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A Checklist of Iowa Foliose Lichens

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Ninety-one species in 16 genera of foliose lichens are reported from Iowa based on herbarium material from 49 counties and current field collections in 22 counties. Nineteen species are listed as new for the state: *Anaptychia obscurata*, *Lecanora melanophthalma*, *Parmelia borrieri*, *P. flaventior*, *P. hypotrropa*, *P. mexicana*, *P. reticulata*, *P. recipienda*, *P. squarrosa*, *P. ulophyllodes*, *P. perforata*, *Peltigera lepidophora*, *Phaeophyscia sciastra*, *P. hirtella*, *P. pusilloides*, *Physcia caesia*, *P. melanchra*, *Pyxine caestopruinosa*, *Umbilicaria vellea*.

INDEX DESCRIPTORS: lichens, foliose lichens, lichen checklist, Iowa lichens.

Crustose, fruticose, and foliose lichens may be found in Iowa. This study included only the foliose forms, which are horizontally flattened, prostrate on the substrate, and have unlike upper and lower surfaces (Hale, 1979). They can be found on trees throughout the state, and in certain habitats they may occur on rocks and soil. Some lichens intergrade between foliose and crustose form, especially those which grow on rock. We have included several of these intermediate species and have left out others. Species of *Pannaria* have been reported to occur in Iowa, but have been omitted from this report for lack of data.

The abundance and diversity of species increases from the western to the eastern part of the state, and is especially impressive in northeastern counties. However, any area in Iowa is likely to provide an interesting array of foliose lichens.

Bruce Fink, an avid collector of lichens in the late 1800's, published a lichen flora of Iowa based on his studies (Fink, 1895; 1897). At least 13 species of Iowa foliose lichens are represented, exclusively or primarily, by his collections. Other state lichen studies have focused on regional and county floras or other studies. For a listing of these see Malone and Tiffany (1978). Roosa (1978) and Schutte (1979) have published recent lichen lists for Fremont and Linn counties, respectively. Malone and Tiffany (1978) compiled a listing of Iowa lichens and literature sources. Studies of the foliose lichens by Dunlap (1979) are the basis of this report.

MATERIALS AND METHODS

For the last two years we have collected foliose lichens from 22 counties (Fig. 1). In addition, specimens were seen from 49 counties (Fig. 2) from the following herbaria: Iowa State University (ISC), University of Michigan (MICH), University of Minnesota (MIN), University of Wisconsin (WIS). The U.S. National Herbarium at the Smithsonian Institution (US) also provided information. All of our collections are deposited at the Iowa State University Herbarium.

Identification of lichen species was generally straightforward. If the lichen could not be verified by visual examination, chemical spot tests or thin-layer chromatography (Culberson, 1972; Dunlap, 1979) was used. In some instances examination under long and short wave UV light proved beneficial. Puzzling specimens were sent to a specialist (see acknowledgments).

RESULTS AND DISCUSSION

Table 1 gives brief information concerning abundance, location, and substrate for each of the 91 species. Five designations are given for abundance: rare or extirpated, meaning that the lichen was last collected many years ago, and usually accompanied by a date; rare, meaning that the lichen has been recently collected but only very few times in a restricted habitat; not common, meaning that the lichen can be found only with a great deal of searching; occasional, meaning that

Table 1. *Foliose Lichen Species of Iowa*

Taxon	Abundance	Substrate, Location
Class Ascomycetes		
Subclass Euascomycetidae		
Order Lecanorales		
Collemataceae		
1. <i>Collema bachmanianum</i> (Fink) Degel.	occasional	soil, throughout state
2. <i>C. conglomeratum</i> Hoffm.	rare or extirpated; 1890's	trees, Black Hawk Co., Fayette Co., Muscatine Co.
3. <i>C. crispum</i> (Huds.) Wigg.	rare or extirpated; 1890's	rock, Fayette Co.
4. <i>C. limosum</i> (Ach.) Ach.	rare	soil, Fayette Co., Echo Valley State Park
5. <i>C. pulcellum</i> Ach.	rare or extirpated; 1895	trees, Fayette Co.
6. <i>C. pustulatum</i> Ach.	not common	rock, NE Iowa
7. <i>C. subflaccidum</i> Degel.	occasional	trees, NE Iowa
8. <i>C. uniforme</i> (Ach.) Ach.	rare	rock, NE Iowa
9. <i>Leptogium burnetiae</i> Dodge	rare or extirpated; 1890's	trees, Fayette Co.
10. <i>L. corticola</i> (Tayl.) Tuck.	rare or extirpated; 1890's	trees, Boone, Fayette Co.
11. <i>L. cyanescens</i> (Ach.) Korb.	occasional	moist rock and moss, throughout state
12. <i>L. dactylinum</i> Tuck.	occasional	moist rock and moss, throughout state
13. <i>L. lichenoides</i> (L.) Zahlbr.	occasional	moist rock and moss, throughout state
14. <i>L. milligranum</i> Sierk.	rare or extirpated; 1890's	trees, Fayette Co.
15. <i>L. saturninum</i> (Dicks.) Nyl.	rare or extirpated; 1896	trees, Fayette Co.

