

# ***Similar Species # 2***

## ***The Candy Caps***

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[www.redwoodcoastmushrooms.org](http://www.redwoodcoastmushrooms.org)

## ***Similar Species # 2 – The Candy Caps***

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The information in this article is intended to be supplemental to the information in *Mushrooms of the Redwood Coast*.

There are other species to be considered, more detailed descriptions to consult, and further subtleties not addressed in full here.

Please use Google, citizen science resources such as [www.inaturalist.org](http://www.inaturalist.org), and the people in your local mushroom club to help confirm your identifications and refine your understanding.

Have fun out there!

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## ***Similar Species # 2 – The Candy Caps***

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This primer is intended to help you gain a better understanding of classic identification criteria for the two “Candy Cap” species:

The (“Northern” (*L. rubidus*) and “Southern” (*L. rufulus*)) that, collectively, are common throughout coastal California. There is a high degree of variation in the various features used to ID these species, and extensive overlap confounds the establishment of neat categories. Some area in particular seem to produce lots of intermediate forms; especially the live oak groves from San Luis Obispo County to the SF Bay Area.

Although both species are edible, the “Northern” Candy Cap (*Lactarius rubidus*) is much more highly esteemed.

## ***Similar Species # 2 – The Candy Caps***

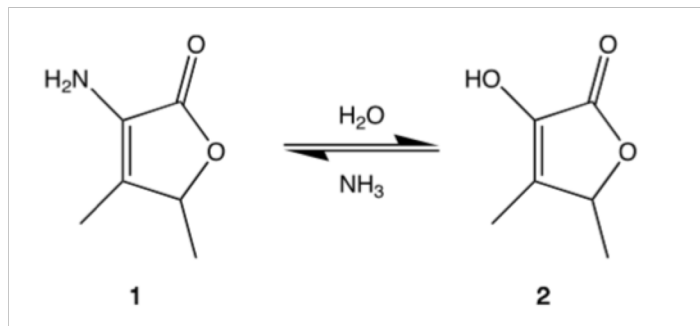
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- Keep in mind that there are many other *Lactarius* that are not “Candy Caps”
- These include *L. luculentus*, *L. montanus*, *L. substriatus*, *L. subviscidus*, and others...
- Although they are all small and orange, they all differ in one or more of the following ways:
  - They don’t smell like maple when dried.
  - They have more opaque whitish latex
  - They are stockier in stature, larger, or smaller.
  - They have a different cap surface texture
  - They typically lack hollow stipes at maturity

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- About “that maple smell”... It isn’t immediately obvious. The fresh fruitbodies smell more like fresh fenugreek, at least to me.
- Some people have claimed to be able to generate a puff off the characteristic aroma by waving a lighter under a fresh fruitbody. I haven’t gotten this to work convincingly for me yet.
- The smell is produced upon drying/gentle heating in the presence of water, with a precursor (perhaps 4-hydroxy-L-isoleucine) forming compounds that resemble Quabalactone III and/or Sotolon.



Interconversion of Quabalactone III (1) and Sotolon (2) in the presence of water.

From Wood and Brandes, et al. (2012). *The maple syrup odour of the “candy cap” mushroom, Lactarius fragilis var. rubidus*

Biochemical Systematics and Ecology 43 (2012) 51–53

# *Lactarius rubidus*

“Northern” Candy Caps

- Cap light orangey to orangey-reddish
- Cap surface dry, slightly wrinkled, like the surface of citrus fruit
- Stipe hollow, often snapping with a faintly audible ‘pop’
- Generally smallish and slender (but variable)
- Gills generally pallid, spores white
- Base of stipe either naked or with fine whitish hairs, not coarse or strongly colored
- Growing with a range of hosts: Oak, Pine, Tanoak, Douglas-fir.







*Lactarius rubidus* – Note the slender stature, bright colors, pallid mature gills, depressed caps with ruffly margins, and the hollow stipe of the cross-sectioned specimen at right.

