



# HUNTING AND COLLECTING MYXOMYCETES AT NIGHT WITH A FLASHLIGHT!

Harold W. Keller<sup>1</sup> and Kenneth L. Snell<sup>2</sup>

<sup>1</sup>Botanical Research Institute of Texas, 1700 University Drive, Fort Worth, Texas 76107-3400; <sup>2</sup>Metropolitan Community College-Maple Woods, Department of Biology, 2601 NE Barry Road, Kansas City, Missouri, 64156; correspondence: haroldkeller@hotmail.com

Nobody in their right mind would go hunting for myxomycetes in pitch darkness with a flashlight. Wrong! It has been done, and it took the student to show the professor it could be done. This story is a good example of how old professors, or anyone else for that matter, have conventional ways of doing things and never or seldom “think outside the box.”

Most collectors of myxomycetes and fungi do so during daytime hours, even though ground sites in heavily forested areas may be dimly lit or almost pitch dark when the sun still is shining. Some mycophiles may encounter bioluminescent fungi at night that glow in the dark. Good examples are *Omphalotus illudens* and *O. olivascens* (the jack-o'-lantern mushrooms of North America), but beware, they are toxic and can make you sick if consumed! The point here is that light in any form is important to find life forms that are small, exceptionally so, like less than a millimeter, or in most cases hard to see with the naked eye.

During a tree canopy biodiversity study in the Great Smoky Mountains National Park (GSMNP), a research team collected myxomycetes on ground sites and on the bark of living trees, sometimes exceeding 140 feet tall. Standard collecting techniques using a 20x hand lens and sharp

eyesight would detect many of the smaller myxomycetes. Direct sunlight was necessary to see into fissures and crevices of bark, and even then, the smaller species like *Echinostelias* or *Cribrarias*, would often go undetected until moist chambers could be made and bark was scanned with a dissecting microscope at 50–100x that revealed these tiny myxomycetes.

This background collecting information highlights one of the most unorthodox, bizarre methods of collecting myxomycetes at nighttime with a flashlight. Some remarkable discoveries were made by Kenny Snell, a master's degree graduate student at the University of Central Missouri, who was our research project leader the summer of 2000 in GSMNP. His observations included slugs feeding on immature stages of *Stemonitis* fruiting bodies, developing immature myxomycete sporangia on the underside of decaying logs, and many species of nocturnal insects and other invertebrates.

Our students and faculty research team stayed in a cabin with modern facilities directly behind the Cades Cove Ranger Station. Within a short distance of 40 yards was a wooded area that had mostly oaks and hemlocks with both live standing trees and dead, decaying logs on ground sites. Nighttime forays in this area after 10:00 pm, now in total darkness,

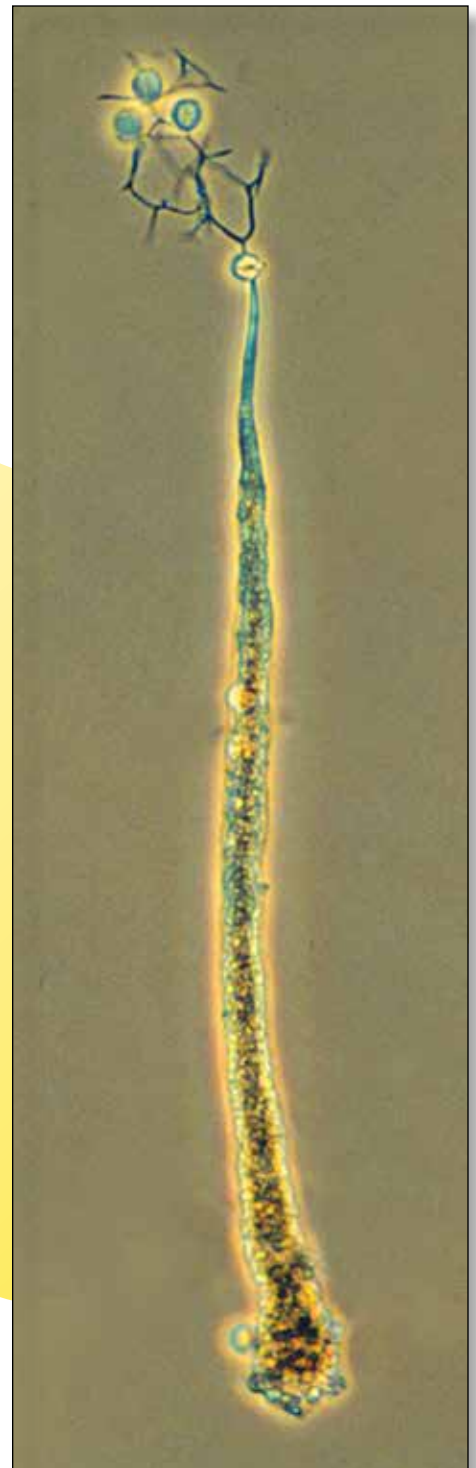


Figure 1. Phase contrast photomicrograph showing sporangium of *Echinostelium minutum*. Note thread-like capillitium, round spores, and stalk filled with granular matter.

