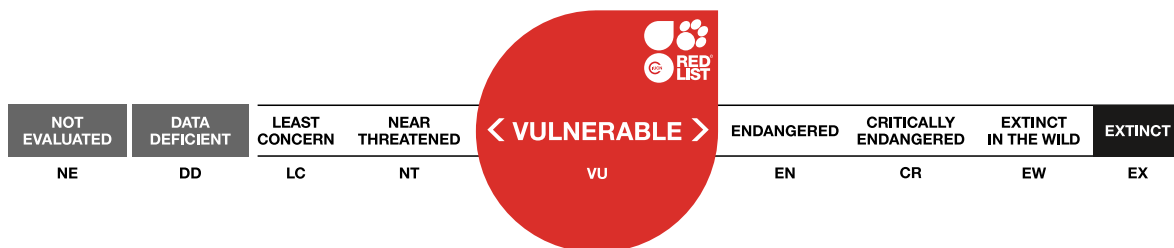


# *Mycoporum biseptatum*

Assessment by: Lendemer, J.



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## Taxonomy

Kingdom	Phylum	Class	Order	Family
Fungi	Ascomycota	Dothideomycetes	Not assigned	Mycoporaceae

**Scientific Name:** *Mycoporum biseptatum* R.C.Harris & Lendemer

**Synonym(s):**

- *Arthonia biseptata* Degel.

**Taxonomic Source(s):**

Index Fungorum Partnership. 2021. Index Fungorum. Available at: <http://www.indexfungorum.org>.

## Assessment Information

**Red List Category & Criteria:** Vulnerable A3ce; B1ab(iii)+2ab(iii) [ver 3.1](#)

**Year Published:** 2021

**Date Assessed:** May 3, 2021

**Justification:**

*Mycoporum biseptatum* is endemic to high elevations in the southern Appalachian Mountains of eastern North America. It grows on shrubs in disjunct northern hardwood forests and globally unique, endangered spruce-fir forests. The narrow distribution, small area of occupancy (AOO; 24-192 km<sup>2</sup>), small number of locations (6-48), and threats to the ecosystems in which it lives, which include invasive species, climate change, resource extraction and recreation, all contribute to the vulnerable status of the species. A decline of at least 30% in population size is suspected to occur within the next 36 years (three generations). Therefore, it is assessed as Vulnerable under criterion A3c, and precautionarily under criterion B1ab(iii)+2ab(iii) too.