Peltigeraceae			41. <i>P. hypoleucites</i> Nyl.	not common	trees, throughout state
16. <i>Peltigera canina</i> (L.) Willd.	occasional	moist hillsides, throughout state	42. <i>P. hypotropia</i> Nyl.	locally common	trees, Winneshiek Co., Bluffton Fir Stand; Van Buren Co., Shimek State Forest
17. <i>P. evansiana</i> Gyeln.	occasional	moist hillsides, throughout state	43. <i>P. margaritata</i> Hue.	common	trees, throughout state
18. <i>P. elisabethae</i> Gyeln.	rare	moist hillsides, Dubuque Co., Fayette Co.	44. <i>P. mexicana</i> Gyeln.	locally common	Sioux quartzite, Lyon Co.
19. <i>P. lepidophora</i> (Nyl.) Vain.	rare	soil, Boone Co., Hardin Co.	45. <i>P. perforata</i> (Jacq.) Ach.*	rare	trees, Dubuque Co., White Pine Hollow
20. <i>P. polydactyla</i> (Neck.) Hoffm.	occasional	moist hillsides, throughout state	46. <i>P. recipienda</i> Nyl.	rare	trees, Van Buren Co., Shimek State Forest
21. <i>P. praetextata</i> (Florke ex Somm.) Vain.	occasional	moist hillsides, throughout state	47. <i>P. reticulata</i> Tayl.	not common	trees, eastern Iowa
22. <i>P. spuria</i> (Ach.) DC.	not common	moist hillsides, soil, throughout state	48. <i>P. rudecta</i> Ach.	common	trees, moss, throughout state
Stictaceae			49. <i>P. squarrosa</i> Hale	rare	trees, NE Iowa
23. <i>Lobaria pulmonaria</i> (Schreb.) Hoffm.	rare or extirpated; 1894	trees, Clayton Co.	50. <i>P. subaurifera</i> Nyl.	rare	trees, Allamakee Co., Yellow River State Forest
Umbilicariaceae			51. <i>P. subrudecta</i> Nyl.*	occasional	trees, eastern Iowa
24. <i>Umbilicaria vellea</i> (L.) Ach.*	rare	rock cliffs, Allamakee Co., near Village Creek	52. <i>P. subtinctoria</i> Zahlbr.	not common	trees, eastern Iowa
Lecanoraceae			53. <i>P. sulcata</i> Tayl.	not common	trees, NE and SE Iowa
25. <i>Lecanora chrysoleuca</i> (Sm.) Ach.	not common	rock outcrops, NW, NE Iowa	54. <i>P. ulophyllodes</i> (Vain.) Sav.*	not common	trees, northern and NE Iowa
26. <i>L. melanophthalma</i> (Ram.) Ram.	not common	rock outcrops, NW, NE Iowa	Physciaceae		
27. <i>L. muralis</i> (Schreb.) Ach.	occasional	rock outcrops, NW, NE Iowa	55. <i>Anaptychia echinata</i> (Tayl.) Kurok.	rare or extirpated; 1894	trees, Fayette Co.
Parmeliaceae			56. <i>A. hypoleuca</i> (Ach.) Mass.	rare	trees, eastern Iowa
28. <i>Candelaria concolor</i> (Dicks.) B. Stein.	common	trees, throughout state	57. <i>A. obscurata</i> (Nyl.) Vain.*	rare	trees, Lee Co., Shimek State Forest
29. <i>C. fibrosa</i> (Fr.) Mull. Arg.	common	trees, throughout state	58. <i>A. palmatula</i> (Michx.) Vain.	rare	trees, NE Iowa, Clayton Co., Bixby State Park
30. <i>Cetraria ciliaris</i> Ach.	rare or extirpated; 1890's	trees, NE Iowa	59. <i>A. speciosa</i> (Wulf.) Mass.	occasional	trees, moss covered rocks, throughout state
31. <i>Parmelia aurulenta</i> Tuck.	common	trees, throughout state	60. <i>Dimelaena oreina</i> (Ach.) Norm.	occasional	rock, NW and NE Iowa
32. <i>P. bolliana</i> Mull. Arg.	common	trees, throughout state	61. <i>Phaeophyscia adiaetola</i> (Essl.) Essl.	common	rock, trees, throughout state
33. <i>P. borrieri</i> (Sm.) Turn.*	rare	trees, Clayton Co., Bixby State Park	62. <i>P. cernohorskyi</i> (Nadv.) Essl.	common	rock, trees, throughout state
34. <i>P. caperata</i> (L.) Ach.	common	trees, throughout state	63. <i>P. ciliata</i> (Hoffm.) Moberg	common	trees, throughout state
35. <i>P. cetrata</i> Ach.	rare or extirpated; 1890's	trees, eastern Iowa	64. <i>P. hirtella</i> Essl.*	occasional	trees, rock, throughout state
36. <i>P. crinita</i> Ach.	not common	trees and moss, generally eastern Iowa	65. <i>P. imbricata</i> (Vain.) Essl.	occasional	rock, moss, and trees, eastern Iowa
37. <i>P. eurysaca</i> Hue	rare or extirpated; 1895	trees, Fayette Co.	66. <i>P. orbicularis</i> (Neck.) Moberg	rare	trees, rock, throughout state
38. <i>P. exasperata</i> De Not.	rare or extirpated; 1896	trees, Fayette Co.	67. <i>P. pusilloides</i> (Zahlbr.) Essl.*	common	trees, throughout state
39. <i>P. flaventior</i> Stirt.*	occasional	trees, generally eastern Iowa	68. <i>P. rubropulchra</i> (Degel.) Essl.	common	trees, moss, throughout state
40. <i>P. galbina</i> Ach.	occasional	trees, generally eastern Iowa			

