Ageratina aromatica

Smaller White Snakeroot

Asteraceae

Ageratina aromatica by Merry Conlin, 2023

Ageratina aromatica 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

Smaller White Snakeroot (*Ageratina aromatica*) is a perennial member of the Aster Family (Asteraceae). The plant grows as an herb or subshrub, with several "free-standing" stems that appear shaggy (with both long, soft and short, fine hairs), reaching 30–80(–100) cm in height (LBJWC 2017; MassWildlife 2025; Nesom 2020). Stems may occasionally branch in the upper sections and individual genets may have stems of varying age and length. An individual perennial plant can live from five to ten years (Craine 2003).

The leaves of Smaller White Snakeroot are opposite, simple, with a petiole 1–8(–12) mm in length. Most leaves are similar in size, lanceolate to ovate with crenulate margins. Blades are 2–7(–9) cm long and 1.5–5 cm wide, typically at least five times longer than the petiole. The thick and somewhat leathery leaf surface has three main veins, and both sides are covered with simple hairs lacking glands (Clewell and Wooton 1971; Gleason and Cronquist 1991; MassWildlife 2025; Nesom 2020; Strausbaugh and Core 1978; Weakley et al. 2025).

Left: Britton and Brown 1913, courtesy USDA, NRCS 2025a. Center & right: Merry Conlin 2023.

Blooms of Smaller White Snakeroot appear from late August through October or early November range wide (Craine 2003; Nesom 2020; Weakley et al. 2025) with a slightly earlier blooming period observed in New Jersey (early August into September) (NJNHP 2024; Stone 1911). The flower heads have bright white, tubular disc flowers without rays with 10–19 florets per flower head. Each floret is 3.5–5 mm long. The flower heads are born on a 2–9 mm peduncle, which is densely hairy, with four or more flower heads per stem. There is one series of non-overlapping obtuse to acute involucral bracts below the flower heads (Clewell and Wooton 1971; Gleason and Cronquist 1991; Native Plant Trust 2025; Nesom 2020; Strausbaugh and Core 1978).

The fruit is a cypsela, with each seed having white to off-white pappus hairs at one end. The fine hairs are uniform in length and form a 3–4 mm tuft that helps the wind dispersed seeds become

airborne. Plants have firm, relatively thick roots (up to 1.5 mm) and can spread vegetatively but rely on seed production for longer distance dispersal (Clewell and Wooton 1971; Craine 2003).

Smaller White Snakeroot can be differentiated from White Snakeroot (*A. altissima*) by its shorter leaf stalks, thicker leaves with crenate leaf margins, and by having blunt to sharp-pointed leaf tips compared to the long tapering tips of White Snakeroot (Craine 2003). White Snakeroot is reported to be toxic to humans and unpalatable to many other mammals. The plant contains tremetones and glycocides and people are urged to avoid consuming milk or meat from cows that have eaten this plant (North Carolina Cooperative Extension 2025). Although the North Carolina Cooperative Extension (2025) included toxicity warnings about *A. aromatica* as well, other sources did not mention potential toxicity as a concern for the Smaller White Snakeroot. As an aside, according to the Native Plant Trust (2025) Smaller White Snakeroot is reported to have a "pleasant" odor of licorice, fruit, or resin, although in the New York State Natural Heritage Program website it was described as not very fragrant (NYNHP 2025).

Pollinator Dynamics

Snakeroot species are visited by a diversity of insects. Although no list of pollinators was found in the literature specifically for the Smaller White Snakeroot, Hilty (2020) and North Carolina Cooperative Extension (2025) reported that the related White Snakeroot was pollinated by leaf-cutting bees (*Megachile spp.*), Halictid bees, and bumble bees (*Bombus* spp.), which gather nectar and pollen. Wasps, flies (e.g., Syrphid, Tachinid, bee flies), butterflies, and moths also visit White Snakeroot for nectar, and each may contribute to some pollination. *Ageratina aromatica* is likely visited by similar species. There were no records of bee specialists in the Mid-Atlantic or Northeastern states pollinating Smaller White Snakeroot (or any snakeroot) (Fowler 2016a, b). It is not known whether the species can self-pollinate in the absence of insect pollinators.

