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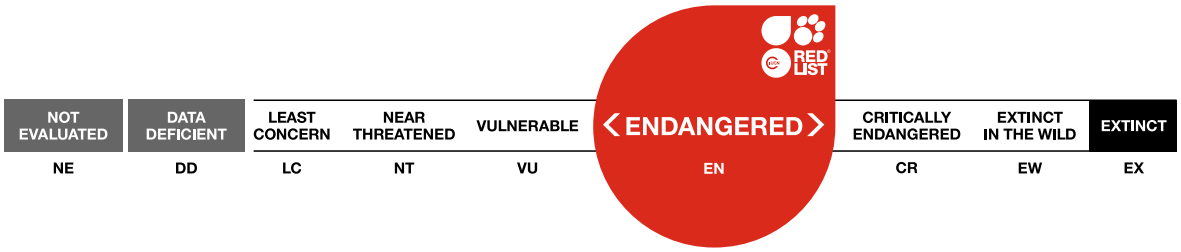
Scope(s): Global
Language: English

Phaeographis oricola, Carolina Beach Dots

Assessment by: Lendemer, J.



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Taxonomy

Kingdom	Phylum	Class	Order	Family
Fungi	Ascomycota	Lecanoromycetes	Ostropales	Graphidaceae

Scientific Name: *Phaeographis oricola* Lendemer & R.C.Harris

Common Name(s):

- English: Carolina Beach Dots

Identification Information:

Phaeographis oricola is a very distinctive crustose lichen that forms extensive whitish colonies on the bark of hardwood trees and shrubs and can be recognized by its large, circular, erumpent apothecia with one large, brown, muriform spore in each ascus.

Assessment Information

Red List Category & Criteria: Endangered B1ab(i,ii,iii,v)+2ab(i,ii,iii,v) ver 3.1

Year Published: 2020

Date Assessed: August 6, 2020

Justification:

Phaeographis oricola is a crustose lichen that occurs on the bark of hardwood trees and shrubs in remnant mature maritime forests in the Carolinian Barrier Islands of the Mid-Atlantic Coastal Plain of eastern North America. Though recently described, it has been documented for more than a decade. Suitable habitat for this species is severely fragmented and has been degraded by anthropogenic forces. It has a limited extent of occurrence (EOO) (2,203 km^2) and area of occupancy (AOO) (28 km^2), severe fragmentation of the population, a small number of locations (six), and an inferred ongoing decline in EOO, AOO and habitat quality due to continued degradation and fragmentation of suitable habitat, impacts from sea-level rise, coastal erosion, and increased storm intensity. Therefore, it is listed as Endangered under criteria B1ab(i,ii,iii,v)+2ab(i,ii,iii,v).

Geographic Range

Range Description:

The species is narrowly restricted to the Carolinian Barrier Islands of the Mid-Atlantic Coastal Plain of eastern North Carolina in eastern North America.

Country Occurrence:

Native, Extant (resident): United States (North Carolina)

