A Preliminary Checklist of the Lichen Flora of Lehigh Gorge State Park

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ABSTRACT. – Recent field work in the Lehigh Gorge, NE Pennsylvania, USA, revealed the presence of 100 lichen species. Of these, 22 have not previously been reported for the state of Pennsylvania and several represent undescribed taxa.

INTRODUCTION

It is generally understood that the lichen flora of Pennsylvania is one of the most understudied lichen floras in the northeastern United States. Though the lichens of the commonwealth have been under continuous study for over 200 years (Lendemer & Hewitt, 2002) most areas remain unstudied and poorly collected. Several years ago the author began intensive field work in the mid-Atlantic states (primarily NJ and PA) in an effort to better understand the diversity and distribution of lichenized fungi in the region. Such field work is invaluable because New Jersey and Pennsylvania represent one of the few areas that have been continuously under study by lichenologists prior to, during, and following the industrial revolution in eastern North America. Thus, voucher specimens collected 200 years ago can provide baseline data for comparison with later studies.

In September, 2003 the author began field work in conjunction with the floristic studies of T. Block and A. Rhoads to better characterize the vegetation of the area currently defined as Lehigh Gorge State Park (hereafter abbreviated LGSP). LGSP presently includes ca. 4,548 acres of land bordering the Lehigh River mostly in Carbon County, PA (Anonymous, 2002). Geologically speaking, LGSP is of particular interest because the late Pleistocene glacial border divides the park into two distinct units, one that is glaciated and one that is not (Inners, 1998). The presence of this geological feature coupled with the ca. 600 ft. decrease in elevation between the north end of the Lehigh River Gorge (White Haven) and the south end of the gorge (Jim Thorpe) as well as the large diversity of exposed stratiographic units (including the Mauch Chunk Formation, Pocono Formation, Spechty Kopf Formation, and Catskill Formation (Inners, 1998)) have provided a wide variety of habitats for lichens.

Another factor contributing to lichen diversity within LGSP is the large amount of variation in forest composition and aspect. It should be noted that the vegetation types reported by Anonymous (2002) for LGSP are far from accurate and, oversimplify the diversity of vascular plant community types found within the park. Lower slopes and north/east facing exposures are primarily forested by *Acer rubrum, Betula alleghaniensis,* and *Tsuga canadensis* with a dense understory of *Rhododendron maximum*. When *R. maximum* is absent or sparse the understory is usually composed of *Acer spicatum, Hamemelis virginiana,* and *Ilex montana.* Such forests can be classified as the northern hardwood type (Fike, 1999). The upper slopes, ridge tops, and south/west facing exposures are mostly forested by several species of *Quercus* (*Q. alba, Q. coccinea, Q. montana, Q. velutina*) with an ericaeous shrub layer (often with abundant *Kalmia latifolia*).

The composition of the forest in this region changes dramatically from one locality to another depending on elevation and aspect. So much so, that the abundance (and presence) of some lichens species is variable as well. It is significant too, to recognize that there are limited northern conifer forests present both north and south of the glacial boundary, primarily in the small gorges that contain tributaries to the Lehigh River. Also, nearly the entire area within the boundaries of LGSP has been cleared for timber in the past (Anonymous, 2002) and thus, little if any original forest is still present.

MATERIALS AND METHODS

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The checklist presented here is based primarily on specimens collected on several trips to LGSP in fall 2003 by the author and A. Rhoads. One trip to Drakes Creek Gorge was made by the author and M. Moody on 21.October.2003. And, several collections made previously at Glen Onoko in early 2003 by the author, M. Moody, and L.H. Smith are also included.

Because of the size of LGSP it would have been impossible to explore the entire park on foot in the time allotted for this study. Thus instead, intensive field work was undertaken in smaller areas that were likely to provide the most habitat diversity for lichen species. Each such study location is listed here with notes on the habitats present at the location. In addition to field work in limited areas, several general collection trips were made throughout the park by motor vehicle. Such "general" trips were intended to locate areas of lichenological interest for future study and, to better assess the lichen diversity in the park as a whole.