A study of flower-settling moths and their potential contribution to plant pollination in Florida sandhill habitat found that *Ageratina aromatica* received the most moth visits compared to other plant species observed in the study. A majority of those moths were also found carrying pollen. Two moth species, the Common Pug (*Eupithecia miserulata*) and Common Tan Wave (*Pleuroprucha insulsaria*) exhibited a unique fluttering behavior while nectaring that may enable them to pick up more pollen and act as efficient pollen transporters and potential pollinators. Both moth species also occur in New Jersey. The morphology of *Ageratina aromatica* flowers, with small tube-shaped florets clustered together makes them suited for pollination by flower settling moths and the author suggested that this plant species and its moth pollinators warrant further study (Atwater 2013).

Seed Dispersal

The fruits of *Ageratina aromatica* are brown- or copper-colored cypselae (dry single seeded fruits) each less than 2.5 cm in length. Seeds are glabrous to slightly hairy near the apices and only about 3 mm in length. As mentioned earlier, the seeds are wind dispersed, having tufts of

fine hairs at one end to help capture the wind, much like a parachute. Smaller White Snakeroot can produce as many as 1500 seeds per stem according to Craine (2003). No information was found about dispersal distances, or the length of time seeds remain viable in the seed bank.

According to the North Carolina Cooperative Extension (2025), *Ageratina aromatica* grows well in full sun or partial shade and in soils of varying textures: clay, loam, sand, and shallow/rocky. It is most often found in slightly acid to neutral soils. Once established, Smaller White Snakeroot can tolerate droughty conditions. Regarding seed germination, Crewel and Wooton's 1971 research on *Ageratina* found that field-collected seeds of a variety of *Ageratina* species including seeds of *aromatica* germinated under greenhouse conditions with no pretreatments. In contrast, Craine (2003) reported that the New England Wildflower Society had up to 86% germination of *A. aromatica* seeds with cold stratification. More research is needed.

Habitat

At the northern edge of its range in New England, typical habitat for Smaller White Snakeroot includes dry mesic to mesic forest gaps, often on south-facing, rocky hillsides, at the bases of rock ledges or in talus, usually in relatively sunny spots within oak-hickory forests. Sand scrub oak barrens with a recent history of fire also support the species (Craine 2003; MassWildlife 2025; Native Plant Trust 2025). In New York State, Smaller White Snakeroot is confined to eastern Long Island along forest edges, mown roadsides and trails, and in open sandy woodlands (NYNHP 2025; Ring 2024).

Interestingly, *Ageratina aromatica* is also found growing in serpentine barrens. Flinn et al. 2017 reported that the species was found in 15% of the research plots at the State Line Serpentine Barrens along the southeastern Pennsylvania-Maryland border. The soils there are thin, nutrient poor and with high levels of heavy metals. The nature of those soils and periodic fires have helped to maintain the open savanna characteristic of the barrens. In the southeastern United States, *Ageratina aromatica* occurs in woodlands and forests, often with xeric, open sandy areas maintained by fire, longleaf pine sandhills, Turkey Oak (*Quercus laevis*) sand ridges, pine-oak and oak-hickory upland woods as well as old fields, roadsides, and fencerows (Nesom 2020; Sorrie et al. 2006; Weakley et al. 2025).

In New Jersey, one of the four extant occurrences was found along the edge of a dry sandy road in mixed oak/pine forest with Winged Sumac (*Rhus copallinum*), Late Purple American-aster (*Symphyotrichum patens*) and Scorched Goldenrod (*Solidago tarda*) noted. Other extant occurrences were also along trails through dry sandy woods or at the edges of pine/oak forests with one population growing in a sandy wooded thicket under Pitch Pine (*Pinus rigida*) and Flowering Dogwood (*Cornus florida*) (NJNHP 2024). Similarly, herbarium specimens of the species collected between 1882 and 1951 (now considered historical) described the following habitats: dry sandy woods, loamy wooded slopes, moist woods, open hemlock woods, and bushy slopes (Mid-Atlantic Herbaria 2025).

