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Best of the Boletes: A guide to Collecting for Food
Michigan State University
Cooperative Extension Service
Ingrid Bartelli, Consumer Marketing Information Agent, Retired
(N.D.)
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Best Of The Boletes

A guide to collecting for food

By Ingrid Bartelli



Cooperative Extension Service
Michigan State University
Michigan Department of Public Health

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Foreword

THERE ARE A GREAT many popular, clearly written and well-illustrated books dealing with mushrooms in the United States and foreign countries. Written by eminently knowledgeable authors, they're fine for the person who has some knowledge of fungi. For the novice, much of the existing literature is completely bewildering. It is the purpose of this publication to present information in a most elementary fashion so the uninitiated student can learn to safely collect for food a few of the more easily recognized species of boletes. A learn-them-one-at-a-time approach is taken. Rather than a sketchy description of numerous species, a somewhat detailed nontechnical description of some of the best boletes that grow in Superiorland follows. Reference to mushrooms other than those described is made by technical name — not to confuse you but to provide a lead to further study in more advanced literature.

It will help you tremendously if you learn to identify the trees growing in your collecting area.

No literature is completely meaningful until descriptions are related to a living plant in its natural habitat. Even then, confidence comes only when a knowledgeable authority confirms your identification. This pamphlet may help you recognize a few edible species and hopefully encourage further study of this fascinating group of plants.

The ultimate decision whether or not to eat a mushroom is yours. Michigan State University, the Michigan Department of Public Health, and the author of this publication assume no responsibility for the safety and well-being of any mushroom collector.

ACKNOWLEDGEMENT

I am deeply grateful to the Cooperative Extension Service of Michigan State University for publishing the pamphlets I've been privileged to compile. Without the infinite wisdom and counsel provided to me by Dr. Alexander Smith, Professor Emeritus, University of Michigan, and Dr. Joseph Ammirati, Erindale College, University of Toronto, this publication would not have been attempted. Most of the colored illustrations are from slides generously provided by Dr. Smith.

INGRID BARTELLI

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What Are Boletes?

BOLETES ARE A PROUD, distinct race of fungi. They're as different from fellow mushrooms as are Dutch people different from Chinese or Swedish people different from Indians.

Boletes have a proud heritage, having been recognized as a gourmet's delight for hundreds of years. The famous Steinpilz of Europe is a bolete. Their distinctive reputation, carried in the hearts of American immigrants, makes boletes one of the most sought-after of the edible mushrooms in this country. And once you have found, identified and eaten a feast of *Boletus edulis* you'll agree that their reputation is well deserved.

But, just as it is true of most other groups of mushrooms, the boletes include not only some of the best of the edible fungi but also some that are definitely poisonous. So it becomes imperative that you make positive identification of those you plan to eat.

You'll have no problem finding boletes in Superiorland during the late summer and fall.

WHAT MAKES BOLETES DIFFERENT?

Boletes are probably the easiest of all groups of mushrooms to distinguish as soon as one learns their distinctive physical characteristics.

Boletes are described as being fleshy, soft and readily decomposing.

"Fleshy" refers to size and consistency. They're large as compared with the average run of mushrooms—many as large as your fist and larger. Most are also chubby, with thick, meaty caps and stout, bulbous stalks. W. C. Fields would likely have described bolete fungi as the "little dumplings of the forest floor."

Their soft texture, plus the fact that they fruit during warm, humid weather, contributes to their rapid deterioration. If you have a dog that likes to roll in the remains of a decayed deer carcass or other rotten matter, don't take it along when you pick boletes. To such a beast there is a comparable and irresistible scent in rotten boletes, and the dog is sure to be saturated with a sticky, slimy, stinking stench before you're ready to start for home.

Insects are extremely fond of boletes. They must attack them even before they erupt from the soil because the smallest buttons will be infested with larvae. Though you find bushels of fruiting bodies, you may have only enough for a taste by the time you throw away those that are insect-riddled.

You'll also find a lot of rodent tooth tracks on boletes. They're apple pie to squirrels and mice.

Boletes are tree lovers. Some are very specific in their preference for certain trees and will not fruit without that tree companion. The rootlets of the tree and the mushroom plant "hold hands" to the mutual benefit of both. This is referred to as a mycorrhizal association. It is not a destructive relationship. Knowing this, we search for boletes under forest cover. If we know which tree is the mycorrhizal partner, and if we recognize that tree—be it a white pine, a tamarack, white birch, oak or aspen—then all we need to know is the fruiting season to insure success in the hunt. At least it would seem so.