were possible only with the aid of a flashlight. Tiny stalked sporangia of *Echinostelium minutum* in various stages of development glisten, and become more conspicuous at night, with a directed flashlight beam on the underside of a decaying log near

ground level. This concentrated bright spotlight against the dark background appeared to visually enhance tiny structures. These observations required the collector get on hands and knees to make these collections.

*Echinostelium minutum* has a globose sporangium 40–50 µm in diameter and 0.3–0.5 mm tall on a hair-like stalk (Fig. 1). Thousands of these immature sporangia were fruiting on the tips of moss leaves. Immature stages of myxomycete sporangia undergo synchronized early development from plasmodium to fruiting body during the dark hours of a photoperiod and mature

fruiting bodies complete development during light hours. To my knowledge this is the first time this species has been found in the field with the naked eye.

This identification was confirmed with a dissecting and compound microscope after careful preservation in a moist chamber culture so the sporangia would not prematurely dry and abort. It is tempting to collect premature, brightly colored fruiting bodies of the Trichiales and Physarales in the field, but this may, and often does, result in specimens that are hardened, aberrant, and have agglutinated spores that cannot be

identified with certainty.

Species of tiny, stalked Cribriarids, especially *C. languescens* with purplish tints and *C. microcarpa* with reddish ochraceous tints, were also found on the underside of decaying logs in this way. These same species are almost impossible to see during daylight hours when their more intense, conspicuous colors are more subdued and more difficult to see.

For those “night-owls” who like to venture out late at night for stargazing or a quiet walk, contemplate adding myxomycete collecting to your foray experience. †

## THE VIRGIN KNIFE for Art Goodtimes

I was always just a cabaret singer off the street  
in my loose chemise of tribal songs.  
My dog shakes seawater, snout to tail,  
and sprays the Muses over you.  
Effortless as a silken tent in the breeze,  
we'll howl for you this greasy dirge.

I once knew a master  
of the art of chanterelle  
who dropped a sack of dirt  
on my blue-lined foolscap,  
forest meat tendered by some roots,  
soiled under hunter thumbprint.

You'd never complain of such dinner.  
He followed no trail you could forage—  
not-so-soaked mud, shade of old growth.  
Sunlight slant, fallen orange needles  
sprout their clusters' delicate wiggle,  
good with fish.

Long after I drop into this valley  
“like a high fly ball,”  
let the rainbow buses hide behind posts,  
city freaks slither under barbwire,  
their sandals in muck cowplops  
where the psychedelics grow.

But the only true mushroom spy I know,  
sworn to secrecy, hunted off trail.  
Pickup in camo cedar boughs,  
he snaked beneath outposts,  
slinking passed duck hunts.

Kept hidden where chanterelles grow,  
his feet up on a workbench,  
while a greenhouse lean-to transistor  
hummed: “Mariners fry the Red Sox”—

“Can't show you  
I'd like to, but I won't  
Find your own  
Here's a bucketful  
Don't overdo the butter”

Olive beret, a trek through the high grass  
where no one goes, a last look over the primal shoulder:  
“Apres moi le deluge,” he lisped the kingly joke, and  
responsible for the world, he finally  
wanted to tell, but—incoherent,  
lost the last directions—and his trove still thrives,  
thrives in the sump of aching.

I can hardly keep from dropping a word of praise here—  
sharp folds of our ersatz maps  
crinkle across steering wheels  
on his, or any such, hillside pullout.

When I unsheathe my pure blade,  
having come so far  
only to shed everything I've witnessed,  
highways burn yet another detour,  
plunge wild up the Yukon,  
crossroad Devils trade guitar licks  
where we scurry down a monk's deer trail  
into some deeper Kentucky, lost in the crowd.

Praise those, sans teeth sans eyes,  
waltzing past me and the dog on stage,  
sweet imbeciles  
who rumble onto raw untrained road  
with or without the gear  
they know they better have on board  
for the inevitable breakdown.

Michael Daley – Washington