

'*Mycena dasypus* rediscovered after 30 years': the sequel

Penny Cullington¹



Fig. 1. *Mycena dasypus* from Burnham Beeches, November 2020. Photograph © Penny Cullington.

Background

Readers may recall my article entitled as above on this little-known species of *Mycena* (Cullington, 2023). I'd recommend that interested parties might like to read that article through prior to continuing – now available at <https://doi.org/10.63482/g4ndx925> – but here is a very brief résumé before I report on some recent interesting developments.

Potted history

Mycena dasypus (Fig. 1) was originally described (Maas Geesteranus & Læssøe, 1992) with a holotype (K-M000018304) collected in 1990 on *Pinus* litter and *Quercus* twigs in a Surrey heathland (Esher Common) and a paratype (K-M000018303) collected in 1991 on a fallen *Rubus* stem in Epping Forest. In autumn 1993 two further collections were made from Kew Gardens, the first on litter of *Ilex* and *Prunus*, the second on

Pinus needles. Both were determined by Læssøe and are held at Kew together with his notes, which include drawings of microscopic details. Thereafter the species remained in obscurity until 2023 when the paratype held at RBG, Kew, was sequenced in order to ascertain whether it might possibly be a match to the mysterious species I'd been struggling to identify since 2017, having found it growing regularly with *Sphagnum* at Burnham Beeches, Bucks. It was, with 99% ITS similarity. This is a fairly nondescript smallish delicate pale *Mycena* but with remarkably long thin cystidia (on gill edge, stem and cap)—their shape apparently unique to the genus (Figs. 2 & 3). The 1992 type description, however, failed to recognise these cells as cystidia, dismissing them as some invading parasitic fungus, though Laessøe's notes on both 1993 collections refer to them but as 'hairs' rather than cystidia, possibly pointing to his re-evaluation of the original theory describing them as a contaminant of some sort.

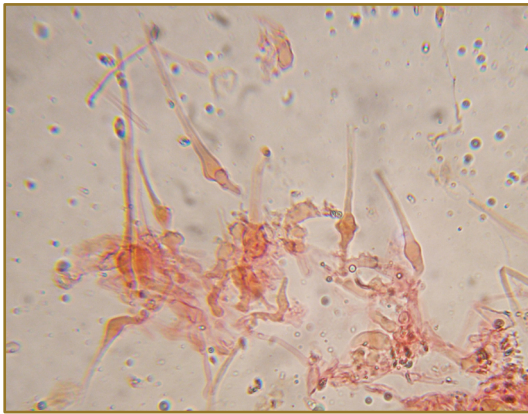


Fig. 2. Cheilocystidia. Photograph © Penny Cullington.

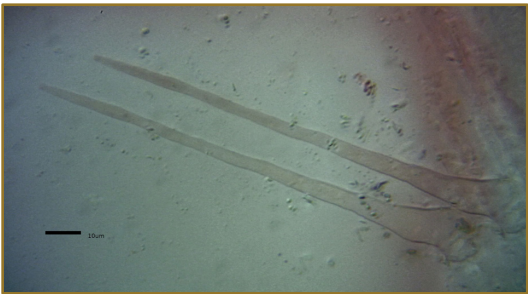


Fig. 3. Caulocystidia. Photograph © Eric Janke.

Developments since my first article (Summer 2023)

The 2024 season was by general consent one of the worst in living memory for fungi in S. England, and that autumn certainly proved a disappointing one for *Mycena dasypus* at Burnham Beeches compared to the previous six years since its discovery in the Mire where it often fruited in impressive numbers in autumn amongst the *Sphagnum*. (It is interesting that the type description includes a comment on its apparently equally common occurrence at the Surrey site.). However, in late October I was surprised and pleased to receive an email from *Mycena* specialist Arne Aronsen who was looking to add details and photos of *M. dasypus* to his excellent *Mycena* website (Aronsen, 2025) though he was personally unfamiliar with the species. (I did try to rectify this by posting him a few fresh samples, but transporting to Norway proved too much of a challenge—he received some nice damp moss and some useless infected rotten specimens!) I was intrigued to learn from him of a recent Spanish paper (Villarreal *et al.*, 2024) describing several collections of *M. dasypus*, confirmed with sequencing, from both Spain and Portugal—the first reports of the species in continental Europe. Interestingly the three Spanish finds (2023) were with woody leaf litter under *Cistus* and *Eucalyptus* and the single Portuguese find (2024) with woody leaf litter under *Quercus*, *Pinus* and *Sphagnum*, giving a much wider range of substrate than experienced at Burnham Beeches where fruiting so far had been solely with *Sphagnum*. The paper makes interesting reading—if you read Spanish! I was lucky enough to have colleague Claudi Soler on hand to help with translation. At one point there is discussion

that this *Mycena* may originally have been inadvertently imported from Oceania with *Eucalyptus*, a tree now firmly established in the Iberian Peninsula, though there is no *Eucalyptus* present at Burnham Beeches nor in fact any record of *M. dasypus* from Oceania. It was also apparent from the images shown in the paper that the Spanish and Portuguese collections have more rusty brown colours in the cap than we've seen in our at most off-white British collections (Fig. 4).