According to Weakley et al. (2025), Smaller White Snakeroot has a heliophily rating of 5, meaning that the species can tolerate a wide range of light conditions, from dense shade to

completely open conditions; however, other sources (e.g., Craine 2003) describe overshading as a threat to the species (See Threats section). Range wide, the plant can be found growing from 100–900 m (300–3000 ft) (Nesom 2020).

Most flowering plants form associations with mycorrhizal fungi. Those relationships are beneficial as they assist the plant with nutrient and water uptake and may help provide resistance against fungal diseases, pests, and other environmental stress. Many plants in the Asteraceae do develop mycorrhizal associations (Sokornova et al. 2022). Although *A. aromatica* was not mentioned as being mycorrhizal in the literature reviewed, the related Crofton Weed (*Ageratina adenophora*) does have a moderate association with arbuscular mycorrhizae (AM) and *Ageratina espinosarum* (no common name), another Mexican species, is also considered to be weakly mycorrhizal (Sokornova et al. 2022; Wang and Qiu 2006). It is possible that some populations of *A. aromatica* also benefit from mycorrhizal associations.

Wetland Indicator Status

Ageratina aromatica 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 *Ageratina aromatica* is AGAR4. The USDA recognizes two varieties: The one in New Jersey is var. *aromatica* (code AGARA).

Coefficient of Conservancy (Walz et al. 2020)

CoC = 10. Criteria for a value of 9 to 10: Native with a narrow range of ecological tolerances, high fidelity to particular habitat conditions, and sensitive to anthropogenic disturbance (Faber-Langendoen 2018).

Distribution and Range

The global range of *Ageratina aromatica* is restricted to the eastern United States (POWO 2025). The map in Figure 1 depicts the extent of the species in North America.

The USDA PLANTS Database (2025b) shows records of *Ageratina aromatica* in ten New Jersey counties: Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Hunterdon, Monmouth, Salem, and Union (Figure 2). Smaller White Snakeroot has also been reported in Bergen, Middlesex, Morris, and Passaic counties (Mid-Atlantic Herbaria 2025). The data include historic observations and do not reflect the current distribution of the species.

