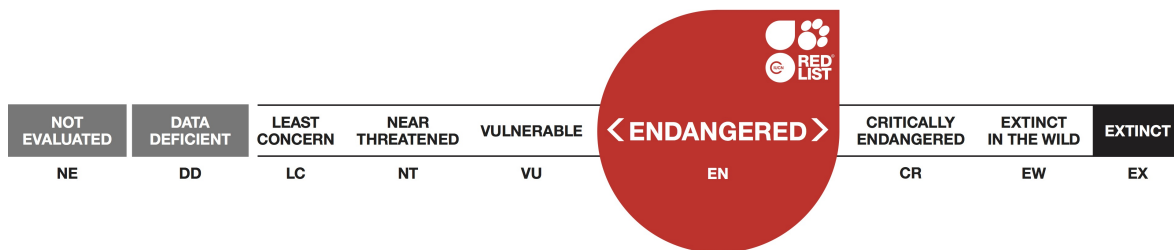


Santessoniella crossophylla, Old Gray Crosslobes

Assessment by: Randlane, T., Tripp, E. & Lendemer, J.



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Taxonomy

Kingdom	Phylum	Class	Order	Family
Fungi	Ascomycota	Lecanoromycetes	Peltigerales	Pannariaceae

Taxon Name: *Santessoniella crossophylla* (Tuck.) P.M.Jørg.

Synonym(s):

- *Pannaria crossophylla* Tuck.

Common Name(s):

- English: Old Gray Crosslobes

Identification Information:

The species was transferred to the genus *Santessoniella* Henssen according to the characters of the thallus (it is semigelatinous, mostly homoiomerous) and the apothecia (biatorine, with hemiamyloid hymenium, l+ red-brown) (Jørgensen 2000, 2005). However, recent phylogenetic studies indicate that the genus is not monophyletic and the type species of it was included in *Psoroma* (Ekman et al. 2014). *Santessoniella crossophylla* was not treated in this study and its relationships to other species within Pannariaceae remain unclear.

Assessment Information

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

Year Published: 2019

Date Assessed: August 26, 2017

Justification:

This species merits ranking as Endangered B2a,b(i,ii,iii,iv,v) based its small area of occupancy (AOO = 96 km² historically, 52 km² currently) coupled with a) severe fragmentation both of remaining natural habitats within the total geographic range of the species and the extant populations outside of a ca. 1000 km² area of Great Smoky Mountains National Park; and b) continuing decline: extirpation of the species from large areas of its geographic range, as is evidenced by the an absence of relocated historical populations; decline in habitat quality and loss of habitat that has occurred historically and continues to occur, throughout the range of the species; and documented loss of pre-1990 populations (although this is balanced by the discovery of a higher total number of extant populations that are interpreted as new detections of previously existing subpopulations).

Geographic Range

Range Description:

Santessoniella crossophylla (Old Gray Crosslobes) is a distinctive macrolichen that is endemic to the eastern areas of North America (Canada: Quebec, Nova Scotia; US: Arkansas, Illinois, Indiana, Missouri, New Hampshire, New York, North Carolina, Pennsylvania, Tennessee, Vermont, West Virginia) where it is

widespread but very rarely encountered.

