

The Lichen Flora of Ten Chicago Parks, Chicago Park District, Chicago, Illinois

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ABSTRACT

Forty-five species of lichens are reported from 10 parks owned and managed by the Chicago Park District. Twenty-four species are of the crustose growth form and 21 are foliose. Twenty species are considered to be common, 6 are frequent, 10 are occasional, and 9 are rare. Nine species (*Caloplaca cf. crenulatella*, *Candelaria concolor*, *Hyperphyscia adglutinata*, *Lecanora dispersa*, *Phaeophyscia pusilloides*, *Physcia millegrana*, *Physcia stellaris*, *Physciella chloantha*, and *Xanthomendoza fallax*) were found at all 10 parks and are generally common throughout the Chicago metropolitan area. Norway Maple (*Acer platanoides*) and Red Oak (*Quercus rubra*) are the most common *corticolous* substrates. Weathered concrete is the most common *saxicolous* substrate, and weathered wood is the most common *lignicolous* substrate. A key to the lichen flora, an annotated species list, and checklists by substrates and parks are provided herein.

INTRODUCTION

The Chicago Park District (CPD) is one of the largest park districts in the United States. Since the establishment of the city's first park in 1834, the citizens of Chicago have been provided with many cultural, physical, and recreational opportunities, as well as open space. According to Mary Vanhaaften and Nathan Schroeder (pers. comm.), over 570 parks had been established by 2004, with a coverage of over 2,994 hectares (7,400 acres) of land. The total area for this study was 1,149 hectares (2,839 acres).

Although Calkins (1896) and Wilhelm (1998) have published floras to the lichens of the Chicago region, no lichenological studies have been specifically dedicated to any of the properties owned by the CPD. This project was undertaken to document the lichen flora and collect voucher specimens, and to provide information on the growth forms, substrates, and relative frequency of these organisms in the parks. A key to the lichen flora was also prepared.

MATERIALS AND METHODS

During the summer and fall of 2003, 10 parks owned and managed by the CPD were visited at least twice to document the lichen flora there (Figure 1 and Appendix I). The parks selected for this study were older and historically significant parks. All habitats were

examined as the author walked through the parks in an effort to record as completely as possible the lichen flora growing there.

Collections and notes were made as follows:

Voucher specimens were collected and identified using keys by Brodo et al. (2001), Hale (1979), Thomson (2003), and Wilhelm (1998). Spot tests for lichen chemical substances were made on collected specimens with calcium hypochlorite (abbreviated as “C” in the key to the flora) and potassium hydroxide (“KOH”). All collections were made by the author and are indicated in the annotated species list with a collection number following the substrate upon which the collection was made: *Quercus rubra* (#1834). Nomenclature and authorities follow Esslinger (1997). All collections are deposited in the herbarium at the Field Museum of Natural History (F) in Chicago.

Growth form of each species was noted: foliose (leaf-like) or crustose (crust-like).

Substrate that each species was growing on was noted: saxicolous (concrete, dolomite, or granite), corticolous (bark of trees or shrubs), lignicolous (wood or decorticate logs), or miscellaneous (steel). Nomenclature of vascular plants identified as substrates follow Dirr (1998) or Swink and Wilhelm (1994).

Frequency of each species was noted: rare, occasional, frequent, or common. Values were assigned within the context of the parks in this study and not necessarily with reference to the entire Chicago region. Assignment of categories was based on the following criteria: rare (found at 1 park), occasional (2–3 parks), frequent (4–5 parks), and common (6–10 parks).

DESCRIPTION OF THE STUDY AREA

According to Swink and Wilhelm (1994), the city of Chicago lies mainly in the Chicago Lake Plain Section of the Lake Plain Natural Division, and to a lesser extent, in the Illinois Dunes Section. The Chicago Lake Plain Section is an area once covered by glacial Lake Chicago, where mesic and wet prairie marsh grew up on the nearly level lacustrine, silty clay deposits of the ancient lakebed. The Illinois Dunes Section consists of low beach ridges and swales, as well as an open community of sand prairie, sand savanna, and marsh. Topography is generally level, with elevations ranging from 178 meters (585 feet) to 183 meters (600 feet) above mean sea level.

The climate is predominately temperate; from relatively warm in summer to relatively cold in winter (Wood 2001). The average annual precipitation is 91 centimeters (35.8 inches); the highest rainfall is in August. Mean average temperature for the month of January is -5.83°C (21.5°F), with a mean high of -1.66°C (29°F) and a mean low of -10.6°C (12.9°F). Mean average temperature for the month of July is 22.8°C (73.2°F), with a mean high of 28.7°C (83.7°F) and a mean low of 17.0°C (62.6°F).

RESULTS AND DISCUSSION

The lichen flora of the 10 Chicago parks consisted of 45 species in 26 genera. Twenty-four species (53%) were of the crustose form and 21 (47%) were foliose. Twenty species (45%) were considered to be common, 6 (13%) were frequent, 10 (22%) were occasional, and 9 (20%) were rare. None of the lichens was determined to be threatened or endangered in Illinois. Nine species (*Caloplaca cf. crenulatella*, *Candelaria concolor*, *Hyperphyscia adglutinata*, *Lecanora dispersa*, *Phaeophyscia pusilloides*, *Physcia millegrana*, *P. stellaris*, *Physciella chloantha*, and *Xanthomendoza fallax*) were found at all 10 parks and are generally common throughout the Chicago metropolitan area. The floral distribution pattern is pan-temperate, with most species having “broad tolerances with regard to habitat and climate” (Brodo et al. 2001).

Lichens were found on 61 different species of trees or shrubs. The 10 most common corticolous substrates were *Acer platanoides* and *Quercus rubra* (each with 21 lichens); *Gleditsia triacanthos* (20 lichens); *Tilia americana* (18 lichens); *Populus deltoides* (17 lichens); *Acer saccharinum*, *Crataegus mollis* and *Fraxinus pennsylvanica* var. *subintegrifolia* (each with 15 lichens); *Morus alba* (13 lichens); and *Celtis occidentalis* (12 lichens). The remaining trees and shrubs each supported between one and 11 species of lichens.

Lichens were also found on saxicolous materials such as weathered concrete (12 lichens) and dolomite (9 lichens), and on lignicolous materials such as weathered wood (18 lichens) and decorticate logs (7 lichens). Weathered steel was the substrate for 2 lichen species. A complete list of the lichen substrates and the lichens associated with them is presented in Appendix II.

Calkins' 1896 flora of Chicago and vicinity comprised about 440,000 hectares of land (1,700 square miles) that included geologic features such as morainal deposits of clay and gravel and dolomite outcroppings - both habitats that are absent from the Chicago parks. His flora documents an annotated account of 125 lichen taxa “which translate nomenclaturally and taxonomically into 106 taxa recognized today” (Wilhelm 1998). It is not known whether he visited any of the areas which would eventually be developed into the parks of this study, but it was interesting to note that only 17 species encountered here were found by Calkins. Wilhelm (1998) reported 222 species, but only 39 additional species, including the 17 from Calkins, were found here. Six species (*Caloplaca cf. crenulatella*, *C. subsoluta*, *Candelariella aurella*, *Lecanora cf. rugosella*, *Phaeophyscia orbicularis* and *Psorotichia cf. schaeferi*) are reported as not being found in either of the two aforementioned floras.

Although it is known that lichens are very sensitive to low levels of atmospheric pollutants, there was no attempt to determine the effects of polluted air on the lichens in these parks. Wetmore (1988) however, provided a list of pollution (sulfur dioxide) sensitive lichens from the Indiana Dunes National Lakeshore, which is approximately 80 kilometers (50 miles) southeast of the city of Chicago. Fourteen lichens from this study appear on this list (Appendix III).

Larger parks such as Lincoln Park (1,212 acres with 37 lichen species) and Jackson Park (543 acres with 31 lichen species) had higher numbers of lichens than smaller parks such as McKinley Park (69 acres with 12 lichen species). Results such as these were expected and were probably due to the greater variety of trees and other substrates available for lichen colonization in the larger parks. Checklists of individual parks with their associated lichen species are presented in Appendix IV.

Many of the trees planted on the CPD properties are widely spaced and have matured as open-grown specimens. This growth situation seems to be favorable to lichens, as it allows sunlight to filter down through the upper branches and onto the lowermost portions of the trees. Even on the lower branches and trunks, then, lichens in these conditions can receive energy for their photosynthetic component. Moisture and humidity from the waters of Lake Michigan may also contribute to favorable growing conditions in parks located along the lake. The lower trunks of several trees along the lakeshore in Lincoln Park at Montrose Avenue, for example, were covered with as many as 7 different lichen species.

In shaded woodlands, however, such as those found at North Park Village, fewer numbers of lichens were found. Many of our local native woodlands have closed canopies, and the resultant lack of sunlight is possibly one of the reasons for lower numbers of lichens found there. Hyerczyk (1998) found that lichens were more commonly found along sunny paths or in open situations, where light intensities are fairly high.

In general, lichens seem more prevalent on open-grown trees, though many other factors, such as bark texture, bark pH, moisture, humidity, and tree type can play a role in lichen colonization.

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KEY TO GROUPS & GENERA

References: Thomson (2003) and Wilhelm (1998).