But, then we learn another quirk of the boletes. For some reason, still unknown, they have a sporadic fruiting pattern. They may fruit heavily one year and then not appear again for another 5 or 6 years; or they may fruit heavily three years in a row. In some seasons the jack pine forests in the sandy terrain near the Lake Superior shores look as yellow with fruiting boletes as a field full of dandelions.

WHAT DO BOLETES LOOK LIKE?

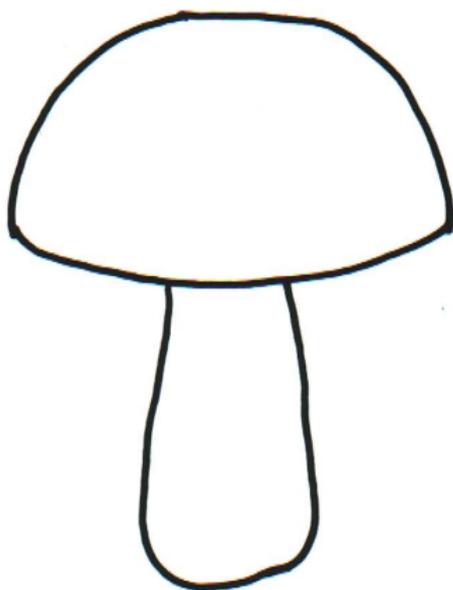
Growing on the ground, they look like most mushrooms with a cap and stalk. But if someone handed you a mushroom and said, "This is a bolete," you could immediately see a difference between it and the typically gilled mushroom. There are no gills underneath the cap of a bolete. The comparatively flat undercap surface is composed of small holes. Now, if we cut the bolete in half down through the cap and stalk, we see that the tiny surface holes are the open ends of tiny tubes packed together with closed end up next to the cap, and open end down toward the ground, forming a tube layer. The tubes vary in length from $\frac{1}{4}$ inch to over 2 inches. The tube layer is a different color than the context or meat of the cap. The flesh of the cap is usually white, cream or yellow, and the tube layer, usually whitish at first, turns to dingy yellow, pink, olive or brown shades. The tube layer changes color as the spores

ripen. The tube layer separates from the tissue of the cap fairly easily in most boletes. In mushrooms with gills, the gill tissue, with few exceptions, does not readily peel away from the cap context.

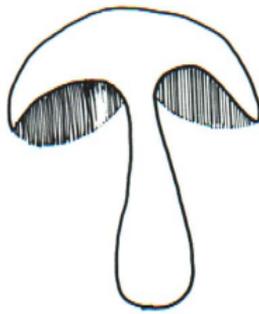
The spores of the bolete form within and along the walls of these tiny tubes. As spores mature and ripen, they are expelled from the walls of the tubes and fall free down through the tube and out the open end. When you know that millions of spores are produced by one mushroom, you can begin to visualize their microscopic size and then realize the necessity of making spore prints to collect a concentration of spores in order to detect their color. See page 21.

After we are familiar with the tube layer beneath the cap of a bolete, the rest of the mushroom is ordinary looking. It has a plump cap, a stalk that is often big and bulky and most always centrally attached to the cap.

Another characteristic we must be critically aware of is the color change of flesh when a bolete is bruised or cut open. *Gyroporus cyanescens* responds instantly with indigo blue color when bruised or cut. Others turn gray, pink, blue or brown, rapidly or slowly, while some boletes display no color change at all.



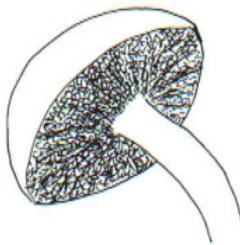
A bolete is a mushroom with a cap and a stalk. Most boletes grow on the ground under tree cover.



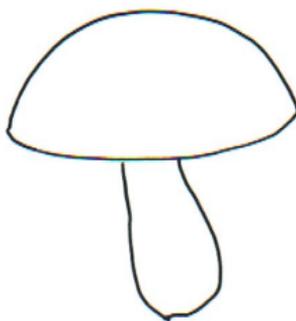
Underneath the cap, where one would expect to find gills, boletes have a rather deep, compact layer of long, slender tubes packed closely together. They are positioned perpendicular to the flesh of the cap with the open ends (called mouths) nearest the ground. Bolete spores are formed within these tubes. The tube layer readily separates from the flesh of the cap in most species.



