

= *Morchella populiphila* =

Morchella populiphila is a species of morel fungus (family *Morchellaceae*) native to northwestern North America . Described as new to science in 2012 , its specific epithet refers to its association with black cottonwood (*Populus trichocarpa*) . The morel used to be referred to as *Morchella semilibera* in western North American field guides until molecular analysis established that to be a strictly European species . *M. populiphila* occurs in California , Nevada and Oregon . Its fruit bodies grow up to 15 cm (6 in) tall with a ridged and pitted conical cap that attaches about halfway down the stipe . The cap ridges are dark brown to black in maturity , while the pits are yellowish to brownish . The fungus is edible , although not as highly valued as other morels .

Morchella populiphila is one of three species of fungi commonly referred to as " half @-@ free " morels , the others being *Morchella punctipes* in eastern North America and *Morchella semilibera* in Europe .

= = Taxonomy = =

Morchella populiphila was one of 14 new *Morchella* species described in 2012 by Michael Kuo and colleagues as a result of the Morel Data Collection Project , which was aimed at clarifying the biology , taxonomy , and distribution of morel species in the United States and Canada . The type locality is in Jackson County , Oregon . The fungus used to be referred to as *Morchella semilibera* (the " half @-@ free morel ") in western North American field guides until molecular analysis established that to be a strictly European species . It was previously referred to as phylogenetic species *Mel @-@ 5* (i.e. , identified based on DNA sequence) in a 2011 publication . The specific epithet *populiphila* refers to its association with the tree species *Populus trichocarpa* .

= = Description = =

The fruit bodies are 4 ? 15 cm (1 @. @ 6 ? 5 @. @ 9 in) high with a conical cap that is 2 ? 5 cm (0 @. @ 8 ? 2 @. @ 0 in) tall and 2 ? 5 cm (0 @. @ 8 ? 2 @. @ 0 in) wide at the widest point . The cap surface has pits and ridges , formed by the intersection of 12 ? 20 primary vertical ridges and infrequent shorter , secondary vertical ridges and transecting horizontal ridges . The cap is attached in a skirt @-@ like manner to the stipe , roughly halfway from the top , with a sinus 1 ? 2 @. @ 5 cm (0 @. @ 4 ? 1 @. @ 0 in) deep . The ridges are smooth and colored yellowish brown to honey brown when young , but darken in age to brown , dark brown or black . When young the ridges are up to 1 mm wide and flat with sharp edges but usually become rounded , sharp or eroded in age . The pits are smooth and vertically elongated . Initially whitish to pale brown when immature , they become brownish to yellowish or grayish brown at maturity . The fragile stipe measures 2 @. @ 5 ? 11 cm (1 @. @ 0 ? 4 @. @ 3 in) tall by 1 ? 5 cm (0 @. @ 4 ? 2 @. @ 0 in) thick and is roughly the same width throughout its length , or tapered towards the top . It is often hidden by the cap when young but becomes longer as it matures , often developing shallow longitudinal furrows . In warm , wet conditions the stipe sometimes becomes inflated , especially near the base . White to whitish or watery brownish in color , its texture is occasionally nearly smooth but more commonly covered with mealy whitish granules that sometimes darken to brown . Orson K. Miller likened the stipe texture to that of a cow tongue . The fragile , whitish to watery tan flesh is 1 ? 2 mm thick in the hollow cap , and sometimes forms chambers or layers near the base . The whitish to brownish sterile inner surface of the cap is covered in mealy granules .

In deposit , the spores are bright yellowish orange . Ascospores are smooth , elliptical , and typically measure 20 ? 25 by 12 ? 16 μ m . Asci (spore @-@ bearing cells) are eight @-@ spored , cylindrical , hyaline (translucent) , and measure 225 ? 325 by 15 ? 22 @. @ 5 μ m . Paraphyses are septate , and cylindrical with tips that are rounded to club @-@ shaped , and measure 150 ? 275 by 7 ? 15 μ m . Hyphal cells on sterile ridges are septate , measuring 100 ? 175 by 10 ? 25 μ m . They are tightly packed in an even layer . The terminal hyphae are club @-@ shaped to somewhat rectangular with a flattened to broadly rounded tip .

Although *Morchella populiphila* is an edible species , it is not as highly valued as other morels because of its fragile nature and its inferior flavor .

= = = Similar species = = =

Morchella populiphila is a distinct morel because of its cap attachment and its habitat , and it is unlikely to be mistaken for other species . *Verpa bohemica* is somewhat similar in appearance , but its cap hangs free from attachment to the stipe . The other North American half @-@ free morel , *Morchella punctipes* , is very similar in appearance to *M. populiphila* , and they cannot be reliably distinguished on morphology alone . The distribution of *M. punctipes* extends from the Great Plains eastward . The widespread European species *Morchella semilibera* is morphologically indistinguishable from *M. populiphila* , in both macroscopic and microscopic characteristics .

= = Habitat and distribution = =

Like many morel species , the ecological mode of *Morchella populiphila* is not known with certainty , but it is suspected of being both saprobic (obtaining its nourishment from nonliving or decaying organic matter) and mycorrhizal (symbiotic with trees) at different stages in its life cycle . Fruit bodies grow singly , scattered , or in groups . It is found in Oregon to Nevada and northern California , where it grows on dried @-@ out riverbeds . Fruiting , which occurs in the spring , tends to occur shortly after the emergence of *Verpa* mushrooms , and before the appearance of other morels .

M. populiphila has been found in Europe , but is suspected to have been introduced with trees from North America .