1. Thallus leaf-like, loosely attached to substrate, both an upper and lower cortex present I - FOLIOSE LICHENS
1. Thallus crust-like, tightly attached to substrate, lacking a lower cortex 2.
 2. Fruiting bodies absent II - STERILE CRUSTOSE LICHENS
 2. Fruiting bodies present 3.
 3. Fruiting body flask-like, embedded in thallus with only apex visible, opening by an apical pore (a perithecium) III - CRUSTOSE LICHENS WITH PERITHECIA
 3. Fruiting body elongated, rounded or disk-like, sessile with upper cortex (an apothecium) IV - CRUSTOSE LICHENS WITH APOTHECIA

I - FOLIOSE LICHENS

1. Thallus orange, yellow, or yellowish green 2.
2. Thallus orange, KOH+ purple XANTHOMENDOZA
2. Thallus yellow to yellow green, KOH- 3.
 3. Thallus lemon yellow, lobes to 1 mm wide CANDELARIA
 3. Thallus yellow green, lobes 3–8 mm wide 4.
 4. Medulla C-; pseudocyphellae absent FLAVOPARMELIA
 4. Medulla C+ red; pseudocyphellae present FLAVOPUNCTELIA
1. Thallus various shades of gray 5.
 5. Thallus brownish gray, greenish gray, whitish gray, or dark gray, KOH - 6.
 6. Lobes white pruinose PHYSCONIA
 6. Lobes epruinose 7.
 7. Rhizines absent, thallus tightly attached to substrate HYPERPHYSCIA
 7. Rhizines present, thallus loosely attached to substrate PHAEOPHYSCIA
 5. Thallus whitish gray to bluish gray, KOH+ yellow or rarely KOH- 8.
 8. Lower surface brown to black; medulla KOH+ yellow turning red 9.
 9. Upper cortex with white pseudocyphellae; margins of lobes eciliate, lobes 2–5 mm wide, with squared ends, rhizines to margin PARMELIA
 9. Upper cortex without pseudocyphellae; margins of lobes ciliate, lobes 6–20 mm wide, with rounded ends, wide marginal zone without rhizines PARMOTREMA
 8. Lower surface white to pale tan; medulla KOH- or KOH+ yellow 10.
 10. Thallus KOH- PHYSCIELLA
 10. Thallus KOH+ yellow 11.
 11. Upper cortex with white pseudocyphellae; medulla C+ red PUNCTELIA
 11. Upper cortex without pseudocyphellae; medulla C- PHYSCIA

II - STERILE CRUSTOSE LICHENS

1. Thallus orange, KOH+ purple CALOPLACA
1. Thallus not orange, KOH- 2.
 2. Thallus dark green, C+ pink TRAPELIOPSIS
 2. Thallus lemon yellow, C- CANDELARIELLA

III - CRUSTOSE LICHENS WITH PERITHECIA

1. Thallus corticolous; paraphyses present ANISOMERIDIUM
1. Thallus saxicolous; paraphyses absent 2.
 2. Thallus white or cream colored, thick or thin; spores non-septate VERRUCARIA
 2. Thallus not as above; spores muriform or septate 3.
 3. Thallus squamulose-areolate, dark brown, greenish gray or dark gray; perithecia immersed in thallus, spores muriform ENDOCARPON

3. Thallus thin, continuous to disappearing; consisting of light green granules; perithecia imbedded in substrate, spores 3-septate.....THELIDIUM

IV - CRUSTOSE LICHENS WITH APOTHECIA

1. Photobiont a cyanobacterium; thallus dark green to black, gelatinous; apothecial disk brownish red (lichen restricted to limestone revetments along Lake Michigan in semi-aquatic habitats where it is inundated sporadically or periodically)..... PSOROTICHIA
1. Photobiont a green alga; thallus and apothecia not as above..... 2.
2. Apothecia round to irregular, blue pruinose, margin lacking or poorly developed; thallus leprose..... ARTHONIA
2. Apothecia round, disk-like or perithecioid, variously colored, margin well developed; thallus not leprose 3.
3. Exciple thalloid, with algal cells..... 4.
4. Spores non-septate..... 5.
5. Apothecia globose, perithecioid..... THELOCARPON
5. Apothecia disk-like..... LECANORA
4. Spores polarilocular or 1-3 septate..... 6.
6. Spores polarilocular; thallus KOH + or - and apothecia KOH+ purple
..... CALOPLACA
6. Spores 1-3 septate; thallus and apothecia not as above..... 7.
7. Spores hyaline; apothecia lemon yellow CANDELARIELLA
7. Spores brown; apothecia black..... AMANDINEA
3. Exciple without algae..... 8.
8. Spores brown, 1-septate..... AMANDINEA
8. Spores hyaline, 3-7 septate..... 9.
9. Epithecium green in KOH; excipulum paraplectenchymatous..... BACIDINA
9. Epithecium not green in KOH; excipulum prosoplectenchymatous BACIDIA

ANNOTATED SPECIES LIST AND KEY TO SPECIES*

This annotated list is arranged alphabetically by genera and their species. Frequency and a brief description of habitat are also included. *When more than one species occurs under a genus an additional key to the species has been provided.

AMANDINEA M. Choisy *ex* Scheid. & H. Mayrh.

Reference: Sheard & May (1997).

1. Thallus thin, greenish to gray; apothecia with a thalloid margin; spores ovoid, constricted at septum..... *A. dakotensis*
 1. Thallus gray; apothecia lacking a thalloid margin; spores elliptical, not constricted at septum
 *A. punctata*

Amandinea dakotensis (H. Magn.) P. May & Sheard

Occasional. On the lower trunks of *Acer platanoides*, *Amelanchier x grandiflora*, *Prunus* sp., *Quercus rubra* (#1834), and *Tilia americana* (#1842).
 = *Buellia schaeferi* in Calkins (1896).

Amandinea punctata (Hoffm.) Coppins & Scheid.

Common. On weathered wood (#1814) and wood rail fencing (#1806), and on the lower trunks and branches of *Acer platanoides*, *A. saccharinum* (#1799), *Gleditsia triacanthos*, *Quercus rubra*, *Tilia americana*, and *T. cordata*.

ANISOMERIDIUM (Müll. Arg.) M. Choisy

Anisomeridium polypori (Ellis & Everh.) M. E. Barr

Occasional. On the lower trunks of *Celtis occidentalis* (#1815) and *Crataegus mollis* (#1803, #1836).
 = *Anisomeridium nyssigenum* (Ellis & Everh.) R.C. Harris in Wilhelm (1998).

ARTHONIA Ach.

Arthonia caesia (Flotow) Körber

Occasional. On the lower trunks and branches of *Amelanchier x grandiflora*, *Carya ovata* (#1811), *Cercis canadensis*, *Crataegus mollis*, *Quercus macrocarpa*, *Q. rubra*, and *Rhamnus cathartica*.
 = *Arthonia lecideella* in Calkins (1896).

BACIDIA De Not.

Bacidia granosa (Tuck.) Zahlbr.

Rare. On weathered concrete (#1850).

BACIDINA Vèzda

Bacidina egenula (Nyl.) Vèzda

Frequent. On weathered wood (#1825), gravel (#1816), and concrete.
 = *Biatora inundata* in Calkins (1896).

CALOPLACA Th. Fr.

References: Wetmore (1994, 1996, 1998).

1. Thallus consisting of sorediate areoles, KOH+; apothecia rare*C. microphyllina*
1. Thallus esorediate, KOH + or -; apothecia common, KOH+ 2.
2. Thallus corticolous, KOH-, bluish gray; apothecial disc yellow or orange, margin white or gray*C. cerina*
2. Thallus saxicolous, KOH+, variously colored or not evident; apothecial disc yellow with a lighter yellow margin 3.
3. Thallus yellow, lobed; spores 9–13 μm x 5.5–7.0 μm , isthmus 3.5–4.5 μm *C. subsoluta*
3. Thallus a thin black crust or not evident (growing within substrate); spores 12–14.0 μm x 5.5–7.0 μm , isthmus 1.5–3 μm *C. cf crenulatella*

Caloplaca cerina (Ehrh. ex Hedwig) Th. Fr.

Occasional. On the lower trunks of *Populus deltoides* (#1828, #1925, #1927) and *Tilia americana*.

Caloplaca cf. crenulatella H. Olivier

Common. On weathered dolomitic flagstones (#1804, #1831), concrete (#1782, #1797, #1844), and wood.

Caloplaca microphyllina (Tuck.) Hasse

Frequent. On weathered wood rail fencing (#1807) and on the lower trunks of *Gleditsia triacanthos* (#1810) and *Phellodendron amurense*.
= *Placodium microphyllum* in Calkins (1896).

Caloplaca subsoluta (Nyl.) Zahlbr.

Frequent. On weathered dolomite flagstones (#1802) and weathered concrete (#1784).

CANDELARIA A. Massal.

Candelaria concolor (Dickson) Stein

Common. On steel, decorticate logs, weathered wood, park benches, fencing, weathered concrete, and dolomitic flagstones, and on the lower trunks and branches of *Acer ginnala*, *A. gri-seum*, *A. negundo*, *A. platanoides*, *A. saccharinum* (#1778), *A. saccharum*, *Aesculus glabra*, *A. hippocastanum*, *Ailanthus altissima*, *Amelanchier* x *grandiflora*, *Betula nigra*, *B. papyrifera*, *Catalpa speciosa*, *Celtis occidentalis*, *Cercis canadensis*, *Cornus florida*, *Crataegus crus-galli*, *C. mollis*, *Elaeagnus angustifolia*, *Euonymus alatus*, *E. hamiltonianus*, *Fraxinus excelsior*, *F. pennsylvanica*, *F. pennsylvanica* var. *subintegerrima* (#1780), *Ginkgo biloba*, *Gleditsia triacanthos*, *Gymnocladus dioica*, *Juglans nigra*, *Liquidambar styraciflua*, *Malus* sp., *Morus alba*, *Phellodendron amurense*, *Pinus parviflora*, *Platanus occidentalis* (#1787), *Populus alba*, *P. deltoides*, *Prunus serotina*, *Prunus* sp., *Quercus alba*, *Q. bicolor*, *Q. imbricaria*, *Q. macrocarpa*, *Q. palustris*, *Q. rubra*, *Rhamnus cathartica*, *Rhus typhina*, *Robinia pseudoacacia*, *Salix amygdaloides*, *S. babylonica*, *Syringa vulgaris*, *Thuja occidentalis*, *Tilia americana*, *T. cordata*, *Ulmus americana*, and *U. pumila*.
= *Teloschistes concolor* in Calkins (1896).

CANDELARIELLA Müll. Arg.

References: Harris & Buck (1978), Thomson (2003).

1. Thallus consisting of round, flattened, sorediate areoles; apothecia rare..... *C. reflexa*
1. Thallus lacking or not evident (growing within substrate); apothecia common.....*C. aurella*

Candelariella aurella (Hoffm.) Zahlbr.

Occasional. On weathered concrete (#1849, #1926).

Candelariella reflexa (Nyl.) Lettau

Frequent. On weathered wood rail fencing (#1809), and on the lower branches of *Acer platanoides*, *Crataegus mollis* (#1812), *Morus alba* (#1830), *Quercus rubra*, and *Salix babylonica*.

ENDOCARPON Hedwig***Endocarpon pusillum*** Hedwig

Common. On weathered dolomitic flagstones (#1801) and concrete (#1781, #1845).

FLAVOPARMELIA Hale***Flavoparmelia caperata*** (L.) Hale

Common. On weathered wood and decorticate logs (#1848), and on the trunks and lower branches of *Acer platanoides*, *Celtis occidentalis*, *Gleditsia triacanthos*, *Populus deltoides*, *Quercus rubra*, and *Tilia americana*.