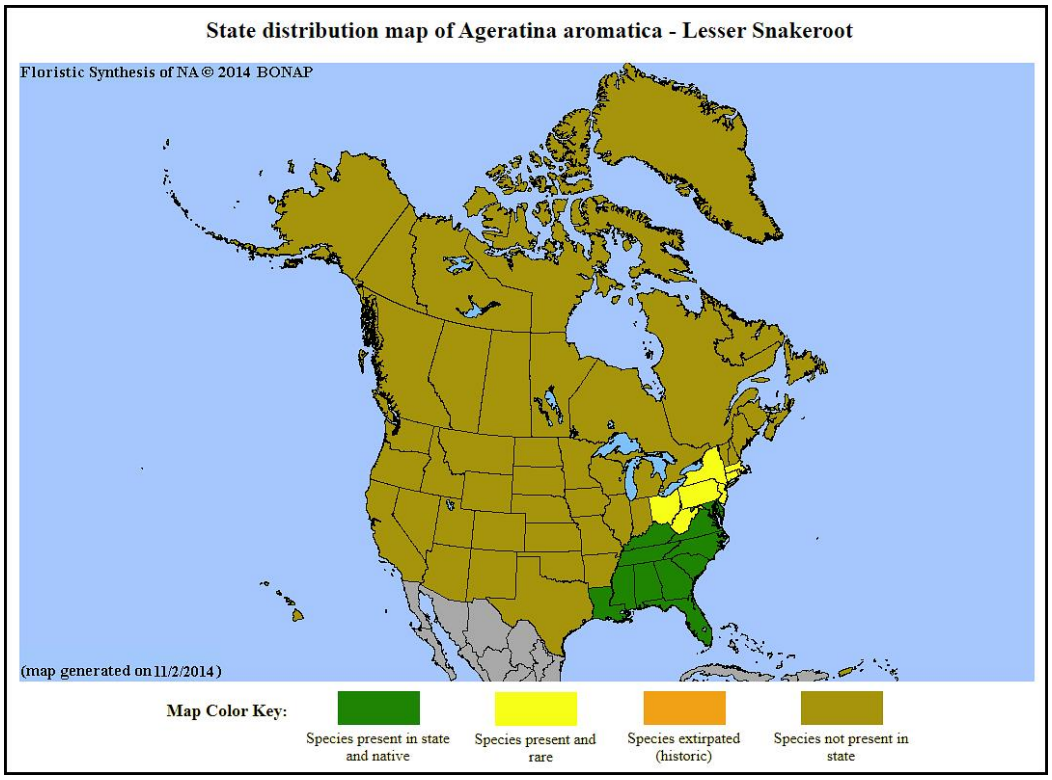

Figure 1. Distribution of A. aromatica in North America, adapted from BONAP (Kartesz 2015).

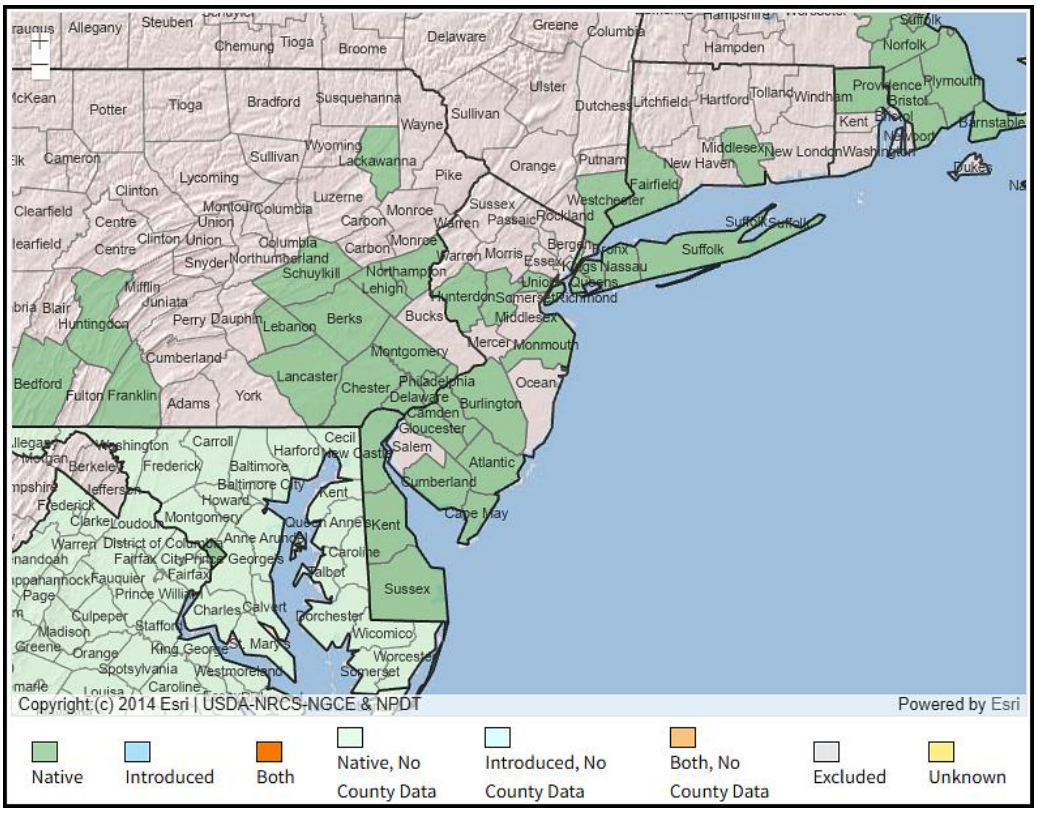

Figure 2. County records of A. aromatica in New Jersey and vicinity (USDA NRCS 2025b).

Conservation Status

Ageratina aromatica is considered globally secure. The G5 rank means the species 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) illustrates the conservation status of *A. aromatica* throughout its range. The species is generally secure or unranked in the southern part of its range, but in the northern part it is imperiled (high risk of extinction) in one state and critically imperiled (very high risk of extinction) in six states.