69. <i>P. sciastra</i> (Ach.) Moberg	rare	rock, Fayette Co., Echo Valley State Park	80. <i>P. subtilis</i> Degel.	not common	rock, NW and NE Iowa
70. <i>Physcia adscendens</i> (Th. Fr.) Oliv.	rare	trees, rock, throughout state	81. <i>P. syncolla</i> Tuck.	common	trees, throughout Iowa
71. <i>P. adglutinata</i> (Flk.) Nyl.	occasional	trees, throughout state	82. <i>P. tribacoides</i> Nyl.	common	trees, moss, rock, throughout state
72. <i>P. aipolia</i> (Humb.) Furnrohr	common	trees, throughout state	83. <i>Pyxine caesiopruinosa</i> (Nyl.) Imsh.*	rare	trees, Lucas Co., Stephens State Forest, Lucas unit
73. <i>P. caesia</i> (Hoffm.) Furnrohr*	rare	rock, Allamakee Co.	84. <i>P. sorediata</i> (Ach.) Mont.	occasional	trees, eastern Iowa
74. <i>P. detera</i> (Nyl.) Nyl.	common	trees, rock, throughout state	Teloschistaceae		
75. <i>P. luganensis</i> Meresch.	common	trees, rock, throughout state	85. <i>Xanthoria candelaria</i> (L.) Th. Fr.	occasional	trees, throughout state
76. <i>P. melanchra</i> Hue*	common	trees, rock, throughout state	86. <i>X. elegans</i> (Link) Th. Fr.	not common	rock, iron bridges, NE Iowa
77. <i>P. millegrana</i> Degel.	common	trees, throughout state	87. <i>X. fallax</i> (Hepp.) Arn.	common	trees, throughout state
78. <i>P. phaea</i> (Tuck.) Thoms.	rare	rock, Allamakee Co.	88. <i>X. polycarpa</i> (Ehrh.) Oliv.	common	trees, throughout state
79. <i>P. stellaris</i> (L.) Nyl.	common	trees, throughout state	Order Sphaeriales Verrucariaceae		
			89. <i>Dermatocarpon lachneum</i> (Ach.) A.L. Sm.	occasional	soil, western Iowa, NE Iowa