A small portion of the extensive grasslands on bluffs overlooking the east shore of the Lehigh River between Lehigh Tannery and Rockport were studied as well. Though this area technically falls within the political boundaries of Hickory Run State Park the collections are included in thus study because the grasslands clearly form part of the Lehigh River Gorge and natural features do not necessarily obey political boundaries. The boundary between Hickory Run State Park and LGSP actually divides the grasslands in two, and a search of the habitat within LGSP would likely reveal a similar assemblage of species.

Drakes Creek Gorge, Carbon Co. (DCG) – Drakes Creek is a small tributary to the Lehigh River and is located on the east side of the Lehigh River Gorge ca. 13 miles south of White Haven. There was previously a saw-mill present near the mouth of the creek (Anonymous, 1873) the foundations of which are still present. And, a small abandoned road meets the creek ca. ¾ mile upstream from the mouth of the creek. The forest in the lower portions of the gorge is composed of primarily of birches (*Betula* spp.) and red maple (*Acer rubrum*) with sparse striped maple (*A. pensylvanicum*), witch-hazel (*Hamamelis*), and small conifers (*Abies*). Farther upstream there are dense thickets of *Rhododendron* which crowd out most of the smaller trees that are seen near the mouth of the creek. The north slope of the gorge is forested primarily by small birches and maples with extensive exposures of the Pocono Formation. The plateau at the top of the gorge includes a high elevation forest of birch and *Rhododendron* with extensive meadows with sparse large trees (mostly *Quercus* and *A. rubrum*) and a low ericaceous understory.

Glen Onoko, Carbon Co. (GO) – A number of trips were made to this locality previous to this study (mainly by Lendemer & Moody and Lendemer & Smith in 2003). The locality is well known for the spectacular waterfalls in the Glen Onoko Gorge and is visited by many day-hikers. Of the localities visited for this study Glen Onko likely represents that which has experienced to most impact due to *recent* human activities (mainly hiking). The lower slopes of the gorge are nearly devoid of foliose or fruticose lichens and this is likely due to both the large number of visitors and the constant spray of water from the waterfalls and stream. There are abundant crustose species, mostly *Porpidia albocaerulescens*, and *Rhizocarpon* spp. As the elevation increases however, the number of hikers decreases (as does the amount of water) and the boulders show increasing amounts of lichen growth. (This is also likely due to the decrease of actual flowing water and the increase of water in the form of mist and fog.) The saxicolous lichen flora in this area is primarily composed of *Aspicilia spp., Flavoparmelia baltimorensis, Parmelia neodiscordans, Parmelia sulcata, Xanthoparmelia conspersa,* and *X. plittii*. The forested upper slopes with abundant large boulders also host large colonies of the Umbilicariaceae species, *Lasallia papulosa, Umbilicaria mammulata,* and a single small colony of *Umbilicaria muhlenbergii* (a species which is oddly rare in the region).

Hickory Run State Park (grasslands along east shore of Lehigh River, north of mouth of Hickory Run), Carbon Co. (HRSPII) – The bluffs along the east shore of the Lehigh River contain extensive grasslands for nearly the entire distance between Lehigh Tannery and ca. 1 mile south of Hickory Run. Though likely originally a result of fire the grasslands are apparently maintained by the large population of deer in the area which browse young trees and shrubs to the extent that few if any mature to full size. The grasslands also have a rich peaty soil overlaying the bedrock (Lehigh Formation mostly) which allows for a large amount of bryophyte and fruticose lichen (i.e. *Cladonia* spp.) growth. The sparse trees that are present (mainly *Populus grandidentata*) also host a number of lichen species that were not observed elsewhere in the park. Geologically, the exposed rock is of particular interest because the grasslands just north of Hickory Run seem to be the actual limit of glaciation, and the rock exposures contain enough calcium to support the growth of lichens more typical of calcareous substrates. It is interesting to note that though there is abundant *Cladonia* and other suitable substrates, there seem to be few if any lignicolous or muscicolous lichens present at this locality.

Lehigh Gorge Bicycle Trail – Sparse collections were made at a number of localities along the trail. The trail is broken down into the following segments: White Haven to Lehigh Tannery, Luzerne Co. (LH); Lehigh Tannery to Rockport, Luzerne Co. (LHIII); Rockport to Glen Onoko, Carbon Co. (LHII).

