Symphyotrichum concolor var. *concolor*

Eastern Silvery Aster

Asteraceae

Symphyotrichum concolor var. *concolor* by Bob Cunningham, 2011

***Symphyotrichum concolor* var. *concolor* Rare Plant Profile**

New Jersey Department of Environmental Protection
State Parks, Forests & Historic Sites
Forests & Natural Lands
Office of Natural Lands Management
New Jersey Natural Heritage Program

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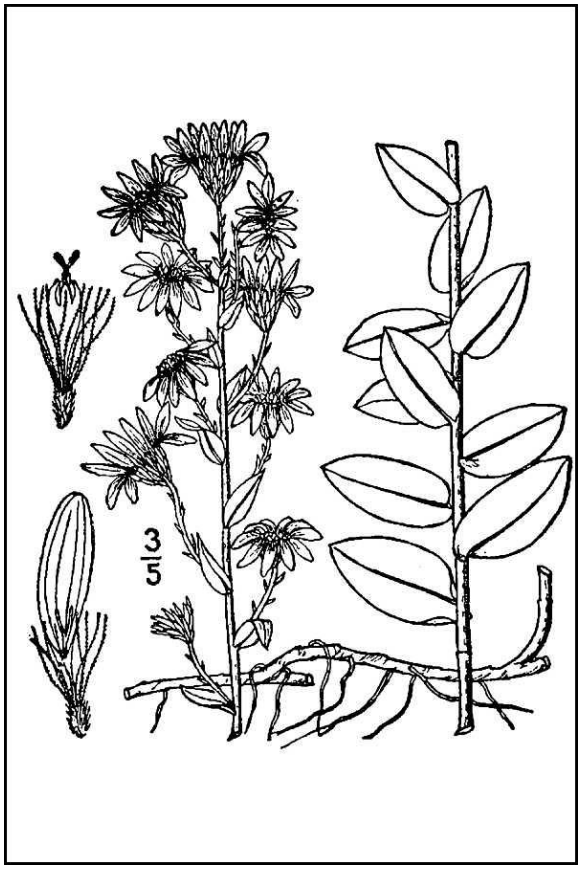
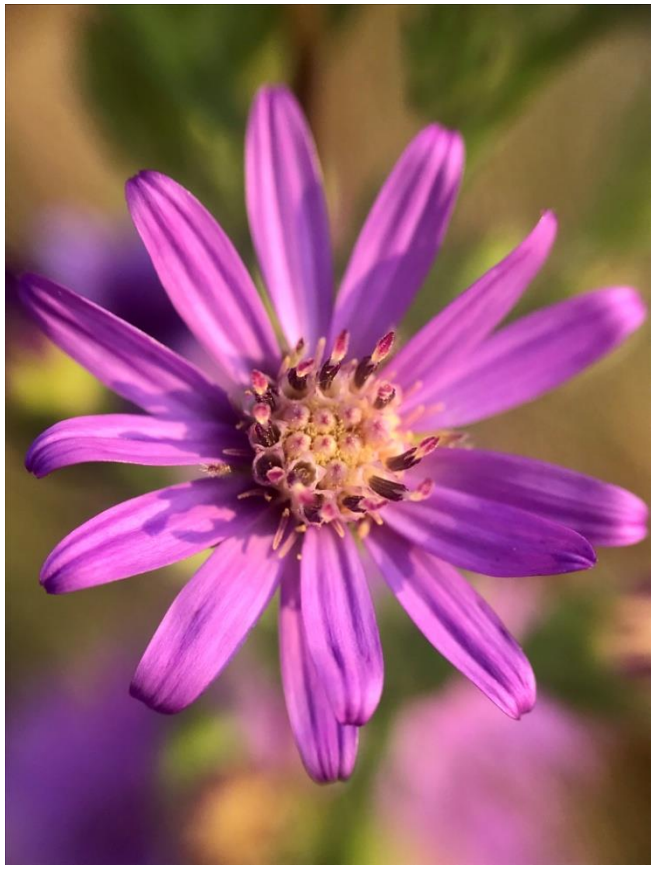
Life History

Symphyotrichum concolor var. *concolor* (Eastern Silvery Aster) is a perennial herb that can reproduce vegetatively, although it does not spread aggressively (Freeman et al. 2005, Gretchen 2018). The stems—which occur singly or in small clumps—are usually simple, hairy, 3–8 dm high, and somewhat woody at the base. All of the leaves are moderately to densely silky-hairy on both sides, although the larger basal and lower stem foliage usually withers before the plants bloom. The leaves on the flowering stems typically point upward: They are alternate, stalkless, entire, oblong to lanceolate, 9–15 mm long, and 1.8–5 mm wide. The inflorescence is sometimes described as spikelike or wandlike. *Symphyotrichum concolor* has showy flowers about 2 cm in width that are composite heads of both ray and disc florets. The flower bases and stalks are also hairy. Each head has 8–15 purple ray florets that are 4–9 mm long and 11–20 triangular-lobed disc florets that are initially pinkish but turn purple. The fruits are compressed, hairy achenes (cypselae) 2.5–3.5 mm in length, each bearing a 4–6 mm long pappus of tawny bristles. (See Barton 1818, Britton and Brown 1913, Fernald 1950, Gleason and Cronquist 1991, Levine 1995, Brouillet et al. 2020).





Left: Britton and Brown 1913, courtesy USDA NRCS 2025a. Right: Chase Mathey, 2021.

Throughout its range, *Symphyotrichum concolor* var. *concolor* may bloom from August through November, or occasionally December (Brouillet et al. 2020). The plants are vegetative for most of the summer. They are more likely to start flowering in August in parts of the northeast (Young and Weldy 2004, Polloni 2001, Freeman et al. 2005) whereas the southern plants usually

don't begin until September (Peattie 1937, Frye 2021, Weakley et al. 2024). The blooming period for New Jersey plants extends from mid-August to October (Stone 1911, Hough 1983), and in recent years New Jersey populations have been found in full flower during early October (NJNHP 2024).

Symphyotrichum was formerly included in *Aster*, and even after that unwieldy taxon was restructured by Nesom (1994) it remained a large genus so it has been subdivided into more manageable units. *Symphyotrichum concolor* was assigned to Subgenus *Virgulus* Section *Concolores*, along with *S. sericeum*, *S. pratense*, *S. plumosum*, and *S. lucayanum* (Semple 2005). The species were initially grouped together based on their morphology and the basic assemblage was retained through a number of nomenclatural shifts (Small 1924, Semple and Brouillet 1980, Nesom 1994). A recent molecular study supported the alliance, although the analysis indicated that several additional species may also be closely related (Vaezi and Brouillet 2009).

