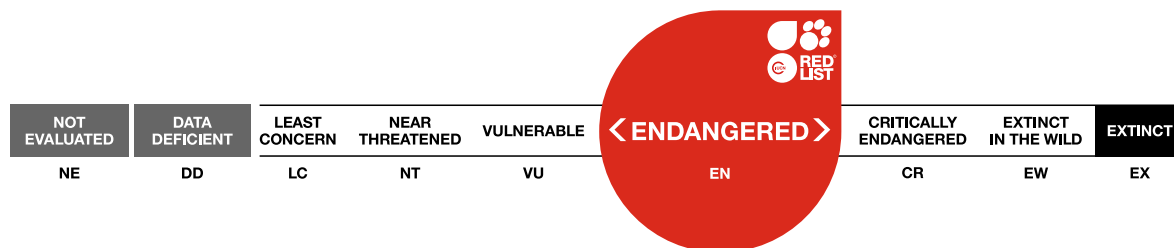


Phaeophyscia leana, Lea's Bog Lichen

Assessment by: Lendemer, J.



View on www.iucnredlist.org

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Taxonomy

Kingdom	Phylum	Class	Order	Family
Fungi	Ascomycota	Lecanoromycetes	Teloschistales	Physciaceae

Scientific Name: *Phaeophyscia leana* (Tuck.) Essl.

Synonym(s):

- *Physcia leana* Tuck.

Common Name(s):

- English: Lea's Bog Lichen

Assessment Information

Red List Category & Criteria: Endangered B2ab(i,ii,iii,v) [ver 3.1](#)

Year Published: 2020

Date Assessed: August 6, 2020

Justification:

Phaeophyscia leana is a conspicuous macrolichen that occurs on the bark of trees above the high water line in periodically inundated floodplain forests along the Ohio River, associated waterways, and associated wetlands in central North America. The primary pressures on this species are from habitat loss or degradation, alteration of hydrological regimes, and pollution. Formal ranking and protections for the species, long-term monitoring of populations, improved conservation, and restoration of suitable habitat are actions that would improve the status of the species. The species has a limited Area of Occupancy (minimum AOO = 184 km²), severe fragmentation of the population, and ongoing declines in AOO, Extent of Occurrence and habitat quality. Therefore, it is listed as Endangered under criterion B2ab(i,ii,iii,v).

Geographic Range

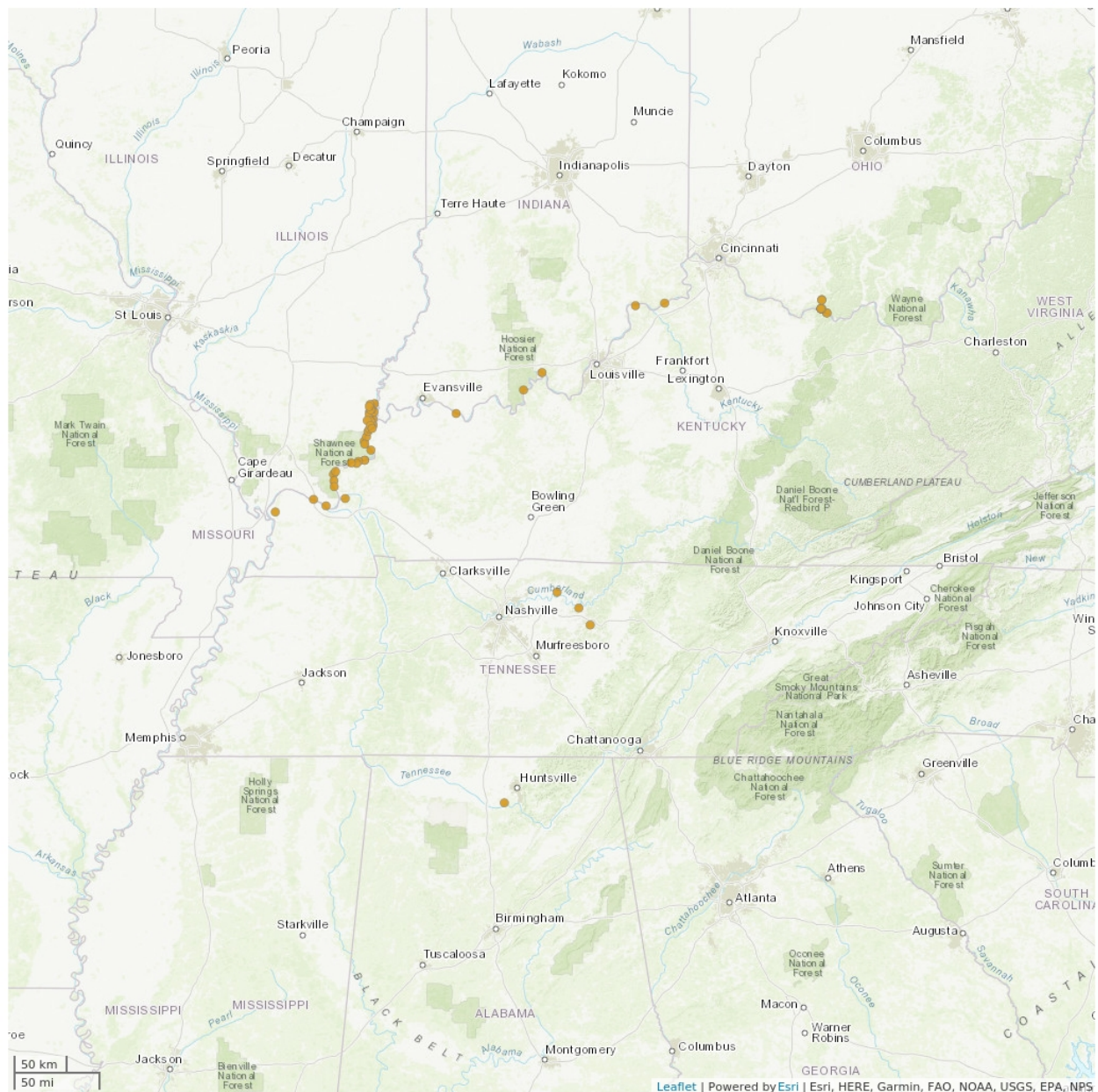
Range Description:

Phaeophyscia leana is narrowly endemic to areas associated with the Ohio River and its associated waterways (e.g. Cumberland River, Green River, Tennessee River, Wabash River, White River) in Alabama, Illinois, Indiana, Kentucky, Ohio and Tennessee in the United States of America.

Country Occurrence:

Native, Extant (resident): United States (Alabama, Illinois, Indiana, Kentucky, Ohio, Tennessee)

Distribution Map

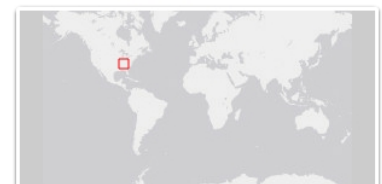


Legend

■ EXTANT (RESIDENT)

Compiled by:

IUCN (International Union for Conservation of Nature) 2020



The boundaries and names shown and the designations used on this map do not imply any official endorsement, acceptance or opinion by IUCN.

Population

The population of *Phaeophyscia leana* is located on protected land as well as private land, and many known sites are in parks adjacent to urban or suburban areas.

Current Population Trend: Decreasing

Habitat and Ecology (see Appendix for additional information)

Phaeophyscia leana occurs on the bark of primarily hardwood trees in floodplain forests and swamps or riparian areas associated with ox-bow lakes and sloughs. The species has a narrow ecology in that it occurs at a specific height on the trunks of trees, just above the high-water mark of frequent inundation, within the floodplain and where there is little competition from other lichens.

Systems: Terrestrial

Threats (see Appendix for additional information)

There are five primary pressures on this species. The first stems from the large-scale loss and degradation of suitable habitat throughout its range, including development of river frontage, large scale conversion of habitat for agriculture, barge/ship traffic on the Ohio River, and development of understorey vegetation in habitats where such vegetation would not be present. The second stems from a lack of uniform protection for the species at the federal level, and across state boundaries within its range. The third is the potential impacts of air and water pollutants on the lichen itself and the ecosystems in which it occurs. The fourth is that the unique ecology of the species means that it could be impacted by alterations to hydrological regimes, as well as both intense flooding or droughts. Finally, an important host tree for the species, ash (*Fraxinus*), is currently undergoing large-scale mortality due to an invasive pest, leading to loss of suitable habitat for the species and mortality of extant individuals.

Conservation Actions (see Appendix for additional information)

The species has the following state ranks: Illinois: Threatened (Illinois Endangered Species Protection Board 2015); Kentucky: Endangered (Kentucky State Nature Preserves Commission 2010); Ohio: Endangered (Ohio Department of Natural Resources 2014). It was also petitioned for Endangered Species Act listing in 2010, with a subsequent 90-day “Substantial” finding (U.S. Department of the Interior 2011), however a decision as to its status has not been reached. In addition to formal listing as an endangered species, conservation of the species would be effected by enhancing protected status of the existing locations, and continuing monitoring efforts of populations. Further research and monitoring of the species may also be beneficial.

