

Tylopilus balloui group in Australia

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Tylopilus balloui (Peck) Singer was first described by C.H. Peck in 1912 (as a *Boletus*) based on specimens from Long Island, New York. Phylogenetic inference indicates unity with other *Tylopilus* species, including the type species, *T. felleus*, in the Boletaceae, subfamily Boletoideae. Other unifying features include: spore deposit color, coloration of the hymenophore, and hymenial cystidia with obvious pigmented contents (in KOH mounts).

Species almost always have spores that are bean-shaped in profile view, hyaline and smooth, pinkish tan in deposit. Sometimes they are ovoid to short-ellipsoid or short-subfusoid. The hymenophore is a pale color becoming light pinkish brown with age, typically short, frequently adnate or sometimes decurrent, tubular or radially oriented (boletinoid), and it stains a brown color. The stipe typically stains a brown color when bruised as well. A subtle, fragrant odor is often detectable.

Solely based on spore shape, species of this complex have been placed erroneously in *Gyroporus* (the latter has clamp connections, stipe surface hyphae are circumferential, and the spore color is yellow in deposit; suborder Sclerodermatineae) and *Rubinoboletus* (species belong in *Chalciporus* in a separate subfamily, Chalciporoideae).

An initial detailed study by Osmundson (2008, Phd thesis), and another by Halling, Osmundson, Neves in *Mycological Research* 112: 437–447 (2008), and Osmundson & Halling *Mycotaxon* 113: 475–483 (2010) point to the global complexity and biogeographical distribution of the *T. balloui* group. The most detailed and robust study so far was published by Osmundson *et al.* in *Nuytsia* 32: 87–97 (2021) incorporating refined molecular phylogenetic and morphological analyses. All these investigations indicate the novelty of species occurring in Australia.

An illustrated summary of known morphological entities from Australia follow on pgs. 4–22.