= *Parmelia caperata* in Calkins (1896).

FLAVOPUNCTELIA (Krog) Hale

Reference: Brodo, I.M., S. D. Sharnoff, and S. Sharnoff (2001).

1. Pseudocyphellae conspicuous; soralia laminal and marginal, rounded*F. flaventior*
1. Pseudocyphellae sparse and inconspicuous; soralia marginal and crescent shaped*F. soredica*

Flavopunctelia flaventior (Stirton) Hale

Frequent. On the lower trunks of *Gleditsia triacanthos* (#1800), *Quercus rubra*, and *Tilia americana*.

Flavopunctelia soredica (Nyl.) Hale

Common. On the lower trunks of *Acer platanoides*, *Cercis canadensis* (#1835), and *Gleditsia triacanthos* (#1795, #1823).

HYPERPHYSCIA Müll. Arg.***Hyperphyscia adglutinata*** (Flörke) H. Mayrh. & Poelt

Common. On weathered wood rail fencing, and on the lower trunks and branches of *Acer ginnala*, *A. negundo*, *A. platanoides*, *A. saccharinum*, *A. saccharum*, *Aesculus glabra*, *A. hippocastanum*, *Ailanthus altissima*, *Catalpa speciosa*, *Celtis occidentalis*, *Cercis canadensis*, *Crataegus crusgalli*, *C. mollis*, *Euonymus alatus*, *E. hamiltonianus*, *Fraxinus excelsior*, *F. pennsylvanica*, *F. pennsylvanica* var. *subintegerrima*, *Ginkgo biloba*, *Gleditsia triacanthos*, *Gymnocladus dioica*, *Juglans nigra*, *Malus* sp., *Morus alba*, *Phellodendron amurense*, *Platanus occidentalis* (#1774), *Populus alba*, *P. deltoides*, *Prunus serotina*, *Prunus* sp., *Pseudotsuga menziesii*, *Quercus alba*, *Q. bicolor*, *Q. macrocarpa*, *Q. rubra*, *Rhamnus cathartica*, *Rhus typhina*, *Salix babylonica*, *Syringa vulgaris*, *Thuja occidentalis*, *Tilia americana*, *Ulmus americana*, and *U. pumila*.

= *Physcia adglutinata* in Calkins (1896).

LECANORA Ach.

References: Brodo, I.M., S. D. Sharnoff, and S. Sharnoff (2001).

1. Thallus saxicolous (rarely lignicolous); apothecial rim gray to white, disc brown*L. dispersa*
1. Thallus corticolous; apothecia not as above..... 2.
 2. Apothecial disc white pruinose.....*L. hagenii*
 2. Apothecial disc epruinose 3.
 3. Thallus gray, ashy gray or brownish gray 4.

4. Thallus thick; apothecia to 2mm broad, margins smooth to varicose, thick.. *L. rugosella*
 4. Thallus thin; apothecia to 0.5 mm broad, flat, margins thin.....*L. cf. umbrina*
 3. Thallus yellowish green 5.
 5. Apothecia irregular, rim disappearing with age*L. symmicta*
 5. Apothecia round, rim ecorticate, appearing soresdiate or granular.....*L. strobilina*

Lecanora dispersa (Pers.) Sommerf.

Common. On weathered wood (#1826), concrete (#1783, #1798), granite, and dolomite flagstones.

Lecanora hagenii (Ach.) Ach.

Occasional. On the lower trunks of *Acer saccharinum*, *Aesculus hippocastanum*, *Crataegus monogyna*, *Fraxinus pennsylvanica* var. *subintegerrima* (#1832), *Gleditsia triacanthos*, *Gymnocladus dioica*, *Populus deltoides*, *Prunus serotina* (#1841), *Pseudolarix amabilis*, *Quercus bicolor*, *Q. rubra* (#1833), *Ulmus americana* (#1827), and *U. pumila*.

Lecanora cf. rugosella Zahlbr.

Rare. On the lower trunks of *Acer platanoides* (#1851) only at Montrose Avenue beach. This lichen was found on several trees that were purchased from a nursery in Wisconsin and may be an introduced species to the Chicago area.

Lecanora strobilina (Sprengel) Kieffer

Occasional. On the lower trunks of *Acer platanoides*, *Prunus* sp., *Quercus alba*, and *Q. macrocarpa* (#1821).

Lecanora symmicta (Ach.) Ach.

Frequent. On weathered wood rail fencing, and on the lower branches of *Acer platanoides*, *A. saccharinum*, *Celtis occidentalis*, *Gleditsia triacanthos*, *Gymnocladus dioica*, *Populus deltoides*, *Prunus* sp., *Quercus macrocarpa* (#1820), and *Tilia americana*.
 = *Lecanora varia* var. *symmicta* in Calkins (1896).

Lecanora cf. umbrina (Ach.) A. Massal.

Rare. On weathered wood rail fencing (#1808).

PARMELIA Ach.

Parmelia sulcata Taylor

Common. On weathered wood and decorticate logs, and on the lower trunks and branches of *Acer saccharinum*, *Crataegus mollis*, *Fraxinus pennsylvanica* var. *subintegerrima*, *Ginkgo biloba*, *Gleditsia triacanthos* (#1792), *Juglans nigra*, *Populus deltoides*, *Quercus alba*, *Q. rubra*, and *Tilia americana*.
 = *Parmelia saxatilis* var. *sulcata* in Calkins (1896).

PARMOTREMA A. Massal.

Parmotrema hypotropum (Nyl.) Hale

Common. On the lower trunks and branches of *Acer platanoides*, *A. saccharinum* (#1822), *Fraxinus excelsior*, *Gleditsia triacanthos*, *Quercus rubra*, *Tilia americana*, and *Ulmus americana*.

PHAEOPHYSCIA Moberg

Reference: Esslinger (1978).

1. Thallus esorediate..... *P. ciliata*
 1. Thallus soresdiate 2.
 2. Medulla orange-red.....*P. rubropulchra*

2. Medulla white..... 3.
3. Lobe tips of thallus with pale cortical hairs..... *P. hirsuta*
3. Lobe tips lacking cortical hairs..... 4.
4. Soredia in capitate pustules on raised thallus lobes *P. pusilloides*
4. Soredia mostly marginal and laminal *P. orbicularis*

Phaeophyscia ciliata (Hoffm.) Moberg

Common. On the lower trunks and branches of *Acer platanoides*, *A. saccharinum*, *Ailanthus altissima*, *Fraxinus pennsylvanica* var. *subintegerrima* (#1790), *Gleditsia triacanthos*, *Gymnocladus dioica*, *Morus alba*, *Platanus occidentalis*, *Populus alba*, *P. deltoides*, *Tilia americana*, *Ulmus americana*, and *U. pumila*.
= *Physcia obscura* in Calkins (1896).

Phaeophyscia hirsuta (Mereschk.) Essl.

Common. On weathered limestone revetments along the lakeshore (#1929), weathered concrete, and wood park benches, and on the lower trunks and branches of *Catalpa speciosa*, *Fraxinus pennsylvanica*, *F. pennsylvanica* var. *subintegerrima*, *Morus alba*, *Populus alba*, *P. deltoides* (#1772), *Salix babylonica*, *Tilia americana*, and *Ulmus pumila*.
= *Phaeophyscia cernohorskyi* (Nädv.) Essl. in Wilhelm (1998).

Phaeophyscia orbicularis (Necker) Moberg

Rare. On weathered limestone revetments along the lakeshore (#1930).

Phaeophyscia pusilloides (Zahlbr.) Essl.

Common. On weathered concrete and granitic boulders, and on the lower trunks and branches of *Acer ginnala*, *A. platanoides*, *A. saccharinum* (#1775), *Aesculus glabra*, *A. hippocastanum*, *Ailanthus altissima*, *Celtis occidentalis* (#1794), *Crataegus crusgalli*, *Crataegus mollis*, *Euonymus alatus*, *E. hamiltonianus*, *Fraxinus pennsylvanica*, *F. pennsylvanica* var. *subintegerrima*, *Gleditsia triacanthos*, *Gymnocladus dioica*, *Juglans nigra*, *Malus* sp., *Morus alba*, *Phellodendron amurense*, *Platanus occidentalis* (#1786), *Populus alba*, *P. deltoides*, *Quercus bicolor*, *Q. palustris*, *Q. rubra*, *Rhamnus cathartica*, *Salix amygdaloides*, *S. babylonica*, *Syringa vulgaris*, *Taxodium distichum*, *Tilia americana*, and *Ulmus americana*.

Phaeophyscia rubropulchra (Degel.) Essl.

Occasional. On decorticate logs and on the lower trunks and branches of *Acer platanoides*, *A. saccharinum*, *Crataegus mollis*, *Fraxinus pennsylvanica*, *F. pennsylvanica* var. *subintegerrima* (#1813), *Gleditsia triacanthos*, *Morus alba*, *Populus deltoides*, *Prunus serotina*, and *Quercus rubra*.

PHYSICIA (Schreber) Michaux

Reference: Thomson (1963).

1. Thallus esorediate..... *P. stellaris*
1. Thallus sorediate 2.
2. Tips of lobes inflated and hood-shaped, ciliate, soredia under the lobes..... *P. adscendens*
2. Tips of lobes neither hood-shaped nor ciliate, soredia along margins of lobes..... *P. millegrana*

Physcia adscendens (Fr.) H. Olivier

Common. On weathered wood, and on the lower trunks and branches of *Acer platanoides*, *A. saccharinum*, *Celtis occidentalis*, *Crataegus mollis*, *Fraxinus pennsylvanica* var. *subintegerrima*, *Ginkgo biloba*, *Gleditsia triacanthos*, *Gymnocladus dioica*, *Juglans nigra*, *Morus alba*, *Phellodendron amurense*, *Platanus occidentalis*, *Populus alba*, *P. deltoides* (#1840), *Prunus* sp., *Quercus bicolor* (#1796), *Q. macrocarpa*, *Q. rubra*, *Salix amygdaloides*, *Tilia americana*, *Ulmus americana*, and *U. pumila*.

Phyiscia millegrana Degel.

