

Mycological Notes 7: Resupinatus species in New Zealand

Jerry Cooper, June 2012

Resupinatus is a genus of small pleurotoid or cupulate dark coloured fungi on wood.

Stevenson had a fairly broad concept of *Resupinatus* and described species now shifted to *Panellus*, *Campanellus*, *Pleurotus*, *Conchomyces* and *Marasmiellus*. On the basis of better information of the boundaries of the genus at least some of those species should once again be considered as true *Resupinatus* and a few more species have been assigned to the genus or more recently recorded from New Zealand.

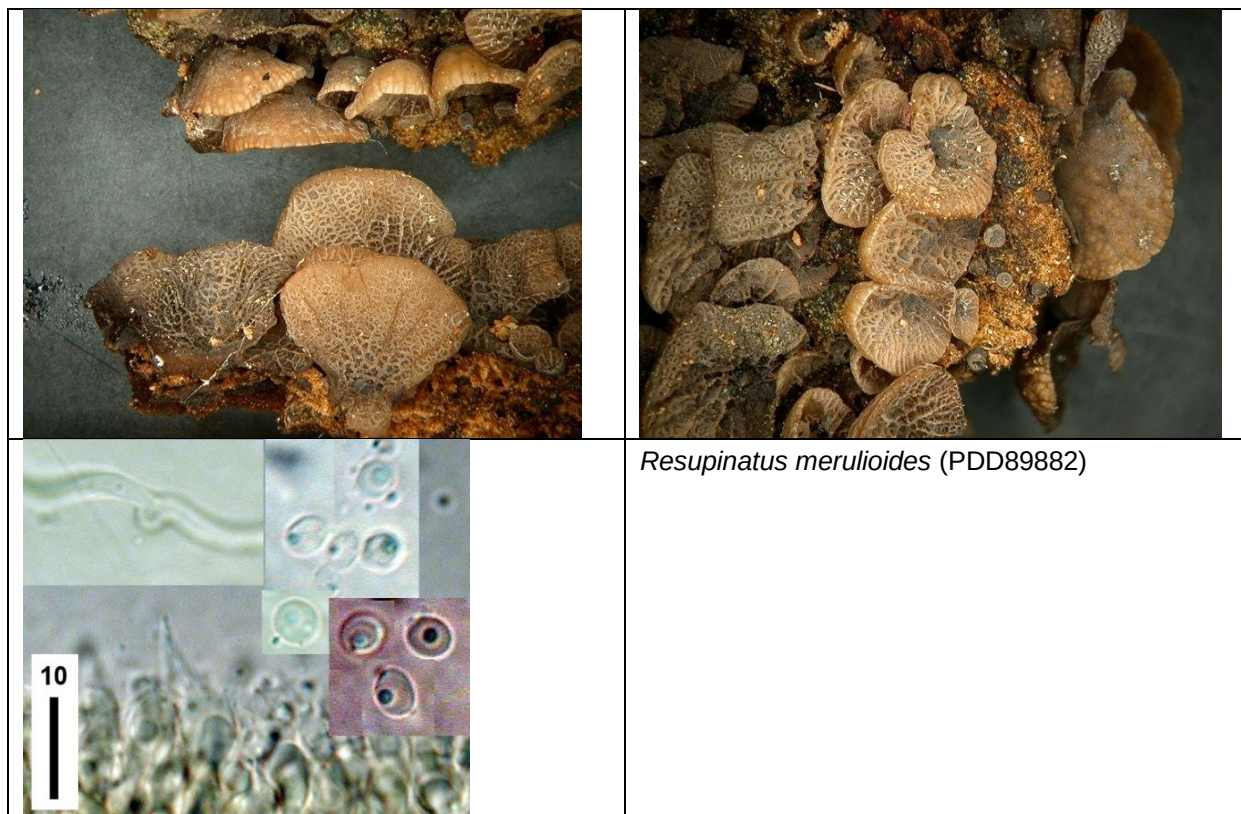
Key to New Zealand Species of *Resupinatus*

