

A Model Foray Workshop for Difficult Taxa

By Bill Sheehan, Alden Dirks, John Plischke III & Tom Bruns

Crust fungi are diverse, abundant and important members of our mycoflora, but they are among the least studied form groups and are more challenging to identify than most other macrofungi. However, they can be fun to study due to their beautiful colors and diverse micromorphology. They can be found year-round under dead logs – even when it's too dry or cold for fleshy fungi – and they are full of wonderful surprises for those who like microscopy.

To build knowledge of crust fungi, the North American Mycoflora Project organized an innovative all-day workshop at the 2019 gathering of the Northeast Mycological Federation in Lock Haven, PA. The novel part was that specimens were sequenced and all data were posted to an iNaturalist project: [NEMF 2019 Crust Workshop](#). The workshop was organized by the North American Mycoflora Project as a model for training amateurs in difficult taxa at national and regional mushroom forays.

Bill Sheehan initiated the idea for the workshop and invited Karen Nakasone (USDA FS, Madison) and Tom Bruns (UC Berkeley) to lead it. However, Dr. Nakasone was unable to participate and Alden Dirks (a graduate student at U Wisconsin-Madison, now at U Michigan) filled in on short notice. After an orientation lecture by Dr. Bruns, 15 brave souls used microscopes and the key from the 1000-page tome, *Corticaceae s.l. Fungi Europaei 12* by A. Bernicchia and S.P. Gorjon, to delve into this fascinating group of fungi, while Bruns and Dirks circulated to help interpret microscopic structures and terminology in the key. The workshop was held in the lab of Dr. Barrie Overton at Lock Haven University; he contributed micrographs that he made with his fancy BX53 microscope, with epifluorescence. Bruns collected tissue at the workshop and sequenced it back at Berkeley. John Plischke III took photos in the lab of all specimens tagged for sequencing and posted and organized them on the iNaturalist project site. NEMF's Board allocated funds for the sequencing. All specimens will be deposited at the Carnegie Museum of Natural History and ultimately posted to MyCoPortal.

RESULTS: 24 specimens were photographed and sequencing was attempted on 18. Here's the bottom line:

- 3 sequences failed - can't confirm or refute ID
- 4 sequences matched something that we had left as an unknown
- 6 sequences matched our morphological ID
- 8 sequences refuted our morphological ID

You can view the complete data here:

https://docs.google.com/spreadsheets/d/1VOI5iYr0ZoX0sDo03dmZ9_aXD82s5lveroRzuAiVLAQ/edit?usp=sharing

The sequencing worked reasonably well in that 18 out of 24 gave us some information, but our morphological IDs needed some work. Slightly fewer than half of our morphological IDs were accurate. Perhaps that is not so bad for crusts, given the limited time and the fact that none of us were experts on them. We would have done better if Dr. Nakasone could have made it and we will likely get better as our collective experience grows.

The phylogenetic diversity of our sample was impressive. Our 24 samples came from 12 families in eight orders (see Table on next page).

Crust fungi are probably not for everyone but if we can motivate and train a few people in every club, we can make progress on these fascinating fungi. In this way, our workshop could be a model for other groups of fungi at future NAMA or NEMF forays: Get experts on a group of difficult fungi – say *Russula* or *Cortinarius* or most any ascomycete group – to lead a workshop to train eager participants and document and sequence a couple of dozen specimens. The former will build the skills of serious amateurs; the latter will make a valuable contribution to science.



Schizopora radula photo by John Plischke III

Agaricales

Pterulaceae

Radulomyces aff. paumanokensis

Auriculariales

Incertae sedis

Stypella subgelatinosa

? *Stypella subhyalina*

Cantharellales

Botryobasidiaceae

Botryobasidium aff. conspersum

Botryohypochnus aff. isabellium

Botryobasidium subcoronatum

Botryobasidium sp.