Two possible earlier UK collections

There are a few earlier UK reports which I should now mention. Two were from Lancashire – found by John Watt – which appeared to match well to *M. dasypus* though neither was



Fig. 4. *Mycena dasypus* from Iberian Peninsula 2023. Photograph © A. Couceiro & M. Villarreal.



Fig. 5. Collection from Stoke Common, November 2022. Photograph © Russell Ness.

substantiated with DNA sequencing therefore consequently omitted from my first article. The first, John informed me, was of a single *Mycena* specimen found on a *Rubus* stem in early 2021 which matched nothing he could find in available literature: could I help? Though the substrate seemed somewhat remote from the *Sphagnum* in mire which was at that stage the only habitat we knew for this unidentified species, his specimen appeared so similar that I suggested he send it to me for molecular sequencing together with my collections. However, when sent to Eric Janke and Aberystwyth University his sample sadly failed, though we did now have several viable sequences from the Burnham Beeches collections though they matched nothing in GenBank or Unite. (See my first article for more on this.) Then in late 2022 John made a second collection, this time growing on an unidentified herbaceous stem, but again despite obvious similarities I had my doubts if it could be the same species because of what at that stage appeared to be an unlikely substrate. In late 2022 a further collection was found by Bucks Fungus Group member Russell Ness at Stoke Common – only a few miles from Burnham Beeches and another acidic heathland site – this time from amongst a clump of *Juncus* (Fig. 5). However, it was not until Aronsen alerted me to



Fig. 6. Collection on *Castanea* husk, September 2024. Photograph © Dave Shute.

the Spanish paper two years later, which describes the substrate as clearly more diverse and not restricted to *Sphagnum* as I'd thought, that with hindsight I realised the possible significance of John's two earlier collections, the substrates of which were now looking much more plausible.

Four more sequenced UK collections

This wider range of substrate for *Mycena dasypus* is now further confirmed in the UK. In 2020 Alick Henrici found a mysterious 'mycenoid' in Kew Gardens on buried roots under *Pinus* though it was not identified until sequenced in 2023 (see footnote in my first article). More recently, in 2024 *M. dasypus* was sequenced from collections found in Hampshire by Eric Janke: in September on a *Castanea* husk (Fig. 6); in November on a grass stem; in December in litter under conifer and *Betula*. Finally last December I collected a small whitish *Mycena* at Burnham Beeches fruiting on fallen *Quercus* wood and to my surprise a 'scope quickly revealed the familiar tell-tale cystidia. Sadly this collection failed when sequenced, however.

Claudi Soler's interesting theory

When Claudí sent me his translation of the Spanish paper he suggested a possible theory which might provide an explanation for the diversity in substrate between the Iberian collections and those from Burnham Beeches. He observed that though the soil type is not mentioned in the paper, *Eucalyptus* is notorious for causing impoverished soil, leaving it so acidic that nothing else thrives beneath the trees. Areas of mire such as at Burnham Beeches also have nutrient-poor acidic soil: could the acidic soil be the missing link? This led to further research with the following interesting results:

England. Bucks, Burnham Beeches (Cullington 2017-24) & Stoke Common (Ness 2022): both sites with acid sandy soil. Essex, High Beach Epping Forest (Henrici 1991): acid clay soil. Hants, New Forest area (two of Janke's three collections (2024): acid; the third (on *Castanea* husk) not so. Lancs (Watt 2021/2): the first collection in woodland - not acid; the second collection possibly acid - not confirmed. RBG Kew (EW Brown & Laessøe 1993, Henrici 2020): acid to neutral soil. Surrey, Esher Common (Læssøe & Spooner - holotype collection, 1990): similar in habitat to Burnham Beeches, i.e. wooded heathland with wet boggy areas - acid sandy soil. **Iberian Peninsula** sites (2023/4): - acid, recently confirmed by M. Villarreal.