Pollinator Dynamics

Freeman et al. (2005) indicated that *Symphyotrichum concolor* was reliant on insects for cross-fertilization, although they did not identify any specific pollinators. The observation of a honeybee on *S. concolor* was noted by Polloni (2001), and Gretchen (2018) said that the flowers were attractive to butterflies. Eastern Silvery Aster can probably utilize multiple pollinators. Flowers of the closely related *S. sericeum* (Western Silvery Aster) are fertilized by a variety of insects, including bumblebees, halictid bees, and syrphid and bee flies (Robson 2010, ECCC 2017, Hilty 2020). In fact, many bees in the eastern United States (32 species) are pollen specialists on *Symphyotrichum* and other similar-flowered plants in the Asteraceae (Fowler and Droege 2020).

Low pollinator fidelity has been reported for both the Eastern and Western Silvery Asters. *Symphyotrichum concolor* and *S. sericeum* appear to compete with other flowering plants in the vicinity for the insects' attention. Both species also experience reduced seed set when fertilized with their own pollen. Reproductive success is likely to be greatest when the asters' population densities equal or exceed 2–4 plants per square meter (Freeman et al. 2005, Robson 2010, ECCC 2017).

Seed Dispersal and Establishment

The bristly pappus on the end of a *Symphyotrichum* fruit is an adaptation for wind dispersal. A detailed study of the structures in *Symphyotrichum* and several other genera in the Asteraceae found that multiple whorls of bristles are usually present (Semple and Hood 2005). A pappus generally aids in wind dispersal by acting as a parachute, although differences in the morphology of both seeds and pappi determine how far the propagules of any given species are able to travel (Greene and Johnson 1990, Anderson 1993). Dispersal distances can also be affected by wind velocity and the relative openness of the habitat (Lacroix et al. 2007). Since wind dispersal results in random distribution, species that produce a large number of seeds improve the odds that some will land in favorable microsites (Venable and Levin 1983).

Gretchen (2018) noted that *Symphyotrichum concolor* had a moderate ability to spread by seed, but little specific information was found regarding its germination and establishment. A 57.2% survival rate for two-year-old container grown seedlings was reported by Aschenbach et al. (2010). Other perennial *Symphyotrichum* species studied by Baskin and Baskin (1988), including *S. patens* and *S. pilosus*, germinated during the first growing season after dispersal. Arbuscular mycorrhizae have been recorded in Western Silvery Aster (*S. sericeum*) but experimental suppression of fungal growth in the species indicated that the associations were not essential (Wilson et al. 2001, Wang and Qiu 2006).

Habitat

In New Jersey, typical habitat for *Symphyotrichum concolor* var. *concolor* is dry, sandy ground in fields or open pine woodlands with a sparse understory. It has occasionally been collected from disturbed locations around old buildings or along railways and roads. Most of the sites where populations are currently present experience periodic disturbances from fire or roadside maintenance (Britton 1889, Keller and Brown 1905, Fairbrothers and Hough 1973, Calazza and Fairbrothers 1980, Hough 1983, NJNHP 2024).

In the core of its range, *Symphyotrichum concolor* var. *concolor* is usually found in similar xeric or subxeric communities on sandy (occasionally loamy or rocky) substrate at elevations of 0–600 meters above sea level. Longleaf Pine (*Pinus palustris*) is often the dominant tree species and shrubby oaks (*Quercus* spp.) or Southern Wiregrass (*Aristida beyrichiana*) are frequently present. Typical habitats include sandhills, flatwoods, dry hammocks, and gaps created by human activities (Sorrie et al. 2006, Boyle et al. 2007, Carr et al. 2010, Majure et al. 2011, Creech et al. 2012, Palmquist et al. 2014, Brouillet et al. 2020). *S. concolor* has also been found in Alabama's Ketona Glades (Allison and Stevens 2001), a piedmont prairie remnant in North Carolina (Tompkins et al. 2010), and sandstone outcrop and bluff communities in Tennessee (Evans et al. 2016).

Szakacs et al. (2022) characterized *Symphyotrichum concolor* as a generalist in terms of light requirements but other sources indicate that it has a strong preference for an open canopy and only tolerates very light shade (Gretchen 2018, Weakley et al. 2024). Many of the natural communities utilized by the aster are fire prone, and it tends to be recorded in sites that have been burned on a regular basis (Alford 2001, Sorrie et al. 2006, Carr et al. 2010, Ostertag and Robertson 2012, McFarland et al. 2020, Wiebush 2020). Other anthropogenic habitats where it occurs such as cemeteries, roadsides, or utility corridors are kept open by repeated disruptions associated with their maintenance (Aschenbach et al. 2010, Kees 2022, Dixon et al. 2024). Periodic disturbances from coastal storms were noted in one Florida pine savanna that was associated with an estuary (Tate and Battaglia 2013).

At the northern end of its range along the coast of Massachusetts (and formerly on Long Island) *Symphyotrichum concolor* var. *concolor* is associated with sandplain grasslands. The globally rare communities have been created and perpetuated by an array of disturbances that include fire, salt spray, livestock grazing, and other human activities. The habitats are dominated by graminoid species such as *Schizachyrium scoparium* and *Carex pensylvanica* but they also

support an assortment of rare herbaceous plants (Dunwiddie 1998, Freeman et al. 2005, Poulous et al. 2019, Kinnebrew et al. 2020).

Wetland Indicator Status

Symphyotrichum concolor is not included on the National Wetlands Plant List (NWPL). Any species not on the NWPL is considered to be Upland (UPL) in all regions where it occurs. The UPL designation means that it almost never occurs in wetlands (U. S. Army Corps of Engineers 2022).

USDA Plants Code (USDA, NRCS 2025b)

The USDA code for *Symphyotrichum concolor* is SYCO3. No subtaxa are recognized.

Coefficient of Conservancy (Walz et al. 2020)

CoC = 6. Criteria for a value of 6 to 8: Native with a narrow range of ecological tolerances and typically associated with a stable community (Faber-Langendoen 2018).

Distribution and Range

The global range of *Symphyotrichum concolor* var. *concolor* is restricted to the eastern and south-central United States. Some sources also include the Bahamas as part of its range but reports from that locality were apparently based on a similar species (Weakley et al. 2024, POWO 2025). The map in Figure 1 depicts the extent of the variety in North America. The other variety (*S. concolor* var. *devestitum*) —which is not universally recognized—is only confirmed from the Florida panhandle but there may be additional occurrences in a few adjacent states (Semple 2004, Brouillet et al. 2020, Weakley et al. 2024, NatureServe 2025).

