

Species Status Assessment

Common Name Atlantic White Cedar **Date Updated:** 2024-01-11
Scientific Name *Chamaecyparis thyoides* **Updated By:** Kyle J. Webster
Family Cupressaceae

Species Synopsis (a short paragraph which describes species taxonomy, distribution, recent trends, and habitat in New York):

Atlantic white cedar (*Chamaecyparis thyoides*) is a perennial, evergreen tree in the Cedar Family (Cupressaceae). It occurs along the Atlantic and Gulf Coastal Plains of the eastern United States, from Mississippi to central Florida, and north to southern Maine (NatureServe 2023, NYNHP 2023). There are two species of *Chaemaecyparis* in NY and *Chamaecyparis thyoides* represents the only native species (Werier et al. 2023).

Chamaecyparis thyoides is found in acidic swamps with a high-water table and deep organic soils along the Atlantic coast and southern New York (Edinger et al. 2014, NYNHP 2023, 2024). Historically, Atlantic white cedar swamps covered large areas in the coastal plain and floodplains in these areas (NYNHP 2024).

There has been a clear decline in Atlantic white cedar swamps over the last hundred years. However, a lack of recent survey data makes trends in the extant populations difficult to assess, and more up to date surveys are needed.

I. Status

a. Current legal protected Status

i. Federal: **Candidate:**
ii. New York: Threatened

b. Natural Heritage Program

i. Global: G4
ii. New York: S2 **Tracked by NYNHP?** On Active Tracking List

Other Ranks:

COSEWIC: Not listed in Canada
IUCN Red List: Least Concern

Status Discussion:

Chamaecyparis thyoides is Threatened in New York (Ring 2023). There are 34 known populations in New York, of which 31 are extant, two are historical, and one is extirpated. There are more historical populations, primarily on Long Island, that are not included in the maps and data below. Overall, this species has declined in the state due to the destruction of swamps in Nassau and Orange counties. The distribution is well known in the state, and while some small occurrences may still be discovered it is unlikely that large undocumented populations will be found. The majority of the extant populations are small, typically consisting of fewer than 100 trees. Only four of the extant populations are on protected lands.

II. Abundance and Distribution

Region	Present?	Abundance	Distribution	Time Frame	Listing status or S-Rank	SGCN?
North America	Yes	Unknown	Unknown	Unknown		
Northeastern US	Yes	Unknown	Unknown	Unknown		
New York	Yes	Unknown	Unknown	Unknown	T	
Connecticut	Yes	Unknown	Unknown	Unknown	SNR	
Massachusetts	Yes	Unknown	Unknown	Unknown	SNR	
New Jersey	Yes	Unknown	Unknown	Unknown	S5	
Pennsylvania	Yes	Unknown	Unknown	Unknown	SX	
Vermont	No	-	-	-		
Ontario	No	-	-	-		
Quebec	No	-	-	-		