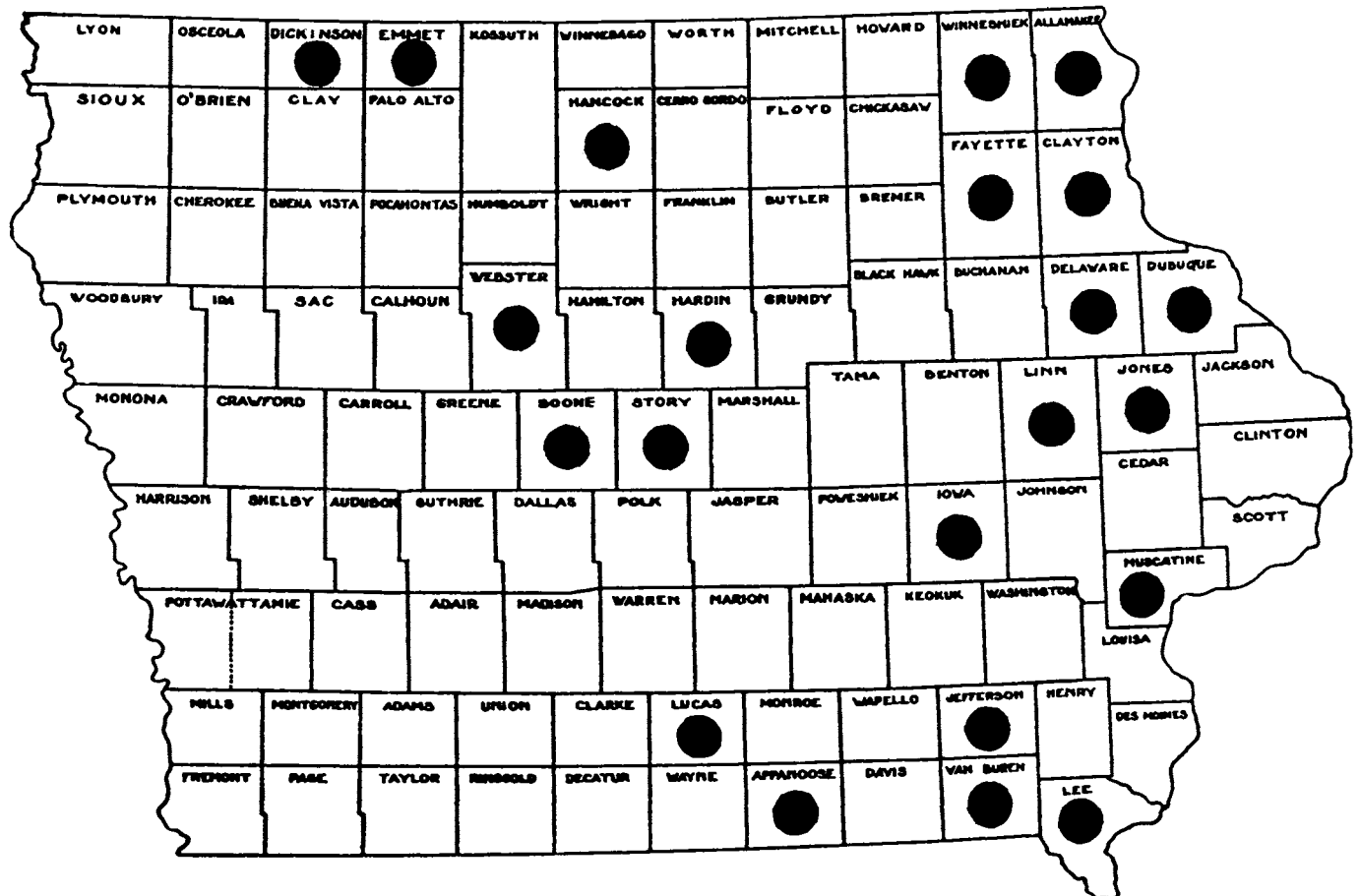


Figure 1. Iowa counties where lichens were collected during this study.

