The IUCN Red List of Threatened Species™
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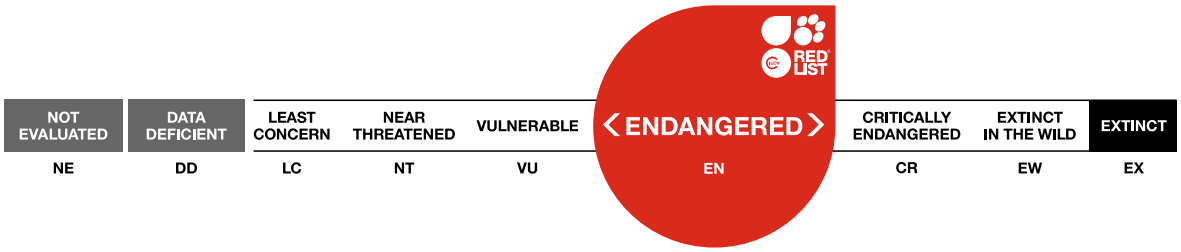
Scope(s): Global
Language: English

Sticta fragilinata, Tammy's Pumpkin Pails

Assessment by: Lendemer, J.



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Taxonomy

Kingdom	Phylum	Class	Order	Family
Fungi	Ascomycota	Lecanoromycetes	Peltigerales	Lobariaceae

Scientific Name: *Sticta fragilinata* T. McDonald

Common Name(s):

- English: Tammy's Pumpkin Pails

Assessment Information

Red List Category & Criteria: Endangered B2ab(iii) ver 3.1

Year Published: 2020

Date Assessed: July 15, 2020

Justification:

Sticta fragilinata is a macrolichen that is endemic to south-eastern North America. Its population is severely fragmented, and continuing declines in quality of habitat have been observed and at sites across its range. Therefore, it is listed as Endangered under criterion B2ab(iii) based on the Area of Occupancy (348-448 km^2).

Geographic Range

Range Description:

Sticta fragilinata is endemic to the southern Appalachian Mountains of eastern North America (Georgia, North Carolina, South Carolina, Tennessee) (see McDonald *et al.* 2003, Lendemer and Goffinet 2015).

Country Occurrence:

