

## *Lichenes Exsiccati Magnicamporum* Fascicle 3

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ABSTRACT. – Data are provided for the third 50 numbers of a series exemplifying the lichen biota of the Great Plains of central North America. The set is especially rich in members of the family Physciaceae.

KEYWORDS. – Grasslands, scheda, taxonomy.

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### INTRODUCTION

In conjunction with ongoing floristic studies of the lichens of the Great Plains of North America, the author has assembled exsiccati of representative taxa from the region. Enumerated here are the third set of 50 numbers distributed by the R.L. McGregor Herbarium (KANU) as Fascicle 3 of *Lichenes Exsiccati Magnicamporum*. Complete sets have been sent to BG, BR, BRY, CANL, COLO, F, FH, GZU, H, Hb. Essl., Hb. Ladd, M, MIN, MOR, MSC, NY, OSC, PRA and SBBG; the primary set is deposited at KANU.

This series is intended to exemplify the lichen biota of the Great Plains, with emphasis on taxa that are unusual or poorly known outside the region. Fascicle 3 includes 50 specimens representing 41 taxa from 38 collection sites in Iowa, Minnesota, Missouri, Nebraska, North Dakota, Oklahoma, and South Dakota (Fig. 1). Fascicle 3 is especially rich in members of the Physciaceae, including twenty-two specimens of *Amandinea* Scheid. & H. Mayrhofer, *Phaeophyscia* Moberg, *Physcia* (Schreber) Michaux, and *Physciella* Essl., and *Rinodina* (Ach.) Gray.

### MATERIALS AND METHODS

All specimens distributed as part of *Lichenes Exsiccati Magnicamporum* Fascicle 3 were examined by the author; selected specimens were also confirmed by specialists. Some specimens were analyzed using standard spot tests (Brodo et al. 2001) or thin layer chromatography (TLC) using solvent systems A, C, and sometimes B', following the methods of Orange et al. (2001). With the exception of recent realignments in Teloschistaceae (e.g., Arup et al. 2013), nomenclature follows Esslinger (2021). For Teloschistaceae, where generic concepts remain in flux, we have retained a conservative taxonomy, providing contemporary names as synonyms.