Mud Run Gorge, Carbon Co. (MRG) – Mud Run Gorge extends a great distance further then most of the other gorges in LGSP and as a result is included partly within Hickory Run State Park, LGSP, and State Game Lands. (A large portion is also privately owned.) Because portions of the gorge were nearly impassible on foot only the area near the headwaters was explored during this study. The portion of the gorge in Hickory Run State Park was visited in May, 2003 and the lichens vouchered. The diversity of lichens in Mud Run Gorge seems to be significantly less then that of Drakes Creek Gorge which is similar in aspect but, slightly smaller with more steeply sloping sides. The forest composition of the two gorges is nearly identical.

Penn Haven Junction, Carbon Co. (PHJ) – There was once a complex of structures at Penn Haven Junction where coal was loaded onto trains for transportation south (Anonymous, 1873). Though comparatively little time was spent at this locality a number of the lichens represent interesting records and additions to the park. The forest is composed primarily of sparse red maple (*Acer rubrum*) and oaks (*Quercus*). Too, the ruined foundations provided a viable substrate for several species typical of acid soil and disturbance based habitats (i.e. *Cladonia grayi,* and *Placynthiella oligotropha*).

Sandy Run Gorge, Luzerne Co. (SRG) – This was the only study location above the glacial boundary. The gorge itself is considerably shallower then the others included in this study and the bottom much wider (allowing for extensive areas to be occasionally flooded). The upper slope of the gorge is forested by a typical northern-hardwood assemblage with occasional conifers and abundant *Rhododendron*. The parts of the gorge which are occasionally flooded are forested with sparse conifers and typical disturbance based trees (i.e. *Crataegus*).

ANNOTATED CHECKLIST

This checklist is arranged alphabetically by genus and species and includes all of the specimens collected by the author in LGSP. The collection numbers given are those of the author (J.C. Lendemer) and follow the locality abbreviation given in the section above. Specimens determined only to genus are included as are specimens representing undescribed taxa. Sterile sorediate crusts are included within the list when the specimens could be named. Sterile crusts that could not be named are included at the end of the list and are grouped by chemistry (when TLC was performed). It should be noted that an effort was not made to sample lichenicolous fungi and thus, only a single taxon, *Abrothallus caerulescens* Kotte, is included here.

All taxa reported here are based on voucher specimens collected by the author and deposited in the herbarium of the author (hb. Lendemer), with many duplicates in the herbarium of the New York Botanical Garden (NY). Though an effort was made to collect every species seen at each locality the collections are far from complete and further field work would likely result in additional records from some localities. Too, moribund and sterile collections of common species which are normally fertile were discarded and thus certain species which are present at most localities may not be fully represented on the list. The nomenclature presented here generally follows Esslinger (1997) however, cases where the nomenclature (or taxonomy) differs are a result of the preferences of the author.

Abrothallus caerulescens Kotte – HRSPII, *1591* (on *Xanthoparmelia* sp.).
Acarospora sp. – LHII, *1656*.

No name has yet been found for this material, however, it seems likely that one exists amid the sea of taxa named by Magnusson and others. The species grows on concrete and mortar, and can be recognized by the gray areolate thallus, with immersed purple-red apothecia, and simple, colorless, ellipsoid spores ca. 4µm x 2µm (many per ascus). The same taxon was reported from New Jersey, USA as *Acarospora* sp. by Lendemer (in press.)

Acarospora fuscata (Schrader) Arnold – MRG, *1492*.

This species is common throughout the park. All of the collections made during this study, with the exception of that cited above were sterile and discarded.

Agonimia sp. – HRSPII, *Lendemer 1612* (musciciolous, sterile).
Arthonia caesia (Flotow) Körber – HRSPII, *1563.*
Aspicilia sp. – HRSPII, *1584.*

Saxciolous species of *Aspicilia* are abundant throughout the park and present at nearly every locality. Most collections were sterile however, and discarded. The collection reported here contains norstictic acid (by application of KOH).