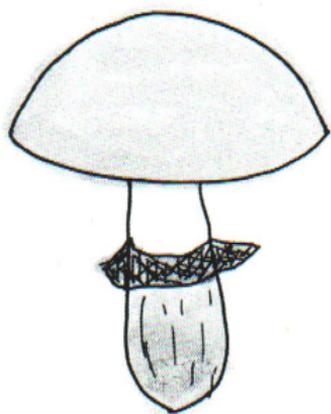
The spongy-looking, exposed surface beneath the cap of a bolete is formed by the open ends (mouths) of the tubes. The openings vary in size and shape. Some tube mouths are round.



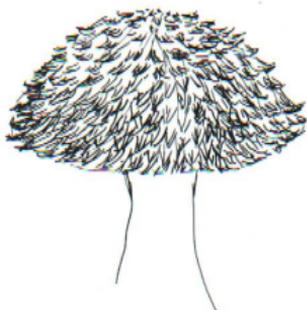
Some tube mouths are angular.



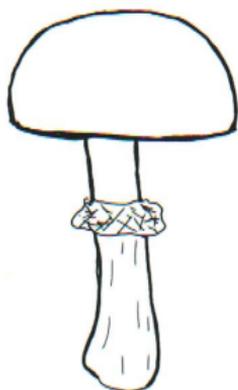
The cap surface of boletes varies. Some caps are bald and smooth.



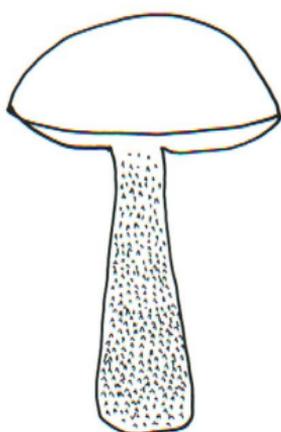
Some cap surfaces are covered with a gelatinous slime.



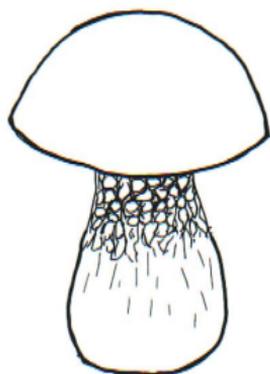
Some caps are covered with dry, furry hair or scales.



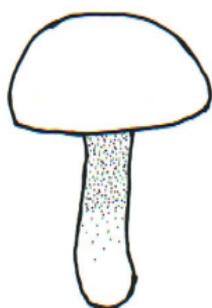
The stalks of boletes are variously decorated. Some stalks have a distinct ring (annulus) usually on the upper portion. The ring may be dry and fibrous or moist and slimy.



The Leccinum group has small pointed scales (squamules) on the stalk.



Some bolete stalks are reticulate (resembling a net) and look as though they were covered with fine netting.



Many of the Suillus group have punctate stalks. They look as though the stalk were dotted with fine granules of pepper or paprika.



Some boletes have longitudinally furrowed or ridged stalks.

SUBGROUPS OF BOLETES

When we study boletes we find differences among them. Some have a veil tissue attached to the margin of the cap and the stalk. This may break away, leaving the tissue on the stalk in the form of a ring, or it may adhere to the margin of the cap as a ragged remnant.

Many boletes have a slime covering on the cap which may leave a zone on the stalk similar to a ring. When a slimy-capped bolete dries, the cap appears to be varnished.

Other boletes have dry, hairy scales on the surface of the caps.

There is a difference also in the arrangement of the tubes under the cap. Some have wider openings than others. Some are arranged so that they radiate out from the stalk to the cap margin. The shape of the tube mouth varies from round to angular.

There is a difference in the spore-fall color also.

Taking all these factors into consideration, the boletes have been divided into a half dozen or so groupings of similar species.

Those that have a pale yellow spore deposit, with tube mouths very small and a stalk that becomes hollow at maturity, are in the *Gyroporus* group.

Another group, called *Fuscoboletinus*, has a purple or red tinge to the spore color, a veil that is present on young fruiting bodies and no glandular (small salt and pepper size) dots on the stalk.

The *Suillus* group contains some of the better, edible species. It is characterized by spore colors ranging from yellow to yellow-brown, or a greenish mustard-yellow, or olive to olive-brown. They often have a slimy cap and veil tissue. The cap may be covered with dry, fibrous scales, and the stalk will have a definite ring or annulus. The stalk of some species is dotted with paprika-colored granules.

Another group, *Tylopilus*, has a pink or purplish-tinged spore fall.

The *Leccinum* group is easily recognized by the small, pointed tufts on the stalk called squamules or scabers. The color of the squamules varies from brown and black to less commonly white. It may be constant or change as the mushroom matures.

In the group called *Boletus*, the stalk does not have any squamules on it but it may be ridged or netted.