1	Possessing laterally attached flabellate caps, with gills or merulioid or poroid hymenium.	3
1'	fruiting bodies consisting of densely clustered cups	2
2	cups seated on a dense stroma	3
2'	cups not seated on a dense stroma	<i>R. urceolatus</i>
3	spores subglobose 5.5-7 x 5.5-6 µm	<i>R. poriaeformis</i>
3'	spores ellipsoid, 7-9 x 5-6.5 µm	<i>R. huia</i>
4	cap microscopically covered with thick-walled hyphae ornamented with pegs, spores cylindrical or ellipsoidal	6
4'	cap microscopically at most with small diverticulae, spores subglobose	5
5	Hymenium merulioid, cap without basal tomentum	<i>R. merulioides</i>
5'	Hymenium normally gilled, cap with shaggy tomentum over basal area	<i>R. subapplicatus</i>
6	regular gills, spores cylindrical	<i>R. violaceogriseus</i>
6'	gills cross-veined to poroid, spores ellipsoid	<i>R. vinosolidus</i>

Resupinatus poriaeformis*, *Resupinatus urceolatus* and *Resupinatus hui

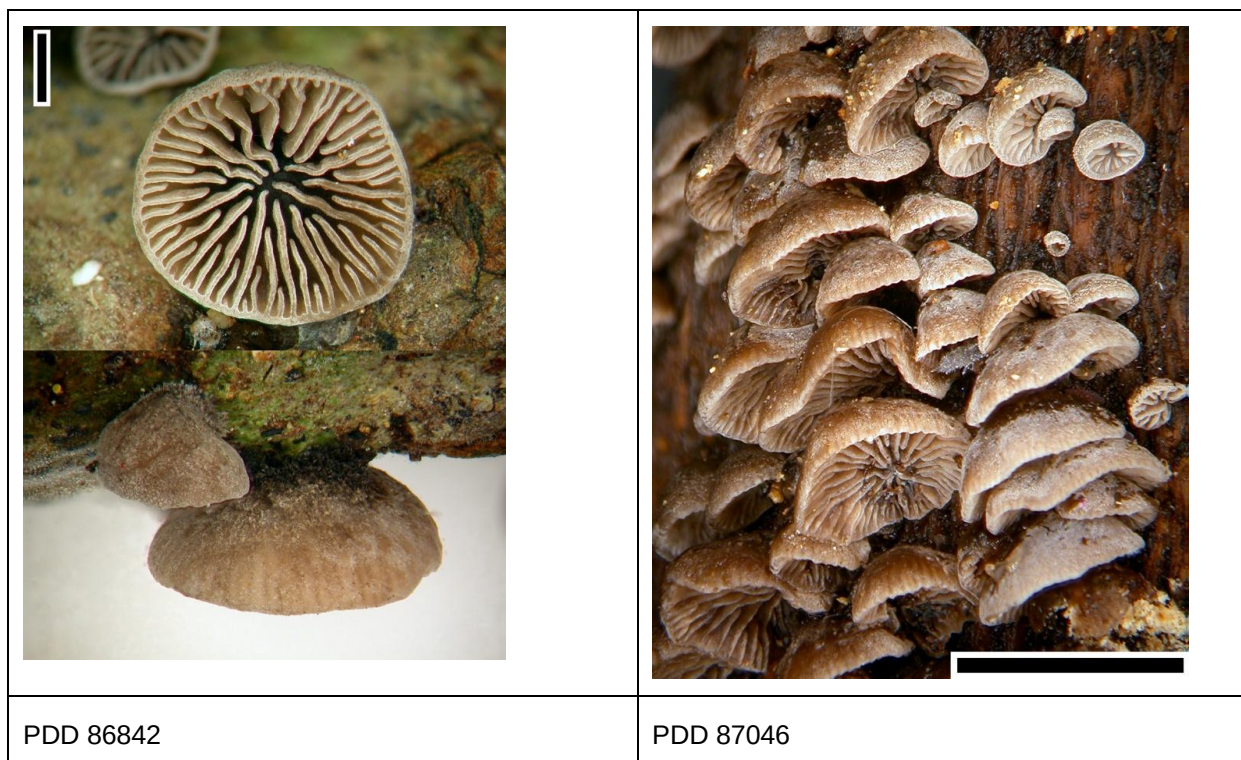
These species in New Zealand remain poorly known and I have not seen them. They are morphologically very different to the rest of the species, in consisting of a dense aggregation of cup-like fruitbodies without gills, and two are seated on a dense hyphal subiculum. *R. poriaeformis* and *R. urceolatus* are treated by most authors as synonyms but considered separate by Thorn et al, 2005. *R. urceolatus* has been separated morphologically by absence of a subiculum, smaller spores and larger fruitbodies. These species were formally placed in a variety of genera but the position of *R. poriaeformis* within *Resupinatus* is confirmed from sequences. *R. huia* remains known from the type collection and one more recent collection with narrower spores. It needs critical comparison with the South American *R. hyalinus*.