Aspicilia laevata (Acharius) Arnold - MRG, *1491*.
Biatora longispora (Degelius) Lendemer & Printzen– DCG, *1290, 1291, 1292.*
Caloplaca subsoluta (Nylander) Zahlbruckner – HRSPII, *1652.*
Candelariella efflorescens R.C. Harris & W.R. Buck – HRSPII, *1569.*

Sterile sorediate thalli of *Candelariella* were often encountered during field work, they were not collected however because there is a possibility that *C. reflexa* (Nylander) Lettau (which differs only in spore number) is also present. Thus, only fertile material can be determined with confidence.

Candelariella vitellina (Hoffmann) Müll. Arg. – HRSPII, *1585.*
Chaenothecopsis savonica (Räsänen) Tibell – PHJ, *1462*.
Chrismofulvea dialyta (Nylander) Marbach – DCG, *1295, 1463*; MRG, *884, 885*; SRG, 1593.
Cladonia atlantica A. Evans – LH, *1278.*
Cladonia caespiticia (Persoon) Flörke – DCG, *1281, 1499.*
Cladonia cristatella Tuckerman – HRSPII, *1544.*
Cladonia grayi G. Merrill *ex* Sandstede – DCG, *1202*; GO, *484*; HRSPII, *1543*; LH, *1276.*
Cladonia incrassata Flörke – DCG, *1664*.
Cladonia macilenta Hoffmann – HRSPII, *1550.*
Cladonia parasitica (Hoffmann) Hoffmann – GO, *485*.
Cladonia piedmontensis G. Merrill – HRSPII, *1551.*
Cladonia polycarpoides Nylander – HRSPII, *1549.*

It is likely that the record of *C. symphycarpia* (Flörke) Fries, for Pennsylvania cited by McGrath (1991) belongs here. The distribution map for this species provided by Brodo et al. (2001) does not include Pennsylvania within the range of *C. symphycarpia*.

Cladonia rangiferina (L.) Wigg. – DCG, *1427*; LH, *1270.*
Cladonia rei Schaerer – HRSPII, *1547.*
Cladonia squamosa Hoffmann – DCG, *1426*.
Cladonia strepsilis (Acharius) Grognot – HRSPII, *1548.*
Dibaeis baeomyces (L.) Rambold & Hertel – DCG, *1277*; GO, *482*; HRSPII, *1545*.
Dictyocatenulata alba Finley & Morris – DCG, *1425.*
Dimelaena oreina (Acharius) Norman - DCG, *1475*.
Dimerella pineti (Acharius) Vèzda – DCG, *1301, 1501*; MRG, *847*; SRG, *1518.*
Diploschistes muscorum (Scopoli) Santesson – LH, *1294.*
Endocarpon sp. – LHII, *1502.*
Flavoparmelia baltimorensis (Gyelnik & Fóriss) Hale – MRG, *840, 1503*; HRSPII, *1571.*
Flavoparmelia caperata (L.) Hale – DCG, *1258* (saxicolous); GO, *662.*
Flavopunctelia flaventior (Stirton) Hale – HRSPII, *1559.*
Flavopunctelia soredica (Nylander) Hale – MRG, *1497.*
Fuscidea sp.(?) – HRSPII, *1578*. (TLC: unkown (perlatolic acid goup?))
Fuscidea arboricola Coppins & Tønsberg – HRSPII, *1582*.
Hypocenomyce scalaris (Acharius) Choisy – MRG, *1498*; HRSPII, *1575.*
Hypogymnia physodes (L.) Nylander – MRG, *863.*
Ionaspis lacustris (With.) Lutzoni – MRG, *860.*
Lasallia papulosa (Acharius) Llano – GO, *479.*
Lecanora sp. (?) – DCG, *1275, 1508.* (TLC: atranorin, zeorin).
Lecanora dispersa (Persoon) Sommerfelt – HRSPII, *1567.*
Lecanora strobilina (Sprengel) Kieffer – DCG, *1428*; MRG, *845.*
Lecanora symmicta (Acharius) Acharius – HRSPII, *1565.*
Lecanora thysanophora R.C. Harris – SRG, *1595*.
Lepraria sp. 1 – HRSPII, *1577.*
Lepraria sp. 2 - SRG, *1592* (TLC: atranorin, zeorin).
Lepraria sp. 3 – DCG, *1288* (TLC: atranorin, fatty acid, protocetraric acid).
Lepraria lobificans Nylander – DCG, *1581, 1604, 1606*.
Lepraria neglecta (Nylander) Erichsen *s. lat.* – DCG, *1512* (corticolous).
Loxospora pustulata (Brodo & W.L. Culberson) R.C. Harris – GO, *663*.
Melanelia subaurifera (Nylander) Esslinger – DCG, *1286*; HRSPII, *1561.*
Micarea erratica (Körber) Hertel – MRG, *1514.*
Micarea peliocarpa (Anzi) Coppins & R. Santesson – DCG, *1299, 1305*; LHII, *1467,* LHIII, *1520.*

