

Painted bolete (*Suillus lakei*) ©

The growth of Douglas fir (*Pseudotsuga menziesii*), like all of the major forest trees of the world, is dependent on mycorrhizal fungi that inhabit its fine roots. Without these mycorrhizal fungi Douglas fir would become yellow and stunted through a lack of phosphorus and other nutrients supplied by the fungus. Some of the mycorrhizal fungi produce edible mushrooms and one of the choice ones on Douglas fir is the painted suillus (*Suillus lakei*). So close is the bond between the painted suillus and Douglas fir that the fungus will not grow on any other species of tree. If it is found under a different tree then invariably there will be a Douglas fir nearby.

The painted suillus is found primarily on poor exposed soil in western North America from British Columbia to California and as far east as Arizona and Colorado (Arora 1986; Bates 2006; Mushroom observer 2009). In New Zealand it has been found from Northland to Otago (Landcare 2009) and in a survey of mycorrhizal fungi on Douglas fir it was the only one with edible fruiting bodies (Chu-Chou & Grace 1987). The painted suillus has also been found in Calabria, Italy, England, Germany and Slovenia (Global biodiversity information facility 2009; Great Britain Checklist of Fungal Names 2009; Lavorato 1997).



Mature painted suillus caps are from 4 cm to more than 15 cm in diameter and the stalks are up to 10 cm high and 4 cm wide with a poorly developed whitish ring close to the top which can sometimes have reddish streaks. The colour of the upper surface of the caps ranges from yellowish to almost pinkish when young turning light brown to almost brick red when mature. In New Zealand the colour of the mature fruiting bodies (above) are similar to those illustrated by Michael Kuo (2008) and Mushroom Observer (2009) rather than the brick red colour of those illustrated on Flickr (2009). When mature the upper surface of the caps are covered in characteristic divided scales arranged in irregular radial rows.



The undersides of the caps are covered by yellow pores that often run a little way down the stalk. As the caps age the pores become a dirty yellow to ochre with light brown patches where damaged. When rubbed the insides of the caps turn a greenish blue whereas young caps of the similar larch bolete (*Suillus grevillei*) turn light brown while slippery jack (*Suillus luteus*) does not change colour.

Roger Phillips says the caps are edible and good and David Arora states it is highly touted by some, mediocre according to others. However, the quality of painted suillus largely depends on when it is picked. It should be collected when the caps are mature and dry and not when very young and in wet weather when the caps are often gelatinous.



The painted bolete can be used in a variety of dishes where porcini might otherwise have been used such as soups, stews and casseroles. A snack treat can be made by first removing the pores from the fleshy cap and then fast frying slices in hot olive oil - a lingering aroma and a superb flavour. The painted suillus omlette described by Freyburger (2001) is very good particularly if the caps are browned in the pan first.

More than 500 mycorrhizal fungi can be found on Douglas-fir in its natural habitats in the USA but in planted Douglas fir forests in Patagonia (Argentina) only 15 species of mycorrhizal fungi can be found (Barroetaveña et al. 2007). A similar situation occurs in New Zealand which means there is less competition for the painted suillus in New Zealand's Douglas fir

plantations. Where conditions suit, fruiting body production can be very much higher than in the USA and Canada (O'Dell et al. 1999) particularly on poor, exposed, mineral soils. The standing crop in the mature Douglas fir plantation shown in the photograph below was estimated to be not less than 200 kg per hectare.

It is better to eat more mature caps rather than when they are in the button stage. Flavour seems to be associated with the development of blue staining when the caps are broken which only comes with age.

Some more reading

- Arora, D. 1986. *Mushrooms demystified: a comprehensive guide to the fleshy fungi*. Ten Speed Press.
- Barroetaveña C.; Cázares E.; Rajchenberg M. 2007. Ectomycorrhizal fungi associated with ponderosa pine and Douglas-fir: a comparison of species richness in native forests and Patagonian plantations. *Mycorrhiza* 17: 355-373.
- Bates, S.T. 2006. A preliminary checklist of Arizona macrofungi. *Canotia* 2: 47-78.
- Chu-Chou, M.; Grace, L.J. 1987. Mycorrhizal fungi of *Pseudotsuga menziesii* in the South Island of New Zealand. *Soil biology and biochemistry* 19: 243-246.
- Kuo, M. (2008, December). *Suillus lakei*. Retrieved from the MushroomExpert.Com Web site: www.mushroomexpert.com/suillus_lakei.html
- Lavorato, C. 1997. Taxonomical notes on *Suillus lakei*. *Bollettino gruppo micologico G. Bresadola* 40 (2-3): 285-290.
- Malajczuk, N.; Molina, R.; Trappe, J.M. 1984. Ectomycorrhiza formation in eucalypts. II. The ultrastructure of compatible and incompatible mycorrhizal fungi and associated roots. *New phytologist* 96: 43-53.
- Mushroom observer. 2008. *Suillus lakei* (Murrill) A.H. Sm. & Thiers (23278). https://www.mushroomexpert.com/suillus_lakei.html
- O'Dell, T.E.; Ammirati, J.F.; Schreiner, E.G. 1999. Species richness and abundance of ectomycorrhizal basidiomycete

sporocarps on a moisture gradient in the *Tsuga heterophylla* zone. *Canadian journal of botany* 77: 1699-1711.

Pietras, M.; Litkowiec, M.; Gołębiewska, J. 2018. Current and potential distribution of the ectomycorrhizal fungus *Suillus lakei* ((Murrill) A.H. Sm. & Thiers) in its invasion range. *Mycorrhiza* 28: 467-475.

<https://link.springer.com/article/10.1007/s00572-018-0836-x>

Suillus lakei. Wikipedia. https://en.wikipedia.org/wiki/Suillus_lakei

Technical advice

For technical advice on the painted bolete contact Ian Hall, P.O. Box 268, Dunedin, New Zealand, telephone +64-3-454 3574

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Supplies of painted bolete

Wild painted bolete can be obtained from Christine, Ernslaw One Forestry Office, 34 Derwent Street, +64-3-444 9995, New Zealand, christine.diack@ernslaw.co.nz

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