The USDA PLANTS Database (2025b) shows records of *Symphyotrichum concolor* in nine New Jersey counties: Atlantic, Burlington, Cumberland, Gloucester, Mercer, Middlesex, Monmouth, Ocean, and Salem (Figure 2). Eastern Silvery Aster has also been documented in Camden and Cape May counties (NJNHP 2024, Mid-Atlantic Herbaria 2025). The data include historic observations and do not reflect the current distribution of the species.

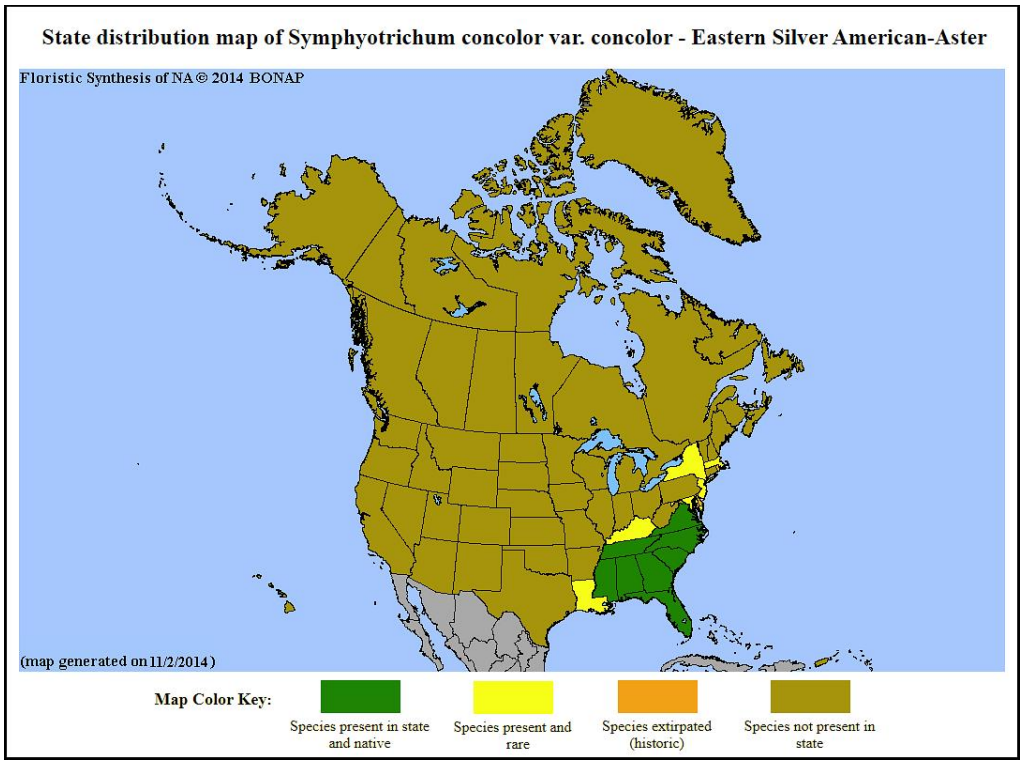


Figure 1. Distribution of S. concolor var. concolor in North America, adapted from BONAP (Kartesz 2015).

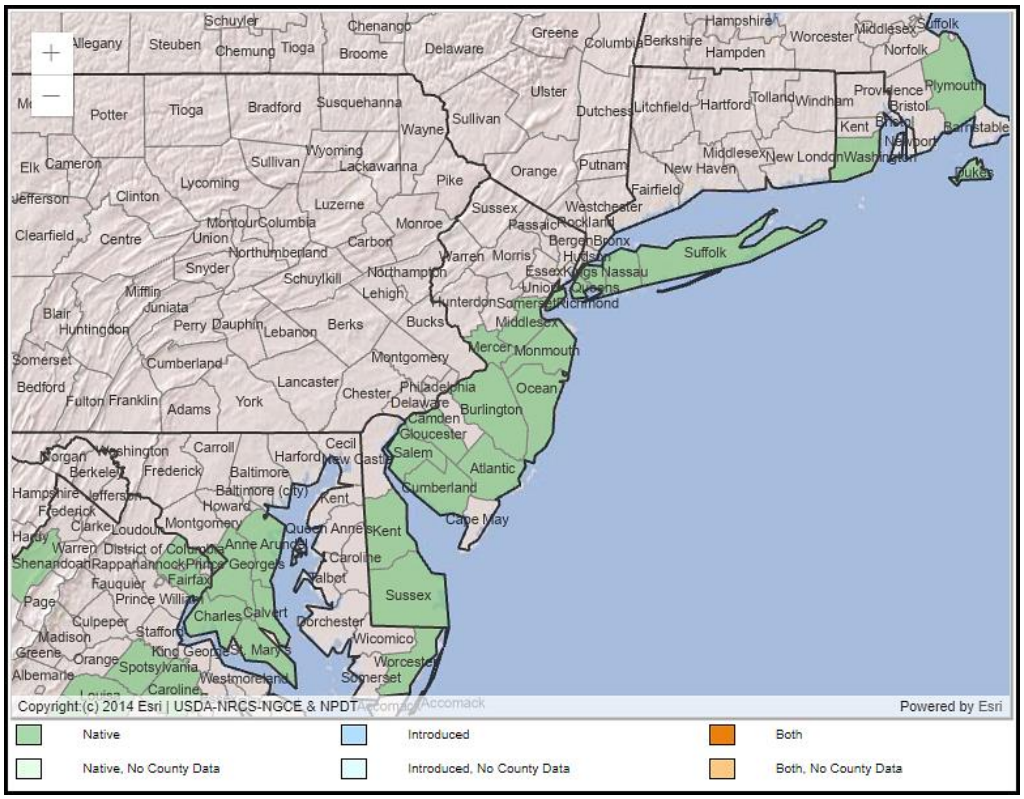


Figure 2. County records of S. concolor var. concolor in New Jersey and vicinity (USDA NRCS 2025b).

