OBELISK

Ohio Bryology *et* Lichenology, Identifiction, Species, Knowledge

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Don G. Flenniken and Ray Showman, Editors
FlennikenD@aol.com, ray.showman@gmail.com

LEFT HAND CORNER

For some, the study of bryophytes and lichens may seem like an absurd waste of time and energy, and even money. I suppose it may seem a bit silly to spend a day or more hunting for some insignificant crust on the soil or some tiny black dots on rocks, and then spending more time examining them more closely under the microscope.

I can't help but wonder if anyone would seriously miss *Flavoparmelia caperata* or *Polytrichum ohioense* if they should disappear tomorrow. We would probably feel no economic loss, but what would be lost is beauty.

Conservationists are always putting the importance of wildlife, wilderness, and natural resources into economic terms. Sure, hunting and fishing license bring in needed revenue and it takes a lot of money to keep up our State Parks. It's as though the dollar value (or lack thereof) for rare plants, mosses and lichens is all that matters.

That which makes lichens and bryophytes valuable, what makes them worth our study, and what makes them worth protecting is their inherent beauty. This has no price tag - - priceless!

- Don Flenniken

MOSS MUSING

Making Useful Specimens

OMLA members working together and independently have made significant contributions to the Ohio cryptogam flora. For instance, at our Darke County summer foray we added 58 new bryophyte and 16 new macrolichen species to the cryptogam flora. Two of these (*Brachythecium velutinum* and *Physciella melanchra*) are new to Ohio. This is excellent for a state whose cryptogam flora has been studied since as early as the 1840's.

These new county and Ohio records are documented as specimens in a number of herbaria, including Cleveland Museum of Natural History, Kent State University, New York Botanical Garden, and Ohio State University. A typical herbarium packet is 15.5 cm by 10.5 cm (+/- 4 x 6 inches). It is made by folding a sheet of high quality 100% rag content, 20-24 pound weight paper. These packets can be mounted on herbarium sheets or stored individually within herbarium cabinets. They are now part of collections that will last theoretically *in perpetuity*.

A common question is what to collect, and how much. Unlike vascular plants, the collecting of bryophytes is really easy – grab and stuff! It takes no effort

to collect 30 – 50 specimens in a short field trip. The time consuming part is the identification. Therefore, one needs to be selective in what to collect. Our forays are typically floristic surveys where we try to find all the species in a particular area, such as a nature preserve. One needs to think about the purpose of the collection. Few collections (private or institutional) have room for multiple collections of the same species from the same location.

How much to collect is another matter. When collecting pleurocarps and large acrocarps, there is enough room in the herbarium packet for a mat about the size of a hand palm. When collecting smaller acrocarps, especially those appressed to a substrate, a sample of multiple tufts is required. Specimens with sporophytes are preferred, but sterile material is acceptable. Although just a small amount of material is needed for identification, a thoughtful collector plans ahead for researchers to examine the packet and remove material for verification and/or studies.

In order to remove saxicolous or corticolous specimens, a knife, putty knife, wood chisel or other strong tool is needed. Pulling tufts off by hand frequently results in a mass of leaves rather than the entire plant.

Specimens are accompanied by label information. That includes geographical location, habitat and substrate. Geographical locality includes the state, county, township, and topographical quadrangle. It includes a description that locates the specimen near a physical feature such as a road, river, or some other feature that typically appears on a map. Habitat includes the plant community, such as a hemlock ravine, accompanied with a list of few of the dominant plants. Bryophytes grow on a variety of substrates such as tree bark, decorticated log, rock, exposed soil, and humus. Many labels list both the collector and collection number as well as colleagues present at the time of collection. Latitude and longitude coordinates can be valuable additions to label data, but alone have limited value.

Many bryologists have private collections. A good specimen with good label information is welcomed in many herbaria. **– Barbara Andreas**

2009 SUMMER FORAY

The 2009 Summer Foray was held in Darke County, a county that has seen little collecting of either lichens or bryophytes. Until now only 8 moss species and 11 macrolichens have been recorded. Darke County has been completely glaciated with few (if any) rock outcrops. It lies within the Till Plains physiographic region of the Central Lowlands. More than 90% of the land has been converted to farmland, but some of the remaining areas have been incorporated into county parks and preserves. Many of these areas are poorly drained forest remnants with oaks, maples, beech and ash.

On July 18'th, 15 OMLA members and friends visited the county for a bioblitz type effort (please see the group photo at the end of this newsletter for the names of the participants). Collecting was done at Routzong Nature Preserve, Bald Knobs (TNC easement) and Drew Woods. Collections were also made at several other sites including Coppess Nature Preserve, Worth Family Preserve, Shawnee Prairie Preserve, St. Peter's Church Cemetery and Oakland Church of the Brethern. To simplify reporting,

these are listed as Other Sites in the species tables.

Macrolichen species were not especially rich, but a total of 26 were recorded, including 16 that are new for Darke County and one that is new for Ohio. The distribution of crustose lichens in Ohio is as yet poorly understood and they have probably never been collected in Darke County. This foray recorded 19 crustose species. The table below lists the lichen species found on the Foray.

Two lichen species, deserve note. *Ramalina complanata* is a fruticose lichen with only one recent record and four old (pre-1945) records. It was found at Routzong Nature Preserve growing on a dead branch. *Physciella melanchra* is a small foliose lichen that is new for Ohio. This was collected at several places in Darke County, growing on rocks and tree bases. A separate article in this issue describes this species in greater detail.