All of these divisions may seem confusing to the beginner but are listed here so that you'll know that though a mushroom be named *Suillus*, *Tylopilus*, *Gyroporus*, *Leccinum*, *Boletus* or *Fuscoboletinus*, these names all refer to boletes. They're boletes because the spores are produced in tubes on the underside of the cap as compared to gills; and they are soft textured, not woody or tough.

COLLECTING FOR THE TABLE

You can easily be certain of the safety of edible boletes if you observe a few precautions all related to color; that is, after you're sure you recognize a bolete.

First check the color of the tube mouths. That's the porous surface exposed under the cap. Avoid all species that have red tube mouths. A word of caution here: the color of the tube mouths changes in most boletes. In young buttons they may be stuffed with a white or light-colored tissue. Most young boletes have light-colored tube mouths. As the mushroom matures, the color darkens. Be sure to check for and avoid those with red coloration in mature specimens.

In some of the suspect species, the red color is deep, dark and intense — easily recognized. In other species to be avoided, the red color is more like an apple red that has been brushed on. The cap and stalk may be washed in red also. Be wary of the boletes with red coloration on tube mouths.

The second rule is to avoid those species that turn or stain blue when bruised or cut. It's true that some of the blue stainers are edible— but, until you know all the boletes on a first name basis, avoid all those that stain blue.

After and only "after" you're sure of the identity of the bolete you are going to eat, gather the young specimens when possible. The mature caps are apt to be insect-riddled, soft and partially decomposed. On young buttons, it isn't necessary to remove the tube layer as it is on older specimens. The tubes of older specimens give the cooked mushroom a slimy consistency.

If you are collecting those with a glutinous or slimy cap covering, peel off the skin of the cap. (Wear rubber gloves if you don't want your fingers to be stained.)



Courtesy A. H. Smith

Boletus luridus - poisonous

The red tube mouths on *Boletus luridus*, as well as the blue stains, are danger signals for the food collector.



Boletus rubellus - not edible

The blue stain where the yellow tubes were pinched is evidence that this mushroom is not edible.

As with all mushroom collections for edible purposes, pick and keep them as clean and fresh as you can in order to maintain quality. Eliminate a washing process if possible.

Always prepare or process immediately upon return from collecting trip.

Some of the most choice of edible mushrooms are boletes. Because the comparatively few that are poisonous are readily recognized, amateur mushroom pot hunters should become familiar with the bolete family of fungi. They can be collected in abundance during summer and fall months in Michigan during the years when they decide to fruit.

The Best Of Michigan's Boletes

IN SMITH & THIERS' BOOK, "Boletes of Michigan,"* approximately 200 species are described, so you can see how selective we must be when we plan to collect only a half dozen species for the table. If you follow the rules as prescribed, you should be able to collect with some degree of assurance.

In Michigan's Upper Peninsula, there seems to be two fruiting periods for boletes. Remember, they prefer a woodland habitat. In stands of broadleaf trees, boletes begin fruiting in late June to the end of July if there is sufficient warm, humid weather.

In the dry, sandy pine stands, the fruiting begins after the early fall rains, usually around the third week in August until snowfall in October.

Boletus edulis

Though the boletes do not grow as abundantly in the Midwest as in the Pacific Northwest, those of us who live in Michigan's Upper Peninsula can, on occasion, gather *Boletus edulis* in sufficient quantity for the table. After you have tasted it, you'll not be alone in your preference for this nutty-flavored esculent as the very best of the edible mushrooms.

Folks of central and southern European extraction

*Boletes of Michigan. Alexander H. Smith and Harry D. Theirs. University of Michigan Press, Ann Arbor. 1971



Courtesy A. H. Smith

Boletus edulis - edible

Boletus edulis is universally regarded as one of the best of all edible mushrooms.

will travel hundreds of miles to search for the mushroom they know as Steinpilz, Cepe or Baravikus. Much folklore, including children's lullabies, has evolved around the mushroom we in America know as the king bolete.

WHEN AND WHERE TO FIND IT

Even when you think you know when and where to find *B. edulis*, your hunt can prove fruitful in only one out of 10 years. The fruiting pattern is nonpredictable. You're most apt to find the first ones toward the end of July as you skirt around a falls or rapids on your favorite trout stream. Seldom can you eat these early fruiting *B. edulis* because they're most always loaded with insect larvae — half mushroom, half worms.