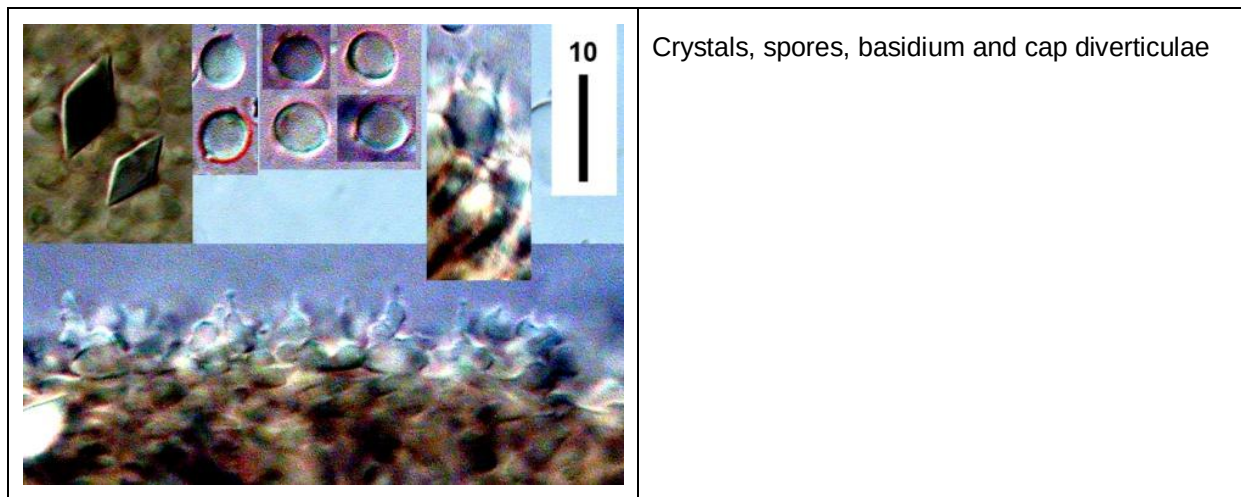
Resupinatus meruloides



This has been collected so far just once by Pam Catcheside on the 2006 Foray. It conforms to the original description of material from Japan. The spores are subglobose, 4.5-5.2 x 4-4.5. *Campanella gregaria* described in 2007 from Western Australia appears to be closely related.

***Resupinatus subapplicatus* (*R. applicatus* and *R. trichotus* auct NZ)**





The type species of the genus *Resupinatus* is *Resupinatus applicatus*. I recorded 14 collections under this name but sequence data and closer inspection reveals our material is closer to the Australian *R. subapplicatus*. Further analysis may indicate more geographical variation but with current knowledge it seems appropriate to use this name for New Zealand material.