Hydnaceae

? *Sistotrema efibulatum*

Hymenochaetales

Schizoporaceae

Hyphodontia pallidula

Schizopora radula

Xylodon flaviporus

Polyporales

Cystostereaceae

Crustomyces aff. subabruptus

Fomitopsidaceae

Anrodia aff. sinuosa

Fibroporia radiculosa

Phanerochaetaceae

Phanerochaete livescens

Phanerochaete rhodella

Polyporaceae

Perenniporia subacida

Skeletocutis nivea

Russulales

Stereaceae

Gloeocystidiellum porosum

Thelephorales

Thelephoraceae

Tomentella ellisii

Tomentella sp.

Tomentella sp.

Tomentella sp.

Tomentella sp.

Tomentellopsis sp.

Trechisporales

Hydnodontaceae

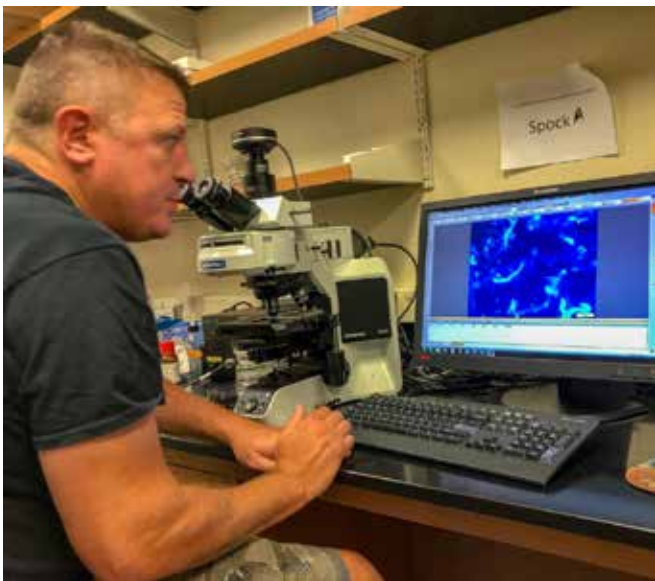
Subulicystidium sp.



Crustomyces aff. Subabruptus photo by John Plischke III



Tom Brun collecting crusts in the field for the workshop



Barrie Overton at his Olympus BX 53 Microscope with epifluorescence (DAPI filter set used for calcoflour) and Differential Interference Contrast



John Plischke III photographing specimens and Tom Bruns taking minute tissue samples for DNA extraction

Gary Lincoff Award for Contributions to Amateur Mycology

NAMA's *Award for Contributions to Amateur Mycology* is given annually to recognize a person who has contributed extraordinarily to the advancement of amateur mycology. Its recipients have often extensively conducted workshops, led forays, written or lectured widely about mushrooms and identifying mushrooms, all on a national or international level. In 2015, the name of the award was officially changed to recognize the contributions of Gary Lincoff; now the *Gary Lincoff Award for Contributions to Amateur Mycology*.

Nominations for this award should include a description of the accomplishments the nominee has made in the field of amateur mycology.

A name alone is not a sufficient nomination; neither is a profile on a website.

The recipient must be living at the time of the award.

Nominees who were not selected to receive the award are automatically re-nominated for 4 additional years, after which the nominee's name has to be re-submitted, and it's up to the nominator to keep track of this.

Selection among nominees is made by the voting of past award winners, and the award includes a plaque and lifetime membership in NAMA.

Nominations are accepted until April 1st of the award year.

Send a single copy of a Nomination by mail or email to:

Walt Sturgeon
 Chair, NAMA Awards Committee
 288 E North Avenue
 East Palestine, OH 44413-2369
 Email: mycowalt@comcast.net

The Harry and Elsie Knighton Service Award

The *Harry and Elsie Knighton Service Award* was established by the NAMA Board of Trustees to recognize and encourage persons who have distinguished themselves in service to their local clubs. It is named for the Knighton's, whose efforts began the North American Mycological Association in 1967.

The annual award consists of a plaque; publicity for the winner and club in *The Mycophile*; a one-year membership in the organization; and registration, housing and foray fees for the next NAMA Foray.

Each year's recipient is selected by the three most recent recipients of the Award.

Every NAMA-affiliated mycological club may nominate one candidate whom it feels has performed meritorious service during the current or preceding year, which has to be described!

Unselected nominees are automatically re-nominated for two additional years.

Nominations are accepted until April 1st of the award year.

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THE MYCOPHILE

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