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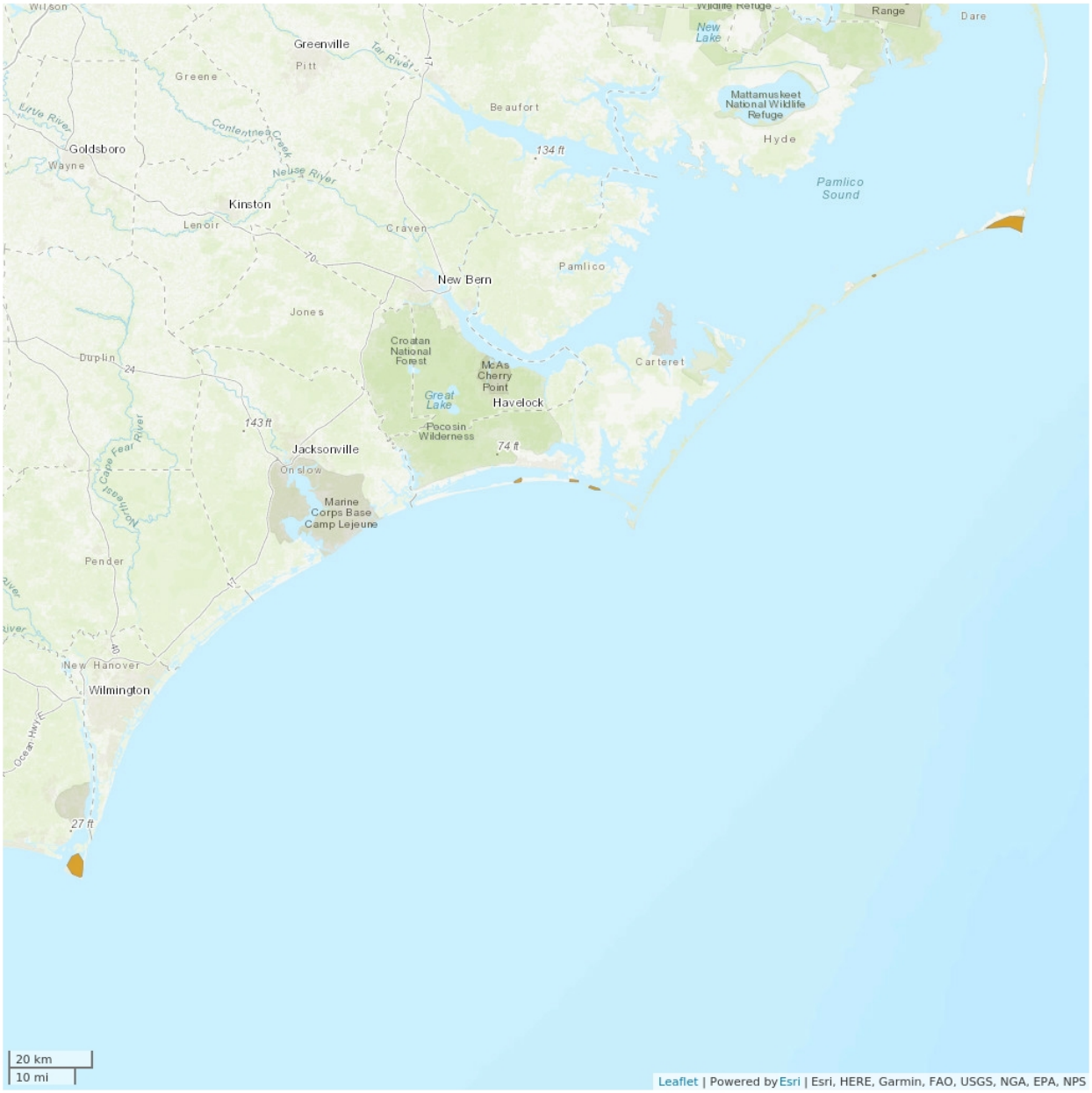
Distribution Map



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.

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Population

Phaeographis oricola was first documented in 2001 and subsequently found in remnant mature maritime forest habitats at eight localities. These habitats were more widespread in the past, and have become fragmented and degraded through land use change, primarily residential development. In addition to likely historical population declines, an ongoing decline is suspected due continuing alteration and loss of suitable habitat as a result of sea-level rise and increased storm intensities.

Current Population Trend: Decreasing

Habitat and Ecology (see Appendix for additional information)

The species is narrowly restricted to the Carolinian Barrier Islands of the Mid-Atlantic Coastal Plain of eastern North Carolina in eastern North America. It occurs on the bark of hardwood trees and shrubs (known phorophytes include *Carpinus*, *Ilex vomitoria*, *I. opaca*, *Myrica*, *Persea* and *Quercus virginiana*) in mature maritime forests, a rare and restricted habitat type that only develops on the oldest, most stable dunes of barrier islands.

Systems: Terrestrial

Threats (see Appendix for additional information)

Phaeographis oricola faces many threats, mainly having to do with its habitat. Suitable habitats throughout the barrier islands of the Coastal Plain of the south-eastern United States have been substantially impacted and fragmented by centuries of habitat loss and degradation, particularly residential and recreational development post-1970, road development and maintenance, and utility corridor development and maintenance. Remaining suitable habitats are highly fragmented and declining in quality due to air pollution, fragmentation, altered hydrological regimes and human intrusion. Trends of habitat loss and degradation are continuing at present and projected to increase in the future (Hall and Schafale 1999, Ricketts *et al*. 1999, Brown *et al*. 2005, Napton *et al.* 2010, Terando *et al*. 2014). These trends will be further exacerbated by climate change and sea-level rise, which is likely impact all locations by 2100 (Sallenger *et al.* 2012, Lendemer and Allen 2014).