Myelochroa aurulenta (Tuckerman) Elix & Hale – SRG, *1519.*
Myxobilimbia sabuletorum (Schreber) Hafellner – DCG, *1298*.
Ochrolechia arborea (Kreyer) Almborn – DCG, *1272, 1273, 1274*; MRG, *1506, 1510*; HRSPII, *1573.*
Parmelia neodiscordans Hale – GO, *661*; MRG, *841, 844.*

See Lendemer (in press.) for other records from Pennsylvania for this species.

Parmelia squarrosa Hale – MRG, *842*.
Parmelia sulcata Taylor – GO, *487*; HRSPII, *1560.*
Parmelinopsis minarum (Vainio) Elix & Hale – HRSPII, *1558.*
Phaeophyscia adiastola (Esslinger) Esslinger – HRSPII, *1576.*
Phaeophyscia cernohorskyi (Nádvornik) Esslinger – LHII, *1588.*
Phaeophyscia rubropulchra (Degelius) Esslinger – DCG, *1284*; LHII, *1482, 1655*; MRG, *843, 1505*; SRG, *1495, 1516.*
Physcia adscendens (Fries) Oliver – HRSPII, *1554, 1570.*
Physcia millegrana Degelius – MRG, *1494.*
Physcia subtilis Degelius – DCG, *1257*; MRG, *1513*.
Placynthiella oligotropha (J.R. Laundon) Coppins & P. James – PHJ, *1460.*
Polysporina simplex (Davies) Vězda – HRSPII, *1586, 1587.*

Lendemer 1587 is partially lichenicolous on *Acarospora fuscata*, the saxicolous and lichenicolous ascomata do not differ in spore size.

Porpidia albocaerulescens (Wulfen) Hertel & Knoph – MRG, *862*.
Porpidia albocaerulescens (?) sorediate morph – DCG, *1306.*
Porpidia tahawasiana Gowan – DCG*, 1304*.
Punctelia rudecta (Acharius) Krog – SRG, *1515*.
Punctelia subrudecta auct. Amer. – DCG, *1287*; MRG, *1496*; HRSPII, *1574.*

Further study is clearly needed before the synonymy proposed by Aprtoot (2002) of *P. subrudecta* auct. Amer. with *P. perreticulata* (Räsänen) Wilhelm & Ladd is taken up. I have distributed a collection of typical *P. subrudecta* auct. Amer. from New Jersey as *Lichens of Eastern North America Exsiccati, III: 149*

Pycnothelia papillaria Dufour – GO, *483*; HRSPII, *1546.*
Rhizocarpon infernulum (Nylander) Lynge f. *sylvaticum* Fryday – DCG, *1303.*
Rhizocarpon reductum Th. Fries – MRG, *1489, 1493*; LHIII, *1490.*
Rhizocarpon rubescens Th. Fries – HRSPII, *1568.*
Rinodina sp. – PHJ, *1461p.p.*

This species was found associated with *R. efflorescens*, unfortunately the specimen is poorly developed and little material was available for study. The species has spores of the Pachysporaria-type, a minutely bullate thallus, and appears to contain atranorin crystals in the cortex but this substance was not found by TLC (J.W. Sheard pers. comm.).

Rinodina degeliana Coppins – DCG, *1296.* (TLC: atranorin, zeorin).
Rinodina efflorescens Malme – PHJ, *1461p.p.*
Rinodina metaboliza Vainio – HRSPII, *1564, 1566.*
Scoliciosporum chlorococcum (Stenhammar) Vezda – PHJ, *1466.*
Scoliciosporum umbrinum (Acharius) Arnold – DCG, *1300*; HRSPII, *1650.*
Trapeliopsis sp.(?) – HRSPII, *1579* (TLC: gyrophoric acid?).