Common. On steel, decorticate logs, and weathered wood rail fencing, and on the lower trunks and branches of *Acer ginnala*, *A. griseum*, *A. negundo*, *A. platanoides*, *A. saccharinum*, *A. saccharum*, *Aesculus hippocastanum*, *Ailanthus altissima*, *Amelanchier x grandiflora*, *Betula papyrifera*, *Catalpa speciosa*, *Celtis occidentalis*, *Cercis canadensis*, *Crataegus crus-galli*, *C. mollis*, *Euonymus alatus*, *E. hamiltonianus*, *Fraxinus excelsior*, *F. pennsylvanica*, *F. pennsylvanica* var. *subintegerrima*, *Ginkgo biloba*, *Gleditsia triacanthos* (#1785), *Gymnocladus dioica*, *Juglans nigra*, *Lonicera* sp., *Malus* sp., *Morus alba*, *Phellodendron amurense*, *Pinus parviflora*, *Platanus occidentalis*, *Populus alba*, *P. deltoides*, *Prunus serotina*, *Prunus* sp., *Quercus alba*, *Q. bicolor*, *Q. imbricaria*, *Q. macrocarpa*, *Q. palustris*, *Q. rubra*, *Rhamnus carthartica*, *Robinia pseudoacacia*, *Salix amygdaloides*, *S. babylonica*, *Syringa vulgaris*, *Taxodium distichum*, *Thuja occidentalis*, *Tilia americana*, *Ulmus americana* (#1777), and *U. pumila*.
= *Phyiscia tribacia* in Calkins (1896).

Phyiscia stellaris (L.) Nyl.

Common. On weathered wood, park benches, and concrete, and on the lower trunks and branches of *Acer ginnala*, *A. griseum*, *A. negundo*, *A. platanoides*, *A. saccharinum*, *A. saccharum*, *Aesculus hippocastanum*, *Ailanthus altissima*, *Amelanchier x grandiflora*, *Betula nigra*, *B. papyrifera*, *Catalpa speciosa*, *Celtis occidentalis*, *Cercis canadensis*, *Crataegus crus-galli*, *C. mollis*, *Elaeagus angustifolia*, *Euonymus hamiltonianus*, *Fraxinus excelsior*, *F. pennsylvanica*, *F. pennsylvanica* var. *subintegerrima* (#1791), *Ginkgo biloba*, *Gleditsia triacanthos* (#1776), *Gymnocladus dioica*, *Juglans nigra*, *Liquidambar styraciflua*, *Malus* sp., *Morus alba*, *Phellodendron amurense*, *Pinus parviflora*, *Platanus occidentalis*, *Populus alba*, *P. deltoides* (#1789), *Prunus serotina*, *Prunus* sp., *Quercus alba*, *Quercus bicolor*, *Q. imbricaria*, *Q. macrocarpa*, *Q. palustris*, *Q. rubra*, *Rhamnus cathartica*, *Robinia pseudoacacia*, *Salix amygdaloides*, *S. babylonica*, *Syringa vulgaris*, *Thuja occidentalis*, *Tilia americana*, *T. cordata*, *Ulmus americana*, and *U. pumila*.

PHYSICIELLA Essl.***Physciella chloantha*** (Ach.) Essl.

Common. On weathered wood rail fencing, decorticate logs, weathered concrete (#1843), and dolomite and granite boulders, and on the lower trunks and branches of *Acer ginnala*, *A. griseum*, *A. negundo*, *A. platanoides*, *A. saccharinum*, *A. saccharum*, *Aesculus glabra*, *A. hippocastanum*, *Ailanthus altissima*, *Catalpa speciosa*, *Celtis occidentalis*, *Cercis canadensis*, *Cornus florida*, *Crataegus crus-galli*, *C. mollis*, *Elaeagus angustifolia*, *Euonymus alatus*, *E. hamiltonianus*, *Fraxinus excelsior*, *F. pennsylvanica* var. *subintegerrima*, *Ginkgo biloba*, *Gleditsia triacanthos* (#1773), *Gymnocladus dioica*, *Juglans nigra*, *Liquidambar styraciflua*, *Malus* sp., *Morus alba*, *Phellodendron amurense*, *Pinus parviflora*, *Platanus occidentalis*, *Populus alba*, *P. deltoides*, *Prunus serotina*, *Prunus* sp., *Quercus bicolor*, *Q. macrocarpa*, *Q. palustris*, *Q. rubra*, *Rhamnus cathartica*, *Rhus typhina*, *Robinia pseudoacacia*, *Salix amygdaloides*, *S. babylonica*, *Syringa vulgaris*, *Taxodium distichum*, *Tilia americana*, *Ulmus americana*, and *U. pumila*.

PHYSCONIA Poelt***Physconia leucoleiptes*** (Tuck.) Essl.

Common. On the lower trunks and branches of *Acer platanoides*, *Aesculus glabra*, *Celtis occidentalis*, *Crataegus mollis*, *Fraxinus pennsylvanica* var. *subintegerrima*, *Morus alba* (#1824), and *Quercus rubra*.
= *Physconia detersa* (Nyl.) Poelt in Wilhelm (1998).

PSOROTICHIA (Nyl.) Nyl.***Psorotichia cf. schaeferi*** (Nyl.) Tuck.

Rare. On weathered limestone revetments along the lakeshore (#1854). There is a specimen at the Field Museum of Natural History (F) in Chicago that was collected by Calkins in 1897 from Deer Park (today known as Matthiessen State Park) near Utica, Illinois.

PUNCTELIA Krog

References: Krog (1982), Brodo, I.M., S. D. Sharnoff, and S. Sharnoff (2001).

1. Thallus isidiate; medulla C+ red..... *P. rudecta*
 1. Thallus without isidia; medulla C+ pink..... *P. graminicola*

Punctelia graminicola (B. B. de Lesd.) Egan

Rare. On the lower trunk of *Gleditsia triacanthos* (#1805).
 = *Punctelia semansiana* (Culb. & C. Culb.) Krog in Wilhelm (1998).

Punctelia rudecta (Ach.) Krog

Occasional. On the lower trunks of *Acer platanoides*, *Gleditsia triacanthos*, and *Quercus rubra* (#1839).
 = *Punctelia borreri* var. *rudecta* in Calkins (1896).

THELIDIUM A. Massal.***Thelidium zwackhii*** (Hepp) Massal.

Rare. On weathered concrete (#1818) and gravel (#1817, #1819). According to Theodore Esslinger and Dick Harris (pers. comm.), this is a European species synonymous with *Thelidium microcarpum* (Leight.) A. L. Sm.
 = *Thelidium microcarpum* (Leight.) A.L. Sm. in Wilhelm (1998).

THELOCARPON Nyl. ex Hue***Thelocarpon laureri*** (Flotow) Nyl.

Rare. On weathered wood rail fencing (#1829).

TRAPELIOPSIS Hertel & Gotth. Schneider***Trapeliopsis flexuosa*** (Fr.) Coppins & P. James

Rare. On weathered wood (#1847).

VERRUCARIA Schrader***Verrucaria calkinsiana*** Servit

Occasional. On weathered concrete, limestone (#1846), and sandstone (#1853).
 = *Verrucaria muralis* in Calkins (1896).

XANTHOMENDOZA S. Kondr. & Kärnefelt

Reference: Lindblom (1997).

1. Lobes narrow, less than 0.5 mm wide; soredia at margins and on lower surface of lobes... *X. fulva*
 1. Lobes 0.8-1.4 mm wide; soralia labriform and marginal, soredia produced in marginal slits between the upper and lower cortex *X. fallax*

Xanthomendoza fallax (Hepp) Søchting, Kärnefelt & S. Kondr.

Common. On decorticate logs and weathered wood rail fencing, and on the lower trunks and branches of *Acer ginnala*, *A. negundo*, *A. platanoides*, *A. saccharinum*, *Ailanthus altissima*, *Catalpa speciosa*, *Celtis occidentalis*, *Cercis canadensis*, *Crataegus mollis*, *Fraxinus excelsior*, *F. pennsylvanica* var. *subintegerrima* (#1779), *Ginkgo biloba*, *Gleditsia triacanthos* (#1771), *Gymnocladus dioica*, *Juglans nigra*, *Malus* sp., *Morus alba*, *Platanus occidentalis*, *Populus alba*, *P. deltoides*, *Prunus serotina*, *Quercus bicolor*, *Q. macrocarpa*, *Q. rubra*, *Salix*

amygdaloides, *S. babylonica*, *Tilia americana*, *Ulmus americana* (#1793, #1838), and *U. pumila*.

Xanthomendoza fulva (Hoffm.) Søchting, Kärnefelt & S. Kondr.

Common. On the lower trunks and branches of *Crataegus mollis*, *Fraxinus pennsylvanica* var. *subintegrifolia*, *Juglans nigra* (#1788), *Phellodendron amurense*, *Platanus occidentalis*, *Populus deltoides*, *Quercus macrocarpa*, and *Q. rubra*.