# *Lactarius rufulus*

## “Southern” Candy Caps

- Cap reddish orange to brick red or reddish brown
- Cap surface dry, slightly wrinkled, like the surface of citrus fruit
- Stipe typically solid even at maturity
- Slightly larger and more robust or bulky than *L. rubidus*, especially stipe dimensions.
- Gills often becoming darker, mottled with dingy blotches of brick red or entirely dusky orange-brown in older fruitbodies. Spores buff-beige.
- Base of stipe often showing stiff, spiky-looking orangey hairs
- Growing only with Coast Live Oak.







*Lactarius rufulus* – Note the relatively darker colors, evenly convex caps (not depressed at the center), and on the upper two caps, the obvious beige-buff (not white) spore print.





*Lactarius rufulus* – Note the proportionally thick stipes, dark brick cap color, and the spiky orange hairs on bases of the stipes at either side.

# **Quiz Time!**

*Test yourself by going through the following 6 photos and trying to decide what species each one represents using the information you've learned.*

*Remember to use a \*combination\* of characteristics!*

*The answer and explanation appears after each photo.*



# *Self – Quiz 1*



1



## ***Self Quiz Answer Key***

1. A tough call! Although these are fairly slender and the fruitbody at right shows a poorly defined central hollow in the stipe, most of the fruitbodies have dingy, darkish, mottled gills, the specimen second-to-left has obvious orange hairs at the base of the stipe, the upper left cap shows a very dark brick red color, and the caps are fairly umbonate rather than depressed. This is very likely *L. rufulus*.

# ***Self – Quiz 2***



2

## ***Self Quiz Answer Key***

2. This one is more clear-cut. The only things that might trip someone up here are the fairly bright colors (not as dingy or dark brick colored as in some *rufulus*) and the weak central hollow in the stipe of the fruitbody at right. Otherwise, the bulky stature, convex to umbonate caps, very thick stipes proportional to the cap, and spiky orange hair at the stipe bases help us clinch the ID as *L. rufulus*.



# ***Self – Quiz 3***



3



## ***Self Quiz Answer Key***

3. This one's pretty straightforward. Although we don't have the benefit of a stipe cross-section, the pallid mature gills, depressed cap shape, cheerful bright orange colors, and slender stature of the fruitbody at left are all good signs for *L. rubidus*.

# *Self – Quiz 4*



4

## ***Self Quiz Answer Key***

4. A little more subtle on this one. The gills are pallid in most of the fruitbodies (starting to get a little darker-blotched in the big cap at left), and the stipe hairs are mostly white and soft/downy-looking. However, the stipe proportions are rather chunky, the cross section at left looks pretty solid, and perhaps most importantly the surface of the small cap in the center shows a layer of buff spores deposited by the cap that was above it. This is most likely *L. rufulus*.



# *Self – Quiz 5*



5



## ***Self Quiz Answer Key***

5. These are not very bright colored, and might make you wonder for a minute... Not to mention that they are growing directly out of a chunk of wood! However, the smallish size and slender stature, as well as the depressed cap center and clean-looking, relatively pale gills of the mature fruitbody point us to *L. rubidus*. The clincher clues come from ecology and biogeography: These were photographed in Portland (where there are no Coast Live Oaks, and thus no *Lactarius rufulus*). The associated tree here was Douglas-fir. The wood substrate is not as unusual as it might at first seem. Even in central California, Candy Caps are often found in and around decaying stumps and logs – they seem to prefer this micro-environment within the larger context of habitats they are found in.

# *Self – Quiz 6*



6

## ***Self Quiz Answer Key***

6. This could be a tough one. Fairly bright colors, but some of those upper left specimens are developing brick-colored tones. Caps are depressed at the center, but there is a tiny umbo at the center of the depression in some of them. The cross-section specimen looks to have a solid stipe, and the hairs on the stipe base of the twin fruitbodies above it look spiky and orange! But! The gills are fairly clean looking and pale at maturity, the stature isn't all that stocky, and the copious spore prints on the caps at left are all pure white (not beige or buff). These are probably *L. rubidus*.

However, if I were studying hybridization between the two species, I'd be very interested in this collection...





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