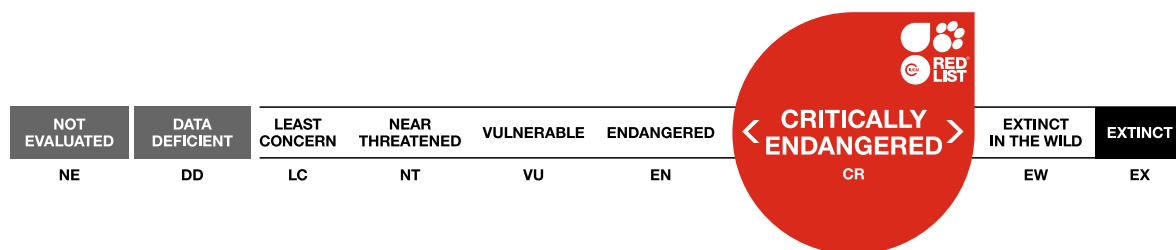


Hypotrachyna virginica

Amendment version

Assessment by: Allen, J., Lendemer, J. & McMullin, T.



View on www.iucnredlist.org

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Taxonomy

Kingdom	Phylum	Class	Order	Family
Fungi	Ascomycota	Lecanoromycetes	Lecanorales	Parmeliaceae

Scientific Name: *Hypotrachyna virginica* (Hale) Hale

Synonym(s):

- *Parmelia virginica* Hale

Assessment Information

Red List Category & Criteria: Critically Endangered A3c [ver 3.1](#)

Year Published: 2020

Date Assessed: September 27, 2019

Justification:

Hypotrachyna virginica warrants a status of critically endangered as its AOO and EOO are projected to reduce by >80% within its next three generations. Species distribution models projected to 2050 and 2070 using two different climate change models (CCSM4 and HadGEM2-AO) at the lowest and highest carbon dioxide concentration (2.6 and 8.5 rcp) were recently built in Maxent for this species (Allen and Lendemer, 2016). The results of the modeling predict an average suitable habitat loss of 94.3% with a minimum loss of 83.4% and a maximum loss of 100%. This represents a significant decrease in the AOO and EOO for the species.

Previously Published Red List Assessments

2020 – Critically Endangered (CR)

<https://dx.doi.org/10.2305/IUCN.UK.2020-1.RLTS.T71597387A71597454.en>

Geographic Range

Range Description:

This species is narrowly endemic to high-elevations in the southern Appalachian Mountains of eastern North America where it grows predominantly in spruce-fir forests. It was first described from Hawksbill Mountain in Virginia and was subsequently found at high-elevations on Mount Rogers, Roan Mountain, the Black Mountains, the Balsam Mountains, the Plott Balsam Mountains and the Great Smoky Mountains. Confusion around the presence of this species in the Caribbean and Mexico was recently clarified as specimens collected outside of the southern Appalachian Mountains were determined to be other species of *Hypotrachyna* (Lendemer and Allen 2015).

Country Occurrence:

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

Population

There is a total of 10 extant locations and seven locations that are presumed extirpated based on recent surveys. Detailed historical distribution data exist for this species from Jon Dey's dissertation on high-elevation macrolichens in the southern Appalachians (Dey 1978). Most of the locations and areas visited by Dey have been revisited in recent years by J.L. Allen, J.C. Lendemer, E. Tripp and R.C. Harris. The locations in the Black Mountains (3 locations) and Roan Mountain (1 location) have recently been relocated and are still extant. In the Balsam Mountains two historical locations could not be relocated, but one new location was documented, for a total of one extant location. The occurrences on Mount Rogers were also relocated recently (2 locations). One location each in Great Smoky Mountains National Park and the Plott Balsam Mountains have not been found again. However, two additional occurrences have recently been documented from the Great Smoky Mountains. Recent surveys of the original locality at Hawksbill Mountain by multiple specialists did not relocate any individuals.