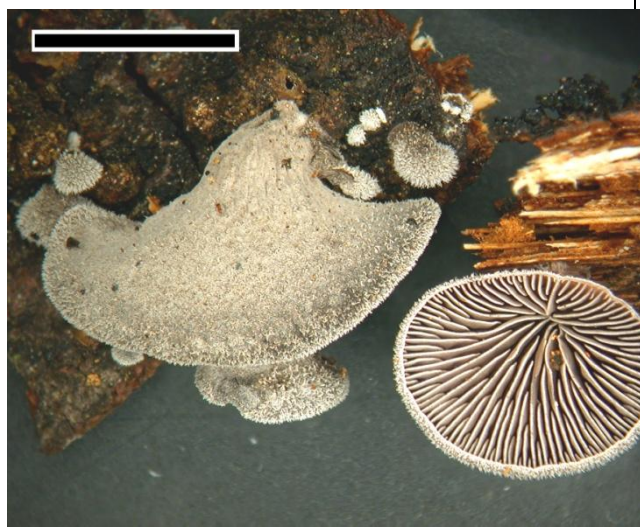
Resupinatus subapplicatus is small, less than 1.5cm in diameter, and a dark brown/purple colour, no stem, laterally attached and often with dark bristles at the point of attachment (agglutinated under the microscope). Microscopically New Zealand material it is characterised by gelatinised tissue in the cap, globose inamyloid spores 4-5µm, and finely diverticulate cap surface hyphae (irregular lecythiform, looking somewhat like bowling pins), the same structures often on the gill edge as cheilocystidia and rhomboidal crystals embedded in the tissue. *R. applicatus* sensu stricto has smaller spores, no rhomboidal crystals and a smooth cap at the point of attachment. *R. trichotis* is often separated on the basis of a tomentose cap. Re-examination New Zealand material labelled this will also most probably be *R. subapplicatus*. I currently have 14 collections of *R. subapplicatus*.

New Zealand material has been sequenced and clusters broadly with other sequences labelled *R. applicatus* and *R. trichotis* from other regions but not the same as either. The combination of tomentose cap insertion, and rhomboidal crystals in the tissue reliably separate *R. subapplicatus* from *R. applicatus* and *R. trichotis* sensu stricto.

Resupinatus violaceogriseus



PDD 87197 (scale 5mm)

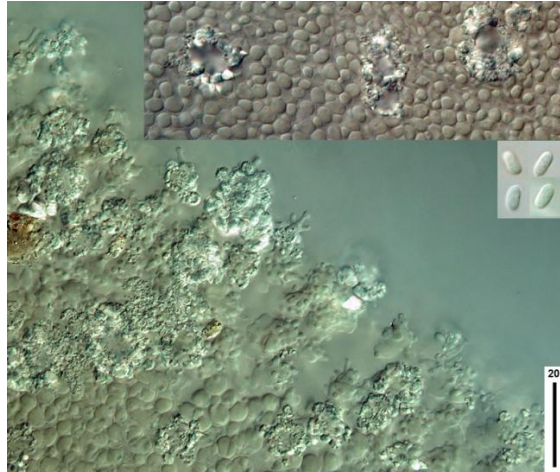


PDD 83794 (scale 5mm)



cap hairs, thick-walled with pegs





Coralloid cheilocystidia and cylindrical spores 5-6.5 X 2.5-3um

This species was recombined by Horak into *Masmiellus* when *Resupinatus* was restricted to species with globose spores. It's re-establishment within *Resupinatus* is confirmed by sequence analysis. It is part of a recognised subgroup of *Resupinatus* species possessing thick-walled cap hyphae, once placed in the genus *Asterotus* and including *Resupinatus alboniger* and its relatives. In the field *Resupinatus violaceogriseus* is often distinguished by the white felty covering to the caps (the thick-walled hairs with pegs). However, the cap hairs are sometimes sparse in which case it is impossible to tell apart from *Resupinatus subapplicatus* without microscopic examination. It is clearly closely related to the Australian *Resupinatus cinerascens* from which it differs substantially in spore shape. *R. cinerascens* has subglobose to ellipsoid spores and *R. violaceogriseus* has distinctly cylindrical spores. Should they be considered synonyms then *R. cinerascens* would be the correct name but, pending published molecular data indicating equivalence, I will retain the name *R. violaceogriseus*. I currently have 10 collections of this species.