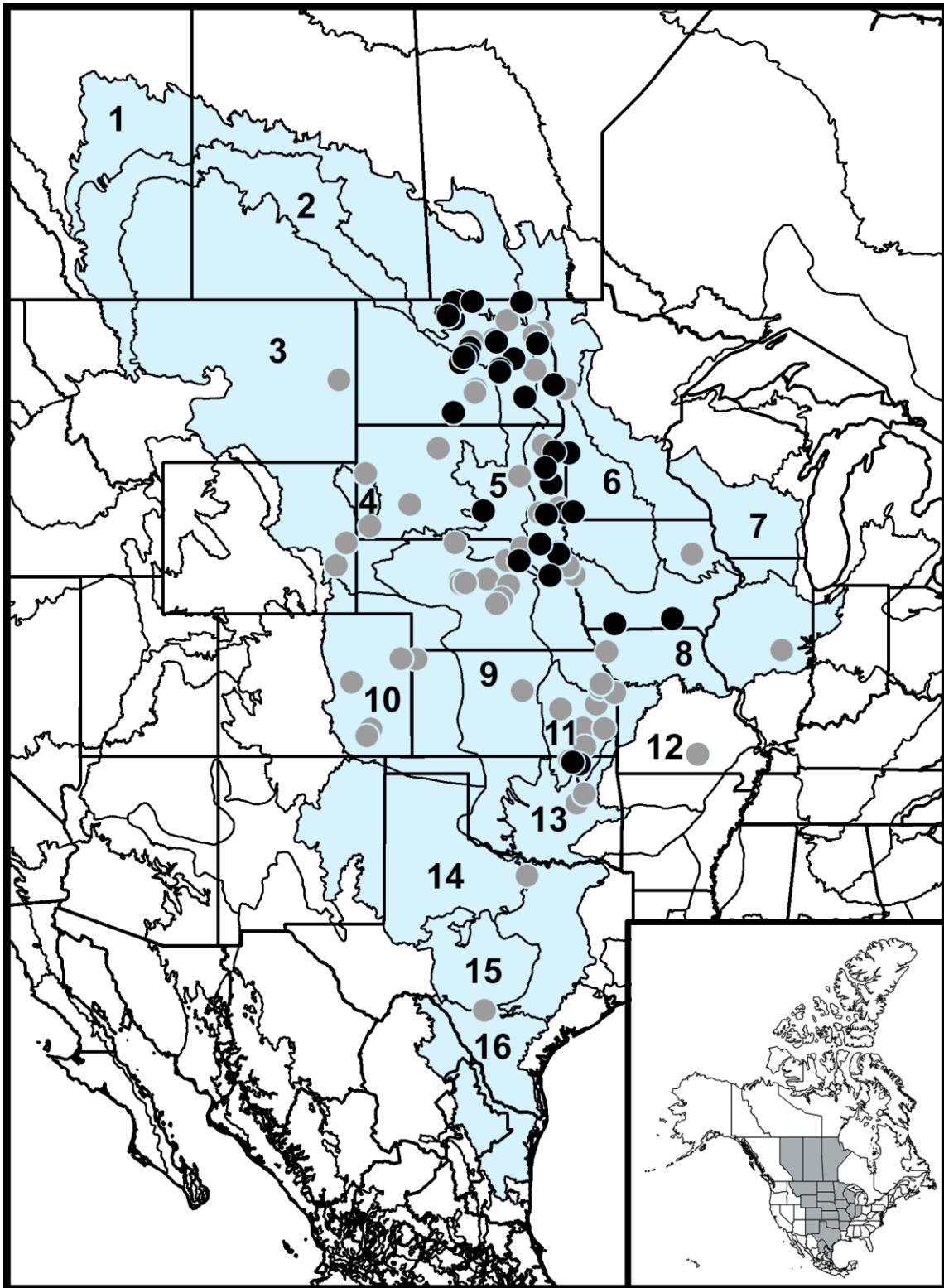
### SPECIMEN LABEL DATA FOR FASCICLE 3 OF *LICHENES EXSICATTI MAGNICAMPORUM*

**101. *Cladonia rei* Schaerer.** USA, North Dakota, Bottineau County: 3 mi W, 8.5 mi N of Bottineau. Turtle Mountains State Forest, N-facing roadcut. 48.94796°N, 100.51857°W (determined by Google Earth; datum = WGS84). Elevation 2145–2175 ft. Steep N-facing roadcut, gravel and sandy soil, a few glacial erratics; surrounding bur oak/aspens forest, hills of moderate to moderately steep slopes. On soil. Locally common. TLC: homosekikaic acid. 27 August 2015. *M. K. Advaita 18022*.

**102. *Rhizoplaca opiniconensis* (Brodo) Leavitt, Zhao Xin & Lumbsch** [= *Lecanora opiniconensis* Brodo]. USA, North Dakota, Wells County: 5 mi N of Harvey. Roadcut. 47.84385°N, 99.94054°W (determined by Google Earth; datum = WGS84). Elevation 1637–1652 ft. Steep W-facing grassy roadcut above large glacial lake, sand and gravel soil; surrounding row-crop, small grain, and hay lands. On granite

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**Figure 1.** Collection sites for specimens in Fascicles 1 and 2 (grey) and Fascicle 3 (black), with states and provinces highlighted in the inset. Ecoregions (The Nature Conservancy 2017): 1 = Aspen Parkland; 2 = Northern Great Plains Steppe; 3 = Dakota Mixed-Grass Prairie; 4 = Black Hills; 5 = Northern Tallgrass Prairie; 6 = Prairie-Forest Border; 7 = Central Tallgrass Prairie; 8 = Central Shortgrass Prairie; 9 = Central Mixed-Grass Prairie; 10 = Osage Plains/Flint Hills; 11 = Ozarks; 12 = Cross Timbers and Southern Tallgrass Prairie; 13 = Southern Shortgrass Prairie; 14 = Edwards Plateau; 15 = Tamaulipan Thorn Scrub.

boulder at top of roadcut. TLC: Lop-2, usnic acid, placodiolic acid, 2 unknown triterpenoids, triterpenoid B, 3 unknown triterpenoids, Lop-1, triterpenoid A. 16 September 2015. *M. K. Advaita 18632*.

**103. *Xanthoparmelia mexicana* (Gyelnik) Hale.** USA, North Dakota, Pembina County: 2 mi N, 6.5 mi W of Walhalla. Pembina Gorge State Recreation Area. 48.94774°N, 98.06641°W (determined by Google Earth; datum = WGS84). Elevation 1110–1470 ft. W-facing mixed-grass moderately steep slope above ravine, scattered glacial erratics, adjacent wheatfield; bur oak forest on opposite (E-facing) slope, clay soil. On granite boulder. Locally abundant. TLC: usnic acid, trace norstictic acid, salazinic acid. 20 August 2015. *M. K. Advaita 17745*.

**104. *Rhizoplaca chrysoleuca* (Sm.) Zopf.** USA, North Dakota, Wells County: 6 mi S, 2 mi W of Harvey. Lone Tree State Wildlife Management Area. 47.67358°N, 99.99511°W (determined by Google Earth; datum = WGS84). Elevation 1570–1635 ft. Glacial erratics on W-facing slope just above river valley. On granite boulder. TLC: usnic acid, placodiolic acid, psoromic acid, unknown(s). 16 September 2015. *M. K. Advaita 18697*.

**105. *Cladonia rei* Schaerer.** USA, Nebraska, Cedar County: ca 1 mi S of Yankton. Green Island Wildlife Management Area. 42°51.70'N, 97°24.26'W (determined by GPS; datum = WGS 84). Elevation ca 1200 ft. Backwaters and island of the Missouri River; sandy riparian ecosystem with green ash, juniper, black locust, scattered cottonwoods, shrubs, brome-grass. On 15 inch diameter round decaying wooden pylons from old abandoned bridge. TLC: homosekikaic acid, unknown. 28. April 2010. *M. K. Advaita 9017*.

