

= *Lepiota castaneidisca* =

*Lepiota castaneidisca* is a species of agaric fungus in the family Agaricaceae . Formally described in 1912 , it was for a long time considered the same species as the similar *Lepiota cristata* until molecular analysis reported in 2001 demonstrated that it was genetically distinct . It is most common in coastal and northern California , and has also been recorded in Mexico . A saprobic species , it is usually found under redwood and Monterey cypress . Its fruit bodies ( mushrooms ) have white caps with an orange @-@ red to orange @-@ brown center that measure up to 3 @. @ 2 cm ( 1 @. @ 3 in ) wide . The cream @-@ colored to light pink stems are up to 6 @. @ 5 cm ( 2 @. @ 6 in ) long by 0 @. @ 2 ? 0 @. @ 6 cm ( 0 @. @ 1 ? 0 @. @ 2 in ) thick , and have a ring . *L. castaneidisca* can be distinguished from other similar *Lepiota* species by differences in habitat , macroscopic , or microscopic characteristics .

= = Systematics = =

The species was first described as new to science by mycologist William Alphonso Murrill in 1912 . Murrill collected the type material growing near redwoods near Searsville Lake , California , in December 1911 . In 1914 , Murrill decided that the species was the same as *Lepiota cristata* ( which he called *Lepiota conspurcata* ( Willd . ) Morgan ) ; this opinion was later corroborated by Walter Sundberg in 1989 after he studied the type collection and concluded that the microscopic characteristics of both were the same . Using molecular analysis based on comparing DNA sequences of the internal transcribed spacer region , mycologist Else Vellinga determined that despite the lack of distinguishing micro @-@ morphological characteristics , the two species were distinct .

The epithet *castaneidisca* refers to the chestnut @-@ colored center of the cap . *Lepiota* means " the scaly one " .

= = Description = =

The fruit bodies of *Lepiota castaneidisca* have white , bell @-@ shaped to convex caps 0 @. @ 8 to 3 @. @ 2 cm ( 0 @. @ 3 to 1 @. @ 3 in ) in diameter , with an orange @-@ reddish to pale orange @-@ brown center . Mature specimens fade and lose the reddish shades . The cap surface develops small pale pink or cream patches ( especially on the outermost zone ) on a white background that has radially arranged fibrils . The gills are somewhat crowded to moderately distant , with typically 40 ? 45 full length gills , and 1 ? 5 tiers of interspersed lamellulae ( short gills that do not extend fully from the cap margin to the stem ) . They are slightly ventricose , measuring 2 @. @ 5 ? 5 mm wide , and have a white fringed or irregular edge . Whitish when young and cream @-@ colored in age , they have a free gill attachment to the stem . The stem is 25 ? 65 mm ( 1 @. @ 0 ? 2 @. @ 6 in ) long by 2 ? 6 mm ( 0 @. @ 1 ? 0 @. @ 2 in ) thick , cylindrical , slightly widened at the base , hollow , and fibrillose . Its color is pinkish in the lower part , and it stains reddish where damaged , especially in older specimens . The flesh is whitish , sometimes with cream tones , or reddish @-@ brown in mature specimens . There is a ring that points upward in young specimens , but in maturity it degrades to remnants that are left behind on the stem . It has a sharp odor similar to rubber or cod liver oil . The mushroom is not known to be poisonous , but consumption is not recommended due to the risk of possible confusion with *Lepiota* species that contain deadly amatoxins .

The smooth , dextrinoid spores are in side view triangular with a spurred base , in frontal view oblong , and typically measure 5 ? 9 by 3 ? 4 ?m . Staining with Cresyl blue shows them to be somewhat metachromatic , and binucleate . Cystidia on the gill edge ( cheilocystidia ) are club @-@ shaped to cylindric or sometimes spheropedunculate ( somewhat spherical with a stem ) , and have dimensions of 20 ? 44 by 6 @. @ 5 ? 13 @. @ 5 ?m . Basidia are 18 ? 30 by 5 ? 8 ?m , mostly four @-@ spored , and are absent on the gill edge . Pleurocystidia ( cystidia on the gill face ) are absent . The cap cuticle is a hymeniderm ( lengthened cells arranged side by side ) with mostly colorless

elements of different lengths , measuring 16 ? 62 by 8 ? 18 ?m . The stipitipellis ( outer covering of the stem ) comprises a layer of colorless hyphae measuring about 2 ? 3 ?m wide . Clamp connections are present in the hyphae of all parts of the fungus .

= = = Similar species = = =

*Lepiota castaneidisca* closely resembles *L. cristata* ( with which it has commonly been confused ) , but it has a more rounded cap , lacks an umbo , and is reddish- or pinkish @-@ brown , rather than orange @-@ brown . *L. cristata* , which is widely distributed in the Northern Hemisphere , prefers habitats where the natural vegetational cover has been disturbed by humans , or in the beds of rivers and creeks ; in contrast , *L. castaneidisca* is found in natural , undisturbed habitats . Other similar species in similar habitats with which *L. castaneidisca* could be confused include *L. thiersii* and *L. neophana* ; in contrast to *L. castaneidisca* , both of the latter two species have ellipsoid spores . The fruit bodies of *L. thiersii* appear from November through April , and grow scattered or in groups under cypress . It usually lacks the reddish color in the center of the cap associated with *L. castaneidisca* , and its spores are not as long , with dimensions of 4 @.@ 7 ? 6 @.@ 3 by 3 @.@ 1 ? 3 @.@ 9 ?m . *L. neophana* is a rare species , but more widely distributed in the United States than *L. castaneidisca* , as it has been reported from Ohio and Michigan in addition to California . It also fruits under cypress , usually between December and April . This mushroom is most readily distinguished from *L. castaneidisca* by the dark brown to blackish @-@ brown color of the cap center .

= = Habitat and distribution = =

*Lepiota castaneidisca* is a saprobic fungus . Fruit bodies appear in the late fall and winter ( November to February ) , where they grow gregariously near cypress , redwood or in mixed coast live oak forests . The fungus is common in coastal and northern California , and is often found in the San Francisco Bay Area . The northern limit of its distribution is Washington State and southern British Columbia , and it has been recorded as far south as Mexico .