## Geographic Range

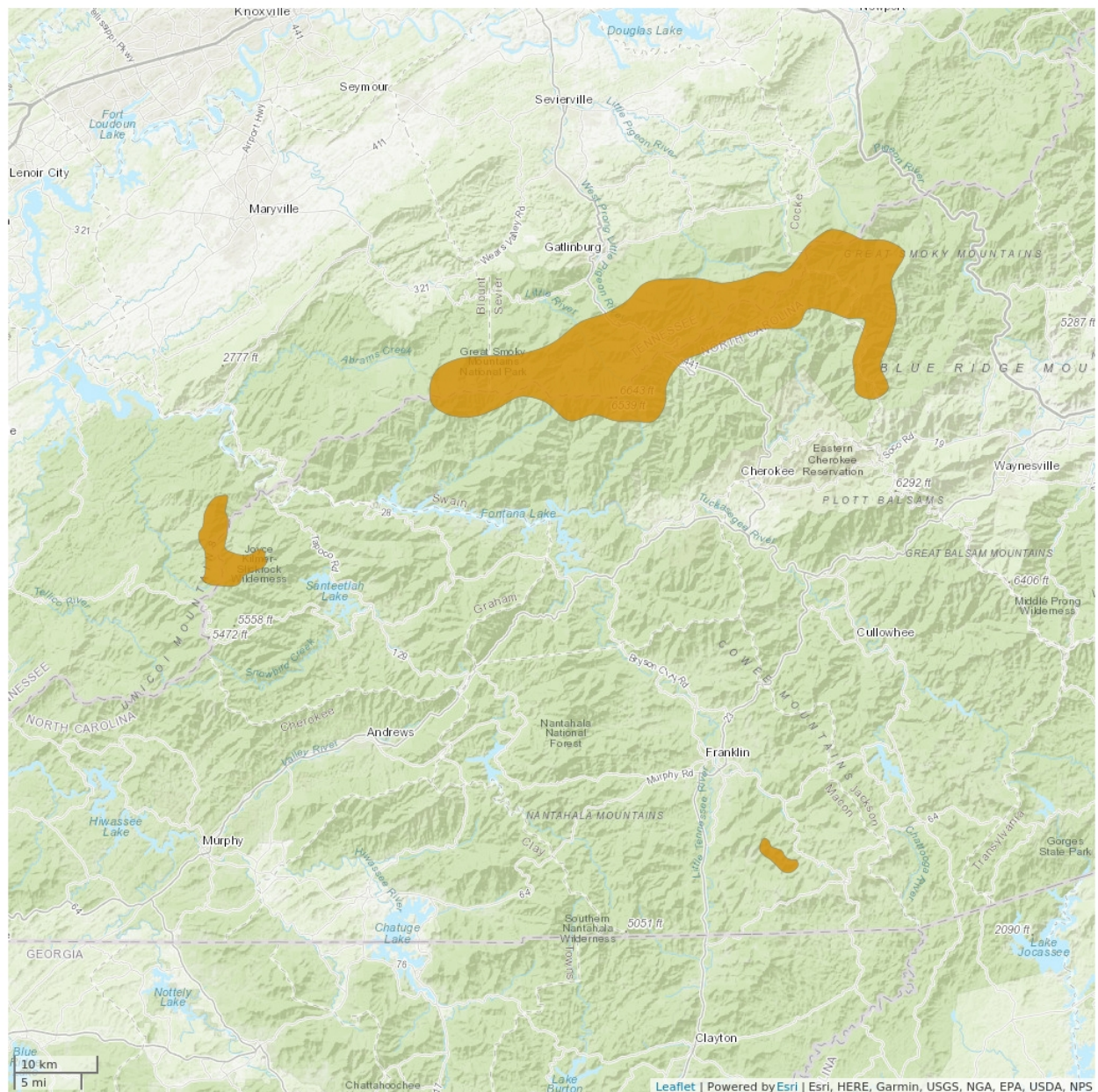
**Range Description:**

*Mycoporum biseptatum* is endemic to the southern Appalachian Mountains of eastern North America (Lendemer and Harris 2014).

**Country Occurrence:**

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

# Distribution Map

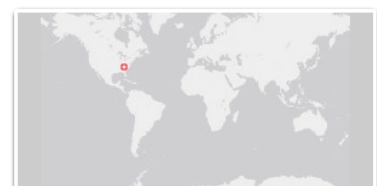


## Legend

■ EXTANT (RESIDENT)

Compiled by:

IUCN 2021



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 size of this species is suspected to be small, however, exact estimates of the number of individuals require additional targeted study. The population is presently suspected to be stable, based on the fact that the species occurs on the recent growth of understory shrubs that are abundant in the suitable high elevation habitat. However, based on projected reductions for other species with comparable ecology and distribution (e.g. *Lecanora masana*), we suspect a reduction of 30-40% in the population will occur in the next three generations (36 years). The highest elevation sites are found in spruce-fir forest, which have been, and continues to be, significantly negatively impacted by the invasive Balsam Woolly Adelgid. At the same time, the lowest elevation sites are likely to be negatively impacted by hotter drier climates (Allen and Lendemer 2016).

**Current Population Trend:** Stable

## Habitat and Ecology (see Appendix for additional information)

This species is restricted to high elevation habitats and is most frequent in spruce-fir and northern hardwood forest types. In those habitats, it occurs on the young growth of woody shrubs species including *Rhododendron* spp. and *Viburnum* spp. along forest edges in and in sunny openings. The species also occurs, albeit less frequently, in high elevation shrub bald habitats that are dominated by *Rhododendron* species.

**Systems:** Terrestrial

## Threats (see Appendix for additional information)

The primary threats to this species involve ongoing and future impacts to its suitable habitat from climate change. These threats include increased frequency and intensity of fires, damage to intact vegetation from increased storm severity and intensity, and changes to available suitable habitat due to shifts and extreme temperatures. Although *Mycoporum biseptatum* does not grow on host plants directly targeted by resource extraction, logging is a threat to the species as a result of unintentional impacts from damage to non-target species. One of the subpopulations in North Carolina occur on public lands outside of protected wilderness areas where logging and other forms of resource extraction can occur. Ecosystem scale changes in climate due to the loss of keystone forest canopy species from introduced pathogens are also threats to this species, specifically loss of Fraser Fir (*Abies fraseri*) in spruce-fir forests due to the Balsam Woolly Adelgid, and American Beech (*Fagus grandiflora*) in northern hardwood forests due to Beech Scale Insect (*Cryptococcus fagisuga*) which vectors several fungal species (*Neonectria faginata*, *Neonectria ditissima*, and *Bionectria ochroleuca*). All known occurrences of this species are in highly visited recreation areas and damage to natural vegetation from recreation, and cutting of shrubs to maintain recreation infrastructure, likely threaten species. Clearing of vegetation to maintain road and utility right-of-ways likely also threatened this species in a similar ways.