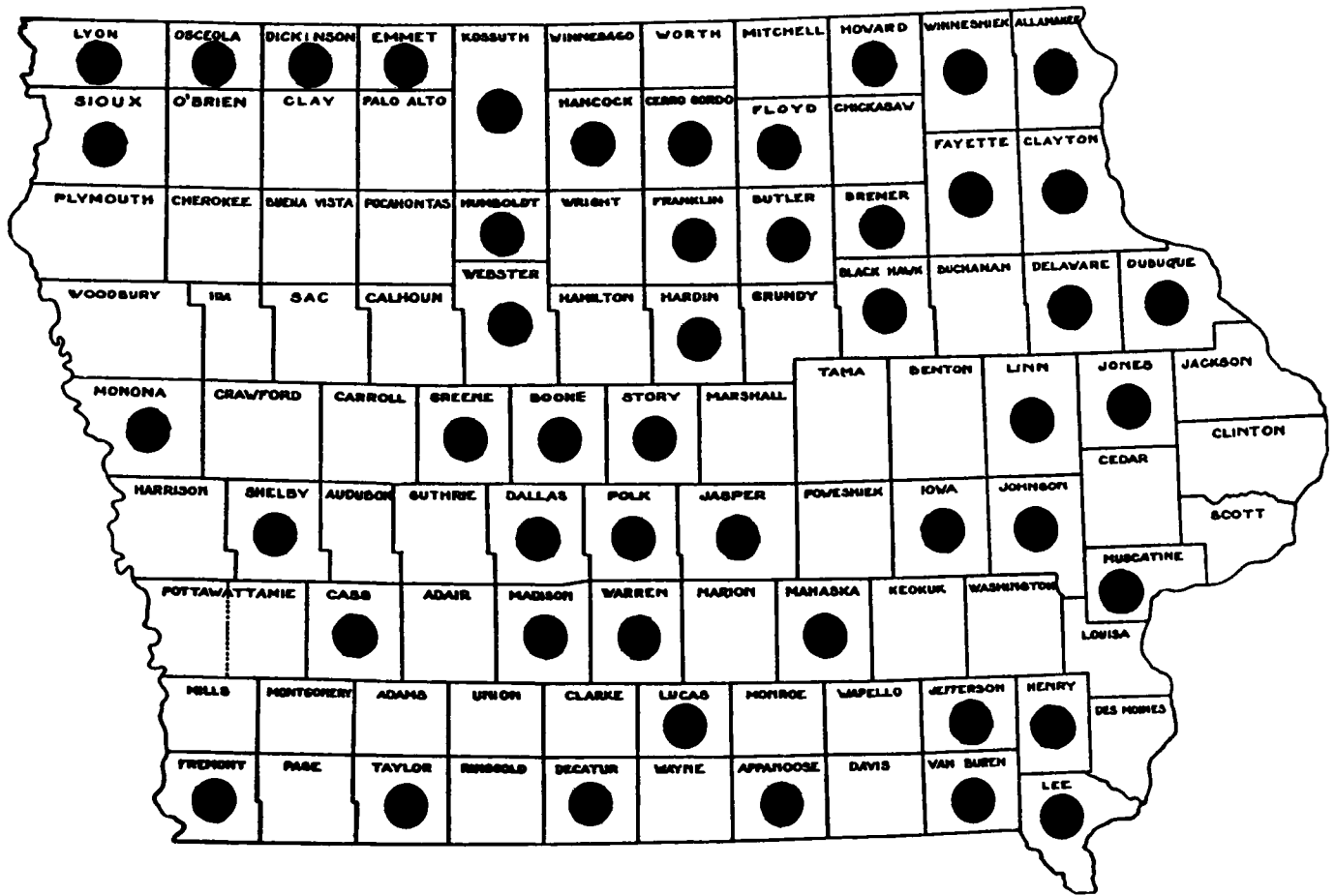


Figure 2. Summary of counties in Iowa represented by herbarium specimens seen during this study.

90. <i>D. miniatum</i> (L.) Mann.	common	rocks, NW Iowa, eastern Iowa
91. <i>D. tuckermanii</i> (Rav.) Zahlbr.	rare or extirpated; 1890's	trees, Fayette Co., Johnson Co.