**106. *Chrysothrix caesia* (Flotow) Ertz & Tehler** [≡ *Arthonia caesia* (Flotow) Körb.]. USA, South Dakota, Brookings County: 1 mi N, 5 mi W of Bruce. Oakwood Lakes State Park. 44°27.19'N, 96°59.25'W (determined by GPS; datum = WGS 84). Elevation ca 502 m. Pothole lakes, wetlands, mowed picnic and camping areas with scattered lakeside woods and shelterbelts (cottonwood, bur oak, green ash; pine in shelterbelts). On 4 inch diameter bole and branches of dead pine. Locally somewhat common. 28 May 2009. *M. K. Advaita 7652*.

**107. *Caloplaca pyracea* (Ach.) Th Fr.** [≡ *Athallia pyracea* (Ach.) Arup, Frödén & Sjøchting]. USA, South Dakota, Minnehaha County: ½ mi W, 2 mi S of Garretson. Palisades State Park, at headquarters. 43°41.32'N, 96°30.75'W (determined by GPS; datum = WGS 84). Elevation ca 438 m. Riparian woodlands (bur oak, green ash, honey locust, hackberry, cottonwood, eastern red cedar) and sheer Sioux quartzite cliffs and outcrops along Split Rock Creek; mowed picnic and camping areas. Shelterbelt by office. On freshly trimmed branches of hardwood. Locally common. 5 May 2009. *M. K. Advaita 7099*.

**108. *Lecanora allophana* Nyl.** USA, North Dakota, Stutsman County: 3 mi W, 24 mi N of Jamestown. Arrowwood National Wildlife Refuge, at picnic area. 47.26272°N, 98.84384°W (determined by Google Earth; datum = WGS84). Elevation 1445–1630 ft. Moderately steep hills above pothole lakes and wetlands, scattered trees and shelterbelts (green ash, box elder, chokecherry, Russian olive), numerous glacial erratics on hills, sandy soil. On green ash. Locally somewhat common. TLC: atranorin, 2 unknown triterpenoids. 12 June 2015. *M. K. Advaita 16143*.

**109. *Lecanora appalachensis* Lendemer & R. C. Harris.** USA, Iowa, Taylor County: 3 mi NE of Bedford. Lake of Three Fires State Park. 40°42.77'N, 94°41.32'W (determined by GPS; datum = WGS 84). Elevation ca 353 m. Deciduous woodland (bur oak, honey locust, scattered black cherry) along lakeshore and gentle slopes above; mowed picnic and camping areas. On peeling bark of 3.5 foot DBH standing-dead oak. Locally abundant/dominant. 24 April 2009. *M. K. Advaita 6957*.

**110. *Lecanora saligna* (Schrader) Zahlbr.** USA, North Dakota, Grand Forks County: 1.5 mi N of Arvilla. Turtle River State Park, old farmstead NE corner of park along Turtle River. 47°56.65'N, 97°28.99'W (determined by GPS; datum = WGS 84). Elevation ca 290 m. Heavily wooded river valley along the Turtle River and tributaries; forest of bur oak, green ash, cottonwood, and aspen; occasional glacial erratics; low hills with moderate slopes; tallgrass prairie, single wetland, oak savanna. On 2.5 foot diameter decorticate fallen cottonwood log. Locally abundant/dominant. TLC: isousnic acid. 6 June 2009. *M. K. Advaita 7872*.

**111. *Cladonia rei* Schaerer.** USA, South Dakota, Lyman County: 2.5 mi W, 4 mi S of Oacoma. Carpenter Area Game Production Area. 43.74582°N, 99.44482°W (determined by Google Earth; datum = WGS84). Elevation 1570–1650 ft. Occasional cottonwood along roadside; surrounding pastureland (smooth brome); plateau and rolling hills above Lake Francis Case (Missouri River). On soil of steep grazed N-facing hillside above deep ravine. TLC: homosekikaic acid. 27 May 2015. *M. K. Advaita 15701*.

**112. *Lecanora saligna* (Schrader) Zahlbr.** USA, Nebraska, Cedar County: ca 1 mi S of Yankton. Green Island Wildlife Management Area. 42°51.70'N, 97°24.26'W (determined by GPS; datum = WGS 84). Elevation ca 1200 ft. Backwaters and island of the Missouri River; sandy riparian ecosystem with green ash, juniper, black locust, scattered cottonwoods, shrubs, brome-grass. On wood of 20 inch DBH 20 foot long cottonwood log. Locally common. TLC: no substances detected. 28 April 2010. *M. K. Advaita 9014*.

**113. *Xanthomendoza fallax* (Hepp) Søchting, Kärnefelt & S.Y. Kondr.** [with *Candelaria concolor* (Dickson) Stein]. USA, South Dakota, McCook County: ca 3 mi S, 2 mi E of Montrose. Lake Vermillion State Recreation Area. 43°38.37'N, 97°09.59'W (determined by GPS). Elevation ca 1470 ft. Flat valley and floodplain of East Vermillion River at mouth of Lake Vermillion; planted shelterbelts, adjacent croplands. On flaking bark plates of 2.5 foot DBH standing-dead green ash. Locally abundant/dominant. 28 May 2008. *M. K. Advaita 6771*.