This collection was found on rock and possibly represents a sorediate species of *Trapeliopsis.*

Trapeliopsis flexuosa (Fries) Coppins & P. James – HRSPII, *1572.*
Trapeliopsis granulosa (Hoffmann) Lumbsch – HRSPII, *1562.*
Trapeliopsis viridescens (Schrader) Coppins & P. James – DCG, *1663*.
Umbilicaria mammulata (Acharius) Tuckerman – GO, *480.*
Umbilicaria muhlenbergii (Acharius) Tuckerman – GO, *489.*
Verrucaria sp. – DCG, *1293.*

The species was found growing on cement (HCl+) and is characterized by a superficial gray-white thallus, with perithecia ca. ¼ to 1/3 immersed, involucrellum absent below and reaching the base of the hymenium, and spores 20µm x 10-11µm.

Verrucaria calkinsiana Servít – DCG, *1302.*
Xanthoparmelia sp. – HRSPII, *1580, 1651.*
Xanthoparmelia conspersa (Ehrhart *ex* Acharius) Hale – DCG, *1279, 1280, 1282, 1283*; GO, *479*; HRSPII, *1653*; MRG, *848, 1504*.
Xanthoparmelia cumberlandia (Gyelnik) Hale – HRSPII, *1580*.
Xanthoparmelia plittii (Gyelnik) Hale – HRSPII, *1583.*
sterile sorediate crustose spp. (TLC not performed) – DCG, *1306;* HRSPII, *1578, 1579, 1581*.

sterile sorediate crustose sp. 2 – DCG, *1285, 1607, 1609.* (TLC: perlatolic group unkown)

This species has also been found in New Jersey (*Lendemer & Moody 1214*, hb. Lendemer) and West Virginia *(Lendemer & Moody 873*, hb. Lendemer).

DISCUSSION

The present checklist of lichenized fungi (and non-lichenized fungi often treated with lichens) includes 100 taxa. This is a significant increase from the three taxa previously reported from LGSP by Anonymous (2002) and the scattered collections from adjacent areas reported by McGrath (1991). It is important to note however, that comparatively little of the park was intensively surveyed and, continued searching would likely result in a number of additions to flora. Despite this, several conclusions can be drawn from the data collected during this study.

Of the taxa reported here, 25 represent the foliose growth habit, 61 represent the crustose growth habit, and 14 represent a fruticose growth habit (i.e. *Usnea*). Thus, it is clear that much of the actual species diversity consists of crustose species. At most localities however, foliose lichens (namely *Flavoparmelia, Punctelia,* and *Xanthoparmelia*) clearly form the bulk of the lichen bio-mass. It is interesting to note that no corticolous fruticose lichens (specifically *Ramalina* and *Usnea*) were found during this survey. Historical records of these genera exist from throughout Pennsylvania (especially at PH) however they are nearly (if not completely) impossible to find in the same areas today. This is hardly surprising however as these genera appear to have been nearly extirpated from Pennsylvania during the last century as a result of heavy deforestation and industrialization.