Conservation Status

Symphyotrichum concolor var. *concolor* is considered globally secure. The G5T5 rank means the variety has a very low risk of extinction or collapse due to a very extensive range, abundant populations or occurrences, and little to no concern from declines or threats (NatureServe 2025). The map below (Figure 3) is somewhat misleading because it only shows states where *S. concolor* is listed at the varietal level: Some of the other states where it occurs do not recognize subtaxa. The map shows the variety as imperiled (high risk of extinction) in Kentucky, critically imperiled (very high risk of extinction) in New Jersey, and possibly extirpated in Delaware and New York. *Symphyotrichum concolor* is also critically imperiled in Maryland and possibly extirpated in Rhode Island, and it is present in a number of additional states (see distribution map in Figure 1) where it is secure, apparently secure, or unlisted (RINHS 2016, Frye 2021, NatureServe 2025).

Symphyotrichum concolor has been identified as a plant species of highest conservation priority for the North Atlantic region, which includes four Canadian provinces and twelve U. S. states. The species has a rank of R1 (critically imperiled), signifying a very high risk of regional extinction (Frances 2017).

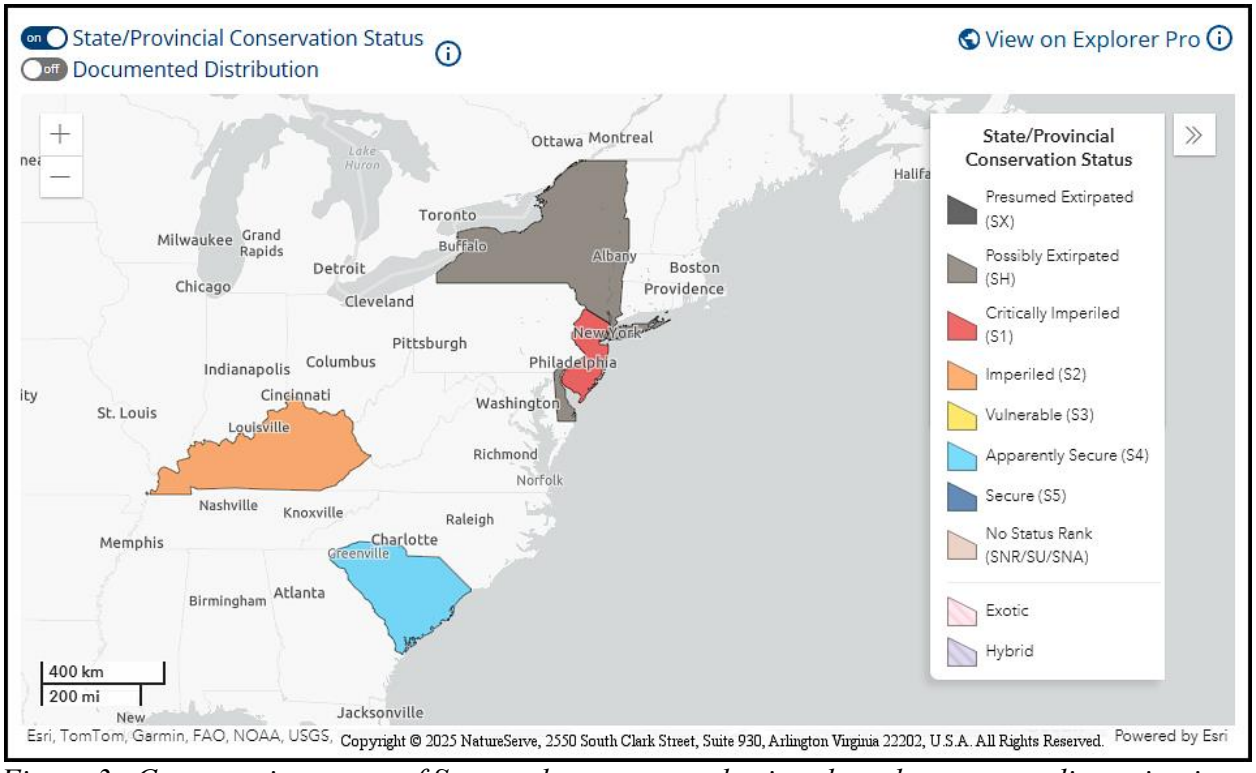


Figure 3. Conservation status of S. concolor var. concolor in selected states; see discussion in text (NatureServe 2025).

As previously stated, *Symphyotrichum concolor* var. *concolor* is critically imperiled (S1) in New Jersey (NJNHP 2024). The rank signifies five or fewer occurrences in the state. A species with an S1 rank is typically either restricted to specialized habitats, geographically limited to a small area of the state, or significantly reduced in number from its previous status. Additional regional

status codes assigned to Eastern Silvery Aster signify that the species is eligible for protection under the jurisdictions of the Highlands Preservation Area (HL) and the New Jersey Pinelands (LP) (NJNHP 2010).

William Barton (1818) described *Symphyotrichum concolor* as "*A very elegant species, well worthy of cultivation in gardens*" and he did indeed transplant the aster into his own garden. The source of his plants was probably located in Gloucester County, as he observed that the species was abundant in the vicinity of Woodbury and remarked that he had not encountered it anywhere in Pennsylvania. During the late 1800s and early 1900s *S. concolor* was generally characterized as 'common' or 'frequent' in southern New Jersey, particularly in the Pine Barrens (Willis 1877, Britton 1889, Keller and Brown 1905, Stone 1911, Taylor 1915). During the twentieth century it disappeared from many of the sites where it had previously been found. Fairbrothers and Hough (1973) noted that *S. concolor* was reputed to be decreasing each year, Calazza and Fairbrothers (1980) characterized it as threatened, and it was classified as rare and declining by Snyder and Vivian (1981), who indicated that it was only thought to be persisting at a few sites in three counties and had not been seen for many decades in others. Eastern Silvery Aster was one of 54 plant species prioritized for protection in the initial Pinelands Comprehensive Management Plan (NJ Pinelands Commission 1980). It was identified as imperiled (S2) when state rankings were first established, and the aster was still known from a number of New Jersey locations at the turn of the century. Its status was revised to critically imperiled during the past decade. Only four populations are now thought to be extant in New Jersey and 64 other occurrences are ranked as historical or extirpated (NJONLM 1992, Lamont and Fitzgerald 2001, NJNHP 2016, NJNHP 2024).