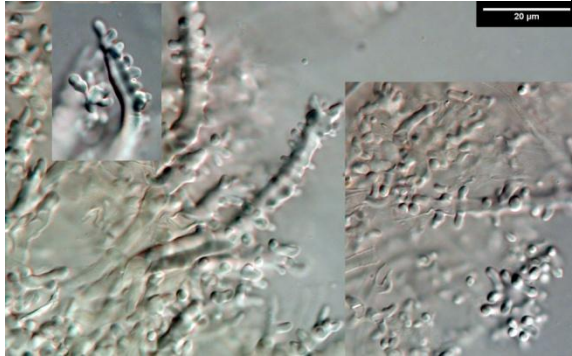
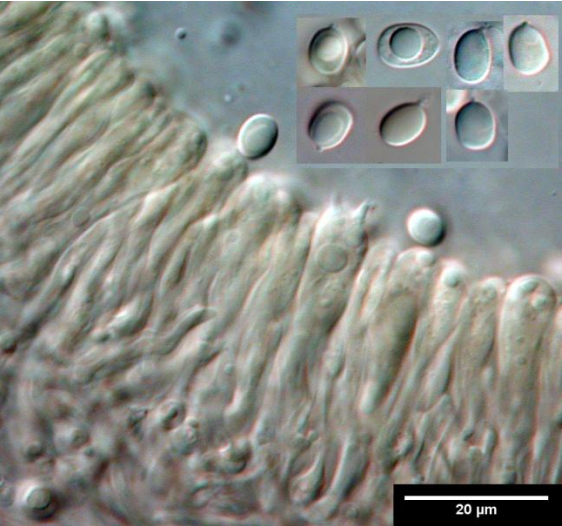
***Resupinatus vinosolividus* (Segedin) J.A. Cooper**