**114. *Xanthomendoza weberi* (S.Y. Kondr. & Kärnefelt) L. Lindblom.** [with *Xanthomendoza fallax* (Hepp) Søchting, Kärnefelt & S.Y. Kondr.]. USA, South Dakota, McCook County: ca 3 mi S, 2 mi E of Montrose. Lake Vermillion State Recreation Area. 43°38.37'N, 97°09.59'W (determined by GPS). Elevation ca 1470 ft. Flat valley and floodplain of East Vermillion River at mouth of Lake Vermillion; planted shelterbelts, adjacent croplands. On bark plates of fallen partly decorticate dead green ash. Locally somewhat common. 28 May 2008. *M. K. Advaita 6774*.

**115. *Flavopunctelia flaventior* (Stirton) Hale.** USA, North Dakota, Bottineau County: 3.5 mi W, 8.5 mi N of Bottineau. Turtle Mountains State Forest, Strawberry Lake. 48.94515°N, 100.50980°W (determined by Google Earth; datum = WGS84). Elevation 2165–2235 ft. Bur oak/aspens forest on moderately steep slopes of the Turtle Mountains; numerous glacial lakes and ponds. On bur oak. Locally common. 26 August 2015. *M. K. Advaita 17987*.

**116. *Cladonia magyarica* Vain.** USA, North Dakota, McHenry County: 2 mi N, 3.5 mi E of Bantry. J Clark Salyer National Wildlife Refuge. 48.53041°N, 100.53445°W (determined by Google Earth; datum = WGS84). Elevation 1460–1485 ft. Sand dunes amidst aspen parkland and wetlands, sandy soil, minimal relief. On soil, N-facing slope of sand dune. Locally common. TLC: atranorin, fumarprotocetraric acid. 28 August 2015. *M. K. Advaita 18046*.

**117. *Cladonia robbinsii* A. Evans.** USA, Minnesota, Rock County: 3 mi N, 1 mi E of Luverne. Blue Mounds State Park, in bison pasture unit. 43.71604°N, 96.18939°W (determined by Google Earth; datum = WGS84). Elevation 1480–1600 ft. Extensive Sioux Quartzite outcrops (cliffs above creek and ground-level outcrops on restored prairie and in riparian woodland); mowed campgrounds; the dam broke from flooding one year ago. On thin soil over Sioux Quartzite outcrop. Locally common. TLC: usnic acid, barbatic acid, accessory with barbatic acid. 21 September 2015. *M. K. Advaita 18725*.

**118. *Cladonia magyarica* Vain.** USA, North Dakota, Emmons County: 14.5 mi W of Linton. Beaver Bay Lakeside Use Area. 46.24990°N, 100.53361°W (determined by Google Earth; datum = WGS84). Elevation 1615–1705 ft. Low but moderately steep hills above Lake Oahe (Missouri River), mixed grass with yucca and cactus; mowed campgrounds with pine, spruce, and hardwoods (green ash, Chinese elm, Russian olive, bur oak, cottonwood, chokecherry); surrounding pasture, hay-land, and row-crops with numerous pothole lakes; sandy soil. On soil on steep SW-facing slope above lake. Locally abundant/dominant. TLC: atranorin, fumarprotocetraric acid. 19 July 2015. *M. K. Advaita 17294*.

**119. *Physcia aipolia* (Ehrh. ex Humb.) Fűr.** USA, Nebraska, Dixon County: ca 2 mi N of Ponca. Ponca State Park. 42°36.36'N, 96°43.29'W (determined by GPS; datum = WGS 84). Elevation ca 375 m. Deciduous forest (bur oak, green ash, cottonwood) on moderately steep slopes of the Nebraska Loess Hills, just above the south shore of the Missouri River. On 12 inch diameter fallen cottonwood branch. Locally common. 11 May 2009. *M. K. Advaita 7232*.

**120. *Physciella chloantha* (Ach.) Essl.** [with *Phaeophyscia ciliata* (Hoffm.) Moberg]. USA, Minnesota, Lac qui Parle County: 1 mi S of Odessa. Big Stone National Wildlife Refuge, 1 mile S of headquarters. 45°13.57'N, 96°20.95'W (determined by GPS; datum = WGS 84). Elevation ca 290 m. Riparian woodland along Yellow Bank River set within extensive year-round and seasonal wetlands of the Minnesota River bottomlands; large granite outcrops/glades. On peeling bark of recently blown-down Chinese elm. Locally common. 28 April 2009. *M. K. Advaita 7073*.

**121. *Candelaria concolor* (Dickson) Stein.** USA, South Dakota, McCook County: ca 3 mi S, 2 mi E of Montrose. Lake Vermillion State Recreation Area. 43°38.37'N, 97°09.59'W (determined by GPS). Elevation ca 1470 ft. Flat valley and floodplain of East Vermillion River at mouth of Lake Vermillion; planted shelterbelts, adjacent croplands. On flaking bark plates of 2.5 foot DBH standing-dead green ash. Locally abundant/dominant. 28 May 2008. *M. K. Advaita 6772*.