A total of 64 moss species were recorded with 57 new county records. Five liverworts were found, all of which were new county records. The table below lists the bryophytes collected during the Foray. Darke County is the first county of those bordering Indiana to have *Synthrichia papillosa* and *Climacium kindbergii*. One moss, *Brachythecium velutinum*, found at Routzong Nature Preserve, was new for Ohio. A separate article in this issue describes it in greater detail.

Darke County is largely agricultural with sparse and fairly uniform habitat for lichens and bryophytes. For this reason, it has been largely ignored by earlier collectors. However, the numerous county records and two new state records found on this foray illustrate the need to visit all of these unexplored areas in Ohio. – **Barbara Andreas and Ray Showman**

NEW LICHEN FOR OHIO

Physciella melanchra was collected in Darke County during the Summer Foray. As far as can be determined this is the first record for Ohio of this species. It seemed fairly common, found growing on bark at Routzong Preserve, churchyard trees near Gettysburg, and on cemetery gravestones near Webster. Looking similar to *Physciella chloantha*, this species differs in having rounded to irregular laminal soralia in addition to some marginal soralia as seen in *P. chloantha*. However, none of the soralia are lip-shaped as found in *P. chloantha*. *Physciella melanchra* could easily be mistaken for *Physcia orbicularis*, a species of uncertain status in Ohio, but that species has a dark lower surface, while *P. melanchra* is white below. . Voucher specimens have been deposited at OSU. – **Don Flenniken**

Darke County Lichens at Nature Preserves: Routzong (R), Bald Knobs (BK), Drew Woods (DW); and Other Sites (OS) including Coppess Nature Preserve , Worth Family Preserve, Shawnee Prairie Preserve, St. Peter's Church Cemetery and Oakland Church of the Brethern. * = new county record, ** = new state record.

	Collection Location			
Macrolichen Species Name	**R**	**BK**	**DW**	**OS**
*Canoparmelia crozalsiana**	X			
Candelaria concolor	X		X	X
*Cladonia furcata**		X		
Flavoparmelia caperata	X	X	X	X
*Flavopunctelia flaventior**				X
*Flavopunctelia soredica**	X			X
*Myelochroa aurulenta**	X	X	X	
Parmelia sulcata	X	X		X
Parmotrema hypotropum	X	X		X
*Phaeophyscia adiastola**		X		
*Phaeophyscia hirsuta**				X
Phaeophyscia rubropulchra	X	X	X	X
*Physcia adscendens**				X
Physcia millegrana	X	X	X	X
Physcia stellaris	X	X	X	X
*Physciella chloantha**				X
Physciella melanchra*	X			X
Physconia detersa	X			X
*Punctelia missouriensis**	X	X		X
Punctelia rudecta	X	X	X	X
Punctelia subrudecta		X	X	X
*Ramalina complanata**	X			
*Xanthomendoza fallax**				X
*Xanthomendoza uplohyllodes**				X
*Xanthomendoza weberi**	X			
Total Macrolichen Species (25)	**16**	**12**	**8**	**19**
Crustose Lichen Species				
Amandinea dakotensis	X			
Amandinea punctata	X			
Arthonia caesia	X			
Buella stillingiana	X			
Caloplaca arenaria				X
Caloplaca fericissima	X			
Cyphelium tigillare	X			
Graphis scripta	X			
Lecanora dispersa	X			

Lecanora thysanophora	X			
Phylyctis argena				X
Pyrrhospora varians	X			
Sarcogyne regularis				X
Scoliciosporum umbrinum	X			
Trapeliopsis flexuosa	X			
Trypethelium virens	X			
Verrucaria calkinsiana				X
Verrucaria muralis	X			X
Verrucaria nigrescens	X			
Total Crustose Species (19)	**15**			**5**

Darke County Bryophytes at Nature Preserves: Routzong (R), Bald Knobs (BK), Drew Woods (DW); and Other Sites (OS) including Coppess Nature Preserve , Worth Family Preserve and Shawnee Prairie Preserve. * = new county record, ** = new state record.

	Collection Location			
Bryophyte Name	**R**	**BK**	**DW**	**OS**
Amblystegium serpens (Hedwig) Schimper var. *juratzkanum* (Shimper) Ray & Hervey*		X		X
Amblystegium varium (Hedwig) Lindberg*	X	X	X	X
Anomodon attenuatus (Hedwig) Huebener*	X	X		X
Anomodon minor (Hedwig) Lindberg*	X	X		
Atrichum altecristatum (Renauld & Cardot) B.B. Symth & L.C.D. Symth*		X		
Atrichum angustatum (Bridel) Bruch & Schimper		X		
Atrichum crispulum Bescherelle*		X		X
Barbula unguiculata Hedwig*				X
Brachythecium acuminatum (Hedwig) Austin*	X			X
Brachythecium laetum (Bridel) Schimper*	X	X	X	X
Brachythecium salebrosum (Hoffmann ex F. Weber & D. Mohr) Schimper*	X	X		X
Brachythecium velutinum (Hedwig) Schimper**	X			
Bryum argenteum Hedwig*				X
Bryum caespiticum Hedwig*				X
Bryum capillare Hedwig*	X		X	
Bryum flaccidum Bridel*	X			
Bryum lisae De Notaris var. *cuspidatum* (Bruch & Schimper) Margadant*				X
Bryum pseudotriquetrum (Hedwig) P. Gaertner, B. Meyer & Scherbius*	X			
Callicladium haldanianum (Greville) H. A. Crum*	X		X	
Campylium chrysophyllum (Bridel) Lange	X	X		X