The week following the first substantial, late-summer rainfall, begin scouting the pine country (jack pine, red pine and white pine) and, in wet seasons, even in the mixed stands of birch and balsam. Watch for the first conspicuous fruiting of yellow-colored boletes. They are most apt to be *Suillus tomentosus*. They signal the time to start searching for *B. edulis* buttons. The latter part of August is the normal time for the bolete eruption in Superiorland. (Even as I write this I feel I'm betraying a confidence — like divulging the location of my best fishing hole.)

If it happens to be a season when boletes are fruiting, you can expect to find *B. edulis* until snowfall.



Boletus edulis - edible

Occasionally, *Boletus edulis* fruits in quantity along Lake Superior shores.

My famous and distinguished author friend, John Voelker, has developed the eyesight and skill of a falcon as he swoops on a *B. edulis* button from his perch behind the wheel of his cruising jeep.

Not only do we have many acres of pine land in northern Michigan but also much of it is public domain — ample hunting grounds.

WHAT DOES *BOLETUS EDULIS* LOOK LIKE?

If you carry an image of a typical bolete in your mind, it will likely be that of a *B. edulis* — a solid, heavy, squatty, plump, clean, dry-looking mushroom. Seen from above, the cap in shape, color and size resembles a perfectly baked hamburger bun.

Underneath the cap, the tube layer in mature specimens is a yellow-green, chartreuse color.

The stalk is thick and bulbous — almost round in the button stage. The base is streaked, chalky white with a tinge of pink and tan. Near the narrower top, the stalk is covered with a fine network or reticulum. It looks as if very fine delicate chicken wire mesh were wrapped around the apex of the stalk.

When you hold a young fruiting body in your hand, you'll be impressed with its heavy heft and solid feel.

Upon closer scrutiny you'll learn that in the button stage the diameter of the stalk exceeds that of the cap. The tubes of the buttons are not chartreuse-colored. They're a dingy white and you can't even see any holes where the tube mouths are supposed to be. They are stuffed and covered by a thin layer of thread-like tissue.

As the fruiting body matures, the cap expands to grow as wide as, then wider than, the stalk. In age, it flattens out and measures from 4 inches to a foot in diameter.

The surface of the cap is dry (slightly sticky if wet) and smooth. It is most often a bun-brown or paler tan in color. But here in Superiorland we also have a variety that has a rosy-tan cap color.

If we cut the thick, meaty cap in half, we'd find white flesh that does not change color when cut or bruised.

The white, stuffed tube layer of the button stage changes to a yellow-green as the spores ripen and tube mouths open. The spores are olive brown color as evidenced by making a spore print. See page 21.

The thick bulbous stalk of the button stage elongates to 3 to 6 inches tall with a thicker base, 1 to 2½

inches in diameter. The stalk is solid with white context. The reticulations are most evident near the top of the stalk. In mature specimens the external chalky pink coloration changes to a rosy-tan.

B. edulis grows on the ground singly but more often in clusters of 2 to 5 fruiting bodies.

BOLETUS EDULIS IS TO BE EATEN

Yes, it is the best, if "sweet, rich and nutty" appeals to your taste buds. The problem is to find it before the insects, rodents and deer devour it. To preserve *B. edulis* you may can, freeze or dry it.

The *Leccinum* group

They are boletes and none of the many species of *Leccinum* found in Michigan are known to be poisonous.

WHAT DO THEY LOOK LIKE?

Leccinums are tall, standing head and shoulders above the general run of boletes. They'd be the basketball recruits of the mushroom clan with their long legs. And it is their stalks which set them apart from other boletes.

The stalks are long (3 to 7 inches) ½ to 2 inches wide and slightly narrower at the top than at the base. The decorations on the stalk are the characteristics which set this group apart, and those decorations are easily detected with the naked eye.

The decoration consists of minute, elongated cells that are clustered together to make tiny tufts that stick out from the stalk. In scientific mushroom language, stalks of *Leccinum* species are described as being squamulose, scabrous or punctate. To me they look like they'd make a good rasp if they were steel hard. The little whiskery tufts vary in color. Some are light-colored and stay that way; others are pallid when young and turn brown or black as the mushroom matures. Some are black to begin with and remain black. The presence of squamules on a long-stalked bolete is an indication that you have a *Leccinum*.

The cap of a *Leccinum* is most always a rounded cushion-shape, rarely expanding enough to make it flat. The surface is ordinarily dry and smooth. It may get a bit sticky in wet weather. Sometimes the cap looks as though it might have been covered with



Courtesy A. H. Smith

Leccinum insigne - edible

Leccinums of the *Aurantiacum* group with the brick red cap coloration are most sought after for food. Note the squamules on the stalk and the ragged, excess tissue extending beyond the margin of the cap.

something like peach fuzz that has been plastered down tight against the cap surface.