Credits

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External Resources

For [Supplementary Material](#), and for [Images and External Links to Additional Information](#), please see the Red List website.

Appendix

Habitats

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Habitat	Season	Suitability	Major Importance?
1. Forest -> 1.4. Forest - Temperate	Resident	Suitable	Yes
5. Wetlands (inland) -> 5.4. Wetlands (inland) - Bogs, Marshes, Swamps, Fens, Peatlands	-	Suitable	-

Plant Growth Forms

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Plant Growth Form
M. Fungus
E. Epiphyte
LC. Lichen

Threats

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Threat	Timing	Scope	Severity	Impact Score
1. Residential & commercial development -> 1.1. Housing & urban areas	Ongoing	Minority (50%)	Slow, significant declines	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation 1. Ecosystem stresses -> 1.3. Indirect ecosystem effects 2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.2. Species disturbance 2. Species Stresses -> 2.3. Indirect species effects		
1. Residential & commercial development -> 1.2. Commercial & industrial areas	Ongoing	Minority (50%)	Slow, significant declines	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation 1. Ecosystem stresses -> 1.3. Indirect ecosystem effects 2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.2. Species disturbance 2. Species Stresses -> 2.3. Indirect species effects		
2. Agriculture & aquaculture -> 2.1. Annual & perennial non-timber crops -> 2.1.3. Agro-industry farming	Ongoing	Majority (50-90%)	Slow, significant declines	Medium impact: 6
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation 1. Ecosystem stresses -> 1.3. Indirect ecosystem effects		

4. Transportation & service corridors -> 4.3. Shipping lanes	Ongoing	-	-	Low impact: 3
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation		
7. Natural system modifications -> 7.2. Dams & water management/use -> 7.2.11. Dams (size unknown)	Ongoing	Majority (50-90%)	Slow, significant declines	Medium impact: 6
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.3. Indirect ecosystem effects 2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.2. Species disturbance 2. Species Stresses -> 2.3. Indirect species effects		
7. Natural system modifications -> 7.3. Other ecosystem modifications	Ongoing	Whole (>90%)	Rapid declines	High impact: 8
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation 1. Ecosystem stresses -> 1.3. Indirect ecosystem effects 2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.2. Species disturbance 2. Species Stresses -> 2.3. Indirect species effects		
8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.2. Named species (<i>Agrilus planipennis</i>)	Ongoing	Whole (>90%)	Rapid declines	High impact: 8
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 1. Ecosystem stresses -> 1.3. Indirect ecosystem effects		
9. Pollution -> 9.3. Agricultural & forestry effluents -> 9.3.1. Nutrient loads	Ongoing	Whole (>90%)	No decline	Medium impact: 6
	Stresses:	1. Ecosystem stresses -> 1.3. Indirect ecosystem effects		
9. Pollution -> 9.3. Agricultural & forestry effluents -> 9.3.3. Herbicides and pesticides	Ongoing	Majority (50-90%)	Negligible declines	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.3. Indirect ecosystem effects		
11. Climate change & severe weather -> 11.1. Habitat shifting & alteration	Ongoing	Whole (>90%)	Very rapid declines	High impact: 9
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.2. Species disturbance 2. Species Stresses -> 2.3. Indirect species effects		

Conservation Actions in Place

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Conservation Action in Place
In-place research and monitoring
Action Recovery Plan: No
In-place land/water protection
Conservation sites identified: Yes, over entire range
Occurs in at least one protected area: Yes

Conservation Actions Needed

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Conservation Action Needed
1. Land/water protection -> 1.2. Resource & habitat protection
2. Land/water management -> 2.1. Site/area management
4. Education & awareness -> 4.3. Awareness & communications
5. Law & policy -> 5.1. Legislation -> 5.1.2. National level

Research Needed

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Research Needed
1. Research -> 1.2. Population size, distribution & trends
1. Research -> 1.3. Life history & ecology
1. Research -> 1.5. Threats
1. Research -> 1.6. Actions
3. Monitoring -> 3.1. Population trends
3. Monitoring -> 3.4. Habitat trends

Additional Data Fields

Distribution
Estimated area of occupancy (AOO) (km ²): 184-300
Continuing decline in area of occupancy (AOO): Yes
Extreme fluctuations in area of occupancy (AOO): No
Estimated extent of occurrence (EOO) (km ²): 78556
Continuing decline in extent of occurrence (EOO): Yes
Extreme fluctuations in extent of occurrence (EOO): No
Lower elevation limit (m): 0
Upper elevation limit (m): 800
Population
Continuing decline of mature individuals: Yes
Population severely fragmented: Yes

Habitats and Ecology
Continuing decline in area, extent and/or quality of habitat: Yes

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