Threats

It might not be a coincidence that the precipitous decline of *Symphyotrichum concolor* var. *concolor* in New Jersey coincided with the creation and expansion of the state's Forest Fire Service during the 1900s (NJDEP 2020). Fire suppression has been identified as a threat to the habitats utilized by *S. concolor* throughout its range because the aster and other sun-loving herbaceous species are eliminated as woody plants increase in dominance (Polloni 2001, Farnsworth 2007, Palmquist et al. 2014, Poulos et al. 2019, Kinnebrew et al. 2020). Fires also stimulate flower production in *S. concolor*, making the plants more attractive to pollinators and increasing the probability of cross-fertilization and successful seed set (Freeman et al. 2005, Wiebush 2020). *S. concolor* populations in the state are currently confined to road edges or locations where prescribed burns are conducted on a regular basis. The roadside populations are vulnerable to overly frequent mowing, scraping, or vehicular damage associated with parking. The loss of one historical occurrence was probably due to a combination of habitat alteration, aggressive mowing, and off-road vehicle activity. In addition to threats from natural succession, certain invasive plants (*Lespedeza cuneata*, *Eragrostis curvula*) have been noted as concerns for extant occurrences of Eastern Silvery Aster in southern New Jersey (NJNHP 2024).

A combination of low fruit set and significant losses to seed predators such as weevils threaten populations of the Western Silvery Aster, *Symphyotrichum sericeum* (Robson 2010, ECCC 2017). Some seed predation has been recorded in *S. concolor* but mammalian herbivory appears

to pose a greater threat to plants in the northeast (Polloni 2001). Browsing damage was noted on 34–43% of the Eastern Silvery Aster plants in three Massachusetts populations studied by Freeman et al. (2005), whereas damage by seed predators was recorded in less than 7%. All of New Jersey's extant occurrences of *S. concolor* are very small so the loss of even a few reproductive stems is likely to exacerbate the decline of those populations.

Climate Change Vulnerability

Information from the references cited in this profile was used to evaluate the vulnerability of New Jersey's *Symphyotrichum concolor* var. *concolor* populations to climate change. The species was assigned a rank from NatureServe's Climate Change Vulnerability Index using the associated tool (Version 3.02) to estimate its exposure, sensitivity, and adaptive capacity to changing climactic conditions in accordance with the guidelines described by Young et al. (2016) and the state climactic computations by Ring et al. (2013). Based on available data *S. concolor* was assessed as Less Vulnerable, meaning that climate change is not expected to have a notable detrimental impact on its extent in New Jersey by 2050.

As a result of global warming the plant communities in New Jersey are increasingly exposed to higher temperatures, shifting precipitation patterns that increase the frequency and intensity of local droughts and floods, and rising sea levels along the coast (Hill et al. 2020). The range of *S. concolor* var. *concolor* indicates that it adapted to warmer conditions, and the species is also very tolerant of drought (Gretchen 2018). No information was found regarding its capacity to survive extended periods of inundation. A estuarine study in Florida indicated that *S. concolor* could withstand storm surge but not the deposition of wrack upon the plants (Tate and Battaglia 2013); however, the New Jersey populations are presently situated well beyond the reach of the tides. The most immediate threat to occurrences in the state will probably be increasing competition from invasive plants, which are predicted to become an even greater threat in the region as the climate continues to warm (Bellard et al. 2013, Salva and Bradley 2023).

Management Summary and Recommendations

Short-term protection of some small roadside occurrences of *Symphyotrichum concolor* might be accomplished by restricting mowing during the growing season or via the judicious placement of barriers to deter parking, scraping, or dumping in their immediate vicinity. Long-term persistence of the populations is likely to depend on the local availability of open microsites for seedlings establishment and may require the removal of some invasive plants. On a landscape-level scale, the species' chances of success will almost certainly be enhanced in parts of the state where controlled burns are implemented. Calazza and Fairbrothers (1980) suggested that *S. concolor* would benefit from low intensity fires that reduce the shrub layer without damaging the trees. Excessively hot burns can be lethal to the aster (Creech et al. 2012). Data from a long-term study of fire effects indicates that winter burning is most favorable for *S. concolor* (Kush et al. 2000). Intervals of three years or less are recommended to keep the growth of woody plants in check (Poulos et al. 2019).

The collection sites associated with more than four dozen historical New Jersey occurrences of Eastern Silvery Aster have not been searched so undetected populations might still be present in some of those places (NJNHP 2024). Surveys of the sites that are located in portions of the pinelands where controlled burning has been conducted in recent years should be prioritized. Because of its former abundance in the state, *S. concolor* might be a suitable candidate for assisted dispersal in the event that additional occurrences cannot be found. The aster is easy to grow from seed (Aschenbach et al. 2010, Gretchen 2018) so local stock from small, isolated populations in fragile habitats could be introduced to communities which are already being managed in ways that are compatible with the species' requirements. Protection from mammalian herbivores might improve the odds of successful colonization.

As is often the case with rare plants, additional research could improve the effectiveness of long-term conservation planning for *Symphyotrichum concolor* var. *concolor*. Some areas where more specific information would be helpful include pollination mechanisms, seed longevity, and establishment requirements. Although the aster is nearly always found growing on well-drained substrate it might also be useful to explore its tolerance for flooding, which could occur with greater frequency at some sites as a result of shifting climactic conditions.

Synonyms

The accepted botanical name of the species is *Symphyotrichum concolor* (L.) Nesom var. *concolor*. Orthographic variants, synonyms, and common names are listed below (ITIS 2025, POWO 2025, USDA NRCS 2025b).

Botanical Synonyms	**Common Names**
Aster concolor f. *lasiocaulis* Fernald	Eastern Silvery Aster
Aster concolor var. *simulatus* (Small) R. W. Long	Eastern Silver American-aster
Aster simulatus Small	Pine Aster
Lasallea concolor (L.) Semple & L. Brouillet	Soft-leaved Aster
Virgaria concolor Raf. ex DC.	
Virgulus concolor (L.) Reveal & Keener	

References

Alford, Mac H. 2001. The vascular flora of Amite County, Mississippi. SIDA 19(3): 645–699.

Allison, James R. and Timothy E. Stevens. 2001. Vascular flora of Ketona dolomite outcrops in Bibb County, Alabama. Castanea 66 (1-2): 154–205.

Andersen, Mark C. 1993. Diaspore morphology and seed dispersal in several wind-dispersed Asteraceae. American Journal of Botany 80(5): 487–492.

Aschenbach, Todd A., Bryan L. Foster, and Donald W. Imm. 2010. The initial phase of a Longleaf Pine-Wiregrass savanna restoration: Species establishment and community responses. Restoration Ecology 18(5): 762–771.

Barton, William P. C. 1818. Compendium Floræ Philadelphicæ: Containing a Description of the Indigenous and Naturalized Plants Within A Circuit of Ten Miles Around Philadelphia. Volume II. M. Carey and Son, Philadelphia, PA. 234 pp.