PDD 95480

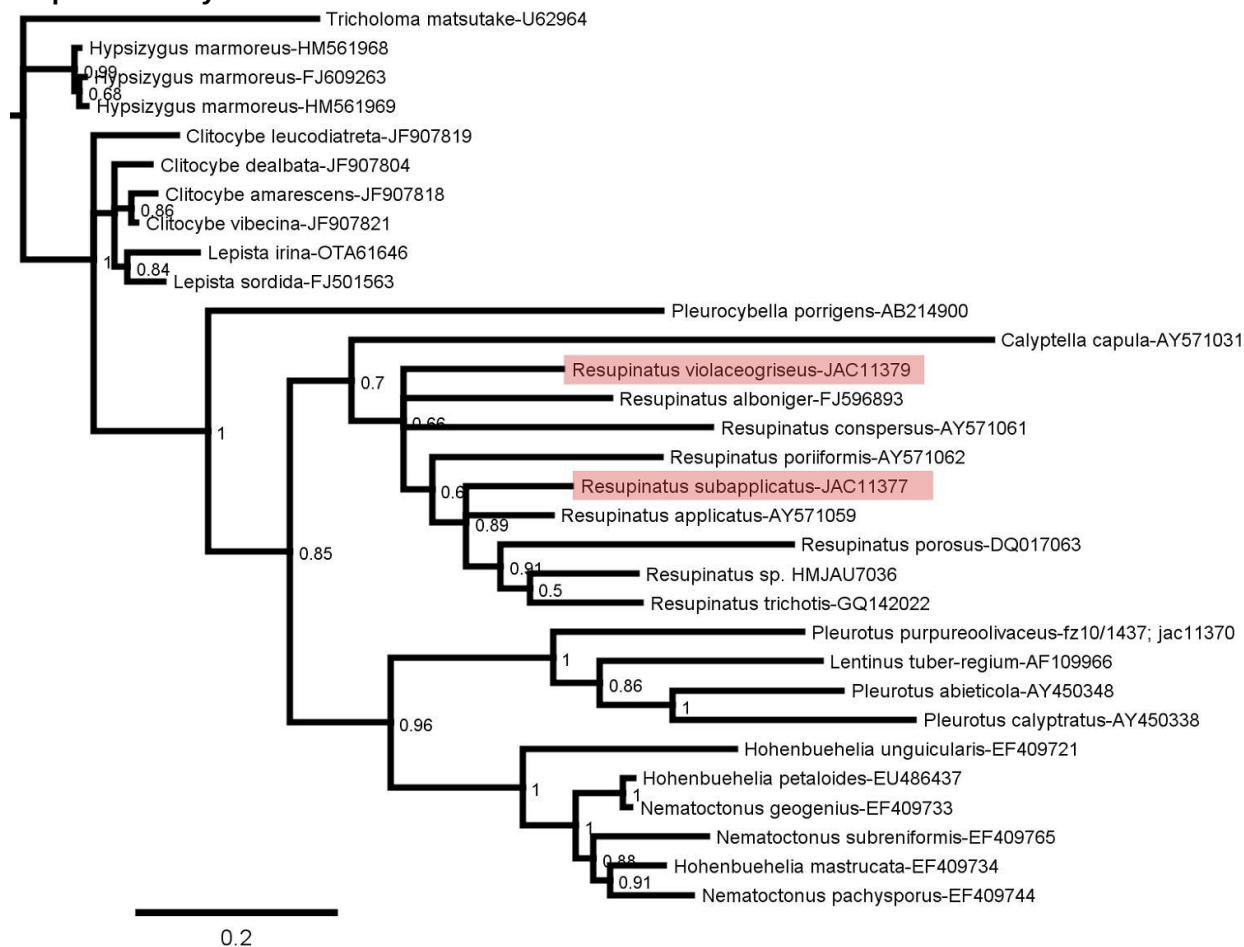


PDD 95970

 A scanning electron micrograph (SEM) showing the surface of a mushroom cap. The cap hairs are thick-walled and densely covered with small, dark, peg-like structures. A scale bar in the top right corner indicates 20 μm.	 A scanning electron micrograph (SEM) showing the surface of a mushroom gill. The gill surface is covered with numerous small, oval-shaped spores. An inset in the top right corner shows a higher magnification view of several spores, highlighting their smooth, slightly flattened shape. A scale bar in the bottom right corner indicates 20 μm.
Cap hairs with pegs	spores 7.2 x 5.5

Resupinatus vinosolidus can be relatively large compared to the other species treated here. Like *Resupinatus violaceogriseus* it has thick-walled cap hairs densely ornamented with pegs (a fact noted by Segedin). It is easily distinguished by the cross-veins in the gills (sometimes appearing poroid) and the difference in spore shapes. Barbara Segedin originally placed this species in a rather broad concept of *Campanella*, which requires further significant pruning. I recently made the rather obvious recombination of this species into *Resupinatus* as a test of 'electronic publication' through IndexFungorum, but without further justification in that note. [[Resupinatus vinosolidus \(Segedin\) J.A. Cooper, Index Fungorum 3: 1 \(2012\)](#)]. It requires critical comparison with Corner's *R. subvinaceus*. I currently have 4 collection of this species.

Sequence Analysis



This analysis (ITS1+5.8S+ITS2/Bayes/invgamma) indicates *Resupinatus* is closely related to both *Hohenbuehelia* and *Pleurotus*. These data suggest a well supported but different relationship between the *Resupinatus* clade and Pleurotaceae of Thorn et al 2000. Perhaps choice of included taxa and outgroup may have some uninvestigated influence on structure.

References

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