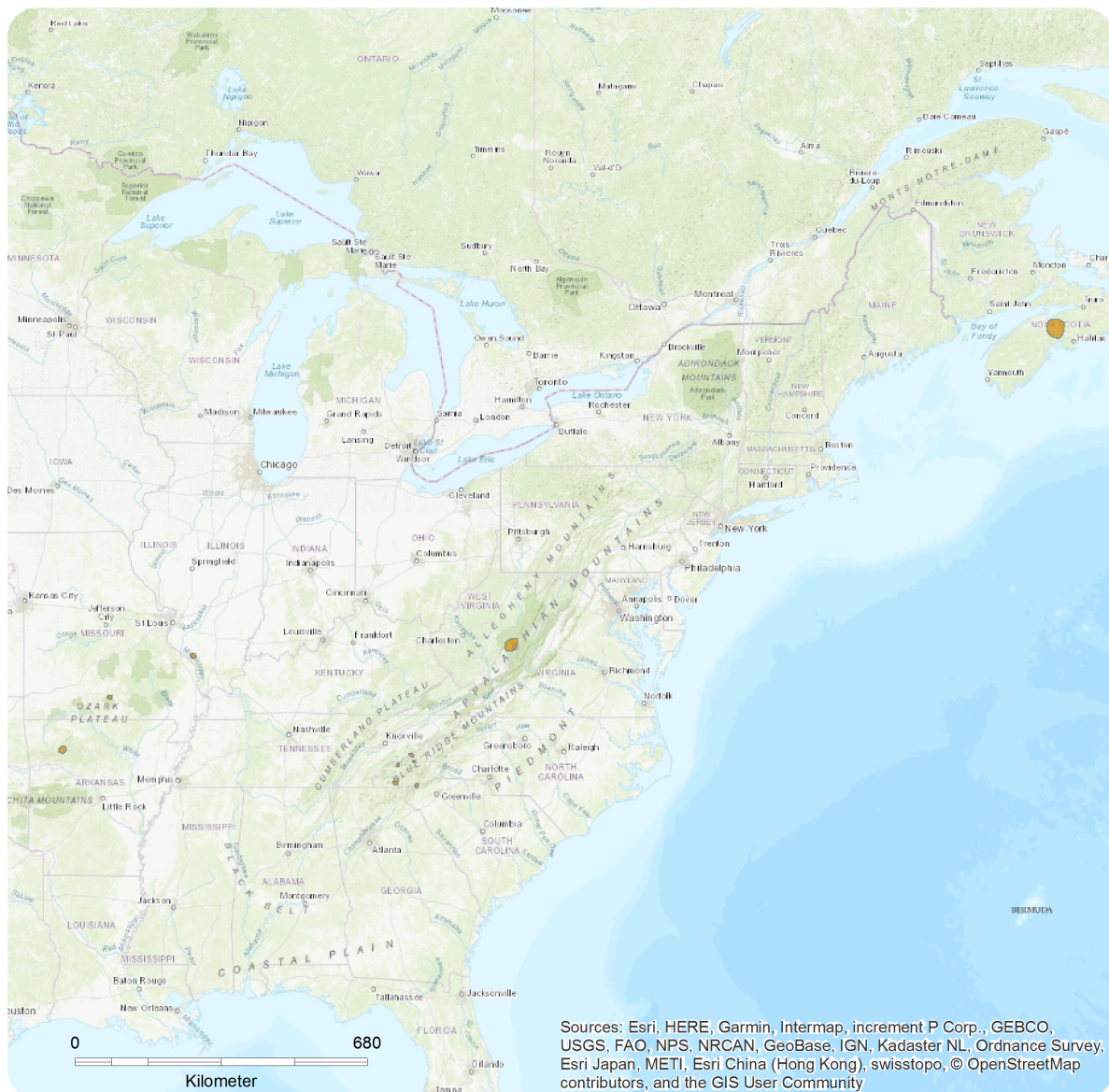
Its historical range has shrunk dramatically in recent decades. *Santessoniella crossophylla* is known from 15 extant populations in the Southern Appalachian Mountains and the Ozark Mountains.

Country Occurrence:

Native: Canada (Nova Scotia); United States (Arkansas, Georgia, Illinois, Missouri, North Carolina, Tennessee, West Virginia)

Distribution Map

Santessoniella crossophylla



Range

Extant (resident)

Compiled by:

IUCN



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



Population

Santessoniella crossophylla was originally described from the White Mountains of New Hampshire, and subsequently found at scattered locations throughout the Appalachian Mountains and Ozark Highlands, mostly during the late 19th and early 20th centuries. In treating the species, Jørgensen (2000) considered it to be potentially extinct in the wild as he was unaware of any extant populations documented by modern collections. Hinds and Hinds (2007) noted that no extant populations were known from New England, implying that the species was extirpated from that region, but reported several extant populations from the southern Appalachian Mountains and Ozark Highlands. Extensive fieldwork by multiple experts (Pennsylvania: J.C. Lendemer; New England: J.P. Hinds, P.W. Hinds, E. Kneiper, E. Lay; Ontario and Quebec: F. Anderson, J. Gagnon, R.T. McMullin) throughout the northern range of the species has also subsequently failed to relocate historical populations and locate new populations. Lendemer and Anderson (2008) reported the discovery of extant populations in the southern Appalachian Mountains, Ozark Highlands, and a single location in the Canadian Maritimes (Nova Scotia). Subsequent to 2008, extensive inventory efforts in the southern Appalachians have located additional extant populations, all of which are confined to remnant mature, high quality habitats in the north/eastern half of Great Smoky Mountains National Park (NC/TN). The population in Nova Scotia is here treated as presumed to be extant, however attempts to relocate the species at that location have failed. DNA sequences from the Nova Scotia population were included in published phylogenetic analyses by Ekman *et al.* (2014) wherein the population was hypothesized to represent a species distinct from *Santessoniella crossophylla*. Subsequent study (Lendemer *et al.* in review) with expanded comparative molecular data from four southern Appalachian populations of *S. crossophylla* confirmed that the Nova Scotia population was 100% identical. In summary, none of the historical populations of *Santessoniella crossophylla* have been relocated and the species appears to have been extirpated from large areas of its range (e.g., central Appalachians and New England). Scattered extant populations occur in the Ozark Highlands and Canadian Maritimes, however the majority of extant populations are concentrated within a ca. 1000 km² area of one protected management unit (Great Smoky Mountains National Park). Within this management unit.