**122. *Amandinea punctata* (Hoffm.) Coppins & Scheid.** USA, Oklahoma, Washington County: Bartlesville. Johnstone Park. 36°45.38'N, 95°58.29'W (determined by GPS; datum = WGS 84). Elevation ca 213 m. Caney River bottomlands, mixed deciduous forest with mowed picnic areas. On 3.5 foot DBH white oak. Locally common. 20 April 2009. *M. K. Advaita 6861*.

**123. *Physciella melanchra* (Hue) Essl.** USA, South Dakota, McCook County: ca 3 mi S, 2 mi E of Montrose. Lake Vermillion State Recreation Area. 43°38.37'N, 97°09.59'W (determined by GPS). Elevation ca 1470 ft. Flat valley and floodplain of East Vermillion River at mouth of Lake Vermillion; planted shelterbelts, adjacent croplands. On fallen branches of dead green ash. Locally abundant/dominant. 28 May 2008. *M. K. Advaita 6775*.

**124. *Phaeophyscia nigricans* (Flörke) Moberg** [with *Phaeophyscia hirsuta* (Mereschk.) Essl.; rarely parasitized by *Arthonia phaeophysciae* Grube & Matzer]. USA, North Dakota, Grand Forks County: 1.5 mi N of Arvilla. Turtle River State Park, old farmstead NE corner of park along Turtle River. 47°56.65'N, 97°28.99'W (determined by GPS; datum = WGS 84). Elevation ca 290 m. Heavily wooded river valley along the Turtle River and tributaries; forest of bur oak, green ash, cottonwood, and aspen; occasional glacial erratics; low hills with moderate slopes; tallgrass prairie, single wetland, oak savanna. On peeling bark of 2.5 foot diameter tree stump. Locally abundant/dominant. 6 June 2009. *M. K. Advaita 7877*.

**125. *Phaeophyscia ciliata* (Hoffm.) Moberg** [with *Hyperphyscia syncolla* (Tuck. ex Nyl.) Kalb, *Physcia stellaris* (L.) Ach., and *Physciella chloantha* (Ach.) Essl.]. USA, Nebraska, Antelope County: 4 mi E and 6 mi N of Orchard. Ashfall Fossil Beds State Historical Park, Nature Trail east of Visitor's Center. 42°25.25'N, 98°09.40'W (determined by GPS; datum = WGS 84). Elevation ca 518 m. Rolling hills with some steep slopes and cliffs of Ash Hollow formation (sand, sandstone, silt, volcanic ash); creek-bottom wooded valleys, mixed grass prairie; surface caliche, crumbling sandstone, and volcanic ash. On dwarfed stunted dying hackberry "shrubs." Locally abundant/dominant. 16 May 2009. *M. K. Advaita 7410*.

**126. *Phaeophyscia hirsuta* (Mereschk.) Essl.** [with *Hyperphyscia confusa* Essl. et al., *Phaeophyscia ciliata* (Hoffm.) Moberg, and *Physcia stellaris* (L.) Ach.; rarely parasitized by *Arthonia phaeophysciae* Grube & Matzer]. USA, Nebraska, Cedar County: ca 1 mi S of Yankton. Green Island Wildlife Management Area. 42°51.70'N, 97°24.26'W (determined by GPS; datum = WGS 84). Elevation ca 1200 ft. Backwaters and island of the Missouri River; sandy riparian ecosystem with green ash, juniper, black locust, scattered cottonwoods, shrubs, brome-grass. On 15 inch diameter fallen wooden pylon of old abandoned bridge. Locally abundant. 28 April 2010. *M. K. Advaita 9018*.

**127. *Candelariella antennaria* Räsänen.** USA, North Dakota, Rolette County: 5.5 mi W of St. John. Wakopa Wildlife Management Area. 48.95009°N, 99.82846°W (determined by Google Earth; datum = WGS84). Elevation 2140–2190 ft. Rolling hills of deciduous woods (bur oak, aspen) with numerous pothole lakes and wetlands. On 14 inch standing-dead aspen by lake. Locally abundant. 24 August 2015. *M. K. Advaita 17884.*

**128. *Phaeophyscia orbicularis* (Necker) Moberg** [with *Phaeophyscia hirsuta* (Mereschk.) Essl., *Phaeophyscia nigricans* (Flörke) Moberg, *Physcia adscendens* (Fr.) H. Olivier, *Physcia stellaris* (L.) Ach., and *Physciella melanchra* (Hue) Essl.; rarely parasitized by *Arthonia phaeophysciae* Grube & Matzer]. USA, North Dakota, Rolette County: 5.5 mi W of St. John. Wakopa Wildlife Management Area. 48.95009°N, 99.82846°W (determined by Google Earth; datum = WGS84). Elevation 2140–2190 ft. Rolling hills of deciduous woods (bur oak, aspen) with numerous pothole lakes and wetlands. On 14 inch standing-dead aspen by lake. Locally abundant/dominant. 24 August 2015. *M. K. Advaita 17887.*