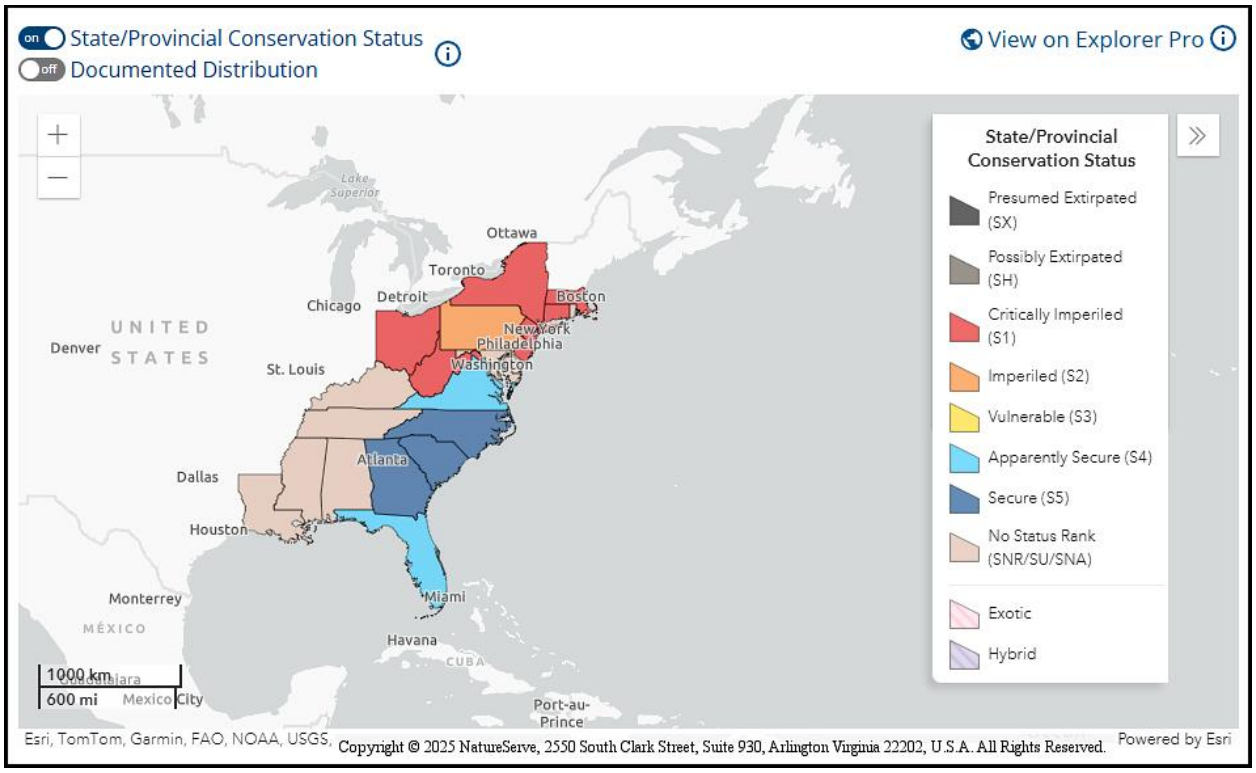

Figure 3. Conservation status of A. aromatica in North America (NatureServe 2025).

New Jersey is one of the states where *Ageratina aromatica* is critically imperiled. The S1 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. *A. aromatica* has also been assigned a regional status code of HL, signifying that the species is eligible for protection under the jurisdiction of the Highlands Preservation Area (NJNHP 2010).