The cap color varies with the various groups within the *Leccinum* classification. The reddish-orange cap of the *Aurantiacum* group is the one we watch for when seeking out the best tasting of the *Leccinums*. *Leccinum aurantiacum* is popularly called the orange bolete or the brick cap.

Other *Leccinums* with gray-brown or dull greenish-white caps are safe to eat but of poor quality.

There is another characteristic that will help you recognize the desirable, edible *Leccinums*. When they are small buttons, it looks as though someone were trying to make slip covers for the little round button caps. After the cap was covered, there was some excess material around the edges which was smoothed down around the stalk rather than cut off. As the cap expands, this excess material makes a narrow, ragged edge hanging from the margin of the cap.

If the cap and stalk of *L. aurantiacum* are cut in half, the white context of both cap and stalk gradually darkens as does a peeled potato on exposure to air. Gray-pink tinges turn to a grayed lilac streaking and then finally to dingy gray.

The tube layer beneath the cap is ordinarily a dingy, dull white when young, taking on an olive-

brown and then deeper brown tones as the spores ripen. When bruised, the tubes stain brown.

The spore fall is brown when a spore print is made. See page 21.

WHEN AND WHERE TO FIND *LECCINUMS*

In late June, the orange-capped bolete (a *Leccinum*) fruits under aspen (popple) trees. In late summer and fall, August until snowfall, a darker, brick-red variant fruits under jack and Norway pines. You'll have competition in the hunt. Insects invariably are the first to find the fairly common *Leccinums*. Mice and squirrels like them, too.

Should you find enough young buttons or caps for a meal, do not be surprised at the color change when you cook them. *Leccinums* turn deep gray or black when cooked. This color change does not affect their edibility. Some folks rate them next best to *Boletus edulis*.

The *Suillus* group

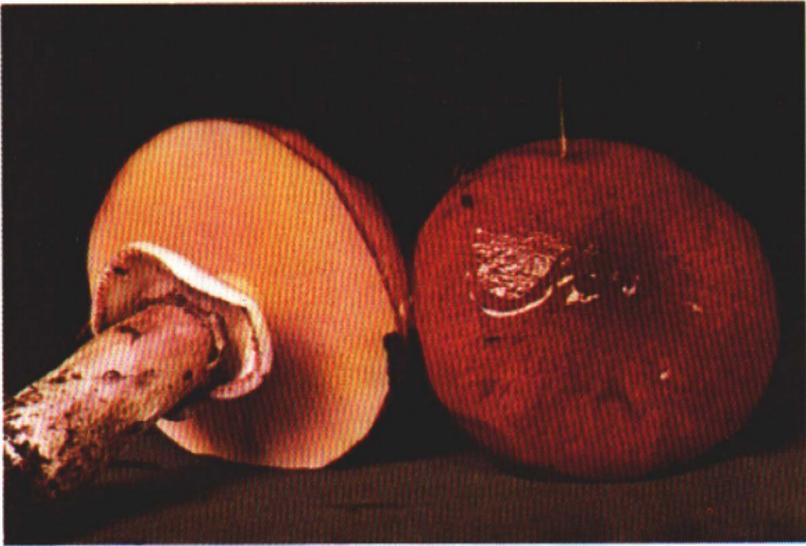
There are two distinctly different-looking types of mushrooms in this group of boletes. Some have dry, hairy or scaly caps, and the other group has caps that are covered with slime. The name *Suillus* even sounds slimy. Each group contains some popular edible mushrooms.

Generally, the species of the genus *Suillus* are small to medium in size as compared with the rest of the boletes.

They grow abundantly in Michigan during the summer and fall and are rather easy to identify because of their preference for specific tree species as their mycorrhizal partner.

Suillus luteus — the Slippery Jack

Though this mushroom is comparatively rare along Superior shores, it abounds in the thousands of acres of Scotch pine plantations in Michigan's Lower Peninsula. It also fruits in the extensive jack pine forests of Lower Michigan. It is harvested in as great, if not greater, quantities than any other mushroom native to downstate Michigan.



Courtesy A. H. Smith

Suillus luteus - edible

Suillus luteus is the popular "slippery jack" of pine plantations in Michigan.

WHAT DOES IT LOOK LIKE?

S. luteus is dark reddish brown or purple brown in color. The cover of slime on the cap makes it sticky in wet weather with a shiny, varnished appearance when it is dry.

The cap is 2 to 4 inches broad, growing up to a low, rounded point at the top. The light colored flesh of the cap has a yellowish tinge. It does not change color when cut or bruised.