**129. *Phaeophyscia pusilloides* (Zahlbr.) Essl.** [with *Phaeophyscia hirsuta* (Mereschk.) Essl., *Physcia adscendens* (Fr.) H. Olivier, *Physcia aipolia* (Ehrh. ex Humb.) Fünr., *Physciella chloantha* (Ach.) Essl., and *Physconia leucoleiptes* (Tuck.) Essl.; rarely parasitized by *Arthonia phaeophysciae* Grube & Matzer]. USA, North Dakota, Bottineau County: 10 mi N, 4 mi E of Bottineau. Lake Metigoshe State Park. 48.98365°N, 100.33632°W (determined by Google Earth; datum = WGS84). Elevation 2140–2220 ft. Turtle Mountains with glacial lakes and ponds, wetlands, streams, open meadows; surrounding moderately steep slopes with upland forests of bur oak, quaking aspen, paper birch, chokecherry, and thickets of beaked hazel. On bur oak and green ash. Locally abundant/dominant. 26 August 2015. *M. K. Advaita 17982.*

**130. *Physcia aipolia* (Ehrh. ex Humb.) Fünr.** [with *Physcia adscendens* (Fr.) H. Olivier, *Physcia stellaris* (L.) Ach., and *Physconia leucoleiptes* (Tuck.) Essl.]. USA, North Dakota, Bottineau County: 3 mi W, 8.5 mi N of Bottineau. Turtle Mountains State Forest, N-facing roadcut. 48.94796°N, 100.51857°W (determined by Google Earth; datum = WGS84). Elevation 2145–2175 ft. Steep N-facing roadcut, gravel and sandy soil, a few glacial erratics; surrounding bur oak/aspen forest, hills of moderate to moderately steep slopes. On 2 to 3 inch DBH bur oak and green ash. Locally common. 27 August 2015. *M. K. Advaita 18030.*

**131. *Phaeophyscia hirsuta* (Mereschk.) Essl.** [with *Hyperphyscia confusa* Essl. et al., *Physcia stellaris* (L.) Ach., and *Physciella chloantha* (Ach.) Essl.; rarely parasitized by *Arthonia phaeophysciae* Grube & Matzer]. USA, Minnesota, Lac qui Parle County: 1 mi S of Odessa. Big Stone National Wildlife Refuge, 1 mile S of headquarters. 45°13.57'N, 96°20.95'W (determined by GPS; datum = WGS 84). Elevation ca 290 m. Riparian woodland along Yellow Bank River set within extensive year-round and seasonal wetlands of the Minnesota River bottomlands; large granite outcrops/glades. On peeling bark of beaver-cut 15 in DBH hardwood. Locally abundant/dominant. 28 April 2009. *M. K. Advaita 7057.*

**132. *Melanelixia subargentifera* (Nyl.) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch.** USA, North Dakota, Rolette County: 5.5 mi W, ½ mi N of St. John. Wakopa Wildlife Management Area, Gravel Lake. 48.95723°N, 99.83834°W (determined by Google Earth; datum = WGS84). Elevation 2135–2160 ft. Aspen and bur oak forest on hills above Gravel Lake; mowed area at boat dock; moderate relief. On bur oak. Locally abundant. 24 August 2015. *M. K. Advaita 17923.*

**133. *Phaeophyscia insignis* (Mereschk.) Moberg** [with *Hyperphyscia syncolla* (Tuck. ex Nyl.) Kalb, *Phaeophyscia ciliata* (Hoffm.) Moberg, *Phaeophyscia hirsuta* (Mereschk.) Essl., and *Physciella chloantha* (Ach.) Essl.]. USA, Iowa, Davis County: 2.5 mi N, 4.5 mi E of Unionville. Soap Creek Wildlife Area. 40.85941°N, 92.60984°W (determined by Google Earth; datum = WGS84). Elevation 740–965 ft. Low forested hills (young upland oak-hickory & lowland riparian forests) with grasslands in flat valleys; moderate relief. On 1.5-inch DBH standing-dead hardwood (3-inch diameter at base). 3 June 2018. *M. K. Advaita 23419.*

**134. *Rinodina bischoffii* (Hepp) A. Massal.** [duplicate determined by John W. Sheard]. USA, North Dakota, Cass County: at the Ted Esslinger Homestead, ca. 6 km north of West Fargo just off of County Hwy 17 along 48th Avenue North. 46°56.688'N, 96°54.534'W (method and datum unknown). Elevation 276 m. Old, treated landscape timber. July 2015. *Theodore L. Esslinger 20697*.

**135. *Physciella chloantha* (Ach.) Ellis** [with *Hyperphyscia syncolla* (Tuck. ex Nyl.) Kalb]. USA, Nebraska, Cuming County: ca 2 mi W, 1.5 N of Beemer. Pilger State Recreation Area. 42°01.59'N, 97°02.40'W (determined by GPS; datum = WGS 84). Elevation ca 1350 ft. Small lake with mowed picnic areas, scattered planted trees (cottonwood, honey locust, pine, juniper, redbud); surrounding agricultural land with minimal relief. On bark of rough-leaf dogwood (*Cornus drummondii*). 24 April 2010. *M. K. Advaita 8960*.