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

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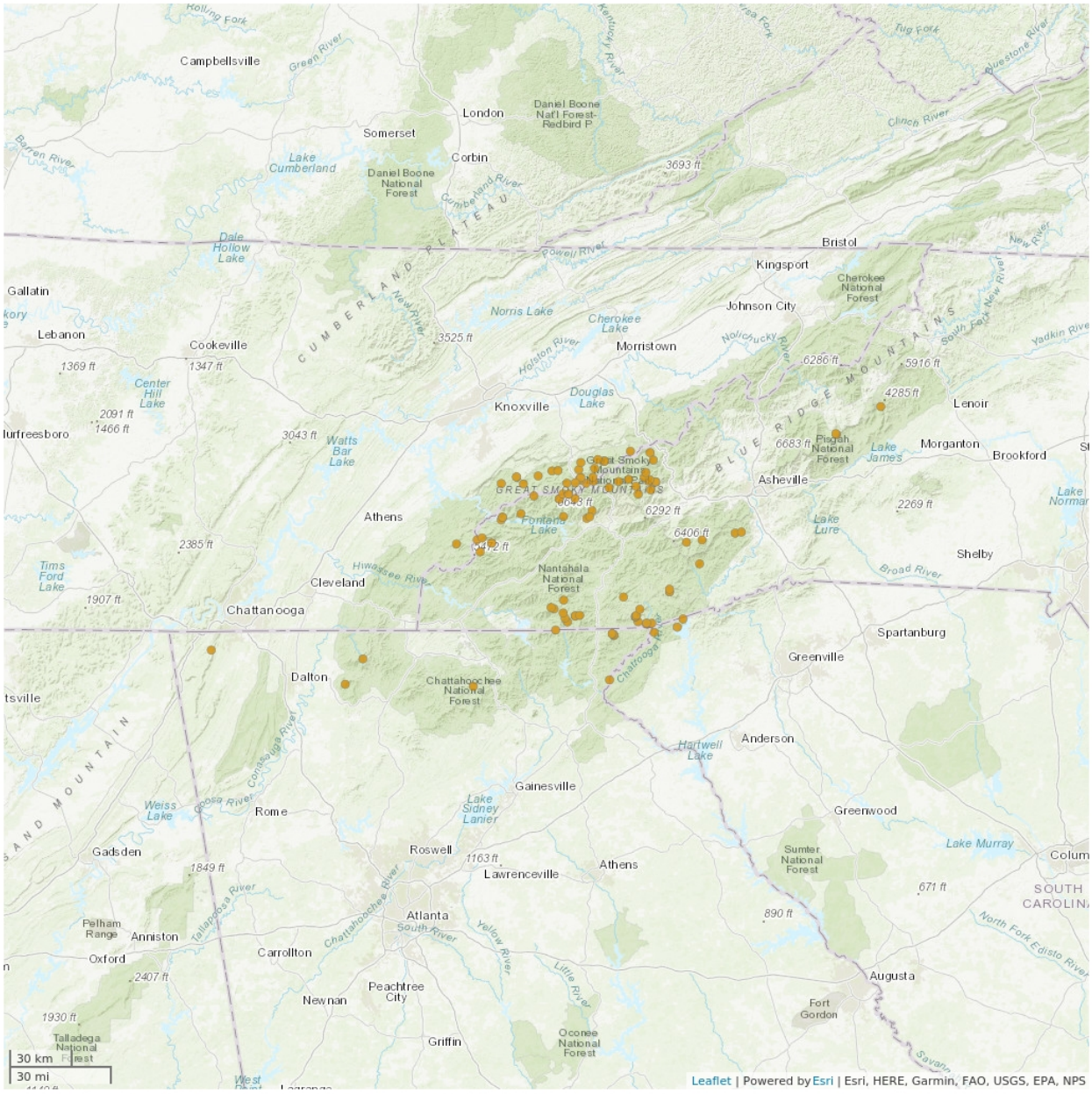
Distribution Map



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

The population of this species was likely naturally fragmented historically, occurring at sites in mature forest stands located in spatially restricted habitat types. At a site, the species is typically locally abundant, occurring as 1-5 clustered functional individuals. The current population size is estimated at 550-1,110 individuals based on a conservative estimate of 5-10 functional individuals per site, and its known occurrence at 111 sites. Although there may be a small number of undiscovered additional sites, at this time the it is suspected that the overall population size would not significantly differ from this figure. We suspect that the population declined historically (during the last 3 generations; 90 years, based on a 30 year generation time) due to the extensive history of logging throughout its range (1900-1970; Mastran and Lowerre 1983, Yarnell 1998), as well as substantial impacts from air pollution and acid rain/fog. These activities have led the present extant population to become highly fragmented, as the species is restricted to mature forest stands in suitable habitat and these areas are very limited in extent and are no longer contiguous (Ervin 2016). We suspect that the already fragmented and reduced population is currently decreasing due to numerous ongoing and projected trends in anthropogenic impacts that would directly affect this species (Keyser *et al.* 2013).

Current Population Trend: Decreasing

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

*Sticta fragilinata*s is restricted to mature forest stands in high quality habitats with high humidity, especially riparian corridors and Northern Hardwood Forests. It occurs primarily on the bark of hardwoods, especially mature sugar maple (*Acer saccharum*), buckeye (*Aesculus flava*) and oaks (*Quercus montana*, *Q. rubra*).

