to **Section 2** where I explained the hygrophanous nature of Liberty Caps.

These are dark in colour because they are holding a considerable amount of moisture.



Figure 19, 5 *P. semilanceata* specimens drying after a heavy rain.

Once the rain clouds pass and the skies open back up, the mushrooms of course begin to dehydrate; leaving them with all the structural scars gained from a surplus of moisture, plus an opaque tone as seen in Figure 19.



Figure 20, 2 short *P. semilanceata* mushrooms,

When young Liberty Caps are born to an environment where the grass is short and wind exposure is high, they tend to grow to match the conditions by maintaining a thicker stipe than usual and growing into the kinks created by the wind; resulting in a stubby, twisted overall shape.



Figure 21, a slender *P. semilanceata* mushroom grown in tall grass.

When developing from directly inside longer grass, these mushrooms will not be subjected to strong winds and will grow directly upwards in search of the sunlight; the end product being a tall, slim mushroom with weaker than usual structure.

## **Section 4: Mutants**

**(Just a note: Before I start I would like to explain that the following information is not yet confirmed by science)**

By personal definition, 'atypical specimens' refers to *Psilocybe semilanceata* mushrooms that possess an appearance the farthest from standard, these types (in my opinion) are the result of genetic mutations.

As per my current understanding, I believe there there to be 2 main types of mutants, both of them being extremely rare phenomena.

### **Section 4a: Sterile Mutants**

Sterile Liberty Caps have blown up in popularity since the creation of the r/Semilanceata subreddit, with a fair number of people posting photographs of their rare finds.

Sterile semilanceata either produce no spores or produce translucent spores, we simply do not know yet. This causes the gills on the underside of the cap to lack in colour, leaving the gills white as opposed to the usual dark brown to purple colour.

Despite this absence of colour within the gills, the outside of the cap and stipe still retain some colour, however they do not follow the usual Liberty Cap colour palette, steriles usually have cream to orange caps and cream to brown stipes.

Whilst being far from average Liberty Cap appearance colour wise, the physical characteristics of Steriles remain exactly the same, and whilst being extremely rare finds (I am yet to find Steriles myself), they seem to be growing in small localised patches of multiple mushrooms when found.

For these reasons, I believe 'Sterile' Psilocybe semilanceata to be a rare genetic mutation.



Photo courtesy of Reddit user u/AfriCelt  
Figure 22, Sterile *P. semilanceata* caps and stipes.



Photo courtesy of Reddit user u/AfriCelt  
Figure 23, Sterile *P. semilanceata* gills.

## Section 4b: Albino Mutants

Similarly to Steriles, 'Albino' Liberty Caps have only really gained fame (and not much at that) since the launch of r/Semilanceata, the reason they are not as popular as Steriles however is simply because they seem to be the rarest mutants judging by numbers of photos. To my knowledge, myself a former r/Semilanceata moderator and another user of the group are the only people to have photographed Albino *P. semilanceata*.

What separates Albinos from Steriles is once again their colour, unlike Steriles, Albinos are completely absent of colour and appear a frost white from the bottom of the stipe to the top of the cap, apart from an exception of brown sections in the stipe the odd time. The main exception for colour in Albinos is the bruising of Psilocin/Psilocybin, which can appear on the stipe, cap and gills, but mainly on the papilla with Albinos.

I have observed Albinos 3 times. Once in a patch of only 1 mushroom back in 2020, then in a patch of 4 mushrooms in 2021, and finally in a patch of 1 again in 2022.

The following are the photographs I took of the Albino specimens I found, dated to the year I found them:



Figure 24, 4 Albino *P. semilanceata* found in 2021.



Figure 25, 4 Albino *P. semilanceata* found in 2021.

As previously mentioned, the presence of Psilocin/Psilocybin is visible by the blue bruising on the papilla of two of the mushrooms in Figure 25.





Figure 26, an Albino *P. semilanceata* found in 2022.



Figure 27, the underside of an Albino *P. semilanceata* found in 2022.



Figure 29, an Albino *P. semilanceata* found in 2020.

All of these mutants from all 3 years were found in the same area of a field, leading me to believe that the Albinos I have found are a result of a genetic mutation specific to the hosting mycelia in that area of the field.

As I continue research on Albinos this 2023 season, I will keep updates posted to [r/Semilanceata](#) when they come up.

## **Section 5: Psilocybe fimetaria**

*Psilocybe fimetaria* is a closely related cousin of *Psilocybe semilanceata*, the main difference being that it grows from the partially decomposed dung of horses and cows, rather than decaying grass roots.



Figure 30, a group of 4 *P. fimetaria* growing from dung.

The appearance of *P. fimetaria* (or 'Fims' for short) differs from that of Liberty Caps, as their stipes are usually shorter and thicker, their caps tend to be broader, with a colour that leans more towards an orangey-brown, chestnut tone.



Photo courtesy of 'DH42'

Figure 31, a pair of *P. fimetaria* specimens, one dehydrating.

In Figure 31 you can see that like Liberty Caps, Fims are also hygrophanous and change from their chestnut colour when fresh, to a more opaque straw-like colour when dehydrating; in the same direction of Liberty Caps, top-down.



Figure 32, *P. semilanceata* (left) compared with *P. fimetaria* (Right)

For more information about *P. fimetaria*, I suggest joining the [r/fimetaria](#) subreddit and reading through the pinned guide created by DH42.

## **A Personal Statement Regarding P. semilanceata**

I still remember finding my first patch of about 5 Liberty Caps on a cold, dark October evening one year. They were fairly dried as it hadn't rained for a good few days, but they had those iconic 'witch's hat' shaped caps poking out of the grass and I recognised them instantly.

I had gone out at around 11:00 and searched all day, trekking up moors and reaching the top of a hill, before finally descending the hill as it began to get dark at around 18:00; all the while being empty handed and feeling quite disappointed as having found nothing.

By the time I had got back down to the bottom and started to begin a long walk, I spotted them at the side of the track. There wasn't a doubt in my mind that I had just been rewarded after what seemed like a day wasted finding various Panaeolus species.

I threw myself onto my hands and knees and joined them in the grass, marvelling at them in their habitat.

Within the following few days I had adventured up the moors in the mornings and returned in the pitch black, with bags of Liberty Caps. The moment I spotted that patch a new door in life unlocked itself and opened up to me, and as an unemployed teenager I had a very clear goal: to find out as much as I could about this species.

Now fast forward a few years and the subreddit I ended up creating in that time, 'r/Semilanceata' has built itself up to be an outstanding resource for the identification and discussion of this species, with over 7,000 members as of writing this. Despite spending so much time every season searching for, talking about, looking at and thinking about Liberty Caps, I still feel that dopamine rush every single time I spot another patch peeking from the grass.

For me, excluding any form of consumption, simply the pursuit of this species has cleared a dark cloud in which my headspace had morphed into. That is why I believe, just like the hunting of an animal; the hunting of mushrooms is an art with deep ancestral roots.

Thank you for investing your time in Psilocybe semilanceata.

You can follow me on Reddit at u/Pasamelamierda and on Instagram with @semilanceatus and @jake.7k