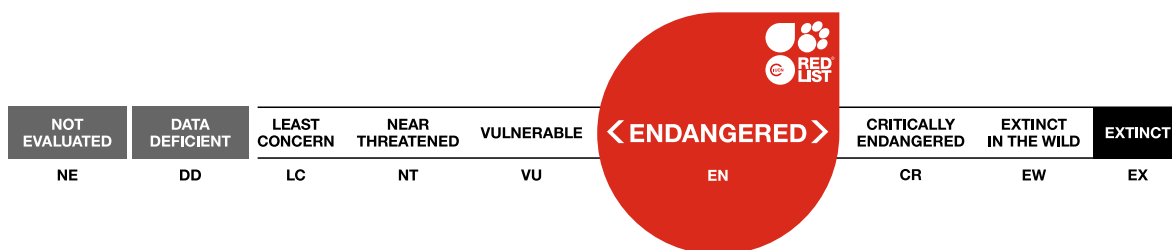


Lepra andersoniae, Gladys' Mountain Spikes

Assessment by: Lendemer, J.



View on www.iucnredlist.org

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Taxonomy

Kingdom	Phylum	Class	Order	Family
Fungi	Ascomycota	Lecanoromycetes	Pertusariales	Pertusariaceae

Scientific Name: *Lepra andersoniae* (Lendemer) Lendemer & R.C. Harris

Synonym(s):

- *Pertusaria andersoniae* Lendemer
- *Pertusaria andersonii* [orth. err.] Lendemer

Common Name(s):

- English: Gladys' Mountain Spikes

Taxonomic Source(s):

Index Fungorum Partnership. 2020. Index Fungorum. Available at: <http://www.indexfungorum.org>.

Assessment Information

Red List Category & Criteria: Endangered B1ab(iii)+2ab(iii) [ver 3.1](#)

Year Published: 2020

Date Assessed: August 6, 2020

Justification:

Lepra andersoniae has a limited Extent of Occurrence (4,027 km²) and Area of Occupancy (16 km²), a limited number of locations (3), and there are ongoing declines in habitat quality inferred from the large-scale changes to southern Appalachian spruce-fir ecosystems as a result of changing climate and environmental conditions. The species occurs in highly visited areas and may be threatened by recreation either directly through trampling/damage to rock habitats, or indirectly through expansion or improvement of recreation infrastructure. Therefore, it is listed as Endangered under criteria B1ab(iii)+2ab(iii).

Geographic Range

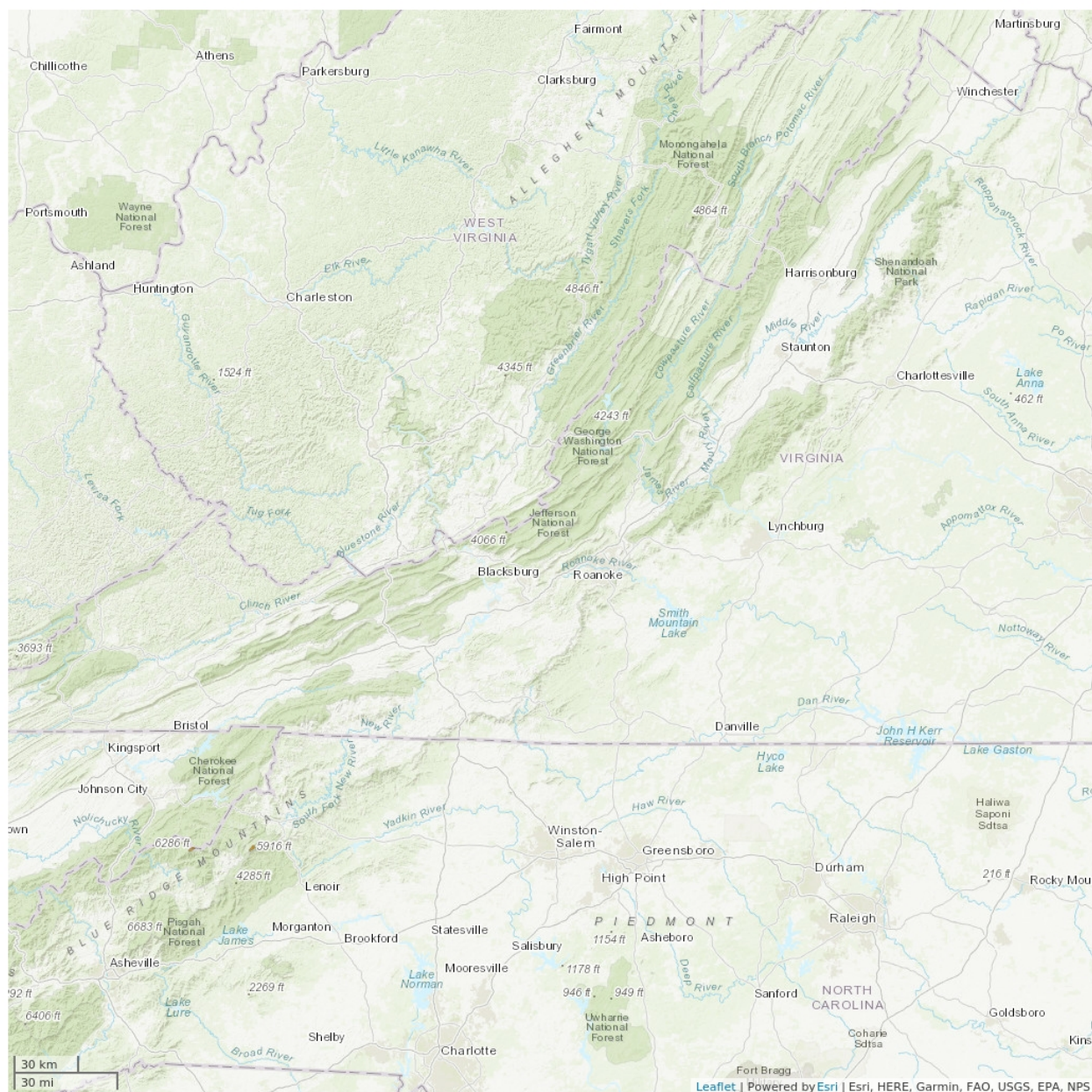
Range Description:

Lepra andersoniae is narrowly endemic to the Appalachian Mountains where it is known from three subpopulations. Extensive study of suitable habitat throughout the region during the last decade has failed to locate any occurrences at sites outside of the three subpopulations that are currently known (Allen and Lendemer 2016, Lendemer *et al.* 2017).

Country Occurrence:

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

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 total population is distributed across fewer than 10 sites comprising three geographically restricted subpopulations. The Virginia subpopulation was located in 1936 and confirmed extant in 2016 (estimate, 20 functional individuals). The Roan Mountain (North Carolina) subpopulation was located in 1993, relocated in 1994, and confirmed extant in 2019 (estimate, 20-50 functional individuals). The Grandfather Mountain (North Carolina) subpopulation was located in 1935, relocated in 2020, and is estimated to comprise 300-500 individuals (the large range is due to inaccessibility of sheer vertical rock faces). We estimate a maximum total of 570 extant individuals comprise the population, and 87% of these are located in a single subpopulation at one location.

Current Population Trend: Stable

Habitat and Ecology (see Appendix for additional information)

This species is restricted to sheltered and vertical faces of high elevation rock outcrops and talus slopes in spruce-fir forests.

Systems: Terrestrial

Threats (see Appendix for additional information)

Damage to colonies of this species from recreational use of the habitat poses a threat to all subpopulations, each of which is located in fragile natural communities in highly visited areas. Across its range, the species is threatened by changing climate and environmental conditions (Keyser *et al.* 2014), including from changes in cloud cover and humidity in high-elevation rock outcrops (Cullata and Horton 2014), and loss of shade from mature, healthy spruce-fir forest due to the Balsam Woolly Adelgid (Rose and Nicholas 2008, Rollins *et al.* 2010, White *et al.* 2012). Logging or other land use change would also result in major declines to the population of this species.

Conservation Actions (see Appendix for additional information)

The species is not currently included on lists of threatened taxa, but it occurs in the Great Smoky Mountains, and on National Forest and State Park land. Monitoring of all extant subpopulations is required to confirm that the species has stabilised. Detailed surveys and increased protection for suitable habitat is also needed. A species-based management plan needs to be developed, and the species needs to be incorporated into existing management plans for suitable habitat and extant sites. Increased education about the species, its ecology, and how it could be conserved would also be highly beneficial.

Credits

Assessor(s): Lendemer, J.

Reviewer(s): McMullin, T.

Facilitator(s) and Compiler(s): Chandler, A. & Allen, J.

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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

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
5. Biological resource use -> 5.3. Logging & wood harvesting -> 5.3.2. Intentional use: (large scale) [harvest]	Future	Minority (50%)	Negligible declines	No/negligible impact: 2
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion		
6. Human intrusions & disturbance -> 6.1. Recreational activities	Ongoing	Majority (50-90%)	Negligible declines	Low impact: 5
	Stresses:	2. Species Stresses -> 2.1. Species mortality		
8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.2. Named species (Adelges piceae)	Ongoing	Minority (50%)	Negligible declines	Low impact: 4
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion		
11. Climate change & severe weather -> 11.1. Habitat shifting & alteration	Ongoing	Majority (50-90%)	Negligible declines	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion		

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

Conservation Action in Place
Occurs in at least one protected area: Yes
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
2. Land/water management -> 2.1. Site/area management
4. Education & awareness -> 4.1. Formal education
4. Education & awareness -> 4.2. Training
4. Education & awareness -> 4.3. Awareness & communications
5. Law & policy -> 5.1. Legislation -> 5.1.2. National level
5. Law & policy -> 5.1. Legislation -> 5.1.3. Sub-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
2. Conservation Planning -> 2.1. Species Action/Recovery Plan
3. Monitoring -> 3.1. Population trends
3. Monitoring -> 3.4. Habitat trends

Additional Data Fields

Distribution
Estimated area of occupancy (AOO) (km ²): 16
Continuing decline in area of occupancy (AOO): Unknown
Estimated extent of occurrence (EOO) (km ²): 4027
Continuing decline in extent of occurrence (EOO): Unknown

Distribution
Number of Locations: 3
Population
Number of mature individuals: 340-570
Continuing decline of mature individuals: Unknown
Population severely fragmented: No
No. of subpopulations: 3
All individuals in one subpopulation: No
No. of individuals in largest subpopulation: 500
Habitats and Ecology
Continuing decline in area, extent and/or quality of habitat: Yes
Generation Length (years): 30

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