Ageratina aromatica was initially listed as an S2 species in New Jersey but its status was amended to S1 within a few years (NJONLM 1992, 1997). Some of the earliest state records appear to be from Monmouth County (Willis 1874). Reports of the species during the late 1800s and early 1900s extended from Union County to Cape May County, with the majority occurring in the central part of the state (Britton 1889; Keller and Brown 1905; Stone 1911; Taylor 1915). Hough (1983) indicated that *A. altissima* was only recorded in Cape May, Cumberland, and Somerset counties after 1930 but some collections were made in Middlesex and Monmouth

counties between 1940 and 1951 (Mid-Atlantic Herbaria 2025). Snyder and Vivian (1981) characterized the species as rare and possibly declining, noting that it was still present in Cape May County. After it was listed as a historical species in Cumberland (Moore 1989) another population was discovered in that county by David Snyder, but it has declined precipitously since then with the most recent observation in 2023 only noting "two feeble plants." Three populations are tracked as extant by the Natural Heritage Program in Cape May County, but the dates of those most recent observations range from 1987–1991(NJNHP 2024) with three or fewer plants observed at those sites.

Threats

A number of threats to populations of *Ageratina aromatica* have been reported, particularly in the northern part of the range where the plant is imperiled. Those threats included encroachment of non-native invasive plants, road and trail maintenance, trampling, grazing by White-tailed Deer (*Odocoileus virginianus*), habitat succession and overshading by woody species, and fire suppression (Craine 2003; MassWildlife 2025; NatureServe 2025; ODNR 2020). In addition, the isolation of many of these northern populations, including those in New Jersey, may contribute to genetic inbreeding, as noted by Ring's (2024) assessment of New York State populations.

In New Jersey, Cumberland County's single remaining population is threatened by the spread of non-native invasive species, particularly Japanese Stilt Grass (*Microstegeum vimineum*), Japanese Barberry (*Berberis thunbergii*), Multiflora Rose (*Rosa multiflora*), and Chinese Bush-Clover (*Lespedeza cuneata*). Roadside maintenance including surface scraping and excavation of ditches near plants as well as ongoing ATV damage also threaten the survival of the population. There were no threats noted at the Cape May occurrences at the time of the last site visits (NJNHP 2024). No significant diseases have been reported from natural populations in New Jersey or range wide (North Carolina Cooperative Extension 2025), and it is unclear what effect genetic isolation may have on the viability of the remaining populations in New Jersey.

Although not previously noted during site monitoring in New Jersey, herbivory could become a problem for the remaining plants. New Jersey has very high densities of White-tailed Deer, which could quickly and easily eliminate the state's Smaller White Snakeroot occurrences, unless there is a healthy seedbank. While some related snakeroot species are known to have bitter leaves that render them unpalatable and potentially poisonous to grazing mammals, it is not clear whether Smaller White Snakeroot has those same characteristics and is sufficiently toxic to prevent browsing by deer. Even if that were the case, such high numbers of hungry deer would eat whatever they need to survive. Although of lesser concern, in addition to grazing mammals, Hilty (2020) listed some Lepidopteran species whose caterpillars feed on the leaves and plant parts of *Eupatorium* spp. (Bonesets) and that could also favor *Ageratina aromatica*. Those moths include *Carmenta bassiformis* (Eupatorium Borer Moth), *Papaipema cataphracta* (Burdock Borer Moth), *Phragmatobia fuliginosa* (Ruby Tiger Moth), *Phragmatobia lineata* (Lined Ruby Tiger Moth), and the Gracillariid moth (*Leucospilapteryx venustella*), all of which occur in New Jersey.

Climate Change Vulnerability

Information from the references cited in this profile was used to evaluate the vulnerability of New Jersey's *Ageratina aromatica* population 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). Due to a lack of life history information about this species, there was Insufficient Evidence to determine vulnerability with the CCVI. However, climate change is expected to have a negative impact on its extent in New Jersey by 2050 due to the species' limited dispersal capacity and the fact that only four occurrences are known from the state, each with fewer than three or four plants. A changing climate is an added stressor.

New Jersey is the fastest warming state in the Northeast and third fastest in the country (Howard 2024). Climate change in New Jersey is also projected to lead to altered precipitation patterns with summer droughts becoming more common (Hill et al. 2020). Although *Ageratina aromatica* is predominantly a southern species and might be expected to extend its range to the north as temperatures warm, there remain many unknowns about seed dispersal capacity and germination requirements or other habitat factors that may have restricted its northward expansion to date. It is also not known whether the Smaller White Snakeroot can self-pollinate. As a short-lived perennial, plants only live for five to ten years thus seed production and dispersal is critical to population persistence over time. It is thought to have generalist pollinators such that at least some of those will be able to adapt to changing environmental conditions.