Observations

- As a result of DNA sequencing enabling us to identify all the various collections of this *Mycena* as one species, we are now better placed to recognise the diversity of substrate involved together with the apparent preference for acidic soils. This opens up the possibility that the species may occur much more widely than had at first been realised. Is it really as rare as the few records above would suggest?
- It would be useful to augment the species description to include the recently realised diversity of substrate and habitat together with soil preference now so much more detail has come to light.
- As *M. dasypus* is omitted from any existing key, also barely mentioned in any monograph or handbook, it is only likely to be recognised or identified by those with a knowledge of this article, my previous article or the 2024 Spanish paper. In my opinion, at the moment, the most likely scenario for discovering its identity is via a close match to our several sequences held at GenBank. Much more likely is that such a find would join the ranks of those frustrating collections which come out at the end of a key unsolved: very unsatisfactory, and there probably isn't a mycologist amongst us who hasn't experienced this!

Description

The species description in the Spanish paper is comprehensive and excellent, but for convenience and in view of the observations above I felt the inclusion of a description here would be useful. It might also be beneficial for Mycenologists to insert appropriate notes into whatever literature they like to use for the genus, stressing those amazing and remarkable cystidia—this would go some way to compensate for the absence of the species in available keys, etc.

Mycena dasypus Maas Geesteranus & Læssøe, (1992).

Etymology: *dasypus*—hairy foot, also derived from the Greek for 'hare'.

Type collection placed in Section *Polyadelphia* but the Spanish authors now place it in Section *Fragilipedes*.

A typical delicate and pretty *Mycena*, small in stature. **Cap** to 10 mm across, campanulate, thin-

fleshed and translucent striate to fluted, pale to off-white with pinkish tinge (Spanish collections more beige to rusty brown) and with slightly darker centre, surface somewhat pruinose. **Gills** not crowded, up to 18 reaching the stem with lamellules between, adnate, concolorous. **Stem** to 80 × 2 mm, cylindrical, fragile, concolorous above though gradually darker below, entirely pruinose, base fibrillose. **Smell and taste** insignificant. **Spore print** white.

Basidia 4-spored; spores pip-shaped, amyloid, 8–9 × 3–4 µm, **Q** av. 2.3–2.7; **cheilocystidia** to 60 × 10 µm, forming a sterile band, smooth, lageniform with or without pedicel, narrowing abruptly with notable lanceolate extension only 2 µm wide (at lower power reminiscent of the rostrate cystidia of *Pluteus thomsonii* extending well beyond the gill edge), sometimes forking; occasional secondary, much smaller, pyriform cystidia with a few low excrescences can be found, more typical of members of Sect. *Polyadelphia*; **pleurocystidia** absent; both **caulo-** and **pileocystidia** present, similar to cheilocystidia.

Substrate and habitat known so far: in UK mainly with *Sphagnum* in wet boggy areas when gregarious, sometimes in good numbers, but also amongst woody debris, both deciduous and coniferous, and on stems of vegetation; in Iberian Peninsula mainly in litter, both leaf and woody, with *Eucalyptus* and *Cistus*, also with *Pinus* and *Sphagnum*. A preference for acidic soil is now apparent but further data is needed.

What next? A request

One can surmise that though we know that *M. dasypus* has been present at Burnham Beeches since 2017, often fruiting in abundance, it may well have been present there (and elsewhere) though unobserved or overlooked from time immemorial. I find it hard to believe that it is genuinely rare, and the records now beginning to trickle in to give us a better insight into habitat surely point to the likelihood that it is 'out there' but for whatever reason remains elusively under the radar.

I would therefore like to ask all *Mycena* devotees to keep a look out for this species, bearing it in mind when coming across smallish pale specimens which fail to key out or to fit with other more familiar species. The microscopic characters are so unusual and, dare I say, almost unmistakeable! If you find it, make a careful note of (a) the substrate and habitat and (b) the cap colour – both these details need better clarification to give us a fuller

picture of the species, furthermore it's not impossible that there may be some link between the variation in cap colour depending upon habitat, climate and latitude. *M. dasypus* may have been first described 25 years ago but it is still so little known; this is an opportunity for citizen science to make a valuable contribution by helping to increase our knowledge about a species which may prove to have its stronghold in this country.

If you do find it, please get in touch – I'd love to hear from you!

Acknowledgements

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References

- Aronsen, A. (2025). The *Mycenas* of Northern Europe <https://mycena.no/dasypus.html>.
- Cullington, P. (2023). *Mycena dasypus* rediscovered after 30 years. *Field Mycol.* 24(2): 61–65.
- Maas Geesteranus, R.A. & Læssøe, T. (1992). *Mycena dasypus*, a new member of Section *Polyadelphia*. *Persoonia* 15(1):101–103.
- Villarreal, M., Couceiro, A., Sos, C., Mateos, J. & Rodrigues, H. (2024). *Mycena dasypus* (Agaricales, *Mycenaceae*), first record in the Iberian Peninsula. *Bol. Soc. Micol. Madrid* 48: 63–70.

¹ pennyculli@btinternet.com