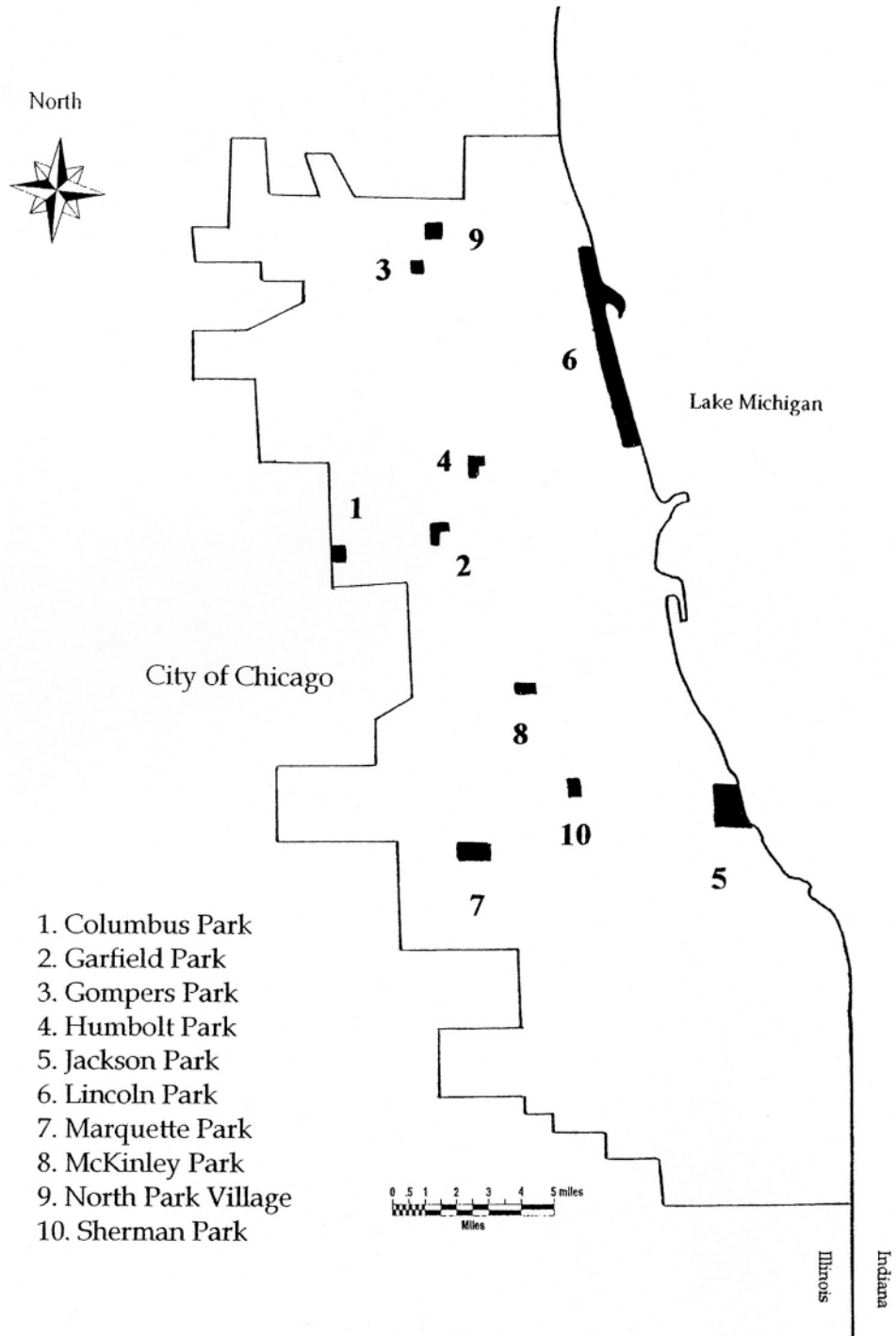
= *Theloschistes lychneus* in Calkins (1896).

= *Xanthoria* sp. #1 in Wilhelm (1998).

LITERATURE CITED

- Brodo, I. M., S. D. Sharnoff, and S. Sharnoff. 2001. Lichens of North America. Yale University Press, New Haven and London. xxiv + 795 pp.
- Calkins, W. W. 1896. The lichen flora of Chicago and vicinity. Chicago Academy of Sciences. Bulletin No. 1.
- Dirr, Michael A. 1998. Manual of woody landscape plants: Their identification, ornamental character, culture, propagation and uses. 5th ed. Stipes Publishing, Champaign, Illinois.
- Esslinger, T.L. 1978. Studies in the lichen family Physciaceae. II. The lichen genus *Phaeophyscia* in North America. Mycotaxon 7: 283-320.
- 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 14 June 2005), Fargo, North Dakota.
- Hale, M. E., Jr. 1979. How to know the lichens. 2nd ed. W. C. Brown, Dubque, Iowa.
- Harris, R.C. and W.R.Buck. 1978. Lichens of the Mackinac Straite region II. Candelariella Müll. Arg. Michigan Bot. 17: 155-161.
- Hycerzyk, Richard D. 1998. The lichen flora of the Cook County forest preserves, part I: Palos division. Erigenia, no. 16:37-46.
- Krog, H. 1982. Punctelia, a new lichen genus in the Parmeliaceae. Nordic Journal of Botany 2: 287-292.
- Lindblom, L. 1997. The genus *Xanthoria* (Fr.) Th. Fr. in North America. J. Hattori Bot. Lab. 83: 75-172.
- Sheard, J.W. and P.F. May. 1997. A synopsis of the species of *Amandinea* (lichenized Ascomycetes, Physciaceae) as presently known in North America. Bryologist 100: 159-169.
- Swink, F., and G. Wilhelm. 1994. Plants of the Chicago region. 4th ed. Indiana Academy of Science, Indianapolis.
- Thomson, J.W. 1963. The lichen genus *Physcia* in North America. Beth. Nova Hedwigia 7:172 pp.
- Thomson, J. W. 2003. Lichens of Wisconsin. University of Wisconsin Board of Regents, Madison.
- Wetmore, C.M. 1994. The lichen genus *Caloplaca* in North and Central America with brown or Black apothecia. Mycologia 86: 813-838.
- Wetmore, C.M. 1996. The *Caloplaca sideritis* group in North and Central America. Bryologist 99: 292-314.
- Wetmore, C.M. 1998. The lobate and subfruticose species of *Caloplaca* in North and Central America. Bryologist 101: 230-255.
- Wilhelm, Gerould S. 1998. The lichen flora of Chicago and vicinity: One hundred years of lichenology. Erigenia, no. 16:3-36.
- Wood, Richard A. 2001. The weather almanac. 10th ed. Gale Group, Inc., Farmington Hills, Michigan.

Figure 1. Map of study area.



Appendix 1.

A brief description of each park follows and includes lichen substrates, park size, and location.

Columbus Park

Amenities include picnic areas, a golf course, and a lagoon. Several substrates were available here, including weathered concrete, dolomite flagstones, and wood rail fencing, as well as a variety of trees. Those recorded were *Acer platanoides*, *A. saccharinum*, *Celtis occidentalis*, *Crataegus mollis*, *Fraxinus pennsylvanica* var. *subintegerrima*, *Gleditsia triacanthos*, *Juglans nigra*, *Morus alba*, *Quercus bicolor*, *Q. macrocarpa*, *Q. rubra*, *Rhus typhina*, *Tilia americana*, and *Ulmus americana*. Park size is 55 hectares (135 acres) and location is NE & SE ¼ Sec 17, T39N, R13E.

Garfield Park

Amenities include the Garfield Park Conservatory, picnic areas, ball fields, and a lagoon. Several substrates were available here, including weathered concrete, as well as a variety of trees. Those recorded were *Acer saccharinum*, *Aesculus glabra*, *A. hippocastanum*, *Catalpa speciosa*, *Celtis occidentalis*, *Cercis canadensis*, *Crataegus crus-galli*, *C. mollis*, *Fraxinus pennsylvanica* var. *subintegerrima*, *Ginkgo biloba*, *Gleditsia triacanthos*, *Gymnocladus dioica*, *Juglans nigra*, *Morus alba*, *Platanus occidentalis*, *Populus alba*, *P. deltoides*, *Prunus serotina*, *Quercus bicolor*, *Q. rubra*, *Tilia americana*, *Ulmus americana*, and *U. pumila*. Park size is 75 hectares (185 acres) and location is SW ¼ Sec 11, T39N, R13E and NW ¼ Sec 14, T39N, R13E.

Gompers Park

Amenities include picnic areas, ball fields, a wetland restoration, and a lagoon. Several substrates were available here, including weathered concrete, as well as a variety of trees. Those recorded were *Acer negundo*, *A. platanoides*, *A. saccharinum*, *Ailanthus altissima*, *Betula nigra*, *Celtis occidentalis*, *Crataegus crus-galli*, *C. mollis*, *Fraxinus pennsylvanica* var. *subintegerrima*, *Juglans nigra*, *Morus alba*, *Platanus occidentalis*, *Populus deltoides*, *Prunus serotina*, *Quercus macrocarpa*, *Q. palustris*, *Q. rubra*, *Tilia americana*, *Ulmus americana*, and *U. pumila*. Park size is 16 hectares (39 acres) and location is NE & SE ¼ Sec 10, T40N, R13E.

Humboldt Park

Amenities include picnic areas, ball fields, and a lagoon. Several substrates were available here, including weathered concrete, as well as a variety of trees. Those recorded were *Acer platanoides*, *A. saccharinum*, *A. saccharum*, *Aesculus hippocastanum*, *Celtis occidentalis*, *Crataegus crus-galli*, *C. mollis*, *Fraxinus pennsylvanica* var. *subintegerrima*, *Ginkgo biloba*, *Gleditsia triacanthos*, *Gymnocladus dioica*, *Juglans nigra*, *Morus alba*, *Platanus occidentalis*, *Populus alba*, *Quercus alba*, *Q. bicolor*, *Q. rubra*, *Rhamnus cathartica*, *Syringa vulgaris*, *Tilia americana*, and *Ulmus americana*. Park size is 84 hectares (207 acres) and location is NW ¼ Sec 1, T39N, R13E.

Jackson Park

Amenities include the Museum of Science and Industry, picnic areas, ball fields, a golf course, and a lagoon. Several substrates were available here, including weathered wood, concrete, and dolomite flagstones, as well as a variety of trees. Those recorded were *Acer ginnala*, *A. platanoides*, *A. saccharinum*, *Ailanthus altissima*, *Catalpa speciosa*, *Celtis occidentalis*, *Crataegus mollis*, *Euonymus alatus*, *Fraxinus pennsylvanica* var. *subintegerrima*, *Ginkgo biloba*, *Gleditsia triacanthos*, *Gymnocladus dioica*, *Juglans nigra*, *Morus alba*, *Phellodendron amurense*, *Platanus occidentalis*, *Populus alba*, *P. deltoides*, *Quercus alba*, *Q. imbricaria*, *Q. macrocarpa*, *Q. rubra*, *Salix babylonica*, *Syringa vulgaris*, *Tilia americana*, *Ulmus americana*, and *U. pumila*. Park size is 220 hectares (543 acres) and location is NW & SW ¼ Sec 13, T38N, R14E and NW & NE ¼ Sec 24, T38N, R14E.