Changes in future climatic conditions may also increase the threat of new invasive plant species encroachment into the state (Bellard et al. 2013; Coville et al. 2021; O'Uhuru 2022; Salva and Bradley 2023) as plant ranges shift in response to altered abiotic conditions. This could further reduce habitat suitability if any of those species become established near Smaller White Snakeroot populations because they may overshade and compete with the snakeroot, reducing its reproductive capacity.

Management Summary and Recommendations

A top priority for management would be to revisit those four extant occurrences in Cumberland and Cape May counties to assess their current conditions and plan accordingly. Based on previous site visit observations, the encroachment of invasive species was noted at two New Jersey occurrences. Removing those invasive plants would help reduce competition and open the canopy to promote flowering and seed production.

In Massachusetts, biologists have recommended the use of prescribed fire to open the canopy and help manage invasive species for their occurrences of *Ageratina aromatica* (MassWildlife 2025). Depending on location and site conditions, similar use of fire may be worth considering for certain New Jersey occurrences. In Florida pine forests, Dave Mehlman (1992) found that the abundance of *Ageratina aromatica* was associated with lower fire frequency of 1–3 fires in 13 years—some fire was needed to maintain appropriate habitat for the species, but not too much.

Deer herbivory is another constant threat. In Massachusetts, deer exclosures have been used to protect Smaller White Snakeroot plants from herbivory, allowing the plants to complete their reproductive cycle and replenish the seed bank (MassWildlife 2025). At the time of last observation, New Jersey's four extant occurrences were small enough such that fencing around plants might be feasible. Roadside maintenance and trampling of plants also were noted as an issue at New Jersey locations; perhaps the installation of some fencing or caging could also help address that pressure.

There are many aspects about the life history of Smaller White Snakeroot that are unknown. Research is needed about the following: What are optimal germination requirements for this species? What is seed bank longevity? It seems to do well under a low frequency fire regime. If unable to use fire to open the canopy and expose mineral soil, would small scale mechanical soil scarification help promote germination (MassWildlife 2025)? Can Smaller White Snakeroot self-pollinate? What is its capacity for range expansion into more suitable habitat? What are the genetics of such isolated occurrences and effect on the health of populations? Given that the species can tolerate a variety of soil types, including serpentine, are there any preferences for particular optimal soil chemistry? Whether or not offsite propagation and future reintroduction would be a viable conservation measure would need to be assessed once the status of New Jersey's Smaller White Snakeroot populations is known and given the likelihood of plant survival at those locations.

Synonyms

The accepted botanical name of the species is *Ageratina aromatica* (L.) Spach. Orthographic variants, synonyms, and common names are listed below (ITIS 2025; LBJWC 2017; North Carolina Cooperative Extension 2025; POWO 2025; USDA NRCS 2025b; Stone 1911). Some sources recognize variety *incisa*, only known from Florida and Virginia, but others believe that further assessment is needed to determine whether it is a valid subtaxon (Weakley et al. 2025).

Botanical Synonyms	Common Names
Ageratina cordata Spach	Smaller White Snakeroot
Eupatorium aromaticum L.	Small-leaf White Snakeroot
Eupatorium aromaticum var. *melissoides* (Willd.) A. Gray	Lesser Snakeroot
Eupatorium ceanothifolium Muhl. ex Willd.	Wild Hoarhound
Eupatorium cordiforme Poir.	Smaller White Sanicle
Eupatorium engelmannianum Link ex Torr. & A. Gray	Aromatic Snakeroot
Eupatorium melissoides Willd.	Fragrant Snakeroot
Eupatorium nemorale Greene	Aromatic Thoroughwort
Eupatorium tracyi Greene	Fragrant Thoroughwort
Eupatorium viburnifolium	
Kyrstenia ceanothifolia Greene	
Kyrstenia melissoides Greene	
Kyrstenia nemoralis Greene	
Kyrstenia tracyi Greene in	
Kyrstenia viburnifolia Greene	

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