**136. *Physcia caesia* (Hoffm.) Fűrnr.** USA, North Dakota, Stutsman County: 3 mi W, 24 mi N of Jamestown. Arrowwood National Wildlife Refuge, west fork of Auto-tour road. 47.24237°N, 98.86247°W (determined by Google Earth; datum = WGS84). Elevation 1445–1630 ft. Moderately steep hills above pothole lakes and wetlands, scattered trees and shelterbelts (green ash, box elder, chokecherry, Russian olive), numerous glacial erratics on hills, sandy soil. On NW-facing steeply-sloped smooth face of granite boulder, 6 ft across. Locally abundant. 13 June 2015. *M. K. Advaita 16170*.

**137. *Physcia dubia* (Hoffm.) Lettau** [determined by T.L. Esslinger] [with *Phaeophyscia nigricans* (Flörke) Moberg, *Physcia adscendens* (Fr.) H. Olivier, *Physcia caesia* (Hoffm.) Hampe ex Fűrnr., and *Physciella chloantha* (Ach.) Essl.]. USA, North Dakota, Cass County: at the Ted Esslinger Homestead, ca. 6 km north of West Fargo just off of County Hwy 17 along 48th Avenue North. 46°56.688'N, 96°54.534'W (method and datum unknown). Elevation 276 m. Old asphalt shingles on north-facing roof of Annmarie's playhouse. July 2015. *Theodore L. Esslinger 20701*.

**138. *Physcia albinea* (Ach.) Nyl.** USA, North Dakota, Griggs County: 1.5 mi N of Binford. Warren & Nancy Southward Ranch. 47.58405°N, 98.35162°W (determined by Google Earth; datum = WGS84). Elevation 1530–1610 ft. Low rolling hills of native mixed-grass prairie, abundant glacial erratics, planted trees at ranch-house sites (pine, cottonwood, green ash), sandy-loam soil. On granite boulders in rockpile. Locally common. 1 September 2015. *M. K. Advaita 18241*.

**139. *Amandinea dakotensis* (H. Magn.) P. May & Sheard** [with *Arthrosporum populorum* A. Massal., *Rinodina freyi* H. Magn., and *Rinodina pyrina* (Ach.) Arnold]. USA, South Dakota, Grant County: ca 1 mi E of Marvin. Blue Cloud Benedictine Abbey. 45°15.18'N, 96°53.47'W (determined by GPS; datum = WGS 84). Elevation ca 466 m. Hilly open pastureland, steep wooded ravines, abundant glacial erratics, tallgrass prairie remnants. On Austrian pine twigs and branches. Locally common. 16 June 2010. *M. K. Advaita 10000*.

**140. *Physcia stellaris* (L.) Nyl.** USA, South Dakota, McCook County: ca 3 mi S, 2 mi E of Montrose. Lake Vermillion State Recreation Area. 43°38.37'N, 97°09.59'W (determined by GPS). Elevation ca 1470 ft. Flat valley and floodplain of East Vermillion River at mouth of Lake Vermillion; planted shelterbelts, adjacent croplands. On flaking bark plates of 2.5 foot DBH standing-dead green ash. Locally common. 28 May 2008. *M. K. Advaita 6773*.

**141. *Caloplaca lobulata* (Flörke) Hellb.** [≡ *Calogaya lobulata* (Flörke) Frödén *et al.*]. USA, North Dakota, McHenry County: ca. 2 mi N, 1/2 mi E of Upham. J Clark Salyer National Wildlife Refuge, at headquarters/office. 48°37.02'N, 100°43.73'W (determined by GPS; datum = WGS 84). Elevation ca 1430 ft. Extremely flat topography with high density of wetlands of deep and shallow marshes, open water, and wet meadows along the Souris River. Wooded area next to gravel road at headquarters, 300 yards from water's edge. On lower dead branches of 2 foot DBH green ash. Locally abundant/dominant. 13 June 2009. *M. K. Advaita 8157*.

**142. *Caloplaca ahtii* Søchting** [with *C. chrysophthalma* Degel., *C. pyracea* (Ach.) Zwackh, and *C. ulmorum* (Fink) Fink]. USA, North Dakota, Benson County: ca 1.5 mi NE of Ft. Totten. Sullys Hill National Game Preserve, Wetlands Overlook. 47°59.15'N, 98°58.54'W (determined by GPS; datum = WGS 84). Elevation ca 1600 ft. Moderate to steep slopes of glacial moraine hills (thrust block formation) above Devils Lake, with shallow wetlands, deep lake (rising water levels), deciduous woodlands (bur oak, American elm, box elder, American basswood) and grasslands (smooth brome, Kentucky bluegrass). On decaying bark of 18 inch diameter hardwood log. Locally somewhat common. 20 May 2011. *M. K. Advaita 11357*.