Lincoln Park

Amenities include the Lincoln Park Zoo and Conservatory, the Peggy Notebaert Nature Museum, picnic areas, ball fields, and lagoons, as well as several beaches and harbors along the shore of Lake Michigan. Several substrates were available here, including weathered steel, concrete, dolo-

mite, decorticate logs, and wood, as well as a variety of trees. Those recorded were *Acer griseum*, *A. negundo*, *A. platanoides*, *A. saccharinum*, *Aesculus hippocastanum*, *Ailanthus altissima*, *Betula papyrifera*, *Catalpa speciosa*, *Celtis occidentalis*, *Cornus florida*, *Crataegus crus-galli*, *C. mollis*, *Elaeagnus angustifolia*, *Euonymus hamiltonianus*, *Fraxinus excelsior*, *F. pennsylvanica* var. *subintegerrima*, *Ginkgo biloba*, *Gleditsia triacanthos*, *Gymnocladus dioica*, *Juglans nigra*, *Malus* sp., *Morus alba*, *Pinus parviflora*, *Platanus occidentalis*, *Populus deltoides*, *Prunus serotina*, *Prunus* sp., *Quercus alba*, *Q. bicolor*, *Q. macrocarpa*, *Q. rubra*, *Rhamnus cathartica*, *Robinia pseudoacacia*, *Salix amygdaloides*, *S. babylonica*, *Tilia americana*, *T. cordata*, *Ulmus americana*, and *U. pumila*. Park size is 490 hectares (1,212 acres) and locations are as follows: North Avenue Beach (NE & SE ¼ Sec 33, T40N, R14E), Diversey Harbor (NE & SE ¼ Sec 28 T40N, R14E), Belmont Harbor (NE & SE ¼ Sec 21, T40N, R14E), Montrose Harbor (NE & SE ¼ Sec 16, T40N, R14E), and Foster Avenue Beach (NE & SE ¼ Sec 8, T40N, R14E).

Marquette Park

Amenities include picnic areas, ball fields, a golf course, and a lagoon. Several substrates were available here, including weathered concrete and weathered wood rail fencing, as well as a variety of trees. Those recorded were *Acer platanoides*, *A. saccharinum*, *A. saccharum*, *Aesculus hippocastanum*, *Catalpa speciosa*, *Celtis occidentalis*, *Cercis canadensis*, *Crataegus mollis*, *Fraxinus pennsylvanica*, *F. pennsylvanica* var. *subintegerrima*, *Gleditsia triacanthos*, *Gymnocladus dioica*, *Juglans nigra*, *Liquidambar styraciflua*, *Malus* sp., *Morus alba*, *Platanus occidentalis*, *Populus alba*, *P. deltoides*, *Prunus* sp., *Quercus alba*, *Q. macrocarpa*, *Q. palustris*, *Q. rubra*, *Salix babylonica*, *Syringa vulgaris*, *Tilia americana*, *Ulmus americana*, and *U. pumila*. Park size is 131 hectares (323 acres) and location is SE ¼ Sec 23, T38N, R13E and SW ¼ Sec 24, T38N, R13E.

McKinley Park

Amenities include picnic areas, ball fields, and a lagoon. Several substrates were available here, including weathered concrete and wooden park benches, as well as a variety of trees. Those recorded were *Acer saccharinum*, *Aesculus hippocastanum*, *Catalpa speciosa*, *Celtis occidentalis*, *Fraxinus pennsylvanica* var. *subintegerrima*, *Ginkgo biloba*, *Gleditsia triacanthos*, *Gymnocladus dioica*, *Platanus occidentalis*, *Populus deltoides*, *Quercus bicolor*, *Ulmus americana*, and *U. pumila*. Park size is 28 hectares (69 acres) and location is SW ¼ Sec 31, T39N, R14E.

North Park Village

Amenities include hiking trails, picnic areas, and natural areas. North Park Village is unique in that it includes a 19 hectare (46-acre) nature preserve, an educational facility (Nature Center), and 8 hectares (19 acres) of additional land. These are situated within a larger complex of buildings on approximately 63 hectares (155 acres) of land formerly housing the City of Chicago's Tuberculosis Sanitarium. Several substrates were available here, including weathered wood, decorticate logs, weathered concrete, and granite and sandstone boulders, as well as a variety of trees. Those recorded were *Acer negundo*, *A. platanoides*, *Aesculus glabra*, *Celtis occidentalis*, *Crataegus mollis*, *Fraxinus pennsylvanica*, *F. pennsylvanica* var. *subintegerrima*, *Gleditsia triacanthos*, *Morus alba*, *Populus deltoides*, *Quercus bicolor*, *Q. macrocarpa*, *Q. rubra*, *Rhamnus cathartica*, *Salix babylonica*, *Tilia americana*, and *Ulmus americana*. Park size is 26 hectares (65 acres) and location is SW ¼ Sec 2, T40N, R13E.

Sherman Park

Amenities include picnic areas, ball fields, and a lagoon. Several substrates were available here, including weathered concrete, as well as a variety of trees. Those recorded were *Acer platanoides*, *A. saccharinum*, *Aesculus hippocastanum*, *Ailanthus altissima*, *Betula nigra*, *Celtis occidentalis*, *Crataegus mollis*, *Fraxinus pennsylvanica* var. *subintegerrima*, *Ginkgo biloba*, *Gleditsia triacanthos*, *Gymnocladus dioica*, *Juglans nigra*, *Morus alba*, *Platanus occidentalis*, *Populus alba*, *P. deltoides*, *Tilia americana*, and *Ulmus americana*. Park size is 25 hectares (61 acres) and location is SW ¼ Sec 8, T38N, R14E.

Appendix II.

Lichen substrates and their associated lichen species.

***Acer ginnala* Maxim. (AMUR MAPLE) 7 species**

Candelaria concolor, *Hyperphyscia adglutinata*, *Phaeophyscia pusilloides*, *Physcia millegrana*, *P. stellaris*, *Physciella chloantha*, *Xanthomendoza fallax*

***Acer griseum* (Franch.) Pax (PAPERBARK MAPLE) 4 species**

Candelaria concolor, *Physcia millegrana*, *P. stellaris*, *Physciella chloantha*

***Acer negundo* L. (BOX ELDER) 6 species**

Candelaria concolor, *Hyperphyscia adglutinata*, *Physcia millegrana*, *P. stellaris*, *Physciella chloantha*, *Xanthomendoza fallax*

***Acer platanoides* L. (NORWAY MAPLE) 21 species**

Amandinea dakotensis, *A. punctata*, *Candelaria concolor*, *Candelariella reflexa*, *Flavoparmelia caperata*, *Flavopunctelia soledica*, *Hyperphyscia adglutinata*, *Lecanora cf. rugosella*, *L. strobilina*, *L. symmicta*, *Parmotrema hypotropum*, *Phaeophyscia ciliata*, *P. pusilloides*, *P. rubropulchra*, *Physcia adscendens*, *P. millegrana*, *P. stellaris*, *Physciella chloantha*, *Physconia leucoleiptes*, *Punctelia rudecta*, *Xanthomendoza fallax*

***Acer saccharinum* L. (SILVER MAPLE) 15 species**

Amandinea punctata, *Candelaria concolor*, *Hyperphyscia adglutinata*, *Lecanora hagenii*, *L. symmicta*, *Parmelia sulcata*, *Parmotrema hypotropum*, *Phaeophyscia ciliata*, *P. pusilloides*, *P. rubropulchra*, *Physcia adscendens*, *P. millegrana*, *P. stellaris*, *Physciella chloantha*, *Xanthomendoza fallax*

***Acer saccharum* Marshall (SUGAR MAPLE) 5 species**

Candelaria concolor, *Hyperphyscia adglutinata*, *Physcia millegrana*, *P. stellaris*, *Physciella chloantha*

***Aesculus glabra* Willd. (OHIO BUCK-EYE) 5 species**

Candelaria concolor, *Hyperphyscia adglutinata*, *Phaeophyscia pusilloides*, *Physciella chloantha*, *Physconia leucoleiptes*

***Aesculus hippocastanum* L. (HORSE CHESTNUT) 7 species**

Candelaria concolor, *Hyperphyscia adglutinata*, *Lecanora hagenii*, *Phaeophyscia pusilloides*, *Physcia millegrana*, *P. stellaris*, *Physciella chloantha*

***Ailanthus altissima* (Mill.) Swingle (TREE OF HEAVEN) 8 species**

Candelaria concolor, *Hyperphyscia adglutinata*, *Phaeophyscia ciliata*, *P. pusilloides*, *Physcia millegrana*, *P. stellaris*, *Physciella chloantha*, *Xanthomendoza fallax*

***Amelanchier x grandiflora* Rehd. 'Apple Serviceberry' (SERVICEBERRY) 5 species**

Amandinea dakotensis, *Arthonia caesia*, *Candelaria concolor*, *Physcia millegrana*, *P. stellaris*

***Betula nigra* L. (RIVER BIRCH) 2 species**

Candelaria concolor, *Physcia stellaris*

***Betula papyrifera* Marshall (PAPER BIRCH) 3 species**

Candelaria concolor, *Physcia millegrana*, *P. stellaris*

***Carya ovata* (Mill.) K. Koch (SHAGBARK HICKORY) 1 species**

Arthonia caesia

***Catalpa speciosa* Warder (HARDY CATALPA) 7 species**

Candelaria concolor, *Hyperphyscia adglutinata*, *Phaeophyscia hirsuta*, *Physcia millegrana*, *P. stellaris*, *Physciella chloantha*, *Xanthomendoza fallax*

***Celtis occidentalis* L. (HACKBERRY) 12 species**

Anisomeridium polypori, *Candelaria concolor*, *Flavoparmelia caperata*, *Hyperphyscia adglutinata*, *Lecanora symmicta*, *Phaeophyscia pusilloides*, *Physcia adscendens*, *P. millegrana*, *P. stellaris*, *Physciella chloantha*, *Physconia leucoleiptes*, *Xanthomendoza fallax*

***Cercis canadensis* L. (REDBUD) 8 species**

Arthonia caesia, *Candelaria concolor*, *Flavopunctelia soledica*, *Hyperphyscia adglutinata*, *Physcia millegrana*, *P. stellaris*, *Physciella chloantha*, *Xanthomendoza fallax*

***Cornus florida* L. (FLOWERING DOGWOOD) 2 species**

Candelaria concolor, *Physciella chloantha*

***Crataegus crusgalli* L. (COCKSPUR HAWTHORN) 6 species**

Candelaria concolor, *Hyperphyscia adglutinata*, *Phaeophyscia pusilloides*, *Physcia millegrana*, *P. stellaris*, *Physciella chloantha*

***Crataegus mollis* (T. & G.) Scheele (DOWNY HAWTHORN) 15 species**

Anisomeridium polypori, *Arthonia caesia*, *Candelaria concolor*, *Candelariella reflexa*, *Hyperphyscia adglutinata*, *Parmelia sulcata*, *Phaeophyscia pusilloides*, *P. rubropulchra*, *Physcia adscendens*, *P. millegrana*, *P. stellaris*, *Physciella chloantha*, *Physconia leucoleiptes*, *Xanthomendoza fallax*, *X. fulva*