Campylium stellatum (Hedwig) C. E. O. Jensen*		X		
Climacium americanum Bridel*		X	X	X
Climacium kindbergii (Renauld & Cardot) Grout*			X	
Dicranella heteromalla (Hedwig) Schimper*	X			
Dicranum flagellare Hedwig*			X	
Dicranum scoparium Hedwig*		X		
Entodon seductrix (Hedwig) Müller Hal.*	X		X	
Eurhynchium hians (Hedwig) Sande Lacoste*	X			X
Eurhynchium pulchellum (Hedwig) Jennings*	X		X	
Fissidens bryoides Hedwig*	X			
Fissidens dubius P. Beauvois*		X		
Fissidens osmundioides Hedwig*		X		
Fissidens taxifolius Hedwig*	X	X	X	X
Gymnostomum aeruginosum Smith*				X
Haplocladium microphyllum (Hedwig) R. Watanabe & Z. Iwatsuki*	X			X
Haplohymenium triste (Cesati) Kindberg*	X			
Hedwigia ciliata (Hedwig) P. Beauvois*	X	X		
Homomallium adnatum (Hedwig) Brotherus*	X			
Hygroamblystegium fluviatile (Hedw.) Loeske*	X	X		
Hygroamblystegium tenax (Hedwig) Jennings*	X			
Hyophila involuta (Hooker) A. Jaeger*		X		
Hypnum lindbergii Mitten*			X	
Hypnum pallescens (Hedwig) P. Beauvois*	X		X	
Leptodictyum humile (P. Beauvois) Ochyra.*			X	
Leptodictyum riparium (Hedwig) Warnstorf*	X		X	
Leskea gracilescens Hedwig*	X	X		X
Leucodon julaceus (Hedwig) Sullivant*		X		
Orthotrichum elegans Schwägrichen ex Hooker & Greville*	X			
Orthotrichum pusillum Mitten*	X	X		X
Orthotrichum sordidum Sullivant & Lesquereux*		X		
Physcomitrium pyriforme (Hedwig) Hampe*		X		X
Plagiomnium cuspidatum (Hedwig) T. J. Koponen*	X	X	X	X
Plagiothecium cavifolium (Bridel) Z. Iwatsuki*	X		X	
Platydictya confervoides (Bridel) H. A. Crum*	X			
Platygyrium repens (Bridel) Schimper	*X*	*X*	*X*	
Pohlia nutans (Hedwig) Lindberg*		X		
Pylaisiadelpha tenuirostris (Bruch & Schimper) W. R. Buck*	X		X	
Rhynchostegium serrulatum (Hedwig) A. Jaeger				X
Schistidium rivulare (Bridel) Podpera*		X		X
Schwetschkeopsis fabronia (Schwägrichen) Brotherus*	X			
Sematophyllum adnatum (Michaux) E. Britton*	X			
Syntrichia papillosa (Wilson) Juratzka*	X			

Taxiphyllum deplanatum (Schimper ex Müller Hal.) M. Fleischer*	X	X		
Thuidium delicatulum (Hedwig) Schimper*	X	X	X	
Weissia controvera Hedwig*				X
TOTAL MOSSES = 65	39	30	19	24
LIVERWORTS				
Frullania eboracensis Gottsche*		X		X
Frullania inflata Gottsche*		X		
Lophocolea heterophylla (Schrader) Dumortier*	X		X	
Porella platyphylla (Linnaeus) Pfeiffer*	X	X		
Ricciocarpos natans (Linnaeus) Corda*			X	
TOTAL LIVERWORTS = 5	2	3	2	1

NEW MOSS SPECIES FOR OHIO

Each OMLA foray yields many new county records. It is especially pleasing when a foray yields new state record. *Brachythecium velutinum* was collected on the "scouting" trip for the Darke County foray. Barb Andreas' specimen was verified by Bill Buck and is now part of the KSU bryophyte herbarium.(KE B10232). *B. velutinum* is a small (if not the smallest) Brachythecium moss. It typically grows on rock, bark, or at the base of trees in rather dry to moist woods. The Darke County record was collected from the base of a recently fallen tree in the Routzong Preserve. – **Barb Andreas**

HITCHHIKING LICHENS

Ramalina complanata is a common southern US species but rare in Ohio with four old (pre-1945) records and recent records from two counties (one from the Darke County Foray, this issue of OBELISK). These recent records were each a single thalli. Around five years ago, I found a nice population of this species with several dozen thalli on several trees. However, this population is unusual because it is in Columbus, next to a fairly new building. The population is on relatively young sugar maple trees, obviously landscape plantings. This species was almost certainly brought in with the nursery stock, but appears to be thriving in its new home. The recent photo below shows several thalli with apothecia.

The very common eastern US lichen *Physcia millegrana* is thought to have jumped to California on nursery stock. I suspect that there are other instances of lichens moving around on nursery trees. Mosses could also move this way, on tree bark or on potted soil. This population of *Ramalina complanata* has been transplanted here and I would not consider it a valid Ohio record. I would like to hear of other instances of hitchhiking lichens or mosses. **- Ray Showman**

CORTICOLOUS MOSSES

In Ohio's deciduous forests, standing trees are an important habitat for mosses. Corticolous (bark-inhabiting) mosses tend to be especially abundant at the bases of trees, where moisture and nutrients are not as scarce as they are higher up on the trunk. Mat-forming pleurocarps (carpet mosses) do well at tree bases. Perhaps the most abundant low bark-inhabiting moss is *Anomodon attenuatus* (family Leskaceae). This species is distinctive on many scales. From afar, a tree sporting a lush growth of this moss around its swollen base is whimsically reminiscent of a human calf adorned with a sporty green ankle sock (albeit one that is slightly frayed).