Tylopilus balloui

Bronx, New York



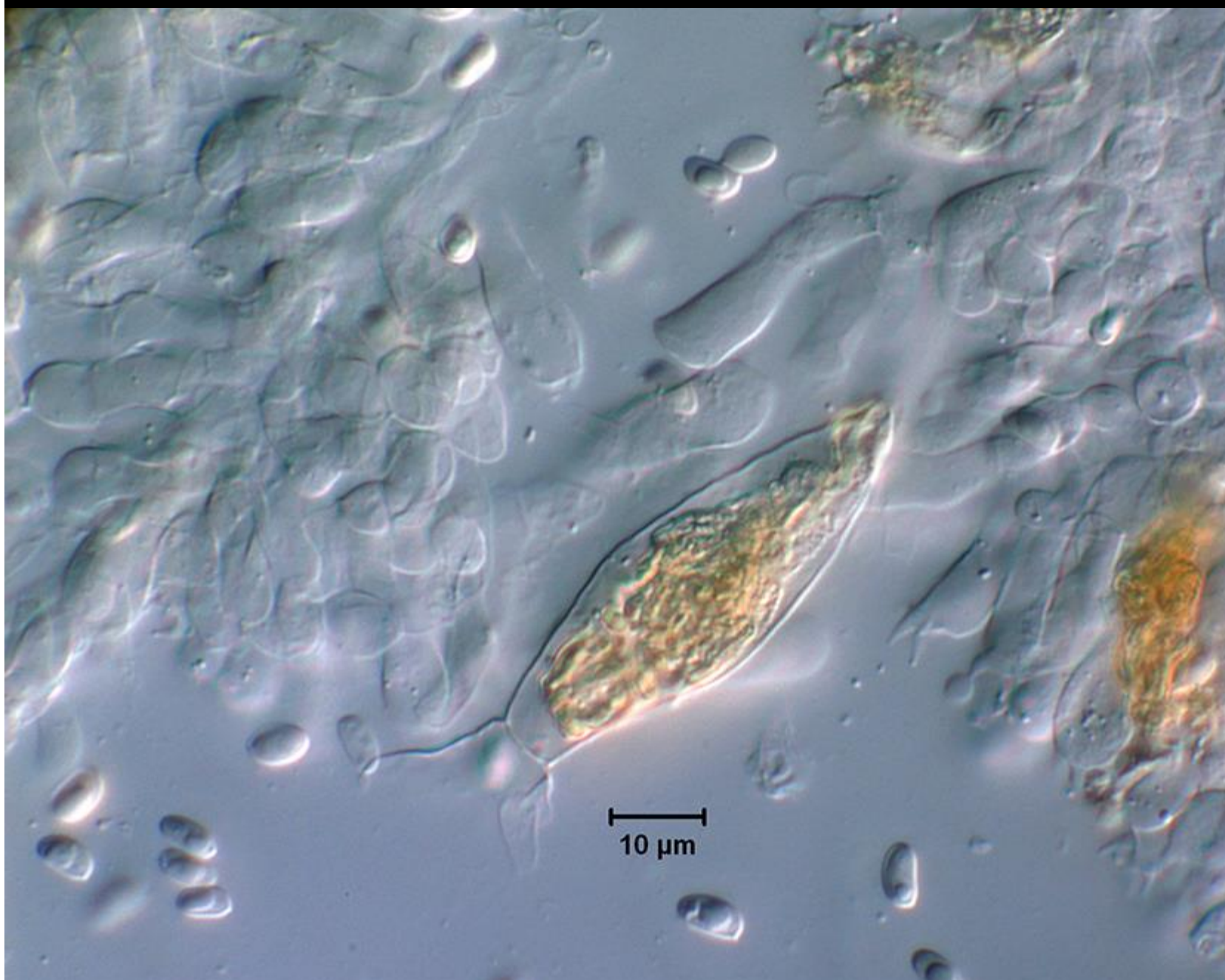
Bean-shaped spores



Microscopic features

- Spore shape (nearly universal in complex)
- Hymenial cystidia features (universal in *Tylopilus*)


Hymenial cystidia with coagulated content




Tylopilus balloui complex

Form with fine pores
Dularcha National Park, QLD



The image shows three mushrooms sliced to reveal their internal structure. The mushrooms have a thick, fleshy appearance. The gills are thick and closely spaced, giving them a 'boletinoid' or 'boletine-like' appearance. The color of the gills is a pale cream or off-white. The stem is thick and has a yellowish-orange hue. The outer surface of the mushroom caps is a vibrant orange-red. The background is a dark, textured surface.


Cespitose form with 'boletinoid' tubes
Fraser Island & Cooloola, QLD

A photograph of a single mushroom specimen against a textured, greyish-brown background. The mushroom has a thick, convex, reddish-orange cap with a slightly wrinkled or scaly texture. The underside of the cap shows a series of yellowish, wavy, rib-like structures. The stem is thick, yellowish, and tapers slightly towards the base. It has a smooth but slightly granular texture. The overall shape is somewhat club-like or 'nearly semi-sequestrate'.

Nearly semi-sequestrate form
Fraser Island, QLD



Decurrent, boletinoid tubes
Paluma Range, QLD



Boletinoid form with *Royoungia*
Davies Creek Nat'l Park, QLD



Close-up of tubes/pores,
Davies Creek Nat'l Park, QLD

Pink form, short stipe
Fraser Island, QLD




Orange red form-a
Cooloola, QLD




Orange red form-b
Cooloola, QLD



A photograph of two mushrooms growing on a forest floor covered with dry, brown leaves. The larger mushroom on the left has a light brown, textured cap and a thick, pale stem. The smaller mushroom on the right has a bright yellow-orange cap and a shorter, lighter stem. A white text box in the upper right corner contains the text "Yellowish form" and "Springbrook Nat'l Park, QLD".

Yellowish form
Springbrook Nat'l Park, QLD


A photograph of four mushrooms with bright yellow caps and thick, white stems. They are growing on a forest floor covered with dark brown, decaying leaves and twigs. The mushrooms are of varying sizes. The largest one on the left has a thick, bulbous stem. The one in the top right is sliced vertically, revealing a white interior. The one in the bottom right is also sliced, showing a white interior with some dark staining. The smallest one is at the bottom center. The lighting is bright, casting shadows on the forest floor.

Yellowish form
TAS


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Orange form, fine decurrent tubes
Strickland St. Forest, NSW

The image shows three mushrooms on a light-colored, textured surface. The mushroom at the top is upright, showing a greenish-brown cap with dark spots and a thick, white stem with some staining. The mushroom on the left is lying on its side, revealing the underside of the cap which has a dense, fine-pored texture. The mushroom on the right is also lying on its side, showing the top of the cap which is covered in dark, granular material. A text box is overlaid on the right side of the image.

Green form with fine pores
Strickland St. Forest, NSW

A photograph of four mushrooms on a forest floor. The mushrooms have a light-colored, honeycombed or pored surface. They are surrounded by fallen leaves and twigs. A text box is overlaid on the image.