***Crataegus monogyna* Jacq. 'Inermis Compacta' (HAWTHORN) 1 species**

Lecanora hagenii

***Elaeagus angustifolia* L. (RUSSIAN OLIVE) 3 SPECIES**

Candelaria concolor, *Physcia stellaris*, *Physciella chloantha*

***Euonymus alatus* (Thunb.) Siebold (WINGED EUONYMUS) 5 species**

Candelaria concolor, *Hyperphyscia adglutinata*, *Phaeophyscia pusilloides*, *Physcia millegrana*, *Physciella chloantha*

***Euonymus hamiltonianus* Wallich. (JAPANESE SPINDLE TREE) 6 species**

Candelaria concolor, *Hyperphyscia adglutinata*, *Phaeophyscia pusilloides*, *Physcia millegrana*, *P. stellaris*, *Physciella chloantha*

***Fraxinus excelsior* L. 'Hessei' (EUROPEAN ASH) 7 species**

Candelaria concolor, *Hyperphyscia adglutinata*, *Parmotrema hypotropum*, *Physcia millegrana*, *P. stellaris*, *Physciella chloantha*, *Xanthomendoza fallax*

***Fraxinus pennsylvanica* Marshall (RED ASH) 7 species**

Candelaria concolor, *Hyperphyscia adglutinata*, *Phaeophyscia hirsuta*, *P. pusilloides*, *P. rubropulchra*, *Physcia millegrana*, *P. stellaris*

***Fraxinus pennsylvanica* Marshall var. *subintegerrima* (Vahl) Fern. (GREEN ASH) 15 species**

Candelaria concolor, *Hyperphyscia adglutinata*, *Lecanora hagenii*, *Parmelia sulcata*, *Phaeophyscia ciliata*, *P. hirsuta*, *P. pusilloides*, *P. rubropulchra*, *Physcia adscendens*, *P. millegrana*, *P. stellaris*, *Physciella chloantha*, *Physconia leucoleiptes*, *Xanthomendoza fallax*, *X. fulva*

***Ginkgo biloba* L. (GINGKO) 8 species**

Candelaria concolor, *Hyperphyscia adglutinata*, *Parmelia sulcata*, *Physcia adscendens*, *P. millegrana*, *P. stellaris*, *Physciella chloantha*, *Xanthomendoza fallax*

***Gleditsia triacanthos* L. (HONEY LOCUST) 20 species**

Amandinea punctata, *Caloplaca microphyllina*, *Candelaria concolor*, *Flavoparmelia caperata*, *Flavopunctelia flaventior*, *F. soledica*, *Hyperphyscia adglutinata*, *Lecanora hagenii*, *L. symmicta*, *Parmelia sulcata*, *Parmotrema hypotropum*, *Phaeophyscia ciliata*, *P. pusilloides*, *P. rubropulchra*, *Physcia adscendens*, *P. millegrana*, *P. stellaris*, *Physciella chloantha*, *Punctelia graminicola*, *Xanthomendoza fallax*

***Gymnocladus dioica* (L.) Koch (KENTUCKY COFFEE TREE) 11 species**

Candelaria concolor, *Hyperphyscia adglutinata*, *Lecanora hagenii*, *L. symmicta*, *Phaeophyscia ciliata*, *P. pusilloides*, *Physcia adscendens*, *P. millegrana*, *P. stellaris*, *Physciella chloantha*, *Xanthomendoza fallax*

***Juglans nigra* L. (BLACK WALNUT) 10 species**

Candelaria concolor, *Hyperphyscia adglutinata*, *Parmelia sulcata*, *Phaeophyscia pusilloides*, *Physcia adscendens*, *P. millegrana*, *P. stellaris*, *Physciella chloantha*, *Xanthomendoza fallax*, *X. fulva*

***Liquidambar styraciflua* L. (SWEET GUM) 3 species**

Candelaria concolor, *Physcia stellaris*, *Physciella chloantha*

***Lonicera* sp (HONEYSUCKLE) 1 species**

Physcia millegrana

***Malus* sp. (CRAB-APPLE) 7 species**

Candelaria concolor, *Hyperphyscia adglutinata*, *Phaeophyscia pusilloides*, *Physcia millegrana*, *P. stellaris*, *Physciella chloantha*, *Xanthomendoza fallax*

***Morus alba* L. (WHITE MULBERRY) 13 species**

Candelaria concolor, *Candelariella reflexa*, *Hyperphyscia adglutinata*, *Phaeophyscia ciliata*, *P. hirsuta*, *P. pusilloides*, *P. rubropulchra*, *Physcia adscendens*, *P. millegrana*, *P. stellaris*, *Physciella chloantha*, *Physconia leucoleiptes*, *Xanthomendoza fallax*

***Phellodendron amurense* Rupr. (AMUR CORK TREE) 9 species**

Caloplaca microphyllina, *Candelaria concolor*, *Hyperphyscia adglutinata*, *Phaeophyscia pusilloides*, *Physcia adscendens*, *P. millegrana*, *P. stellaris*, *Physciella chloantha*, *Xanthomendoza fulva*

***Pinus parviflora* Siebold and Zucc. (JAPANESE WHITE PINE) 4 species**

Candelaria concolor, *Physcia millegrana*, *P. stellaris*, *Physciella chloantha*

***Platanus occidentalis* L. (SYCAMORE) 10 species**

Candelaria concolor, *Hyperphyscia adglutinata*, *Phaeophyscia ciliata*, *P. pusilloides*, *Physcia adscendens*, *P. millegrana*, *P. stellaris*, *Physciella chloantha*, *Xanthomendoza fallax*, *X. fulva*

***Populus alba* L. (WHITE POPLAR) 10 species**

Candelaria concolor, *Hyperphyscia adglutinata*, *Phaeophyscia ciliata*, *P. hirsuta*, *P. pusilloides*, *Physcia adscendens*, *P. millegrana*, *P. stellaris*, *Physciella chloantha*, *Xanthomendoza fallax*

***Populus deltoides* Marshall (EASTERN COTTONWOOD) 17 species**

Caloplaca cerina, *Candelaria concolor*, *Flavoparmelia caperata*, *Hyperphyscia adglutinata*, *Lecanora hagenii*, *L. symmicta*, *Parmelia sulcata*, *Phaeophyscia ciliata*, *P. hirsuta*, *P. pusilloides*, *P. rubropulchra*, *Physcia adscendens*, *P. millegrana*, *P. stellaris*, *Physciella chloantha*, *Xanthomendoza fallax*, *X. fulva*

***Prunus serotina* Ehrh. (WILD BLACK CHERRY) 8 species**

Candelaria concolor, *Hyperphyscia adglutinata*, *Lecanora hagenii*, *Phaeophyscia rubropulchra*, *Physcia millegrana*, *P. stellaris*, *Physciella chloantha*, *Xanthomendoza fallax*

Prunus sp. (PLUM/CRABAPPLE) 9 species

Amandinea dakotensis, *Candelaria concolor*, *Hyperphyscia adglutinata*, *Lecanora strobilina*, *L. symmicta*, *Physcia adscendens*, *P. millegrana*, *P. stellaris*, *Physciella chloantha*

Pseudolarix amabilis (J. Nels.) Rehd. (GOLDEN LARCH) 1 species

Lecanora hagenii

Pseudotsuga menziesii (Mirb.) Franco (DOUGLAS FIR) 1 species

Hyperphyscia adglutinata

Quercus alba L. (WHITE OAK) 6 species

Candelaria concolor, *Hyperphyscia adglutinata*, *Lecanora strobilina*, *Parmelia sulcata*, *Physcia millegrana*, *P. stellaris*

Quercus bicolor Willd. (SWAMP WHITE OAK) 9 species

Candelaria concolor, *Hyperphyscia adglutinata*, *Lecanora hagenii*, *Phaeophyscia pusilloides*, *Physcia adscendens*, *P. millegrana*, *P. stellaris*, *Physciella chloantha*, *Xanthomendoza fallax*

Quercus imbricaria Michx. (SHINGLE OAK) 3 species

Candelaria concolor, *Physcia millegrana*, *P. stellaris*

Quercus macrocarpa Michx. (BUR OAK) 11 species

Arthonia caesia, *Candelaria concolor*, *Hyperphyscia adglutinata*, *Lecanora strobilina*, *L. symmicta*, *Physcia adscendens*, *P. millegrana*, *P. stellaris*, *Physciella chloantha*, *Xanthomendoza fallax*, *X. fulva*

Quercus palustris Münchh. (PIN OAK) 5 species

Candelaria concolor, *Phaeophyscia pusilloides*, *Physcia millegrana*, *P. stellaris*, *Physciella chloantha*

Quercus rubra L. (RED OAK) 21 species

Amandinea dakotensis, *A. punctata*, *Arthonia caesia*, *Candelaria concolor*, *Candelariella reflexa*, *Flavoparmelia caperata*, *Flavopunctelia flaventior*, *Hyperphyscia adglutinata*, *Lecanora hagenii*, *Parmelia sulcata*, *Parmotrema hypotropum*, *Phaeophyscia pusilloides*, *P. rubropulchra*, *Physcia adscendens*, *P. millegrana*, *P. stellaris*, *Physciella chloantha*, *Physconia leucoleiptes*, *Punctelia rудecta*, *Xanthomendoza fallax*, *X. fulva*

Rhamnus cathartica L. (COMMON BUCKTHORN) 7 species

Arthonia caesia, *Candelaria concolor*, *Hyperphyscia adglutinata*, *Phaeophyscia pusilloides*, *Physcia millegrana*, *P. stellaris*, *Physciella chloantha*

Rhus typhina L. (STAGHORN SUMAC) 3 species

Candelaria concolor, *Hyperphyscia adglutinata*, *Physciella chloantha*

Robinia pseudoacacia L. (BLACK LOCUST) 4 species

Candelaria concolor, *Physcia millegrana*, *P. stellaris*, *Physciella chloantha*

Salix amygdaloides Andersson (PEACH-LEAVED WILLOW) 7 species

Candelaria concolor, *Phaeophyscia pusilloides*, *Physcia adscendens*, *P. millegrana*, *P. stellaris*, *Physciella chloantha*, *Xanthomendoza fallax*

Salix babylonica L. (WEEPING WILLOW) 9 species

Candelaria concolor, *Candelariella reflexa*, *Hyperphyscia adglutinata*, *Phaeophyscia hirsuta*, *P. pusilloides*, *Physcia millegrana*, *P. stellaris*, *Physciella chloantha*, *Xanthomendoza fallax*