*Lichen species not collected previous to this study.

the lichen may be found by general collecting in various habitats; common, meaning that the lichen can be found just about anywhere throughout the state, unless it is only abundant locally, in which case it is given a "locally common" designation. An asterisk preceding a lichen name indicates that the lichen had not been collected in Iowa until this study. Two of these lichens, *Parmelia borreri* and *Physcia caesia*, have been reported in the past (see Malone and Tiffany, 1978), but the herbarium specimens represent other species. The general substrate for each lichen species and general location information are given in the second column. Careful collecting in good habitats may provide additional Iowa foliose species. Likely candidates are *Hypogymnia physodes* (L.) Nyl. and *Parmelia michauxiana* Zahlbr.

Several of the new foliose lichens for the state provide interesting range data for the United States. Among these are: *Anaptychia obscurata* and *Pyxine caesiopruinosa*, primarily lichens of the southern U.S.; *Parmelia flaventior* and *P. ulophyllodes*, lichens of the northern

U.S. One lichen, *Parmelia recipienda*, is quite an unusual record. Hale (1965) reports that this lichen has been found elsewhere only in Australia and South America. It is beyond our knowledge at present to determine why this species happens to be found in Iowa. Perhaps it is present in the United States but has been overlooked. It is conceivable that propagules may have travelled from South America to Iowa, but this seems very unlikely. One other suggestion is that it represents a chemical variant of the *Parmelia perforata* group (see Culberson, 1973), but this is only speculation.

Nomenclatorial decisions were not based on any one source. However, most names and authorities agree with Hale and Culberson (1970). Exceptions are *Phaeophyscia* (Esslinger, 1978; Moberg, 1977), *Physcia* (Moberg, 1977; Thomson, 1963), and *Anaptychia* (Kurokawa, 1962; 1973). In a few cases Hale's (1979) decisions were used. The classification scheme follows Hale (1974).

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REFERENCES

- CULBERSON, C.F. 1972. Improved conditions and new data for the identification of lichen products by a standardized thin-layer chromatographic method. *J. Chromatography* 72:113-125.
- CULBERSON, W.L. 1973. The *Parmelia perforata* group: Niche characteristics of chemical races, speciation by parallel evolution, and a new taxonomy. *Bryologist* 76:20-29.
- DUNLAP, D.M. 1979. The foliose lichens of Iowa. M.S. Thesis, Iowa State Univ. 132 pp.
- ESSLINGER, T.L. 1978. Studies in the lichen family Physciaceae. II. The genus *Phaeophyscia* in North America. *Mycotaxon* 7:283-320.
- FINK, B. 1895. The lichens of Iowa. *Bull. Lab. Nat. Hist. State Univ. Iowa* 3:70-88.
- _____. 1897. Notes concerning Iowa lichens. *Proc. Iowa Acad. Sci.* 5:174-187.
- HALE, M.E., JR. 1965. A monograph of *Parmelia* subgenus *Amphigymnia*. *Contr. U.S. Natl. Herb.* 36:193-358.
- _____. 1974. The biology of lichens. 2nd ed. Am. Elsevier Publ. Co. Inc., New York.
- _____. 1979. How to know the lichens. 2nd ed. Wm. C. Brown, Dubuque, Iowa.
- HALE, M.E. JR., and W.L. CULBERSON. 1970. A fourth checklist of the lichens of the continental United States and Canada. *Bryologist* 73:499-543.
- KUROKAWA, S. 1962. A monograph of the genus *Anaptychia*. *Beih. Nova Hedw.* 6:1-115.
- _____. 1973. Supplementary notes on the genus *Anaptychia*. *J. Hattori Bot. Lab.* 37:563-607.
- MALONE, C., and L.H. TIFFANY. 1978. Iowa lichens: An annotated listing. *Proc. Iowa Acad. Sci.* 85:74-80.
- MOBERG, R. 1977. The lichen genus *Physcia* and allied genera in Feunoscandia. *Symb. Bot. Upsal.* 22:1-108.
- ROOSA, D.M. 1978. The first Iowa foray (cont.). *Iowa Bird Life* 48:20.
- SCHUTTE, J.A. 1979. The foliose and fruticose lichen flora of Linn County, Iowa. *Proc. Iowa Acad. Sci.* 86:1-3.
- THOMSON, J.W. 1963. The lichen genus *Physcia* in North America. *Beih. Nova Hedw.* 7:1-172.