The tube layer is pale yellow at first, aging to a greenish yellow. Like the cap context, the tubes do not change color when bruised.

On mature specimens you'll find some fine, granular, brown dots on the tube openings.

The spore color is a pale cinnamon brown in deposit.

The stalk grows to be 1 to 3 inches long and about 1 inch in thickness throughout its length. The non-staining flesh of the solid stalk is white at first, becoming pale yellow at maturity.

There is a persistent, purplish ring on the stalk. Above the ring, the yellow stalk is covered with minute, dark, sticky dots. The stalk below the ring is streaked with remnants of a flimsy white sheath.

CLEANING IS A BIG JOB

Insect infestation is minimal as compared with *B. edulis* or the *Leccinums*. The slimy cap becomes the problem. It is best to gather this mushroom in

dry weather. On damp or rainy days, the slimy caps cling together and hold soil as tightly as burdocks.

The slime layer, whether wet or dry, must be peeled off before cooking. Wear rubber gloves if you object to a persistent, brown stain on your fingers.

The Butter Balls

The butter balls include three other slimy-capped species — *Suillus brevipes*, *Suillus granulatus* and *Suillus albidipes*. They are similar in appearance, and all deserve their delicious-sounding name, especially when harvested in the button stage.

Suillus brevipes — The short stalked butter ball

S. brevipes is a squat, small bolete conspicuous because of its short stalk — only 1 to 2 inches long and about ½ inch thick. The stalk is solid, with white to pale yellow flesh. There is no ring or ornamentation on the stalk.

The rounded, purple brown, slimy button fades to a dingy cinnamon yellow as it expands to a flat, often lobed cap, 2 to 3 inches in diameter at maturity. The flesh of the cap is white to pale yellow.

The tube layer is pale yellow. No part of *S. brevipes* changes color when cut or bruised.

When preparing for the table, remove the skin on the cap, which peels off readily, and the tube layer in mature specimens.

S. brevipes is collected extensively in Superiorland during September under jack pine trees.



Courtesy A. H. Smith

Suillus brevipes - edible

This is the short-stalked "butter ball."



Courtesy A. H. Smith

Suillus granulatus - edible

This "butter ball" is peppered with rosy-brown granules on the upper part of the stalk.

Suillus granulatus — another butter ball

S. granulatus is similar in appearance to *S. brevipes*. The slime on the cap has a mottled appearance. When young, this bolete is a pale cream color, changing to a yellowish, then reddish brown when mature. The rounded, smooth cap grows to be 2 to 4 inches broad. The nonstaining flesh of the cap is creamy white at first, changing to pale yellow.

The tube layer is white in the button stage, frequently decorated with small slimy spots like beads of perspiration. The tubes soon turn to pale yellow.

The solid, whitish stalk is peppered with tiny, rosy brown dots on the upper half. The lower half is a streaky, dingy cinnamon color. When mature, the stalk becomes bright yellow near the top. It measures 1 to 3 inches long and $\frac{1}{4}$ to $\frac{1}{2}$ inch thick. There is no evidence of a ring on the stalk. The glandular dots on the veil-free stalk are the distinguishing characteristics of *S. granulatus*.

This popular edible butter ball fruits heavily in late summer and fall wherever pine trees grow in Michigan.

Suillus albidipes — still another butter ball

About the only visible difference between *S. granulatus* and *S. albidipes* is the presence of a white, cottony veil that clings to the margin of the cap when *Suillus albidipes* is in the early button stages. The pale yellow stipe has no dots on it until it matures, and then some very fine brown or reddish dots are visible.



Suillus albidipes - edible

The white, cottony veil tissue on the margin of the cap in young specimens is the distinguishing character of this "butter ball."

S. albidipes fruits in late summer and fall under pines.

The buttons of each of the butter ball *Suillus* species are choice edibles. Peel skin off cap before cooking. They stay light-colored and firm when cooked.

The Fur Capped Boletes

There is another group of boletes that have a hairy or hairy scale covering on the cap rather than a coating of slime. They are edible (though not as good as the butter balls, in my estimation) and they are easy to identify because they grow in association with a specific tree species. The tube mouths are wider than the butter ball *Suillus* species, angular rather than round, and form a somewhat radial pattern from the stalk to the margin of the cap.

Suillus pictus—the eastern white pine bolete

S. pictus is easy to find. First, find a white pine tree. Then in mid and late summer and through the fall season, after heavy rains, look for bolete buttons that are covered with deep red, hairy scales on the cap and a stocking of red fibrils pulled over the stalk attached at the top to the edge of the cap. The deep red color of the button stage fades to a dingy tan in age. The flesh of the cap is yellow and slowly stains reddish when bruised or cut. The tube layer is yellow, turning to dingy brown in age.