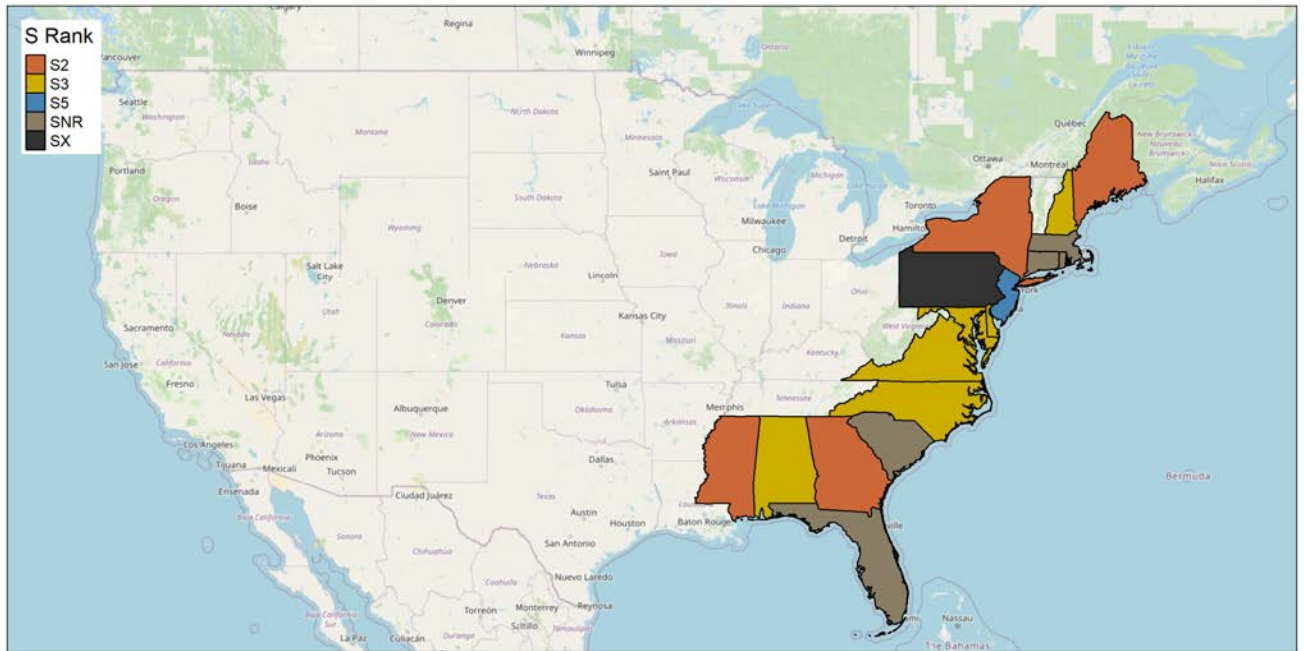


Figure 11: *Chamaecyparis thyoides* North American distribution.

Percent of North American Range in NY	Classification of NY Range	Distance to core population, if not in NY
1-25%	Core	Unknown

III. NY Rarity

Trends Discussion

A lack of recent survey data makes trends difficult to assess. However, in the last 100 years there has been a clear decline in Atlantic white cedar swamps in western Long Island and the lower Hudson Valley, including the destruction of large swamps in Nassau and Orange counties. Many of the remaining swamps are within developed landscapes without large natural buffers. More surveys are needed better determine the short-term trends of extant populations.

Details of historic and current occurrence

In New York, this species is known only from the Long Island and lower Hudson Valley regions. It currently extant in Nassau, Orange, Putnam, Rockland, Suffolk, and Westchester Counties with additional historical records from New York, Queens, and Richmond Counties. The historical records from these counties are presumed extirpated due to development. There are an estimated 3,000-10,000 extant individuals of *Chamaecyparis thyoides* present in the state.

