



Porcini (*Boletus edulis*) ©



Antonio Carluccio
preparing Christchurch
porcini



Detail of the network found on porcini stalks

Porcini (It), cèpe de Bordeaux (Fr), meiwei niuganjun (Cn), penny bun mushroom (En), and Steinpilz (De) are the common names for a group of similar mycorrhizal mushrooms loosely grouped in the species *Boletus edulis*. Scientists who are not lumpers split this group into five species: *Boletus edulis* (in the narrow sense), *Boletus aereus*, *Boletus aestivalis*, *Boletus pinophilus* and *Boletus reticulatus*. However, it is likely that other species are often sold under the guise of porcini particularly after drying and mixing with the real thing.

Boletus edulis (in the wide sense) is found in a wide range of habitats from the north of Scandinavia to the south of Italy and Morocco, and throughout Asia and North America including Mexico. In New Zealand it is primarily found in the greater Christchurch area. Reports of it being found near Naseby, Hanmer Springs and around the hydro lakes of the South Island, could not be confirmed and mushrooms sent to us from these areas were invariably birch bolete or species of *Suillus*.

In 1998 Ian Hall and colleagues gauged the size of the world market for porcini at between 20,000 and 100,000 tonnes. In season in 1997 fresh porcini wholesaled in the USA for between US\$10 and US\$55/kg although fruiting bodies harvested in April commanded US\$200/kg (Mushroom Growers Newsletter 1997). In New Zealand NZ\$110/kg has been paid for fresh porcini although this is best regarded as unusual.

Some hosts for *B. edulis* (in the wide sense) include fir (*Abies*), sweet chestnut (*Castanea*) chinkapin (*Castanopsis*), beech (*Fagus*), *Keteleeria*, *Lithocarpus*, pines (*Pinus*), spruce (*Picea*), oaks (*Quercus*) and hemlock (*Tsuga*). However, the various component species that make up the porcini complex are associated with different hosts in different locations. For example, in Southern England, *B. aestivalis*, *B. reticulatus* and *B. aereus* are found under *Quercus robur* (common oak), while *B. pinophilus* is found primarily under silver birch (*Betula pendula*) and Scots pine (*Pinus sylvestris*), and *B. edulis* (in the narrow sense) under pin oak (*Q. palustris*), common oak, sessile oak (*Q. petraea*) and beech (*Fagus sylvatica*).



Porcini found under oaks on the hills around Christchurch, New Zealand



Porcini fruiting in the grounds of the University of Canterbury

A survey of soils where porcini is found in the UK and in New Zealand found the pH to range from 3.7 to 6.5 and Olsen phosphorus concentrations ranging from 3 to 55 µg/mL soil. This range is nothing remarkable and encompasses the majority of agricultural soils in New Zealand.

In the past attempts to cultivate porcini have met with failure. In a recent scientific paper Ursula Peintner and colleagues were only able to find traces of porcini hyphae in the soil but above ground the mushroom dominated. So it is perhaps not surprising that in the past a major problem has been establishing mycorrhizas on seedlings of the host plant first in the laboratory and then maintaining these infections after moving the plants into unsterile conditions in the greenhouse. Edible Forest Fungi New Zealand Limited has overcome these problems and is now offering experimental plants for sale to those who would like to trial cultivating this mushroom. Currently only radiata pines mycorrhized with porcini are available but we hope to have other host plants available in the not too distant future.

Fruiting in New Zealand generally occurs from late February until late May although in the Northern Hemisphere fruiting can also occur in Spring particularly following an unseasonal cool spell.



Old porcini mycorrhizas



Kevin Fearn with porcini

Some further reading

Hall, I.R.; Lyon, A.J.E.; Wang, Y.; Sinclair, L. 1998: Ectomycorrhizal fungi with edible fruiting bodies. 2. *Boletus edulis*. *Economic botany*, 52:44-56.

Peintner, U.; Iotti, M.; Klotz, P.; Bonuso, E.; Zambonelli, A. 2007. Soil fungal communities in a *Castanea sativa* (chestnut) forest producing large quantities of *Boletus edulis sensu lato* (porcini): where is the mycelium of porcini? *Environmental microbiology* 9: 880-889.

Stringer, A.M. 2003. *Boletus edulis* in New Zealand: its genetic affinities and history. MSc thesis, University of Otago.

Wang, Y.; Hall, I.R.; Sinclair, L.; Cole, A.L.J. 1995. *Boletus edulis sensu lato*: A new record for New Zealand. *New Zealand journal of crop and Horticultural Science* 23: 227-231.

For technical information on porcini contact Ian Hall, P.O. Box 268, Dunedin 9054, New Zealand, truffle1@ihug.co.nz, telephone +64-3-454 3574, +64-27-226 1844, web: www.trufflesandmushrooms.co.nz

To enquire about the availability of trees mycorrhized with porcini please contact Kevin Fearn, Edible Forest Fungi New Zealand Limited, P.O. Box 384, Oamaru 9444, New Zealand, email kevin@oregonnurseries.co.nz, telephone +64-3-431 3627, +64-27-450 4605, web www.effnz.co.nz