Current Population Trend: Stable

Habitat and Ecology (see Appendix for additional information)

This species grows predominantly in spruce-fir forests, a critically imperilled ecosystem (G1-G2 ranking, White *et al.* 2012), and occasionally on heath balds. It grows on both hardwood and coniferous trees, and reproduces almost exclusively through vegetative reproduction and is not well suited to long distance dispersal.

Systems: Terrestrial

Threats (see Appendix for additional information)

Major threats to this species include the loss of mature, healthy spruce-fir forest due to the balsam wooly adelgid decimating large stands of *Abies fraseri* (Rose and Nicholas 2008, Rollins *et al.* 2010, White *et al.* 2012). Any logging activity or other land use change would also result in major losses of populations of this species. Species distribution models projected to 2050 and 2070 using two different climate change models (CCSM4 and HadGEM2-AO) at the lowest and highest carbon dioxide concentration (2.6 and 8.5 rcp) were recently built in Maxent for this species (Allen and Lendemer, 2016). Acid rain is another major threat to this species.

Conservation Actions (see Appendix for additional information)

Three main actions will help ensure the continued survival of this species: 1) global reduction of greenhouse gas emissions, 2) protection from logging and other land-use changes near all locations, and 3) research investigating the potential to transplant this species for reintroduction and/or assisted migration.

Credits

Assessor(s): Allen, J., Lendemer, J. & McMullin, T.

Reviewer(s): Yahr, R.

**Facilitator(s) and
Compiler(s):**

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

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

Threats

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

Threat	Timing	Scope	Severity	Impact Score
5. Biological resource use -> 5.3. Logging & wood harvesting -> 5.3.4. Unintentional effects: (large scale) [harvest]	Past, likely to return	Majority (50-90%)	Rapid declines	Past impact
	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	Whole (>90%)	Very rapid declines	High impact: 9
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.1. Species mortality		
9. Pollution -> 9.5. Air-borne pollutants -> 9.5.1. Acid rain	Past, likely to return	Whole (>90%)	Slow, significant declines	Past impact
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.1. Species mortality		
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 2. Species Stresses -> 2.1. Species mortality		
11. Climate change & severe weather -> 11.3. Temperature extremes	Ongoing	Whole (>90%)	Causing/could cause fluctuations	Medium impact: 7
	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 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: 71-80
Area based regional management plan: Yes
Occurs in at least one protected area: Yes
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: Yes
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
2. Land/water management -> 2.1. Site/area management
2. Land/water management -> 2.2. Invasive/problematic species control
2. Land/water management -> 2.3. Habitat & natural process restoration
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
5. Law & policy -> 5.4. Compliance and enforcement -> 5.4.3. 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 -> 1.6. Actions
2. Conservation Planning -> 2.1. Species Action/Recovery Plan
2. Conservation Planning -> 2.2. Area-based Management Plan
3. Monitoring -> 3.1. Population trends

Additional Data Fields

Distribution
Estimated area of occupancy (AOO) (km ²): 48
Continuing decline in area of occupancy (AOO): Yes
Extreme fluctuations in area of occupancy (AOO): No
Estimated extent of occurrence (EOO) (km ²): 8070
Continuing decline in extent of occurrence (EOO): Yes
Extreme fluctuations in extent of occurrence (EOO): No
Number of Locations: 10
Continuing decline in number of locations: No
Extreme fluctuations in the number of locations: No
Lower elevation limit (m): 1,400
Upper elevation limit (m): 2,027
Population
Population severely fragmented: No
Habitats and Ecology
Continuing decline in area, extent and/or quality of habitat: Yes
Generation Length (years): 30
Movement patterns: Not a Migrant
Congregatory: Congregatory (year-round)

Amendment

Amendment reason: Minor spelling corrections were made for the geographic range and population text, and the growth form 'lichen' has now been selected.

The IUCN Red List Partnership



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