Olive colored form, boletinoid pores
rainforest, northern QLD

Yellow brown form
Springbrook Nat'l Park, QLD
(? = *Boletus caespitosus* Cleland)





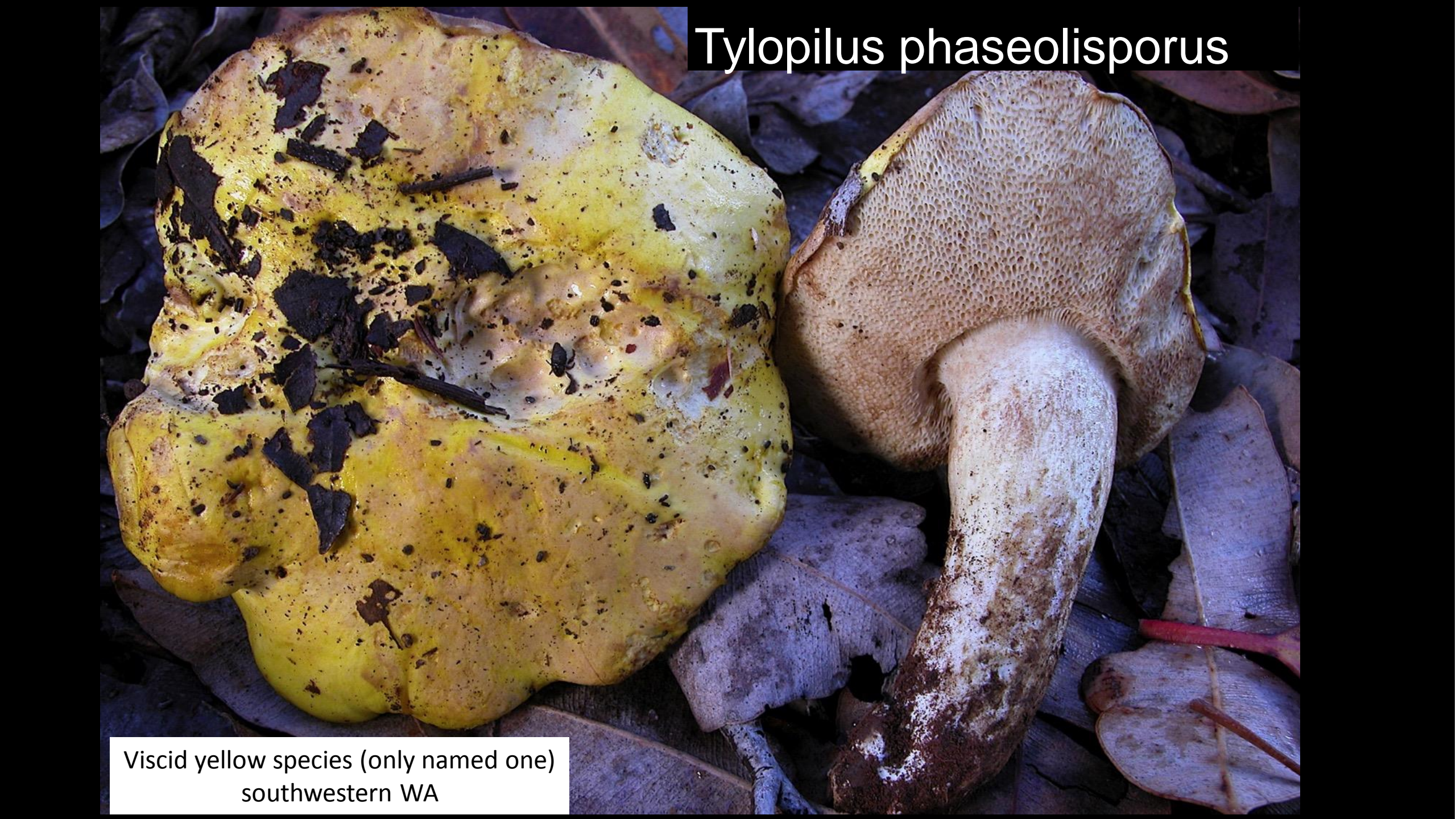
Gray brown form
Cooloola, QLD



Off-white color form
TAS
(= Boletus “sandy” - G. Gates)

White form
Paluma Range, QLD



A photograph of two mushrooms of the species Tylopilus phaseolisporus. The mushroom on the left is a large, flattened, yellowish specimen with a viscid (sticky) surface, heavily covered with dark brown or black fragments of organic matter, possibly soil or decaying plant material. The mushroom on the right is a more typical, upright specimen with a light-colored, finely reticulate (net-like) gill pattern on its cap and a thick, pale stem. Both mushrooms are resting on a bed of dry, brown leaves and forest floor debris.

Tylopilus phaseolisporus

Viscid yellow species (only named one)
southwestern WA