The cap grows to be 1 ½ to 4 inches wide.

The stalk is 1 ½ to 4 inches long, about ¼ to ½ inch in diameter, similar to the cap in coloration. There is a fairly persistent, grayish white ring on the stalk.



Courtesy A. H. Smith

Suillus pictus - edible

There is no use hunting for *S. pictus* unless a white pine tree is present.

When preparing *S. pictus* caps for the table, rub off the scaly surface. The texture is somewhat like that of a marshmallow. The flavor is mild.

S. pictus is sometimes referred to as *Boletinus pictus*. It is also called the "painted" bolete because of the deep red scales over the yellow cap. They fruit heavily under Michigan's white pines.

Suillus cavipes

If you recognize a larch or tamarack tree, you'll know where to look for *S. cavipes* (sometimes called *Boletinus cavipes*). It fruits in late fall. Remember, the tamarack tree likes to grow with its feet in water, so look in wet, swampy areas.

The deep brown, furry, fibrillose, yellow-fleshed cap grows to be 1 to 4 inches wide. The sulphur yellow tubes with large, angular, radiating pores turn to dingy brown in age.

The stalk is yellowish above the annulus and the same color as the cap below the ring.

A cavity within the lower part of the stalk is the diagnostic characteristic of *S. cavipes*.

It is edible but not particularly desirable. The flesh is soft and marshmallowy.

There Are More

There are many more edible boletes; but, if you stick to collecting the *Boletus edulis*, the *Leccinum* and the *Suillus* groups, you'll have the best of the boletes

that grow in Superiorland. When you know the best of the boletes, you'll know the best of all edible mushrooms.

Remember, for safety sake, avoid all boletes that have red-colored tube mouths and those that turn blue when bruised or cut — until you become an expert.

Boletes to be Avoided

When you become "first-name-familiar" with boletes, you'll recognize these as species to be avoided:

1. The *Luridi* group—they have red tube mouths and are poisonous.

2. *Suillus tomentosus*—not good. It stains blue.

3. *Tylopilus felleus*—it looks much like *Boletus edulis* in stature but has rosy-tan rather than yellow-green tubes. It is common on rotten hemlock logs or stumps. Though not poisonous, it is caustically bitter.

4. Others to be avoided include *Boletus inedulis*, *B calopus*, *B. subtomentosus* group, *B. piperatus*, *B. bicolor* and *Suillus sphaerosporus* (as described in *Boletes of Michigan* by Smith and Thiers). Not all of these to-be-avoided species are native to Superiorland.

MAKE A SPORE PRINT

To make a spore print you will need a mature mushroom and a piece of white (always use white) paper. In case of a bolete, cut the cap off the stalk and set the cap on the paper with the tube surface down — the same direction as when the mushroom is growing. It will help to place a bowl over the whole thing so the cap and tube layer do not dry out and the spores are not disturbed as they fall on the paper. A wrap of wax paper works well if you're working in the field. After a period of time (like overnight) lift the cap off the paper and observe the color of the mass of spores that fell.

Should The Uninitiated Collect Wild Mushrooms For Food?

1. Not unless you are willing to study until you learn the positive identification of the mushroom you seek and become selective in your collecting.

2. Not unless you assume the responsibility of your own safety and well being. Are you properly dressed? Do you know how to use the compass you carry? Have you overcome any foolish fears you might have had of the "woods" and the creatures that live in it?

3. Not unless you are a responsible citizen who respects no trespass, private property, no littering and posted land signs.

4. And certainly not unless you have the same respect for every living plant, bird or animal that shares the mushroom hunting area, as you do for yourself as a person.

5. Then, not unless you are absolutely certain the mushroom is safe to eat. Collect carefully. (A shallow flat box or basket is best — never use plastic.) Promptly clean, refrigerate, cook or preserve your collections upon returning home. Unless you intend to use the mushrooms, don't pick them.

6. Finally, not unless you guard against becoming an "instant" expert, thereby, endangering the lives of folks you choose to advise.

The Best Of The Boletes is the fourth in a series of booklets designed to help the beginner appreciate wild mushrooms as a safe source of food.

May Is Morel Month In Michigan, Extension Bulletin E-614, is the first in the series.

Mushrooms Grow On Stumps, Extension Bulletin E-924, is the second in the series.

Wood Waste Makes Wonderful Mushroom Collecting, Extension Bulletin E-925, is the third in a series.

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