Conservation Actions (see Appendix for additional information)

Conservation of the species would be affected by enhancing protected status of the existing locations. Given the small number of locations, and the threats posed by climate change and sea-level rise, monitoring is also warranted. All known sites are within existing protected areas, including national seashores, state parks, state natural areas, and national estuarine research reserves.

Credits

Assessor(s): Lendemer, J.

Reviewer(s): McMullin, T.

Facilitator(s) and Compiler(s): Bishop, G., Allen, J., Chandler, A. & Scheidegger, C.

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Disclaimer

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

Plant Growth Forms

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

Plant Growth Form
LC. Lichen
M. Fungus

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	Majority (50-90%)	Negligible 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		
1. Residential & commercial development -> 1.2. Commercial & industrial areas	Ongoing	Majority (50-90%)	Negligible 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 -> 1.3. Tourism & recreation areas	Ongoing	Whole (>90%)	Negligible 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 2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.2. Species disturbance 2. Species Stresses -> 2.3. Indirect species effects		
4. Transportation & service corridors -> 4.1. Roads & railroads	Ongoing	Majority (50-90%)	Negligible declines	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion		

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		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		
4. Transportation & service corridors -> 4.2. Utility & service lines	Ongoing	Minority (50%)	Negligible declines	Low impact: 4
	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		
6. Human intrusions & disturbance -> 6.3. Work & other activities	Ongoing	Minority (50%)	Negligible declines	Low impact: 4
	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		
7. Natural system modifications -> 7.3. Other ecosystem modifications	Ongoing	Whole (>90%)	Slow, significant declines	Medium impact: 7
	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		
9. Pollution -> 9.5. Air-borne pollutants -> 9.5.4. Type Unknown/Unrecorded	Ongoing	Whole (>90%)	Negligible declines	Medium impact: 6
	Stresses:	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		
11. Climate change & severe weather -> 11.1. Habitat shifting & alteration	Ongoing	Whole (>90%)	Slow, significant declines	Medium impact: 7
	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		
11. Climate change & severe weather -> 11.2. Droughts	Ongoing	Whole (>90%)	Slow, significant declines	Medium impact: 7
	Stresses:	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		
11. Climate change & severe weather -> 11.3. Temperature extremes	Ongoing	Whole (>90%)	Slow, significant declines	Medium impact: 7
	Stresses:	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		
11. Climate change & severe weather -> 11.4. Storms & flooding	Ongoing	Whole (>90%)	Very rapid declines	High impact: 9
	Stresses:	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		
11. Climate change & severe weather -> 11.5. Other impacts	Ongoing	Whole (>90%)	Very rapid declines	High impact: 9
	Stresses:	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		

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
Systematic monitoring scheme: No
In-place land/water protection
Conservation sites identified: Yes, over entire range
Percentage of population protected by PAs: 91-100
Area based regional management plan: No
Occurs in at least one protected area: Yes
In-place species management
Successfully reintroduced or introduced benignly: No
Subject to ex-situ conservation: No
In-place education
Subject to recent education and awareness programmes: No
Included in international legislation: No
Subject to any international management / trade controls: No

Conservation Actions Needed

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

Conservation Action Needed
1. Land/water protection -> 1.1. Site/area protection
1. Land/water protection -> 1.2. Resource & habitat protection
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
3. Monitoring -> 3.1. Population trends
3. Monitoring -> 3.4. Habitat trends

Additional Data Fields

Distribution
Estimated area of occupancy (AOO) (km²): 28
Continuing decline in area of occupancy (AOO): Yes
Extreme fluctuations in area of occupancy (AOO): No
Estimated extent of occurrence (EOO) (km²): 2203
Continuing decline in extent of occurrence (EOO): Yes
Extreme fluctuations in extent of occurrence (EOO): No
Number of Locations: 6
Continuing decline in number of locations: No
Extreme fluctuations in the number of locations: No
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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The IUCN Red List Partnership

The IUCN Red List of Threatened Species™ is produced and managed by the IUCN Global Species Programme, the IUCN Species Survival Commission (SSC) and The IUCN Red List Partnership.

The IUCN Red List Partners are: Arizona State University; BirdLife International; Botanic Gardens Conservation International; Conservation International; NatureServe; Royal Botanic Gardens, Kew; Sapienza University of Rome; Texas A&M University; and Zoological Society of London.