Current Population Trend: Decreasing

Habitat and Ecology (see Appendix for additional information)

We suspect that a major correlate of the extreme rarity of *Santessoniella crossophylla* is its affinity for a very specific habitat type. This species is restricted to the bases of very large overhangs of acidic rock, in environments with a relatively high and constant humidity. Rock overhangs that are too small in size or too shallow (i.e., without sufficient overhang) are not suitable for Old Gray Crosslobes.

Systems: Terrestrial

Threats (see Appendix for additional information)

The primary threat to this species is continued habitat degradation and loss, which could perpetuate the documented historical trends (e.g., Drummond and Loveland 2010, Napton *et al.* 2010) of extirpation from areas within its geographic range. This includes irreversible alteration of humidity/environmental regimes through natural (e.g., forest composition change from invasive species) and anthropogenic means (e.g., logging, road/utility corridor maintenance/expansion/creation, other forms of resource extraction).

Conservation Actions (see Appendix for additional information)

There are currently no conservation activities aimed at protecting or ensuring longevity of any known population of *Santessoniella crossophylla*.

This species is charismatic and easily recognizable. It would benefit tremendously from four actions: (1) protection of known populations by state or federal means, (2) continued monitoring of known populations for any changes, (3) ecological analyses to more fully understand parameters that restrict its distribution, and (4) more fieldwork across suitable habitat in eastern North America to attempt to document new populations.

While there was some suggestion of the species circumscription (see Ekman *et al.* 2014), subsequent research has confirmed the taxonomic status of the species (Lendemer *et al.* 2017).

Credits

Assessor(s): Randlane, T., Tripp, E. & Lendemer, J.

Reviewer(s): Scheidegger, C.

Contributor(s): Weerakoon, G.

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External Resources

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?
0. Root -> 6. Rocky areas (eg. inland cliffs, mountain peaks)	Seasonal occurrence unknown	Suitable	Yes

Plant Growth Forms

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

Plant Growth Forms
Lichen
Lithophyte

Threats

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

Threat	Timing	Scope	Severity	Impact Score
1. Residential & commercial development -> 1.3. Tourism & recreation areas	Ongoing	Minority (50%)	Causing/could cause fluctuations	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.2. Species disturbance		
12. Other options -> 12.1. Other threat	Ongoing	Minority (50%)	Causing/could cause fluctuations	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.2. Species disturbance		
4. Transportation & service corridors -> 4.1. Roads & railroads	Ongoing	Minority (50%)	Causing/could cause fluctuations	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.1. Species mortality		
6. Human intrusions & disturbance -> 6.1. Recreational activities	Ongoing	Minority (50%)	Causing/could cause fluctuations	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.2. Species disturbance		

Conservation Actions in Place

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

Conservation Actions in Place
In-Place Research, Monitoring and Planning
Action Recovery plan: No
Systematic monitoring scheme: No
In-Place Land/Water Protection and Management
Conservation sites identified: No
Occur in at least one PA: Yes
Percentage of population protected by PAs (0-100): 21-30
Area based regional management plan: No
Invasive species control or prevention: No
In-Place Species Management
Harvest management plan: No
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 Actions Needed
2. Land/water management -> 2.1. Site/area management
4. Education & awareness -> 4.3. Awareness & communications
5. Law & policy -> 5.2. Policies and regulations

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

Research Needed
1. Research -> 1.6. Actions
2. Conservation Planning -> 2.2. Area-based Management Plan
3. Monitoring -> 3.1. Population trends
3. Monitoring -> 3.4. Habitat trends

Additional Data Fields

Distribution
Estimated area of occupancy (AOO) (km ²): 52
Continuing decline in area of occupancy (AOO): Yes
Extreme fluctuations in area of occupancy (AOO): No
Estimated extent of occurrence (EOO) (km ²): 746491
Continuing decline in extent of occurrence (EOO): Yes
Extreme fluctuations in extent of occurrence (EOO): No
Number of Locations: 15
Continuing decline in number of locations: Yes
Extreme fluctuations in the number of locations: No
Lower elevation limit (m): 300
Upper elevation limit (m): 1500
Population
Continuing decline of mature individuals: Yes
Extreme fluctuations: No
Population severely fragmented: Yes
No. of subpopulations: 15
Continuing decline in subpopulations: Yes
Extreme fluctuations in subpopulations: No
All individuals in one subpopulation: No
Habitats and Ecology
Continuing decline in area, extent and/or quality of habitat: Yes
Movement patterns: Not a Migrant
Congregatory: Congregatory (year-round)

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