***Syringa vulgaris* L. (LILAC) 6 species**

Candelaria concolor, *Hyperphyscia adglutinata*, *Phaeophyscia pusilloides*, *Physcia millegrana*, *P. stellaris*, *Physciella chloantha*

***Taxodium distichum* (L.) Richard (BALD CYPRESS) 3 species**

Phaeophyscia pusilloides, *Physcia millegrana*, *Physciella chloantha*

***Thuja occidentalis* L. (EASTERN WHITE CEDAR) 4 species**

Candelaria concolor, *Hyperphyscia adglutinata*, *Physcia millegrana*, *P. stellaris*

***Tilia americana* L. (BASSWOOD) 18 species**

Amandinea dakotensis, *A. punctata*, *Caloplaca cerina*, *Candelaria concolor*, *Flavoparmelia caperata*, *Flavopunctelia flaventior*, *Hyperphyscia adglutinata*, *Lecanora symmicta*, *Parmelia sulcata*, *Parmotrema hypotropum*, *Phaeophyscia ciliata*, *P. hirsuta*, *P. pusilloides*, *Physcia adscendens*, *P. millegrana*, *P. stellaris*, *Physciella chloantha*, *Xanthomendoza fallax*

***Tilia cordata* Mill. (SMALL-LEAVED LINDEN) 3 species**

Amandinea punctata, *Candelaria concolor*, *Physcia stellaris*

***Ulmus americana* L. (AMERICAN ELM) 11 species**

Candelaria concolor, *Hyperphyscia adglutinata*, *Lecanora hagenii*, *Parmotrema hypotropum*, *Phaeophyscia ciliata*, *P. pusilloides*, *Physcia adscendens*, *P. millegrana*, *P. stellaris*, *Physciella chloantha*, *Xanthomendoza fallax*

***Ulmus pumila* L. (SIBERIAN ELM) 10 species**

Candelaria concolor, *Hyperphyscia adglutinata*, *Lecanora hagenii*, *Phaeophyscia ciliata*, *P. hirsuta*, *Physcia adscendens*, *P. millegrana*, *P. stellaris*, *Physciella chloantha*, *Xanthomendoza fallax*

(Weathered wood, wood fencing, wood shingles, decorticate logs, etc.) 21 species

Amandinea punctata, *Bacidina egenula*, *Caloplaca cf. crenulatella*, *C. microphyllina*, *Candelaria concolor*, *Candelariella reflexa*, *Flavoparmelia caperata*, *Hyperphyscia adglutinata*, *Lecanora dispersa*, *L. symmicta*, *L. cf. umbrina*, *Parmelia sulcata*, *Phaeophyscia hirsuta*, *P. rubropulchra*, *Physcia adscendens*, *P. millegrana*, *P. stellaris*, *Physciella chloantha*, *Thelocarpon laureri*, *Trapeziopsis flexuosa*, *Xanthomendoza fallax*

(Weathered concrete, dolomite, granite, sandstone, limestone, etc.) 16 species

Bacidia granosa, *Bacidina egenula*, *Caloplaca cf. crenulatella*, *C. subsoluta*, *Candelaria concolor*, *Candelariella aurella*, *Endocarpon pusillum*, *Lecanora dispersa*, *Phaeophyscia hirsuta*, *P. orbicularis*, *P. pusilloides*, *Physcia stellaris*, *Physciella chloantha*, *Psorotichia cf. schaeferi*, *Thelidium zwackhii*, *Verrucaria calkinsiana*

(Steel) 2 species

Candelaria concolor, *Physcia millegrana*

Appendix III.

This is a list of a list of pollution (sulfur dioxide) sensitive lichens as proposed by Wetmore (1983).

S (Sensitive) These species are absent when the annual average levels of sulfur dioxide are above 50 μg per cubic meter:

none found here.

SI (Intermediate between Sensitive and Intermediate)

Caloplaca cerina
Candelaria concolor

I (Intermediate): These species are present when the annual average levels of sulfur dioxide are between 50 and 100 μg per cubic meter:

Flavoparmelia caperata
Hyperphyscia adglutinata
Lecanora symmicta
Physcia adscendens
Physcia millegrana
Physcia stellaris
Physconia leucoleiptes
Punctelia rudecta
Xanthomendoza fallax

IT (Intermediate between Intermediate and Tolerant):

Parmelia sulcata

T (Tolerant): These species are present when the annual average levels of sulfur dioxide are over 100 μg per cubic meter:

Amandinea punctata
Lecanora hagenii

Appendix IV.

Checklist of parks and lichen species.

COLUMBUS PARK 24 species

Amandinea punctata
Anisomeridium polypori
Bacidina egenula
Caloplaca cf. crenulatella
C. microphyllina
C. subsoluta
Candelaria concolor
Endocarpon pusillum
Flavoparmelia caperata
Flavopunctelia flaventior
F. soledica
Hyperphyscia adglutinata
Lecanora dispersa
Parmelia sulcata
Parmotrema hypotropum
Phaeophyscia ciliata
P. pusilloides
Physcia adscendens
P. millegrana
P. stellaris
Physciella chloantha
Physconia leucoleiptes
Punctelia rudecta
Xanthomendoza fallax

GARFIELD PARK 19 species

Amandinea punctata
Caloplaca cf. crenulatella
Candelaria concolor
Endocarpon pusillum
Flavopunctelia flaventior
F. soledica
Hyperphyscia adglutinata
Lecanora dispersa
Parmelia sulcata
Parmotrema hypotropum
Phaeophyscia ciliata
P. hirsuta
P. pusilloides
Physcia adscendens
P. millegrana
P. stellaris

Physciella chloantha
Xanthomendoza fallax
X. fulva

GOMPERS PARK 21 species

Amandinea punctata
Bacidina egenula
Caloplaca cf. crenulatella
Candelaria concolor
Candelariella aurella
C. reflexa
Endocarpon pusillum
Flavoparmelia caperata
Hyperphyscia adglutinata
Lecanora dispersa
L. strobilina
L. symmicta
Parmelia sulcata
Phaeophyscia ciliata
P. pusilloides
Physcia millegrana
P. stellaris
Physciella chloantha
Physconia leucoleiptes
Xanthomendoza fallax
X. fulva

HUMBOLT PARK 18 species

Caloplaca cf. crenulatella
Candelaria concolor
Endocarpon pusillum
Flavoparmelia caperata
Flavopunctelia soledica
Hyperphyscia adglutinata
Lecanora dispersa
L. symmicta
Parmelia sulcata
Phaeophyscia hirsuta
P. pusilloides
Physcia adscendens
P. millegrana
P. stellaris
Physciella chloantha

Physconia leucoleiptes
Xanthomendoza fallax
X. fulva

JACKSON PARK 31 species

Amandinea punctata
Bacidina egenula
Caloplaca cerina
C. cf. crenulatella
C. microphyllina
C. subsoluta
Candelaria concolor
Candelariella aurella
C. reflexa
Endocarpon pusillum
Flavoparmelia caperata
Flavopunctelia flaventior
F. soledica
Hyperphyscia adglutinata
Lecanora dispersa
L. symmicta
Parmelia sulcata
Parmotrema hypotropum
Phaeophyscia ciliata
P. hirsuta
P. pusilloides
P. rubropulchra
Physcia adscendens
P. millegrana
P. stellaris
Physciella chloantha
Physconia leucoleiptes
Punctelia rudecta
Thelocarpon laureri
Xanthomendoza fallax
X. fulva

LINCOLN PARK 37 species

Amandinea dakotensis
A. punctata
Arthonia caesia
Bacidia granosa
Caloplaca cerina
C. cf. crenulatella
C. microphyllina
C. subsoluta
Candelaria concolor
Candelariella aurella

C. reflexa
Endocarpon pusillum
Flavoparmelia caperata
Flavopunctelia flaventior
F. soledica
Hyperphyscia adglutinata
Lecanora dispersa
L. hagenii
L. rugosella
L. strobilina
L. symmicta
Parmelia sulcata
Parmotrema hypotropum
Phaeophyscia ciliata
P. hirsuta
P. orbicularis
P. pusilloides
Physcia adscendens
P. millegrana
P. stellaris
Physciella chloantha
Physconia leucoleiptes
Psorotichia cf. schaeferi
Punctelia rudecta
Verrucaria calkinsiana
Xanthomendoza fallax
X. fulva

MARQUETTE PARK 28 species

Amandinea dakotensis
A. punctata
Arthonia caesia
Bacidina egenula
Caloplaca cf. crenulatella
C. microphyllina
Candelaria concolor
Candelariella reflexa
Endocarpon pusillum
Flavoparmelia caperata
Flavopunctelia soledica
Hyperphyscia adglutinata
Lecanora dispersa
L. hagenii
L. strobilina
L. symmicta
L. cf. umbrina
Parmelia sulcata
Parmotrema hypotropum

Phaeophyscia pusilloides
Physcia adscendens
P. millegrana
P. stellaris
Physciella chloantha
Physconia leucoleiptes
Punctelia graminicola
Xanthomendoza fallax
X. fulva

McKINLEY PARK 12 species

Caloplaca cf. crenulatella
Candelaria concolor
Hyperphyscia adglutinata
Lecanora dispersa
Parmotrema hypotropum
Phaeophyscia ciliata
P. hirsuta
P. pusilloides
Physcia millegrana
P. stellaris
Physciella chloantha
Xanthomendoza fallax

**NORTH PARK VILLAGE NATURE
 PRESERVE** 25 species

Amandinea punctata
Anisomeridium polypori
Arthonia caesia
Bacidina egenula
Caloplaca cf. crenulatella
Candelaria concolor
Candelariella reflexa
Endocarpon pusillum

Flavoparmelia caperata
Hyperphyscia adglutinata
Lecanora dispersa
Parmelia sulcata
Parmotrema hypotropum
Phaeophyscia ciliata
P. hirsuta
P. pusilloides
P. rubropulchra
Physcia adscendens
P. millegrana
P. stellaris
Physciella chloantha
Thelidium zwackhii
Trapeliopsis flexuosa
Verrucaria calkinsiana
Xanthomendoza fallax

SHERMAN PARK 15 species

Caloplaca cf. crenulatella
C. subsoluta
Candelaria concolor
Endocarpon pusillum
Flavoparmelia caperata
Hyperphyscia adglutinata
Lecanora dispersa
Phaeophyscia hirsuta
P. pusilloides
Physcia adscendens
P. millegrana
P. stellaris
Physciella chloantha
Xanthomendoza fallax
X. fulva