= Mycena overholtsii =

Mycena overholtsii , commonly known as the snowbank fairy helmet or fuzzy foot , is a species of fungus in the family Mycenaceae . The mushrooms produced by the fungus are relatively large for the genus Mycena , with convex grayish caps up to 5 cm (2 @.@ 0 in) in diameter and stems up to 15 cm (5 @.@ 9 in) long . The gills on the underside of the cap are whitish to pale gray , and initially closely spaced before becoming well @-@ spaced at maturity after the cap enlarges . The mushrooms are characterized by the dense covering of white " hairs " on the base of the stem . M. overholtsii is an example of a snowbank fungus , growing on well @-@ decayed conifer logs near snowbanks , during or just after snowmelt . Formerly known only from high @-@ elevation areas of western North America , particularly the Rocky Mountain and Cascade regions , it was reported for the first time in Japan in 2010 . The edibility of the mushroom is unknown . M. overholtsii can be distinguished from other comparable species by differences in location , or spore size .

= = History and naming = =

The species was first described by mycologists Alexander H. Smith and Wilhelm Solheim in 1953 , on the basis of specimens collected in the Medicine Bow Mountains of Albany County , Wyoming . The specific epithet honors the early 20th @-@ century American mycologist Lee Oras Overholts . It is commonly known as the " snowbank fairy helmet " , or " fuzzy foot " , although it shares the latter name with Tapinella atrotomentosa and Xeromphalina campanella . M. overholtsii has been given the Japanese name yukitsutsumikunugitake .

= = Description = =

Mycena overholtsii produces some of the largest mushrooms of the genus Mycena . They have caps that are 1 @.@ 5 to 5 cm (0 @.@ 6 to 2 @.@ 0 in) in diameter , and convex in shape , developing an umbo (a central protrusion resembling a nipple) in maturity . The cap surface is smooth , moist , and marked with radial striations . The caps are somewhat hygrophanous , and depending on age and state of hydration , range in color from brown or grayish @-@ brown , to dark or bluish @-@ gray . The mushroom flesh is thin and watery , with a light gray color .

The gills have an adnate , adnexed , or shallowly decurrent attachment to the stem , and are initially closely spaced before becoming well @-@ spaced at maturity . They have a whitish to pale gray color , and will stain gray when they are bruised . There are three or four tiers of lamellulae (short gills that do not extend fully from the cap margin to the stem) interspersed between the gills . The stem is 4 to 15 cm (1 @.@ 6 to 5 @.@ 9 in) long by 0 @.@ 3 to 1 cm (0 @.@ 1 to 0 @.@ 4 in) thick , and tapers upward so that the stem apex is slightly thinner than the base . It can be straight or curved , has cartilage @-@ like flesh , and is hollow in maturity . When growing on soft , well @-@ decayed wood , the stem often penetrates deeply into the substrate . The stem is pinkish @-@ brown in color , and the lower half is tomentose ? densely covered with white , woolly hairs . The mushroom has a yeast @-@ like odor and a mild taste ; its edibility is unknown , but it is not considered poisonous .

= = = Microscopic characteristics = = =

Viewed in deposit , as with a spore print , the spores appear white . Microscopically , the spores are roughly elliptical , sometimes appearing bean @-@ shaped , with dimensions of 5 @.@ 5 ? 7 @.@ 0 by 3 @.@ 0 ? 3 @.@ 5 µm . They are thin @-@ walled and smooth , and bear an indistinct hilar appendage . The spores are amyloid , meaning they will absorb iodine and turn black to blue @-@ black when stained with Melzer 's reagent . The basidia (spore @-@ bearing cells) are four @-@ spored . The cheilocystidia (cystidia on the gill edge) , which are scattered and interspersed with basidia , are roughly cylindric to fusoid (spindle @-@ shaped) , smooth , hyaline (translucent) , and measure 45 ? 65 by 2 ? 5 @.@ 5 µm . Pleurocystidia (cystidia on the gill face) are uncommon

, and similar in appearance to the cheilocystidia . The cap cuticle is an ixocutis (a fungal tissue type in which the hyphae are gelatinous and lie flat) with mostly smooth hyphae that are 1 @.@ 5 ? 3 @.@ 5 µm in diameter . The cap flesh is dextrinoid , meaning it will turn reddish @-@ brown in Melzer 's reagent . Clamp connections are present in the hyphae of M. overholtsii .

= = = Similar species = = =

Other similar mycenas that grow in clusters on wood include M. maculata and M. galericulata . The fruit bodies of M. maculata often develop red stains as they mature , but this characteristic is inconsistent and cannot be reliably used for identification . Its spores are larger than that of M. overholtsii , measuring 7 ? 10 by 4 ? 6 µm . M. galericulata is very similar in appearance to M. maculata , but does not undergo reddish staining ; its spores are 8 ? 12 by 5 @.@ 5 ? 9 µm . Another similar species is M. semivestipes , which can be distinguished by its bleach @-@ like odor , an eastern North American distribution , fruiting season during summer and autumn , and small spores measuring 4 ? 5 by 2 @.@ 5 ? 3 µm .

= = Habitat and distribution = =

This species is sometimes found singly , but more often in clusters on well @-@ rotted conifer logs and stumps (often Douglas @-@ fir) near melting snowbanks , or sometimes in moist snow chambers formed by receding snow . Cool nighttime temperatures reduce the snowmelt rate , and help ensure that spores released by the mushroom will be dispersed into the soil . The mushroom is common in western North America , particularly the Pacific Northwest , the Rocky Mountains and the Cascade mountains . It has been reported in four US states : South Dakota , California , Washington and Wyoming , but is not known in Oregon . It is also found in western Canada . The mushroom is restricted to areas with minimum elevations of 1 @,@ 000 m (3 @,@ 300 ft) . In 2010 , it was reported growing in the boreal coniferous forests of Hokkaido , Japan , in plantations of Sakhalin fir (Abies sachalinensis) , as well as in natural forests dominated by both Sakhalin fir and Jezo spruce (Picea jezoensis) . In North America , the mushroom usually appears between March and July ; Japanese collections were made in May . The fruiting period can be prolonged , especially in areas with heavy snowfall , or at high elevations where the snowmelt is delayed .