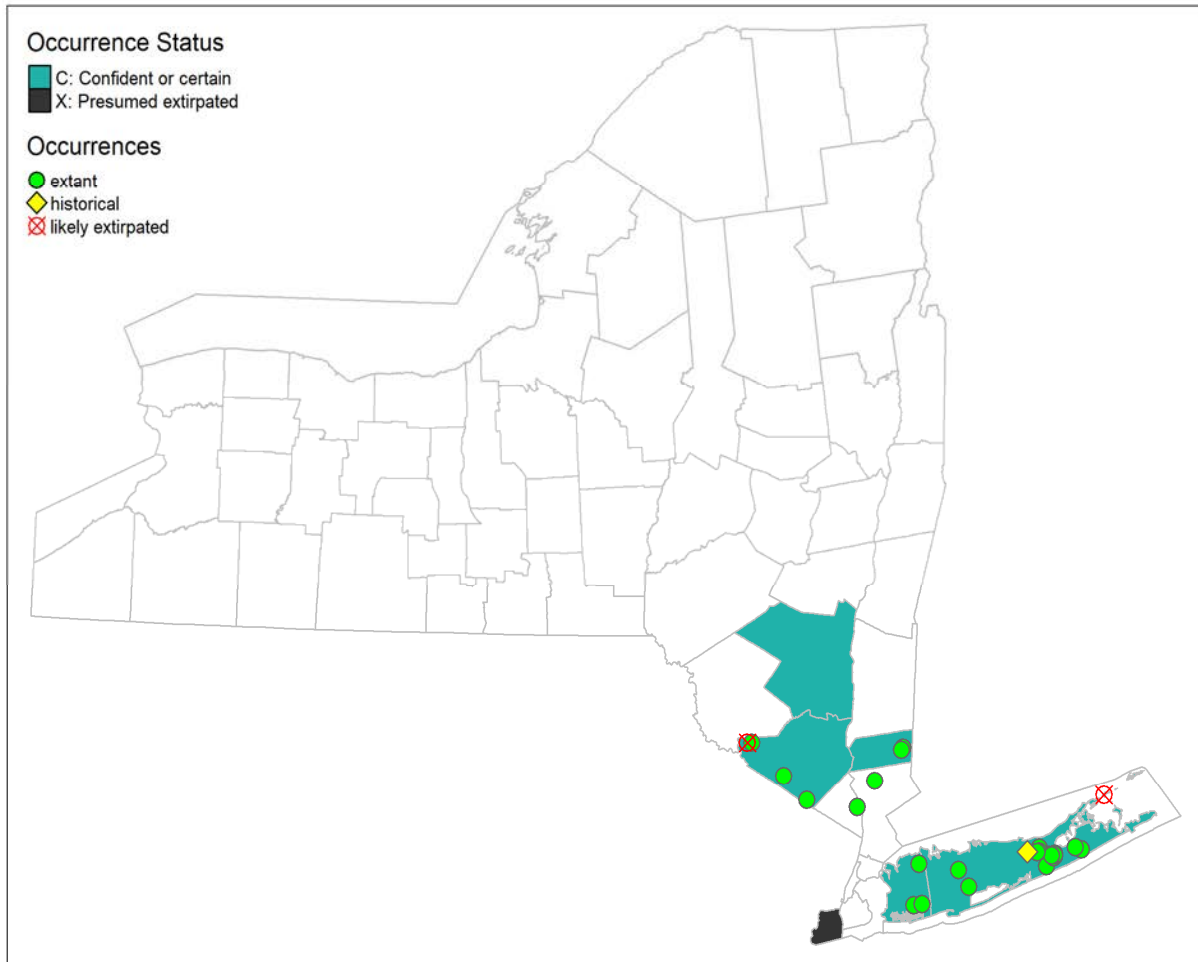


Figure 22: NYS distribution of *Chamaecyparis thyoides*.

Table 1. Number of records (element occurrences) of *Chamaecyparis thyoides* grouped by the dates known to be extant (the years spanning first observation to last observation) and the number and percent of total of USGS 7.5 minute map quadrangles these observations fall within for New York State.

Years	# of Records	# of distinct quads	% of quads in State
Pre-1995	19	14	1.4
1995-2004	3	3	0.3
2005-2014	4	4	0.4
2015-2023	2	2	0.2

Monitoring in New York

There are 34 populations known statewide, of which 31 are extant, two are historical, and one is extirpated. Four extant populations occur on NYS Park lands and are monitored on a ten-year rotation. None of the other populations have been regularly monitored. Of the 31 extant occurrences only six have been surveyed since the early 2000s (NYNHP 2023, 2024).

IV. Primary Habitat or Community Type (from NY crosswalk of NE Aquatic, Marine, or Terrestrial Habitat Classification Systems):

NatureServe broad habitat types: FORESTED WETLAND, Riparian, Bog/fen

NY Natural Heritage Communities: Coastal plain Atlantic white cedar swamp, Coastal plain pond, Inland Atlantic white cedar swamp, Pitch pine-blueberry peat swamp, Red maple-blackgum swamp

Habitat or Community Type Trend in New York

Declining: **Stable:** **Increasing:** **Unknown:** ✓
Time Frame of Decline/Increase:
Habitat Specialist **Yes:** ✓ **No:**

Habitat Discussion:

In New York, *Chamaecyparis thyoides* is found in Coastal plain Atlantic white cedar swamps, Coastal plain ponds, Inland Atlantic white cedar swamps, Pitch pine-blueberry peat swamps, and Red maple-blackgum swamps (Edinger et al. 2014, NYNHP 2023, 2024). These are typically acidic swamps with a high-water table and deep organic soils (Edinger et al. 2014, NYNHP 2024). Unlike northern white cedar (*Thuja occidentalis*), it is not associated with high pH sites or the influence of calcareous bedrock or groundwater (NYNHP 2024).