Baskin, Carol C. and Jerry M. Baskin. 1988. Germination ecophysiology of herbaceous plant species in a temperate region. American Journal of Botany 75(2): 286–305.

Bellard, C., W. Thuiller, B. Leroy, P. Genovesi, M. Bakkenes, and F. Courchamp. 2013. Will climate change promote future invasions? Global Change Biology 19(12): 3740–3748.

Boyle, M. Forbes, Robert K. Peet, Thomas R. Wentworth, and Michael P. Schafale. 2007. Natural Vegetation of the Carolinas: Classification and Description of Plant Communities of Bladen County, NC and Vicinity. Report prepared for the Ecosystem Enhancement Program, North Carolina Department of Environment and Natural Resources. 58 pp.

Britton, N. L. 1889. Catalogue of plants found in New Jersey. Geological Survey of New Jersey, Final Report of the State Geologist 2: 27–642.

Britton, N. L. and A. Brown. 1913. An Illustrated Flora of the Northern United States and Canada in three volumes: Volume III (Gentian to Thistle). Second Edition. Reissued (unabridged and unaltered) in 1970 by Dover Publications, New York, NY. 637 pp.

Brouillet, Luc, John C. Semple, Geraldine A. Allen, Kenton L. Chambers, and Scott D. Sundberg. Page updated July 29, 2020. *Symphyotrichum concolor* var. *concolor*. In: Flora of North America Editorial Committee, eds. 1993+. Flora of North America North of Mexico [Online]. 22+ vols. New York and Oxford. Accessed August 30, 2025 at http://dev.floranorthamerica.org/Symphyotrichum_concolor_var._concolor

Calazza, Nicholas and David E. Fairbrothers. 1980. Threatened and endangered vascular plant species of the New Jersey Pinelands and their habitats. Report prepared for the New Jersey Pinelands Commission. Available at https://rucore.libraries.rutgers.edu/rutgers-lib/37776/PDF/1/play/

Carr, Susan C., Kevin M. Robertson, and Robert K. Peet. 2010. A vegetation classification of fire-dependent pinelands of Florida. Castanea 75(2): 153–189.

Creech, Michelle N., L. Katherine Kirkman, and Lawrence A. Morris. 2012. Alteration and recovery of slash pile burn sites in the restoration of a fire-maintained ecosystem. Restoration Ecology 20(4): 505–516.

Cunningham, Bob. 2011. Cover photo of *Symphyotrichum concolor* var. *concolor*. Used with permission.

Dixon, Cinnamon M., Kevin M. Robertson, Angela M. Reid, and Monica T. Rother. 2024. Mechanical soil disturbance in a pine savanna has multiyear effects on plant species composition. Ecosphere 15(2): e4759.

Dunwiddie, Peter W. 1998. Ecological management of sandplain grasslands and coastal heathlands in southeastern Massachusetts. In Teresa L. Pruden and Leonard A. Brennan (eds.). Fire in Ecosystem Management: Shifting the Paradigm from Suppression to Prescription. Tall Timbers Fire Ecology Conference Proceedings, No. 20. Tall Timbers Research Station, Tallahassee, FL.

ECCC (Environment and Climate Change Canada). 2017. Recovery Strategy for the Western Silvery Aster (*Symphyotrichum sericeum*) in Canada. Species at Risk Act Recovery Strategy Series. Environment and Climate Change Canada, Ottawa, Ontario. 53 pp.

Evans, Jonathan P., Callie A. Oldfield, Mary P. Priestley, Yolande M. Gottfried, L. Dwayne Estes, Alfire Sidik, and George S. Ramseur. 2016. The vascular flora of the University of the South, Sewanee, Tennessee. Castanea 81(3): 206–236.

Faber-Langendoen, D. 2018. Northeast Regional Floristic Quality Assessment Tools for Wetland Assessments. NatureServe, Arlington, VA. 52 pp.

Fairbrothers, David E. and Mary Y. Hough. 1973. Rare or Endangered Vascular Plants of New Jersey. Science Notes No. 14, New Jersey State Museum, Trenton, NJ. 53 pp.

Farnsworth, Elizabeth J. 2007. Plant life history traits of rare versus frequent plant taxa of sandplains: Implications for research and management trials. Biological Conservation 136: 44–52.

Fernald, M. L. 1950. Gray's Manual of Botany. Dioscorides Press, Portland, OR. 1632 pp.

Fowler, Jarrod and Sam Droege. 2020. Pollen Specialist Bees of the Eastern United States. Available at https://jarrodfowler.com/specialist_bees.html

Frances, Anne (Principal Investigator). 2017. Prioritization and Conservation Status of Rare Plants in the North Atlantic - Final Report. Report prepared for NatureServe by the North Atlantic Landscape Conservation Cooperative, Hadley, MA. Available at https://www.natureserve.org/publications/prioritization-and-conservation-status-rare-plants-north-atlantic-final-report

Freeman, Rachael S., Ernest M. Steinauer, and Sarah A. Treanor. 2005. The Effect of Management on the State-listed Endangered Species *Symphyotrichum concolor* (Asteraceae) on Nantucket Island. Report prepared for the Massachusetts Natural Heritage and Endangered Species Program. 26 pp.

Frye, C. (ed.). 2021. Rare, Threatened, and Endangered Plants of Maryland. DNR 03-030321-270, Maryland Natural Heritage Program, Department of Natural Resources, Annapolis, MD.

Gleason, H. A. and A. Cronquist. 1991. Manual of Vascular Plants of Northeastern United States and Adjacent Canada. Second Edition. The New York Botanical Garden, Bronx, NY. 910 pp.

Greene, D. F. and E. A. Johnson. 1990. The aerodynamics of plumed seeds. Functional Ecology 4: 117–125.

Gretchen, Peggy A. 2018. Eastern Silver Aster. The Nature Coastline (Sept/Oct 2018): 9–10.

Hill, Rebecca, Megan M. Rutkowski, Lori A. Lester, Heather Genievich, and Nicholas A. Procopio (eds.). 2020. New Jersey Scientific Report on Climate Change, Version 1.0. New Jersey Department of Environmental Protection, Trenton, NJ. 184 pp.

Hilty, John. 2020. *Aster sericeus*. Illinois Wildflowers. Accessed September 3, 2025 at https://illinoiswildflowers.info/flower_insects/plants/silky_aster.htm

Hough, Mary Y. 1983. New Jersey Wild Plants. Harmony Press, Harmony, NJ. 414 pp.