Systems: Terrestrial

Threats **(see Appendix for additional information)**

There are two primary pressures on this species, habitat fragmentation and loss (historical and ongoing) and impacts from air pollution and climate change (historical, ongoing and projected). The species occurs primarily on existing public land, some of which is large in overall area and some of which is available for multiple uses including resource extraction (Anderson *et al.* 2013). However, the species naturally occurs in isolated sites where suitable habitat exists within large areas that are not suitable (i.e. mature forest stands with high humidity are spatially restricted within a matrix of younger forests, forests without appropriate tree hosts, and drier habitats). These naturally dispersed locations were degraded and fragmented historically due to extensive logging, building of roads, alteration of riparian corridors by dams, and air pollution. Logging is ongoing at small scales within the range of the species. Fragmentation has continued as the region has undergone rapid population growth, suburbanisation and development of non-primary residences/infrastructure for vacation and recreation. Hence, available data indicates that the species is highly localised where it occurs, the habitat it has occurred in has become fragmented in the past and is now increasingly fragmented (Anderson *et al.* 2013). Further the region is currently experiencing climate change impacts (increased fire frequency and severity, droughts, increased temperatures, decreased precipitation) and extensive alteration of forest communities due to invasive species (Keyser *et al.* 2014), all of which are likely to impact the species.

Conservation Actions **(see Appendix for additional information)**

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Many areas where the species is known are within existing public lands, however locations outside of National Parks and federally designated wilderness could be subjected to resource extraction or further 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 and conservation planning would also be beneficial.

Credits

Assessor(s): Lendemer, J.

Reviewer(s): McMullin, T.

Facilitator(s) and Compiler(s): Allen, J. & Scott, T.

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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
M. Fungus
LC. Lichen

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	Minority (50%)	Unknown	Unknown
	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		
1. Residential & commercial development -> 1.2. Commercial & industrial areas	Ongoing	Minority (50%)	Unknown	Unknown
	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		
1. Residential & commercial development -> 1.3. Tourism & recreation areas	Ongoing	Majority (50-90%)	Slow, significant declines	Medium impact: 6
	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		
4. Transportation & service corridors -> 4.1. Roads & railroads	Ongoing	Majority (50-90%)	Slow, significant declines	Medium impact: 6
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.2. Species disturbance		

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5. Biological resource use -> 5.3. Logging & wood harvesting -> 5.3.3. Unintentional effects: (subsistence/small scale) [harvest]	Ongoing	Minority (50%)	Unknown	Unknown
	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		
5. Biological resource use -> 5.3. Logging & wood harvesting -> 5.3.4. Unintentional effects: (large scale) [harvest]	Ongoing	Minority (50%)	Unknown	Unknown
	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		
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
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.1. Species mortality		
7. Natural system modifications -> 7.2. Dams & water management/use -> 7.2.10. Large dams	Ongoing	Minority (50%)	Unknown	Unknown
	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		
8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.1. Unspecified species	Ongoing	Unknown	Unknown	Unknown
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 1. Ecosystem stresses -> 1.3. Indirect ecosystem effects		
9. Pollution -> 9.5. Air-borne pollutants -> 9.5.1. Acid rain	Ongoing	Whole (>90%)	Slow, significant declines	Medium impact: 7
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.2. Species disturbance		
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 2. Species Stresses -> 2.2. Species disturbance		
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 2. Species Stresses -> 2.1. Species mortality		
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 2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.2. Species disturbance		

11. Climate change & severe weather -> 11.4. Storms & flooding	Ongoing	Whole (>90%)	Slow, significant declines	Medium impact: 7
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.1. Species mortality 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
Percentage of population protected by PAs: 61-70
Occurs in at least one protected area: Yes

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
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
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

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Research Needed
2. Conservation Planning -> 2.1. Species Action/Recovery Plan
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) (km²): 348-448
Continuing decline in area of occupancy (AOO): Unknown
Extreme fluctuations in area of occupancy (AOO): No
Estimated extent of occurrence (EOO) (km²): 19550
Continuing decline in extent of occurrence (EOO): Unknown
Extreme fluctuations in extent of occurrence (EOO): No
Population
Number of mature individuals: 550-1,110
Extreme fluctuations: Unknown
Population severely fragmented: Yes
No. of subpopulations: 15
All individuals in one subpopulation: No
Habitats and Ecology
Continuing decline in area, extent and/or quality of habitat: Yes
Generation Length (years): 30

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The IUCN Red List Partnership

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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.