Anomodon attenuatus adorns a tree base

Close-up, note the drooping tapered branches, the basis of the specific epithet "attenuatus."

Another primarily epiphytic member of the Leskeaceae frequenting the zone from tree base up to eye-level on trunks, and extending out onto lower branches as well, is *Leskea gracilescens*. It seems to be most abundant in floodplain forests.

Leskea gracilescens grows in dense mats.

Leskea is a small moss with branches that are neither flattened nor tapered. When dry, the leaves hug the stem. Microscopically, note the prominent single costa (midvein) and stoutly unipapillose leaf cells.

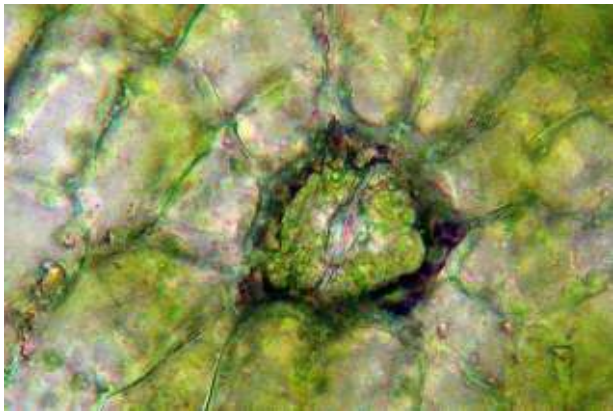
Leskea gracilescens through the microscope. Inset: papillose leaf cells.

Unlike the tree-base and low-level trunk dwellers, which tend to occur on logs and rocks as well, most of the mosses that occur high on trees tend to occur only on trees. Several are tufted acrocarps (cushion

mosses). One prominent high-bark genus is *Orthotrichum*, (family Orthotrichaceae), looking like small dark fingers extending out perpendicularly from the bark.

Orthotrichum pumilum has erect leaves.

While the genus may be easy to spot, species identification hinges on some technical features of the sporophyte that can be a challenge to ascertain, including the degree to which the capsules are ridged when dry, and whether the stomates are superficial or immersed. (Who even knew that non-vascular plants had stomates?) And, if immersed, whether the cells surrounding the stomates jut up or instead lay flat. Am I the only naturalist occasionally struck with skepticism that apparently subjective and variable traits used to separate some species reflect genuine patterns in nature? Anyhow, here's a picture of an *Orthotrichum* stomate, of the immersed sort, surrounding cells not jutting upwards.



O. pusillum stomata (breathing pore). Another member of the Orthotrichaceae, also a small high-bark cushion moss, is *Ulota crispa*. (A second *Ulota* species occurs in Ohio, but is quite rare). This moss is distinctive when dry, as it has very curly-twisted leaves.

Ulota crispa has curled leaves.

One of the few mosses to have a common name, *Anacamtodon splachnoides* (family Fabroniaceae) is the "knothole moss." It's a nondescript pleurocarp that Crum and Anderson, in "Mosses of Eastern North America" say resembles "a large-scale *Amblystegium* with leaves tending to be upturned rather than evenly spreading on all sides of the branches." Its capsules, erect and sharply constricted below the mouth, are distinctive. As per the common name, *Anacamptodon* is a denizen of moist, soft or rotten bark.

Anacamptodon is the knothole moss. Not all corticolous mosses are strict forest-dwellers. A genus that includes some species notable for being more common on roadside trees in the city is *Tortula* (family Pottiaceae). These are beautiful little acrocarps with broad long-awned leaves that, when wet, spread widely, giving the plant a rose-like appearance. In Ohio, two species occur, both of which, in North America, reproduce only asexually. They are readily distinguished by their propagula. *T. papillosa*, a fairly common species, bears abundant globose few-celled ones, while *T. pagorum*, reported from only 6 counties, has leaf-like propagula. According to Crum and Anderson, only female *T. pagorum* plants have been found in North America while in Europe there are only male plants. The only fruiting individuals were described from Australia!

Tortula pagorum & *T. papillosa* reproduce asexually.

This short article mentions just a few of our more common tree-hugging mosses. When out hunting for these interesting plants, keep an eye out for some of Ohio's rarer mosses. *Neckera pennata* (family Neckeraceae), for example, is known from only three counties. *Neckera* has flattened shelf-like branches that spread from the trunks of trees, bearing shiny undulate leaves. It would be a thrill to see! **- Bob Klips**

Wanted (Alive)

Anzia colpodes, the Black-foam Lichen, has a small to medium sized foliose thallus which grows on tree bark. The upper surface is gray and the lower surface is black and covered with a dense, velvety tomentum. The lobe tips appear to be paw-shaped (see the photo below). This species is widely distributed in the eastern US but is fairly rare throughout its range. It is thought to be an indicator of old-growth forests. There are pre-1945 records from five Ohio counties: Ashtabula, Clark, Hamilton, Morgan and Warren. Look for it on the bark and twigs of mature trees in old forests. A new Ohio record for this this lichen would be a great find!