The following taxa are reported for the first time from Carbon (C) or Luzerne (L) counties (i.e. were not reported by McGrath 1991) as a result of this study: *Abrothallus caerulescens* (C), *Acarospora fuscata* (C), *Allocetraria oakesiana* (C), *Arthonia caesia* (C), *Aspicilia* laevata (C), *Biatora longispora* (C), *Caloplaca subsoluta* (C), *Candelariella efflorescens* (C), *C. vitellina* (C), *Chaenothecopsis savonica* (C), *Chrismofulvea dialyta* (C, L), *Cladonia atlantica* (L), *C. caespiticia* (C), *C. cristatella* (C), *C. grayi* (C), *C. macilenta* (C), *C. parasitica* (C), *C. peziziformis* (C), *C. rangiferina* (C, L), *C. rei* (C), *C. squamosa* (C), *C. strepsilis* (C), *C. symphycarpia* (C), *Dibaeis baeomyces* (C), *Dictyocatenulata alba* (C), *Dimelaena oreina* (C), *Dimerella pineti* (C), *Diploschistes muscorum* (L), *Flavoparmelia baltimorensis* (C), *Flavopunctelia flaventior* (C), *F. soredica* (C), *Hypocenomyce scalaris* (C), *Hypogymnia physodes* (C), *Ionaspis lacustris* (C), *Lecanora dispersa* (C), *L. strobilina* (C), *L. symmicta* (C), *L. thysanophora* (C), *Lepraria lobificans* (C), *L. neglecta* (C), *Melanelia subaurifera* (C), *Micarea erratica* (C), *M. peliocarpa* (C, L), *Myxobilimbia sabuletorum* (C), *Myelochroa aurulenta* (L), *Ochrolechia arborea* (C, L), *Parmelia neodiscordans* (C), *P. squarrosa* (C), *P. sulcata* (C), *Phaeophyscia adiastola* (C), *P. cernohorskyi* (L), *P. rubropulchra* (C, L), *Physcia adscendens* (C), *P. millegrana* (C), *P. subtilis* (C), *Placynthiella oligotropha* (C), *Polysporina simplex* (C), *P. tahawasiana* (C), *Punctelia rudecta* (C), *P. subrudecta* (C, L), *Pycnothelia papillaria* (C), *Rhizocarpon infernulum* f. *sylvaticum* (C), *R. reductum* (C, L), *R. rubescens* (C), *Rinodina efflorescens* (C), *R. metaboliza* (C), *Scoliciosporum umbrinum* (C), *Trapeliopsis flexuosa* (C), *T. granulosa* (C), *Trapeliopsis viridescens* (C), *Umbilicaria mammulata* (C), *U. muhlenbergii* (C), *Verrucaria calkinsiana* (C), *Xanthoparmelia conspersa* (C), *X. plittii* (C).

Of the above taxa the following are apparently reported for the first time from the state of Pennsylvania: *Abrothallus caerulescens, Arthonia caesia, Aspicilia laevata*, *Biatora longispora, Chaenothecopsis savonica, Dictyocatenulata alba, Diploschistes muscorum, Lecanora strobilina, Lepraria lobificans, L. neglecta, Melanelia subaurifera, Micarea peliocarpa, Parmelia neodiscordans, Phaeophyscia adiastola, Porpidia tahawasiana, Rhizocarpon infernulum* f. *sylvaticum*, *R. reductum, R. rubescens, Rinodina efflorescens, R. metaboliza, Verrucaria calkinsiana.*

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LITERATURE CITED

Anonymous. 2002. Lehigh Gorge State Park Resource Management Plan. 50 unnumbered pp.

Anonymous. 1873. Guide-Book of the Lehigh Valley Railroad and its Several Branches and Connections; with an Account, Descriptive and Historical, of the Places Along Their Route; Including Also a History of the Company from its First Organization, and Interesting Facts Concerning the Origin and Growth of the Coal and Iron Trade in the Lehigh and Wyoming Regions. Philadelphia, PA. 87pp.

Esslinger, T. L. 1997. A cumulative checklist for the lichen-forming, lichenicolous and allied fungi of the continental United States and Canada. North Dakota State University: http://www.ndsu.nodak.edu/instruct/esslinge/chcklst/chcklst7.htm (First Posted 1 December 1997, Most Recent Update 27 August 2001), Fargo, North Dakota.

Fike, J. 1999. Terrestrial & Palustrine Plant Communities of Pennsylvania. Harrisburg, PA. 86pp.

Inners, J.D. 1998. Rocks and Ruins of the "Upper Grand", an Illustrated Trail Guide to the Geology and Historical Archeology of Lehigh Gorge State Park, Northeastern Pennsylvania. Open-File Report, 98-03. Harrisburg, PA. 62pp.

Lendemer, J.C. 2004. Recent records for lichens in the local area. (MD, NJ, PA). I. Opuscula Philolichenum, vol. 1.

Lendemer, J.C. and Hewitt, D.A. 2002. A catalogue of the type specimens of lichens in the Herbarium of the Academy of Natural Sciences of Philadelphia. Proceedings of the Academy of Natural Sciences of Philadelphia, 150: 173-204.

McGrath, J.K. 1991. A Checklist of the Lichens of Pennsylvania. Lansdowne, Pennsylvania. 55pp. 352 numbered figs.