

## Key To 20 Phylogenetic Species Of *Morchella* In The United States And Canada

1. Ridges dark gray to brown or black when young or pale when young and darkening to brown or black with maturity → 2
- 1'. Ridges pale yellowish, pale brownish, or rufescent throughout development → 12
2. Hymenophore only partially attached to the stipe; sinus 8-20(-25) mm at point of attachment → 3
- 2'. Hymenophore almost completely attached to the stipe except for a small (2-4 mm) sinus at the point of attachment → 4
3. Associated with *Populus trichocarpa* in western North American river bottoms → *M. populiphila*
- 3'. Associated with various hardwoods from the Great Plains eastward → *M. punctipes*
4. Appearing in conifer burn sites; in western North America → 5
- 4'. Not found in conifer burn sites; variously distributed → 7
5. Surfaces densely tomentose (especially when young), covered with projecting hairs (120-250 +  $\mu\text{m}$ ) that are brown in 2% KOH; hymenophore and stipe usually dark gray to black but sometimes becoming pale in direct sunlight → *M. tomentosa*
- 5'. Surfaces glabrous to finely tomentose, not covered with projecting hairs → 6
6. Elements on sterile ridges primarily capitate (often strikingly so) → *M. capitata*
- 6'. Elements on sterile ridges variously shaped, only occasionally subcapitate; following two species indistinguishable both morphologically and ecologically based on current data → *M. sextelata*, *M. septimelata*
7. Pits and ridges usually arranged in a “laddered” vertical appearance (Fig. 15); appearing in landscaping areas and woodchip beds in urban areas in western North America → 8
- 7'. Pits and ridges not usually arranged in a “laddered” vertical appearance → 9
8. Ridges velvety when young; known only from the 1935 type collection in Redmond, Washington → *M. hotsonii*
- 8'. Ridges glabrous or very finely tomentose → *M. importuna*
9. Found from the Rocky Mountains westward → 10
- 9'. Found from the Great Plains eastward → 11
10. Ridges pale yellowish when young, often darkening somewhat later; stipe strikingly ridged and lacunose → *M. snyderi*
- 10'. Ridges dark brown to black when young; stipe not strikingly ridged and lacunose → *M. brunnea*, and *Morchella* sp. (= Mel-8)
11. Distributed from roughly 44°N latitude northward (currently known only MI-NY); ascospores (19-)20-22(-25)  $\mu\text{m}$  long → *M. septentrionalis*
- 11'. Widely distributed from the Great Plains eastward; ascospores 22-27  $\mu\text{m}$  long → *M. angusticeps*
12. Surfaces tomentose and usually dark gray to black when young; covered with projecting hairs (120-250 +  $\mu\text{m}$ ) that are brown in 2% KOH; from conifer burn sites in western North America → *M. tomentosa*
- 12'. Surfaces glabrous to finely tomentose; not covered with projecting hairs → 13
13. Appearing in landscaping areas and woodchip beds in urban areas, primarily in western North America but introduced to central Michigan from California; ridges notably rufescent → *M. rufobrunnea*
- 13'. Ridges pale brownish to smoky brown or black, not notably rufescent → 14
14. Hymenophore usually subconic to conic, attached to the stipe with a notable sinus; western North America → 15
- 14'. Hymenophore attached to the stipe without a notable sinus → 16
15. Ridges remaining relatively pale throughout development, at maturity pale brownish and more or less concolorous with pits; stipe not strikingly ridged and lacunose → *M. frustrata*
- 15'. Ridges usually darkening to smoky brown or black with maturity or when dried; stipe often strikingly ridged and lacunose (Fig. 16) → *M. snyderi*

16. Mature ascomata small to medium (35-125 mm high); pits primarily vertically arranged; distributed east of the Great Plains → 17
- 16'. Mature ascomata medium to large (50-220 + mm high); pits more randomly arranged; variously distributed → 18
17. Hymenophore usually ovoid with a bluntly conic to subconic apex, 30-70 mm high; elements on sterile ridges scattered and infrequent, variable in shape; southeastern in distribution → *M. virginiana*
- 17'. Hymenophore usually subconical to conical, 20-40 mm high; elements on sterile ridges abundant, usually subfusiform; widely distributed east of the Great Plains. Northernmost distribution probably southern Michigan → *M. diminutiva*
18. Pits and ridges contorted, asymmetrical and irregular (Fig. 6); ridges often remaining flattened or widely rounded into maturity; elements on sterile ridges scattered and infrequent → *M. prava*
- 18'. Not as above → 19
19. Distributed in the Great Lakes region from Ontario to Illinois and Virginia; morphologically indistinguishable from *M. esculentoides* → *M. cryptica*
- 19'. Widely distributed and common east of the Rocky Mountains (including the Great Lakes region); in western North America found in river bottoms or in urban areas → *M. esculentoides*

Photo Legend	Glossary
2. <i>M. rufobrunnea</i>	ascomata - the fruiting body of an ascomycete fungus
3. <i>M. diminutiva</i>	ascospores - spores produced by ascomycetes fungi.
4. <i>M. virginiana</i>	capitate - enlarged and globular at the tip.
5. <i>M. esculentoides</i>	concolorous - colored the same throughout.
6. <i>M. prava</i>	glabrous - smooth.
7. <i>M. cryptica</i>	hymenophore - fruiting surface of fungi; "pits" for <i>Morchella</i> spp.
8. <i>M. tomentosa</i>	lacunose - furrowed or pitted.
9. <i>M. frustrata</i>	morphology - the study of the form and structure of organisms and their specific structural features.
10. <i>M. punctipes</i>	phylogenetic - the study of evolutionary relation among groups of organisms through molecular sequencing and morphological data.
11. <i>M. populiphila</i>	
12. <i>M. sextelata</i>	rufescent - tinged or becoming red.
13. <i>M. septimelata</i>	sinus - notch between stipe and hymenophore.
14. <i>M. capitata</i>	stipe - stem.
15. <i>M. importuna</i>	subfusiform - spindle shaped; wide in the middle and tapers at both ends.
16. <i>M. snyderi</i>	taxonomic - the science of identifying and naming species, and arranging them into a classification.
17. <i>M. angusticeps</i>	
18. <i>M. brunnea</i>	
19. <i>M. septentrionalis</i>	tomentose - densely matted and wooly "hairs".

Excerpted from:

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Reformatted & glossary added by A MacMillen