ITIS (Integrated Taxonomic Information System). Accessed February 6, 2025 at http://www.itis.gov

Kartesz, J. T. 2015. The Biota of North America Program (BONAP). Taxonomic Data Center. (http://www.bonap.net/tdc). Chapel Hill, NC. [Maps generated from Kartesz, J. T. 2015. Floristic Synthesis of North America, Version 1.0. Biota of North America Program (BONAP) (in press)].

Kees, John. 2022. The flora of Fair River Farm, Lincoln County, Mississippi, U.S.A. Journal of the Botanical Research Institute of Texas 16(1): 227–254.

Keller, Ida A. and Stewardson Brown. 1905. Handbook of the Flora of Philadelphia and Vicinity. Philadelphia Botanical Club, Philadelphia, PA. 360 pp.

Kinnebrew, Eva, Lena K. Champlin, Gillian L. Galford, and Christopher Neill. 2020. Woody plant encroachment into coastal grasslands: Consequences for soil properties and plant diversity. Regional Environmental Change 20(3): Article 94.

Kush, John S., Ralph S. Meldahl, and William D. Boyer. 2000. Understory plant community response to season of burn in natural Longleaf Pine forests. In W. Keith Moser and Cynthia F. Moser (eds.), Fire and Forest Ecology: Innovative Silviculture and Vegetation Management. Tall Timbers Fire Ecology Conference Proceedings, No. 21. Tall Timbers Research Station, Tallahassee, FL.

Lacroix, Christian R., Royce Stevens, and Joni F. Kemp. 2007. Floral development, fruit set, and dispersal of the Gulf of St. Lawrence Aster (*Symphyotrichum laurentianum*) (Fernald) Nesom. Canadian Journal of Botany 85: 331–341.

Lamont, Eric E. and Judith M. Fitzgerald. 2001. Noteworthy plants reported from the Torrey Range, 2000. The Journal of the Torrey Botanical Society 128(4): 409–414.

Levine, Carol. 1995. A Guide to Wildflowers in Winter. Yale University Press, New Haven, CT. 329 pp.

Majure, Lucas C., Jovonn Hill, Chris Doffitt, and Terrence C. Majure. 2011. The vascular flora of Lauderdale County, Mississippi, U.S.A. Rhodora 113(956): 365–418.

Mathey, Chase. 2021. Photo of *Symphyotrichum concolor* from Massachusetts. Shared via iNaturalist at https://www.inaturalist.org/observations/94869165, licensed by https://creativecommons.org/licenses/by-nc/4.0/

McFarland, William J., Danielle Cotton, Mac H. Alford, and Michael A. Davis. 2020. The vascular flora of the Lake Thoreau Environmental Center, Forrest and Lamar counties, Mississippi, with comments on compositional change after a decade of prescribed fire. Journal of the Botanical Research Institute of Texas 14(2): 413–433.

Mid-Atlantic Herbaria. 2025. Accessed at https://midatlanticherbaria.org/portal/index.php on August 30, 2025.

NatureServe. 2025. NatureServe Explorer [web application]. NatureServe, Arlington, VA. Accessed August 30, 2025 at https://explorer.natureserve.org/

Nesom, G. L. 1994. Review of the taxonomy of *Aster* sensu lato (Asteraceae: Astereae), emphasizing the new world species. Phytologia 77(3): 141–297.

NJDEP (NJ Department of Environmental Protection). 2020. New Jersey Forest Fire Service: Our History. Accessed August 30, 2025 at https://www.nj.gov/dep/parksandforests/fire/about/history.html

NJNHP (New Jersey Natural Heritage Program). 2010. Explanation of Codes Used in Natural Heritage Reports. Updated March 2010. Available at https://nj.gov/dep/parksandforests/natural/docs/nhpcodes_2010.pdf

NJNHP (New Jersey Natural Heritage Program). 2016. List of Endangered Plant Species and Plant Species of Concern. Biotics Database. NatureServe, Arlington, VA. Accessed June 2016.

NJNHP (New Jersey Natural Heritage Program). 2024. Biotics 5 Database. NatureServe, Arlington, VA. Accessed March 15, 2024.

NJONLM (New Jersey Office of Natural Lands Management). 1992. Special Plants of New Jersey. New Jersey Department of Environmental Protection, Division of Parks and Forestry, Trenton, NJ. 22 pp.

NJ Pinelands Commission. 1980. Comprehensive Management Plan for the Pinelands National Reserve (National Parks and Recreation Act, 1978) and Pinelands Area (New Jersey Pinelands Protection Act, 1979). Adopted November 21, 1980. New Jersey Pinelands Commission, New Lisbon, NJ. 508 pp.

Ostertag, Thomas E. and Kevin M. Robertson. 2012. A comparison of native versus old-field vegetation in upland pinelands managed with frequent fire, south Georgia, USA. In R. E. Masters and K. E. M. Galley, Proceedings of the 23rd Tall Timbers Fire Ecology Conference: Fire in Grassland and Shrubland Ecosystems. Bartlesville, OK. Tall Timbers Research, Inc., Tallahassee, FL.

Palmquist, Kyle A., Robert K. Peet, and Susan C. Carr. 2014. Xeric Longleaf Pine Vegetation of the Atlantic and East Gulf Coast Coastal Plain: An Evaluation and Revision of Associations within the U.S. National Vegetation Classification (https://esa.org/usnvc/). 38 pp.

Peattie, Donald Culross. 1937. Autumnal notes from the Carolina Blue Ridge. Castanea 2(5): 67–73.

Polloni, Pamela A. T. 2001. *Aster concolor* L., Eastern Silvery Aster. Conservation and Research Plan prepared for the New England Wild Flower Society, Framingham, MA. 36 pp. Available at http://www.nativeplanttrust.org/

Poulos, Helen Mills, Rachael S. Freeman, Jennifer M. Karberg, Karen C. Beattie, Danielle I. O'Dell, and Kelly A. Omand. 2019. Effects of mowing and prescribed fire on plant community structure and function in rare coastal sandplains, Nantucket Island, MA, USA. Environmental Management 65(1): 111–121.

POWO. 2025. Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Accessed August 30, 2025 at http://www.plantsoftheworldonline.org/

Ring, Richard M., Elizabeth A. Spencer, and Kathleen Strakosch Walz. 2013. Vulnerability of 70 Plant Species of Greatest Conservation Need to Climate Change in New Jersey. New York Natural Heritage Program, Albany, NY and New Jersey Natural Heritage Program, Department of Environmental Protection, Office of Natural Lands Management, Trenton, NJ, for NatureServe #DDCF-0F-001a, Arlington, VA. 38 pp.