2009 FALL FORAY

The 2009 Fall Foray was held on September 19'th in Meigs County. Lichens had been relatively well-collected in the county with 98 macrolichen species known. Bryophytes however, have been neglected with only 50 moss species on record. The weather was beautiful and three sites were visited. The first was the US Route 33 rest stop (southbound). This site contained many well-spaced trees in a mowed area.

OMLA members botanize at Rt 33 Rest Stop. Please see the group photo at the end of this issue for the names of all attendees.

The second, and primary collection area was the Shade River State Forest. This site contained sunny to shaded trees, moist to dry soil and moist to dry shaded sandstone outcrops and boulders. Two streams ran through the collection area, affording additional habitats. Below: At the Shade River State Forest.

The third site for the day was a sunny, dry, south-facing hillside with sandstone outcrops overlooking Rice Run.

Like OMLA members who study them, mosses and lichens mix and mingle at Rice Run: *Anomodon attenuatus* (moss) and *Peltigera canina* (lichen) on sandstone outcrop.

Forty-five species of macrolichens were recorded on the foray, including five new county records (species table below). A good population of the rare lichen *Myelochroa metarevoluta* was found at the Shade River State Forest foray site. This lichens has been previously found in two other counties and is thought to be rare in the eastern US. Crustose lichens have been only sparsely studied in Ohio so the 22 species found on the foray constitute a significant addition to the knowledge of this group.

A total of 77 bryophytes species were collected, of which more than half (41) were new records for Meigs (see species table below). Some of the more exciting finds included *Dichodontium pellucidum* (Dicranaceae), previously known from six counties, and *Eucladium verticillatum* (Pottiaceae), just three counties.

While it is not especially rare, it was a treat to see the hornwort *Phaeoceros laevis* growing in lush stands atop several moist rocks in the stream channel at

Shade River State Forest. Hornworts are peculiar bryophytes, and one of the most ancient plant groups. The sporophyte is a slender spike-like structure that splits lengthwise to release spores, and it elongates by means of an unusual growing region (meristem) located near its base, not at the apex as are almost all other plant meristems. Also, the flat thallose liverwort-like gametophyte contains mucilage-filled spaces that can harbor symbiotic cyanobacteria. Hornworts are the only plants that have stomates on their gametophytes.

The hornwort *Phaeoceros laevis*.

- Bob Klips and Ray Showman

Bryophytes of the 2009 OMLA Fall Foray. Rte 33 Rest Stop (33), Shade River State Forest (SR), and Rice Run (RR) * = new for Meigs County.

Moss Species (65)	33	SR	RR
Anomodon attenuatus		X	X
Anomodon rostratus		X	
Atrichum angustatum		X	
*Atrichum crispulum**		X	
Aulacomnium heterostichum		X	
Bartramia pomiformis		X	
*Brachythecium laetum**	X	X	
*Brachythecium rivulare**		X	
Brachythecium salebrosum	X		
Bryhnia graminicolor		X	
*Bryhnia novae-angliae**		X	
Bryoandersonia illecebra	X	X	
*Callicladium haldanianum**		X	
*Campylium chrysophyllum**		X	X
Climacium americanum		X	
*Ctenidium molluscum**		X	
*Cyrto-hypnum pygmaeum**		X	
*Dichodontium pellucidum**		X	
Dicranella heteromalla	X	X	
Dicranum fulvum		X	
*Dicranum montanum**		X	
Dicranum scoparium	X		X
*Diphysicum foliosum**		X	
Entodon seductrix	X		
*Eucladium verticillatum**		X	
Eurhynchium hians			X
Eurhynichium pulchellum		X	
Fissidens bryoides		X	
*Fissidens osmundioides**		X	
*Fissidens subbasilaris**			X
Fissidens taxifolius		X	
*Forsstroemia trichomitria**			X
*Grimmia pilifera**			X
*Gymnostomum aeruginosum**		X	
*Haplocladium microphyllum**		X	
*Haplohymenium triste**			X
Hedwigia ciliata			X
*Homalotheciella subcapillata**		X	
Hygroamblystegium tenax		X	
*Hyophilia involuta**		X	
Hypnum curvifolium		X	
*Hypnum lindbergii**	X		
*Leptodictyum riparium**		X	
Leskea gracilescens	X	X	X
Leucobryum glaucum	X		X
*Mnium marginatum**		X	
*Mnium thomsonii**		X	
*Orthotrichum ohioense**	X		
*Orthotrichum pumilum**	X		
Plagiomnium cuspidatum		X	X
*Platygyrium repens**	X		
Platyhypnidium riparioides		X	
Pogonatum pensilvanicum		X	
*Pohlia nutans**		X	
Polytrichastrum ohioense	X		X
*Pylaisiadelpha tenuirostris**	X	X	
Rhizomnium punctatum		X	
Rhyncostegium serrulatum		X	
Schistidium rivulare		X	
*Sematophyllum adnatum**			X
Sematophyllum demissum		X	X
*Taxiphyllum taxirameum**		X	
*Tetraphis pellucida**		X	

Thamnobryum alleghaniense		X	
Thuidium delicatulum	X		
Hornwort Species (1)			
*Phaeoceros laevis**		X	
Liverwort Species (11)			
Conocephalum conicum		X	
*Diplophyllum apiculatum**		X	
Frullania asagrayana			X
*Frullania eboracensis**	X		X
Jungermannia crenuliformis		X	
*Lejeunea cavifolium**			X
*Leucolejeunea calypeata**			X
*Lophocolea heterophylla**		X	
*Nowellia curvifolia**		X	
*Pellia epiphylla**		X	
Scapania nemorea		X	
Total Species (77)	16	56	19

Lichens of the 2009 OMLA Fall Foray. Rte 33 Rest Stop (33), Shade River State Forest (SR), and Rice Run (RR) * = new for Meigs County.