**143. *Candelariella rosulans* (Müll.Arg.) Zahlbr.** USA, North Dakota, Cass County: at the Ted Esslinger Homestead, ca. 6 km north of West Fargo just off of County Hwy 17 along 48th Avenue North. 46°56.688'N, 96°54.534'W (method and datum unknown). Elevation 276 m. Old, treated landscape timber. July 2015. *Theodore L. Esslinger 20698*.

**144. *Phaeophyscia hirtella* Essl.** [with *Phaeophyscia hirsuta* (Mereschk.) Essl. and *Physconia leucoleiptes* (Tuck.) Essl.]. USA, North Dakota, Barnes County: 3 mi S, 1 mi E of Kathryn. Little Yellowstone Park. 46.63208°N, 97.95383°W (determined by Google Earth; datum = WGS84). Elevation 1285 ft. Mesic forest (basswood, bur oak) beside small year-round creek, moderately steep forested hills. On 6 inch DBH basswood, 30 feet from creek. 8 July 2015. *M. K. Advaita 17078*.

**145. *Caloplaca lobulata* (Flörke) Hellb.** [≡ *Calogaya lobulata* (Flörke) Frödén *et al.*; with *Caloplaca ahtii* Søchting, *Caloplaca pyracea* (Ach.) Zwackh, *Candelaria concolor* (Dickson) Stein, and *Xanthomendoza fallax* (Hepp *ex* Arnold) Søchting *et al.*]. USA, South Dakota, Codington County: ca 3 mi S, 3 mi W of Watertown. Pelican Lake State Recreation Area. 44°51.33'N, 97°11.79'W (determined by GPS; datum = WGS 84). Elevation ca 430 m. South shore of lake, mowed campgrounds with scattered trees and shelterbelts, plum thickets, some lakeside cottonwoods; minimal relief. On fallen 2 ft DBH cottonwood at shoreline, at 10 to 20 foot height on bole. Locally common. 30 March 2010. *M. K. Advaita 8535*.

**146. *Xanthoparmelia viriduloumbrina* (Gyelnik) Lendemer.** USA, Oklahoma, Oklahoma, Osage County: 6 mi W, 2 mi S of Bowring. Osage Wildlife Management Area. 36°49.08'N, 96°12.69'W (determined by GPS). Elevation 950 ft. Extensive sandstone outcrops (both protruding and flat) on gentle slopes of post oak-blackjack oak woods, sandy soil. On flat ground-level sandstone of dry creek-bed/drainage. Locally abundant/dominant. TLC: usnic acid, trace norstictic acid, salazinic acid aggregate. 3 May 2014. *M. K. Advaita 12476*.

**147. *Phaeophyscia constipata* (Norrin & Nyl.) Moberg** [determined by T.L. Esslinger]. USA, North Dakota, Sheridan County: ½ mi N, 1.3 mi W of Denhoff. Roadside sand and gravel pit. 47.48565°N, 100.28866°W (determined by Google Earth; datum = WGS84). Elevation 2000–2040 ft. Rolling low hills of pasture and haylands, numerous pothole lakes and wetlands in low areas; gravel and sandy-loam soil; moderately low relief. On detritus. Locally somewhat common. 14 September 2015. *M. K. Advaita 18510*.

**148. *Physcia dubia* (Hoffm) Lettau.** USA, North Dakota, Foster County: 5 mi E, 2.5 mi N of Kensal. Arrowwood National Wildlife Refuge, North Unit. 47.33057°N, 98.84017°W (determined by Google Earth; datum = WGS84). Elevation 1440–1500 ft. Low rolling hills of grasslands, scattered glacial erratics on hilltops, wetlands in low areas. On large sloping granite boulder. Locally common. 18 June 2015. *M. K. Advaita 16422*.

**149. *Aspicilia cinerea* (L.) Körb.** [with *Dimelaena oreina* (Ach.) Norman and *Rhizocarpon disporum* (Nägeli *ex* Hepp) Müll. Arg.]. USA, North Dakota, Stutsman County: 3 mi W, 24 mi N of Jamestown. Arrowwood National Wildlife Refuge. 47.25395°N, 98.86722°W (determined by Google Earth; datum = WGS84). Elevation 1445–1630 ft. Moderately steep hills above pothole lakes and wetlands, scattered trees and shelterbelts (green ash, box elder, chokecherry, Russian olive), numerous glacial erratics on hills, sandy soil. On granite boulders. Locally abundant. TLC: norstictic acid, connorstictic acid. 11 June 2015. *M. K. Advaita 16065*.



**150. *Aspicilia americana* B. de Lesd.** USA, North Dakota, Sheridan County: 10 mi N, 1 mi W of Goodrich. Roadside rocks. 47.61750°N, 100.14628°W (determined by Google Earth; datum = WGS84). Elevation 1725-1780 ft. Glacial erratics on W-facing hillside; pasture on hillsides, row-crops below. On 1.5 foot diameter ground-level flat sloped granite boulder covered with this species. Locally abundant. TLC: unknown triterpenoid. 14 September 2015. *M. K. Advaita 18539*.

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