## Conservation Actions (see Appendix for additional information)

All known areas where the species occurs are located within existing public lands, however the one site outside of National Parks and federally designated wilderness could be subjected to resource extraction or fragmentation in the future. Increased education about the species and its threatened status is needed, as is inclusion in local and national conservation policy. Further research that will aid

in the conservation of this species includes population assessment and monitoring, population genetics studies, and ecological studies that incorporate threats to the species. Additionally, a species recovery plan needs to be written.

## Credits

**Assessor(s):** Lendemer, J.

**Reviewer(s):** Allen, J.

## Bibliography

Allen, J.L., and Lendemer, J.C. 2016. Climate change impacts on endemic, high-elevation lichens in a biodiversity hotspot. *Biodiversity Conservation* 25: 555–568.

Degelius, G N. 1941. Contributions to the Lichen flora of North America II. The lichen flora of the Great Smoky Mountains. *Arkiv för Botanik* 30A: 1-80.

IUCN. 2021. The IUCN Red List of Threatened Species. Version 2021-2. Available at: [www.iucnredlist.org](http://www.iucnredlist.org). (Accessed: 04 September 2021).

Lendemer, J.C. and Harris, R.C. 2014. Studies in lichens and lichenicolous fungi—No. 18: resolution of three names introduced by Degelius and Magnusson based on material from the Great Smoky Mountains. *Castanea* 79(2): 106-117.

## Citation

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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	-	Suitable	Yes

## Plant Growth Forms

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

Plant Growth Form
LC. Lichen
E. Epiphyte

## 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%)	Negligible declines	Low impact: 4
4. Transportation & service corridors -> 4.1. Roads & railroads	Ongoing	Minority (50%)	Negligible declines	Low impact: 4
4. Transportation & service corridors -> 4.2. Utility & service lines	Ongoing	Minority (50%)	Negligible declines	Low impact: 4
5. Biological resource use -> 5.3. Logging & wood harvesting -> 5.3.4. Unintentional effects: (large scale) [harvest]	Ongoing	Minority (50%)	Rapid declines	Medium impact: 6
6. Human intrusions & disturbance -> 6.1. Recreational activities	Ongoing	Whole (>90%)	Negligible declines	Medium impact: 6
7. Natural system modifications -> 7.1. Fire & fire suppression -> 7.1.1. Increase in fire frequency/intensity	Ongoing	Whole (>90%)	Rapid declines	High impact: 8
8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.2. Named species (Cryptococcus fagisuga)	Ongoing	Majority (50-90%)	Negligible declines	Low impact: 5
8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.2. Named species (Adelges piceae)	Ongoing	Majority (50-90%)	Negligible declines	Low impact: 5

11. Climate change & severe weather -> 11.1. Habitat shifting & alteration	Ongoing	Whole (>90%)	Slow, significant declines	Medium impact: 7
11. Climate change & severe weather -> 11.3. Temperature extremes	Ongoing	Whole (>90%)	Slow, significant declines	Medium impact: 7
11. Climate change & severe weather -> 11.4. Storms & flooding	Ongoing	Whole (>90%)	Rapid declines	High impact: 8

## Conservation Actions in Place

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

<b>Conservation Action in Place</b>
In-place research and monitoring
Action Recovery Plan: No
Systematic monitoring scheme: No
In-place land/water protection
Conservation sites identified: No
Percentage of population protected by PAs: 81-90
Occurs in at least one protected area: Yes
Invasive species control or prevention: Unknown
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>)

<b>Conservation Action Needed</b>
1. Land/water protection -> 1.1. Site/area protection
4. Education & awareness -> 4.1. Formal education
4. Education & awareness -> 4.2. Training



<b>Conservation Action Needed</b>
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 -> 5.2. Policies and regulations

## Research Needed

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

<b>Research Needed</b>
1. Research -> 1.2. Population size, distribution & trends
2. Conservation Planning -> 2.1. Species Action/Recovery Plan
3. Monitoring -> 3.1. Population trends

## Additional Data Fields

<b>Distribution</b>
Estimated area of occupancy (AOO) (km <sup>2</sup> ): 24-192
Continuing decline in area of occupancy (AOO): Unknown
Extreme fluctuations in area of occupancy (AOO): No
Estimated extent of occurrence (EOO) (km <sup>2</sup> ): 13813
Continuing decline in extent of occurrence (EOO): Unknown
Extreme fluctuations in extent of occurrence (EOO): No
Number of Locations: 6-48
Continuing decline in number of locations: Unknown
Extreme fluctuations in the number of locations: No
<b>Population</b>
Continuing decline of mature individuals: Unknown
Extreme fluctuations: No
Population severely fragmented: No
No. of subpopulations: 3
Continuing decline in subpopulations: Unknown
Extreme fluctuations in subpopulations: No
All individuals in one subpopulation: No

<b>Habitats and Ecology</b>
Continuing decline in area, extent and/or quality of habitat: Yes
Generation Length (years): 12

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