Macrolichen Name	33	SR	RR
Candelaria concolor	X		X
Canoparmelia crozalsiana	X		
Cladonia apodocaroa		X	
Cladonia coniocraea	X	X	
Cladonia squamosa		X	X
Cladonia subtenuis			X
Collema subflaccidum		X	
Dermatocarpon luridum		X	
Flavoparmelia baltimorensis			X
Flavoparmelia caperata	X	X	X
Heterodermia obscurata			X
Heterodermia speciosa		X	
Hypotrachyna livida	X		X
Lasallia papulosa			X
Leptogium cyanscens		X	
Leptogium juniperinum			X
Leptogium lichenoides			X
Myelochroa aurulenta	X	X	X
Myelocheroa galbina		X	
*Myelochroa metarevoluta**		X	
Parmelia squarrosa			
Parmelia sulcata	X		X
Parmelinopsis minarum	X		X
Parmotrema hypotropum	X	X	X
Parmotrema stuppium	X	X	
Peltigera canina	X		
Peltigera evansiana			
*Phaeophyscia adiastola**		X	X
*Phaeophyscia pusilloides**		X	
Phaeophyscia rubropulchra	X	X	X
*Phaeophyscia squarrosa**	X		
Physcia aipolia	X		
Physcia americana		X	X
Physcia millegrana	X	X	X
Physcia stellaris	X	X	
Physciella chloantha	X		
Physconia detersa	X		
Punctelia rudecta	X	X	X
Punctelia subrudecta	X		X
Pyxine sorediata	X	X	X
Pyxine subcinerea		X	
Ramalina pollinaria			X
Umbilicaria mammulata			X
*Usnea mutabilis**		X	
Usnea strigosa	X		
Tot. Macrolichen Species (45)	**22**	**23**	**23**
Crustose Lichen Name			
Buellia stillingiana		X	
Caloplaca feracissima	X		
Caloplaca flavovirescens	X		
Candelariella efflorescens	X		
Graphis scripta		X	X
Hypocenomyce scalaris	X		
Lecanora dispersa	X		
Lecanora hybocarpa	X	X	X
Lecanora strobilina	X	X	
Lecanora thysanophora		X	
Lepraria incana		X	
Lepraria lobificans		X	X
Lepraria membranacea		X	X
Nadvornikia sorediata		X	
Opegrapha varia			X
Phlyctis argena		X	
Porpidia albocaerulescens		X	X
Protoblastenia rupestris		X	
Pyrrhospora varians		X	
Ropalospora chlorantha		X	
Strigula stigmatella		X	
Sarcogyne regularis		X	
Total Crustose Species (22)	**7**	**16**	**6**

"Live as to die tomorrow, learn as to live forever" – Isadore of Seville

This quotation was a favorite of Dr. E. D. Rudolph, lichenologist and professor of botany at OSU until his untimely death in 1992. I think Rudy would be happy to see it in print here. - RES

HERE'S TO THE LICHEN

Conversations run, as conversations do, between the Trillium and the Oak,
Comparing notes as Fall set in, even as they spoke.
It must be nice to shed no leaves nor die back until Spring's soak;
The way some of our neighbors live… We mean being a Lichen.

You see he doesn't have a care and doesn't shed a tear,
He need not get his house in order to end another year.
The Lichen growing close couldn't help but overhear.
He said, "Let me tell you a little bit about what it like to be a Lichen".

You see, I only get a chance to drink from rain and morning dew.
These rhizoids only anchor me, not absorb like roots do you.
Man may not pick my flowers, but they'll crush me with their shoe.
Sometimes it isn't easy… being a lichen.

Seems I dry out completely almost every afternoon,
But twice a day I get to drink; dew never comes too soon.
If I had roots deep in the ground, I'd sing another tune.
But I always thank the rain and slowly melting snow…being a lichen

My skin gets awfully dry at times, from the blazing sun.
Often there's no shade around and no place to run.
Cool nights are mighty welcome, when the day is done.
But don't get me wrong… I love being a lichen.

I absorb a lot of poisons and heavy metals cause me pain.
Survival isn't easy with all that acid rain.
And Ozone is the cause of that unsightly stain.
Yet you have to learn to live with it… being a lichen.

I'm neither male nor female, but that is no excuse.
Spores and tiny fragments are my means to reproduce.
Sometimes I even blow around, whenever I come loose.
Still it gets rather lonely, alone… being a lichen.

It sure gets cold in winter at minus ten degrees
No real need to worry though, I just make antifreeze.
It keeps ice from forming in my cells and I grow on with ease.
We've learned a lot of little tricks… being a lichen.

Things don't always go the way they should; according to the plan.
We've had to sacrifice a lot to make room for man.
He's build smoke stacks, warmed the air, and even cleared the land.
Lots of my friends have suffered, even died… being a lichen

The conversations ended with a kind note of despair.
The Oak thought it was fitting, the Trillium thought it fair
To give the Lichen credit for all it had to bear.
Three cheers from the Trillium; strength from the mighty Oak… Here's to the Lichen

-- By Don Flenniken

REINDEER LICHEN IN OHIO

Reindeer lichen, sometimes also called 'reindeer moss', is one of the most well known and easily recognized lichens. Actually, there are a number of species that fall into this general category. All are members of the genus *Cladonia* that form tangled cushions on soil and among mosses. Many have circumboreal distributions and are an important winter food for arctic grazing animals, thus the common name.