RINHS (Rhode Island Natural History Survey). 2016. Rhode Island Rare Plants List. Accessed August 30, 2025 at https://rinhs.org/species/rare-species/

Robson, D. Bizecki. 2010. Reproductive ecology of the Western Silvery Aster *Symphyotrichum sericeum* in Canada. Endangered Species Research 12(1): 49-55.

Salva, Justin D. and Bethany A. Bradley. 2023. High-impact invasive plants expanding into mid-Atlantic states: Identifying priority range-shifting species for monitoring in light of climate change. Invasive Plant Science and Management 16: 197–206.

Semple, J. C. 2004. Miscellaneous nomenclatural changes in Astereae (Asteraceae). Sida 21(2): 759–765.

Semple, J. C. 2005. Classification of *Symphyotrichum*. Accessed September 1, 2025 at http://www.jcsemple.uwaterloo.ca/Symphyotrichumclassification.htm/

Semple, John C. and Luc Brouillet. 1980. A synopsis of North American asters: The subgenera, sections and subsections of *Aster* and *Lasallea*. American Journal of Botany 67(7): 1010–1026.

Semple, John C. and Jennifer L. A. Hood. 2005. Pappus variation in North American asters. I. Double, triple and quadruple pappus in *Symphyotrichum* and related aster genera (Asteraceae: Astereae). Sida 21(4): 2141–2159.

Small, John K. 1924. Plant novelties from Florida. Bulletin of the Torrey Botanical Club 51(9): 379–393.

Snyder, David B. and V. Eugene Vivian. 1981. Rare and Endangered Vascular Plant Species in New Jersey. U. S. Fish and Wildlife Service, Washington, D.C. 98 pp.

Sorrie, Bruce A., Janet Bracey Gray, and Philip. J. Crutchfield. 2006. The vascular flora of the Longleaf Pine ecosystem of Fort Bragg and Weymouth Woods, North Carolina. Castanea 71(2): 127–159.

Stone, Witmer. 1911. The Plants of Southern New Jersey. Quarterman Publications, Boston, MA. 828 pp.

Szakacs, Alexandria D., Alexander Krings, and Thomas R. Wentworth. 2022. Shade-tolerance classification of the upland herbaceous flora of the Carolina and Virginia Piedmont. The American Midland Naturalist 187(2): 113–147.

Tate, Anthony S. and Loretta L. Battaglia. 2013. Community disassembly and reassembly following experimental storm surge and wrack application. Journal of Vegetation Science 24: 46–57.

Taylor, Norman. 1915. Flora of the vicinity of New York - A contribution to plant geography. Memoirs of the New York Botanical Garden 5: 1–683.

Tompkins, Robert D., William C. Stringer, Keith Richardson, Elena A. Mikhailova, and William C. Bridges, Jr. 2010. A newly documented and significant Piedmont prairie site with a *Helianthus schweinitzii* Torrey & A. Gray (Schweinitz's Sunflower) population. The Journal of the Torrey Botanical Society 137(1): 120–129.

U. S. Army Corps of Engineers. 2022. National Wetland Plant List, version 3.6. https://nwpl.sec.usace.army.mil/ U. S. Army Corps of Engineers Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH.

USDA, NRCS (U. S. Dept. of Agriculture, Natural Resources Conservation Service). 2025a. *Symphyotrichum concolor* illustration from Britton, N. L. and A. Brown, 1913, An illustrated flora of the northern United States, Canada and the British Possessions, 3 vols., Kentucky Native Plant Society, New York, Scanned By Omnitek Inc. Image courtesy of The PLANTS Database (http://plants.usda.gov). National Plant Data Team, Greensboro, NC.

USDA, NRCS (U. S. Dept. of Agriculture, Natural Resources Conservation Service). 2025b. PLANTS profile for *Symphyotrichum concolor* (Eastern Silver Aster). The PLANTS Database, National Plant Data Team, Greensboro, NC. Accessed August 30, 2025 at http://plants.usda.gov

Vaezi, Jamil and Luc Brouillet. 2009. Phylogenetic relationships among diploid species of *Symphyotrichum* (Asteraceae: Astereae) based on two nuclear markers, ITS and GAPDH. Molecular Phylogenetics and Evolution 51(3): 540–553.

Venable, D. Lawrence and Donald A. Levin. 1983. Morphological dispersal structures in relation to growth habit in the Compositae. Plant Systematics and Evolution 143: 1–16.

Walz, Kathleen S., Jason L. Hafstad, Linda Kelly, and Karl Anderson. 2020. Floristic Quality Assessment Index for Vascular Plants of New Jersey: Coefficient of Conservancy (CoC) Values for Species and Genera (update to 2017 list). New Jersey Department of Environmental Protection, New Jersey Forest Service, Office of Natural Lands Management, Trenton, NJ.

Wang, B. and Y. L. Qiu. 2006. Phylogenetic distribution and evolution of mycorrhizas in land plants. Mycorrhiza 16(5): 299–363.

Weakley, A. S. and Southeastern Flora Team. 2024. Flora of the Southeastern United States. Edition of March 4, 2024. University of North Carolina Herbarium, North Carolina Botanical Garden, Chapel Hill, NC. 2203 pp.

Wiebush, Molly S. 2020. The Effects of Fire Refugia on Co-flowering Communities, Floral Abundance, and Flowering Phenology in an Old Growth Longleaf Pine Forest. Master's Thesis, Florida State University, Tallahassee, FL. 47 pp.

Willis, Oliver R. 1877. Flora of New Jersey. Revised Edition. A. S. Barnes and Company, New York, NY. 88 pp.

Wilson, Gail W. T., David C. Hartnett, Melinda D. Smith, and Kerri Kobbeman. 2001. Effects of mycorrhizae on growth and demography of tallgrass prairie forbs. American Journal of Botany 88(8): 1452–1457.

Young, Stephen M. and Troy W. Weldy. 2004. Rare Plant Status List. New York Natural Heritage Program, Albany, NY. 105 pp.

Young, Bruce E., Elizabeth Byers, Geoff Hammerson, Anne Frances, Leah Oliver, and Amanda Treher. 2016. Guidelines for Using the NatureServe Climate Change Vulnerability Index, Release 3.02, 1 June 2016. NatureServe, Arlington, VA. 65 pp.