V. Species Demographics and Life History (include information about species life span, reproductive longevity, reproductive capacity, age to maturity, and ability to disperse and colonize):

Chamaecyparis thyoides is a perennial evergreen tree (Burns et al. 1990, Werier et al. 2023). Trees are monoecious but produce female and male flowers on separate branches (Burns et al. 1990). The trees bloom in April with male flowers producing wind-blown pollen and female flowers maturing into small cones with consisting of 5-15 winged seeds (Schopmeyer 1974). The seeds are shed from the cones and dispersed by wind from October through the winter (Schopmeyer 1974). Flower buds for the coming year are produced during the summer months (Schopmeyer 1974).

Atlantic white cedar has an intermediate shade tolerance (Schopmeyer 1974). Light is needed to initiate germination, though the amount of light needed can be as low as 16% of full sunlight (Fowells 1965). Seeds are capable of germinating without a cold stratification, but approximately half of seeds need 90 days of cold stratification before germinating (Schopmeyer 1974). Seeds will germinate on moist rotting wood, *Sphagnum* moss species, organic muck, and moist mineral soils, but standing water is not conducive to germination (Schopmeyer 1974). In swamps with a persistent high-water table, roots may only form in the upper 1-2 feet of soils and taproots formed by seedlings in the first year of growth are eventually lost (Schopmeyer 1974). These shallow root systems make the trees susceptible to wind-throw in storms (Schopmeyer 1974).

Trees can reproduce in as few as four to five years in open sites, but more commonly take 10 to 20 years in dense stands (Fowells 1965). Mature white cedars can reach heights of 12 to 18 meters (Fowells 1965). The height growth slows after 50 years and nearly ceases after 100

years, but Atlantic white cedars have been shown to be very long-lived trees, with some aged at over 1,000 years (Fowells 1965).

Table 2. Phenology of *Chamaecyparis thyoides* in New York State (NYNHP 2023).

Phenology	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Fruiting												
Vegetative												

VI. Threats

All but four of the known extant occurrences in New York occur on unprotected lands. These trees and swamps may be subject to habitat loss or direct destruction during logging activities or development. Many of the extant populations are small in size and extent making their habitats less resilient to non-native plant establishment, prolonged flooding, or storm damage. Salt water intrusion resulting from rising sea levels may also threaten some *Chamaecyparis thyoides* populations on Long Island.

Are there regulatory mechanisms that protect the species or its habitat in New York?

Yes: No: Unknown:

If yes, describe mechanism and whether adequate to protect species/habitat:

Describe knowledge of management/conservation actions that are needed for recovery/conservation, or to eliminate, minimize, or compensate for the identified threats:

Preserve the hydrologic regimes of the swamp and surrounding systems. Prevent the direct destruction of the swamps and trees from development. Consider invasive species management where necessary. Expand the natural buffers around extant populations and wetlands. Ehrenfeld and Schneider (1991) suggest using the maximum buffer width required by law adjacent to all Atlantic white cedar wetlands.

Complete Conservation Actions table using IUCN conservation actions taxonomy at link below. Use headings 1-6 for Action Category (e.g., Land/Water Protection) and associated subcategories for Action (e.g., Site/Area Protection) -

<https://www.iucnredlist.org/resources/conservation-actions-classification-scheme>

Table 2. Recommended conservation actions for *Chamaecyparis thyoides*.

Conservation Actions	
Action Category	Action
Land/water protection	1.1. Site/area protection

Conservation Actions	
Action Category	Action
Land/water protection	1.2. Resource & habitat protection
Land/water management	2.1. Site/area management
Land/water management	2.2. Invasive/problematic species control
Land/water management	2.3. Habitat & natural process restoration

VII. References

This SSA drew heavily from these resources:

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