Ohio has five species that fall into this group. All are superficially similar, but closer examination can easily separate the species. The most common is probably *Cladonia furcata*, the Many-forked Cladonia, reported from 56 counties. This species usually grows in dry, open woods, frequently among mosses. The podetia (the upright structures) are gray-green, frequently with a brownish tint. A diagnostic feature is the presence of squamules (small, flattened lobes or scales) on the podetia. The squamules are dark green above but chalky white below. An easy way to check for these is to pick up a mat and turn it upside down. The white undersurface of the squamules stands out almost as if illuminated.

Cladonia furcata

Another common reindeer lichen is *Cladonia* (formerly *Cladina*) *subtenuis*, the Dixie Reindeer Lichen. This has been found in 35 counties, almost all in the unglaciated portion of the state. It has a southeastern US distribution, leading to its common name. The yellow-green podetia are slender and abundantly branched, forming mounded cushions without well-defined main stalks. The Dixie Reindeer Lichen prefers sunny open areas such as old fields, roadside banks and utility right-of-ways.

Cladonia subtenuis

The other fairly common Ohio species is *Cladonia* (also formerly *Cladina*) *rangiferina*, the Gray Reindeer Lichen, reported from 20 counties. This species forms abundantly branched, tangled cushions, usually with the main stalks evident. The color is a cold, gray-white with no hint of yellow, sometimes also called ashy-white. The tips of the podetia frequently point in one direction, giving the cushion a windblown appearance. The Gray Reindeer Lichen is usually found on roadside banks or open woods among mosses, and it is a common component of the "lichen-ericad" association found at the top of sandstone cliffs in southeastern Ohio.

The other two Ohio species are less common, each found in 10 counties. They can be identified using The Macrolichens of Ohio (Showman & Flenniken, 2004). So the next time that you are out botanizing or collecting mosses, pick up some reindeer lichen and see if you can identify it. **– Ray Showman**

Cladonia rangiferina

WHAT MOSS IS THIS?
Part 1 - Tips for Making Microscope Slides for the Examination of Pleurocarpous Mosses
This is the first of a series of articles on microscopic techniques for the identification of bryophytes.

Equipment needed: two microscopes (a dissecting scope and a compound scope), two pairs of fine tipped jeweler's forceps, glass slides and cover slips, razor blades for making cross sections, optional but really useful is a fine spear point (little triangular blade with sharp point and edges on the end of a stout needle in a holder), and a fine needle such as an insect pin. The uses for these will be discussed later. A bit of child-like wonder will increase enjoyment of these amazing little plants.

Dissecting scope examination: Begin by putting the moss under the scope. Determine if it's an **acrocarp** (little or no branching), or a **pleurocarp** (branching). Look for a seta and capsules. Even part of an old seta can be helpful in identification of *Brachythecium* or *Eurhynchium*. Note easily seen features such as leaf arrangements -- flattened (complanate), worm-like (julaceous), or leaves swept to one side; lamellae (lengthwise strips of cells along the costa (leaf's central midrib)); and the presence or absence of brood bodies (often diagnostic for species at this stage). If pleurocarpous, is the branching irregular or regular (pinnate -2 or 3).

Select 1 or 2 plants for a slide for the compound scope. Be aware that sometimes more than one species is in the specimen. If the plants are really dirty, wash them off by holding the plant with forceps and sloshing it around in a small container of water (hot water or a little detergent helps here). Put a drop or two of water on the slide and put the moss plant in it. Some mosses (*Atrichum* and *Mnium*) take several minutes to absorb enough water to relax and spread out. Others are ready for dissection instantly. Hot water helps speed this reconstitution process. It is amazing to watch a moss like *Hedwigia* react to a drop of water under a microscope.

Pleurocarp slide preparation: Most pleurocarps don't need cross sections. Select a 1 or 2 inch piece of main stem and strip off most of the branches and stem leaves. This can be done one leaf at a time using forceps, or by holding the tip of the stem with forceps and scraping the leaves off with a spear point tool (my favorite), or by running the points of a forceps down the stem with one point on either side. With a spear point, both sides of the stem need to be stripped. The advantage of the spear point method is that more of the non leaf structures seem to stay attached to the stem where they can be easily found. Remove most but not all of the branches from the area that will be covered by a cover slip. Spread the newly removed leaves out so there are a number of leaves that don't overlap. Leave the stem in the area.

In the area that will be under the cover slip there are leaves, branches, and stem. If necessary, add more water to help distribute these. Put the cover slip on the area starting by touching one edge to the puddle of water on the slide then lowering the other until it is in place. If water does not completely fill the area, press down

slightly on the cover slip, and/or add a drop of water to the edge so that it will flow underneath by capillary action. Beware of too much water!

Now all the features needed for identification are ready to be viewed under the compound scope. Start by using the scanning objective (4x) and make a crude "sweep" over the slide in order to view all the material available. Select a complete stem **leaf** and look at the distinctive features. Initially I make a crude sketch to train my eye on what to look for. Look for features like the leaf shape, leaf tip (twisted or not), costa, cell shape, leaf borders, alar cells at basal leaf corners, hyaline (clear cells) areas, plications (obvious folds in the leaf - often easier to see with the dry leaves under the dissecting scope) , or undulations. Are the leaf margins entire or with little projections or teeth? And are there any papillae on the leaf cells (these are usually best seen on the branches by finding leaves where the back of the leaf is seen sideways (edge on). Look at the shape of the papillae and the number present per cell. Are the papillae formed by the end of a cell protruding up over the surface (prorulose)? Do this examination with one hand on the fine focus knob and focusing up and down through all of these features. Change to more powerful objectives such as 10x and 40x. Get used to changing power as well as changing focus. Some leaves (*Eurhynchium*) will have the tip of the costa projecting away from the leaf forming a short spine. Other leaves may have a multistratose border that can detected by focusing up and down. Some leaves will have decurrencies, strips of cells at the bottom leaf corners that grow down the stem; these may be still on the leaves, but they could still be attached to the stem.

Oh, and be warned that some mosses have branch leaves that differ from stem leaves in shape as well as size!

Find the **stem** and look for features that will /could be present. Using 100X magnification, move the slide along the stem while focusing up and down to see the detail of features remaining on the stem. Leaf decurrencies will be seen as little triangular wedges of cells left behind in profile on the stem when leaves are stripped off. Little growths all over the stem are these are **paraphyllia**. Most mosses where paraphyllia are present have them in abundance, and they can be seen with a dissecting scope or a hand lens. The shape and type of these should be observed - foliar like little leaves, filamentous with 1 or 2 cell widths, branched or not, smooth cells or with papillae, cells long or short.

Pseudoparaphyllia, which occur on the main stem only at the base of branch attachment, are more difficult for the beginner to find. Again, moving along the stem look for bumps (baby branches) in profile on the edge of the stem with different little structures surrounding the bumps. Are these structures little filaments, or little foliose structures like miniature leaves? The divided and incised foliose pseudoparaphyllia of *Hypnum imponens* are a joy to find since they are a diagnostic feature for that species. Sometimes pseudoparaphyllia can also be found away from the stem on the slide when they have been stripped off with the leaves.

A microscopic journey through the moss world can be incredible with the unusual and intricate structures to be seen . Stay tuned for the next adventure. Part 2. Slide Preparation for Acrocarpous mosses, including *Sphagnum.* **– Diane Lucas**

Wanted (Alive)

Loeskeobryum brevirostre , loeskeobryum moss (Hylocomiaceae), is not a moss that is easy to overlook. It forms large colonies on various substrates such as rock, soil, and logs. The side branches

stand 35-45 mm high, and the leaves close to 2 mm long. It typically grows in ravines, coves, narrow valleys – places with a moist microhabitats. Its US range primarily is eastern from the Appalachians through New England.
In the 1996 atlas of the distribution of Ohio mosses, *L. brevirostre* was reported from 8 counties. There are historic records from Athens and Jackson counties at the Ohio University, and from Cuyahoga County at the Cleveland Museum of Natural History. Records for Lake, Summit, Belmont and Monroe come from literature citations.
On July 9, 2008 Rick Gardner discovered several large populations in a sandstone gorge in Washington County. It should be in similar habitats throughout southern Ohio.

Loeskeobryum brevirostre

NEWS & NOTES

2010 OMLA Events
Winter Meeting & Workshop, OSU Museum of Biodiversity – Feb. 20
Summer Foray, Henry Co.? – June 12
Fall Foray, Muskingum Co. – Sept. 25-26
Please add to your calendar!

Additions to the website: Lichen distribution maps and county lists
Thanks to the efforts of Ray Showman, John Wiley and Janet Traub, facilitated by webmasters Brian Gara and Bob Klips, we now have a clickable map of Ohio on the "Ohio Lichens" section of our website – www.ohiomosslichen.org. Selecting a county brings up a list for that county, and each species on the list is linked its distribution map. The site also contains additional up to date information on Ohio lichens and bryophytes and many useful links.

There is much that can be done to expand and improve our web site. For example, a better logo and banner would be nice. Also, presently there is a multi-page moss ID tutorial; it would be good to have a corresponding set of pages for lichens. Perhaps the site should be more interactive, like a blog. Please visit the web site, think about ways to maximize its effectiveness, and submit your ideas to the "webmasters," who will be happy to help you develop your content for the site.

* * * * *

Hand lens and forceps are available at reasonable price from **Werkhaven William and Son Inc**., 2630 N. High St. in Columbus. Open M-R 8:30-4:00 and F 8:30-3:00. The store has no sign, but has the number marked. You must ring bell to get in. Phone (614) 263-7212 or 1-800-527-9375. They also sell through a website: www.werkhaven.com.

* * * * *

Barb Andreas is studying the bryophytes used in the nests of Carolina chickadees. An article regarding this work will appear in the January issue of *Evansia.* If you observe a nesting Carolina chickadee in 2010, please contact her at bandreas@kent.edu.

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Participants of the 2009 OMLA Summer Foray in Darke County, July 18, 2009

Participants left to right: John Wiley, Dave Smith, Don Flenniken, Janet Traub, Ray Showman, Barb Andreas, Dianne Lucas, Jim Toppin, Bill Schumacher, Carole Schumacher, Yvonne Cecil, Fred Lutt, Jeff Rose, Bonnie Klips (below) and Bob Klips.

Participants of the 2009 OMLA Fall Foray in Meigs County, September 18, 2009

Participants left to right (standing): Don Flenniken, Jim Toppin, Jeff Rose, Dianne Lucas, Ray Showman, James Cochran, Bonnie Klips, Bob Klips, (kneeling): Janet Traub, Cynthia Dassler, Barb Andreas, Carole Schumacher, Bill Schumacher. (Both photos by Bob Klips)