Spiraea alba

Narrow-leaf Meadow-sweet

Rosaceae

Spiraea alba by Sarah Bonnett, 2021

***Spiraea alba* 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

Spiraea alba (Narrow-leaf Meadow-sweet) is a rhizomatous shrub in the Rosaceae. The species can spread vegetatively by its belowground shoots (Meilleur et al. 1994). The stems are erect, unbranched, and 1–2 meters tall. The twigs are yellowish brown and the leaves are alternate, petioled, and finely toothed. The leaves are narrow and 3–5 times as long as they are wide. The inflorescences of *S. alba* are mostly terminal, consisting of narrow, cone-shaped clusters of white flowers. The axis of the inflorescence and sepals are usually hairy. Each flower has five small (0.8–1 mm) sepals, five roundish petals that are about twice the length of the sepals, and numerous stamens. The fruits are smooth, shiny follicles that are 3–4 mm long. (See Britton and Brown 1913, Fernald 1950, Gleason and Cronquist 1991, Lis 2020).

Left: Britton and Brown 1913, courtesy USDA NRCS 2025a. Right: William Van Hemessen, 2024.

Spiraea alba is closely related to *S. latifolia* (see Synonyms and Taxonomy section). Both species are tetraploid (2n=36) and reportedly hybridize, although *Spiraea* hybrids are often sterile (Sax 1936, Baldwin 1951, Robertson 1974). Snyder (2000) noted that some New Jersey specimens appeared to be intermediate. *Spiraea latifolia* differs from *S. alba* in having red-brown twigs, coarsely toothed leaves that are only 2–3 times as long as wide, and smooth sepals and flower stalks (Lis 2020, Weakley et al. 2024).

Throughout its range, *Spiraea alba* can bloom from June through September and fruit may be present through October or November (Hough 1983, Rhoads and Block 2007, Lis 2020, Weakley et al. 2024). Peak flowering was reported during early- to mid-July in the Boston area (Sax 1936, Wyman 1939) and during August in Michigan (Fiedler and Landis 2007). In New Jersey *S. alba* has been found in flower as early as the first of July and in bud as late as August 8 (NJNHP 2024).

Pollinator Dynamics

Sax (1936) found that the tetraploid species of *Spiraea* were highly fertile and recorded a pollen fertility rate of 99% for *S. alba*. *Spiraea* flowers are cross-pollinated by insects. *S. alba* visitors have been filmed collecting nectar from discs at the base of the flowers (Mitchell et al. 2022). The blooms of *Spiraea* are highly attractive to a wide assortment of bees, flies and wasps (Fiedler and Landis 2007, Dibble et al. 2020, Barrett 2023). Bees recorded on meadow-sweet flowers include species of *Andrena*, *Augochlorella*, *Bombus*, *Ceratina*, *Colletes*, *Dialictus*, *Halictus*, *Hylaeus*, *Lasioglossum*, and *Osmia* (Hall et al. 1974, Stubbs et al. 1992). Butterflies sometimes visit *Spiraea* flowers but they are less likely to serve as pollinators (Scott 2014).

Spiraea alba probably has some capacity for self-fertilization. East (1940) remarked that self-sterility appeared to be absent or rare in the Spiraeoideae despite being common in other parts of the rose family. Studies of other *Spiraea* species, including *S. latifolia*, have indicated that some viable propagules can develop following self-pollination. However, self-fertilization generally results in the production of fewer and smaller fruits (Hall et al. 1974, Brzyski et al. 2014, Poliakova 2022).

Seed Dispersal and Establishment

When *Spiraea alba* fruits are mature they split down one side to release the seeds, so many are probably dispersed locally by gravity. Distribution over longer distances can be facilitated by water or by animals. *S. alba* seeds that land in the water are capable of remaining afloat for more than a week (Morton and Hogg 1989). Some propagules may be incidentally ingested by browsing deer and subsequently dispersed, as demonstrated when Flaherty et al. (2017) germinated *S. alba* seeds from White-tailed Deer (*Odocoileus virginianus*) pellets.

Spiraea alba sometimes forms a seed bank (O'Reilly 1997, Boutin 2006). Although the seeds are capable of germination at the time of dispersal a period of stratification may be required if they dry out. There are some indications that light is necessary for germination (Deno 1993, Leopold 2005, Zasada and Stickney 2008). Development and growth may be aided by fungal associates, as mycorrhizae have been documented in close relatives such as *S. latifolia* and *S. tomentosa* (Wang and Qiu 2006). *S. alba* is also easy to propagate by vegetative means (Leopold 2005) and clonal growth likely plays an important part in maintaining local populations (Zasada and Stickney 2008).

Habitat

Spiraea alba inhabits moist lowland sites that are within 300 meters of sea level (Lis 2020). River shores are the typical habitat in New Jersey (NJNHP 2024) but the shrub can also be found along streams, on lakeshores, and in bogs, swamps, or meadows (Hough 1983, Rhoads and Block 2007, Weakley et al. 2024). Moisture conditions vary seasonally in many of its habitats and the species appears able to tolerate brief periods of inundation or occasional drying (Breden et al. 2001, Leopold 2005, Barrett 2023). Mandossian and McIntosh (1960) recorded *S. alba*

growing on both sandy and mucky substrates about 5–7 meters from the shoreline of a small lake, while an assessment of a streamside community found the shrub had a notable presence 5 meters from the stream but reached its greatest stem density at a distance of about 15 meters (Hughes and Cass 1997). Soils may range from slightly acidic to slightly alkaline (Mickelbart et al. 2013, Stanton and Mickelbart 2014a). *Spiraea alba* has been known to establish in sites with a history of disturbance: White (1965) observed that it was associated with stands that had been burned, grazed, mowed, flooded, or drained during the previous two decades while Arsenault and Romig (1985) noted its presence in old fields and around the edges of constructed wetlands.

Spiraea alba can persist in some shaded sites but the plants are more vigorous when growing out in the open and the species is generally characterized as sun-loving (Meilleur et al. 1994, Barrett 2023, Weakley et al. 2024). When growing in the shade *S. alba* develops larger leaves but in mostly sunny sites the plants grow taller and produce more numerous stems and flowers (Stanton et al. 2010). The high degree of clonal growth in *S. alba* might help to maintain the openness of its habitats by making it harder for trees to become established (Meilleur et al. 1994). Narrow-leaf Meadow-sweet seldom forms monospecific stands. Speckled Alder (*Alnus incana*) is a common associate, typical co-occurring trees can include *Larix laricina, Fraxinus nigra,* or *Betula populifolia*, and the wet meadows where *S. alba* occurs may be dominated by sedges (e.g. *Carex stricta, Eleocharis* spp.), grasses such as *Calamagrostis canadensis* and *Phalaris arundinacea,* or ferns like *Onoclea sensibilis* (Breden et al. 2001, Girardin et al. 2001, McPhee et al. 2012).

Wetland Indicator Status

Spiraea alba is a facultative wetland species, meaning that it usually occurs in wetlands but may occur in nonwetlands (U. S. Army Corps of Engineers 2022).

USDA Plants Code (USDA, NRCS 2025b)

The USDA code for *Spiraea alba* is SPAL2. The USDA NRCS (2025b) recognizes two varieties: The code for var. *alba* is SPALA.

Coefficient of Conservancy (Walz et al. 2020)

CoC = 7. 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

Spiraea alba is native to the United States and Canada. It is introduced in Belgium, France, Germany, Great Britain, Ireland, and Poland (POWO 2025). The map in Figure 1 depicts the extent of the species in North America.

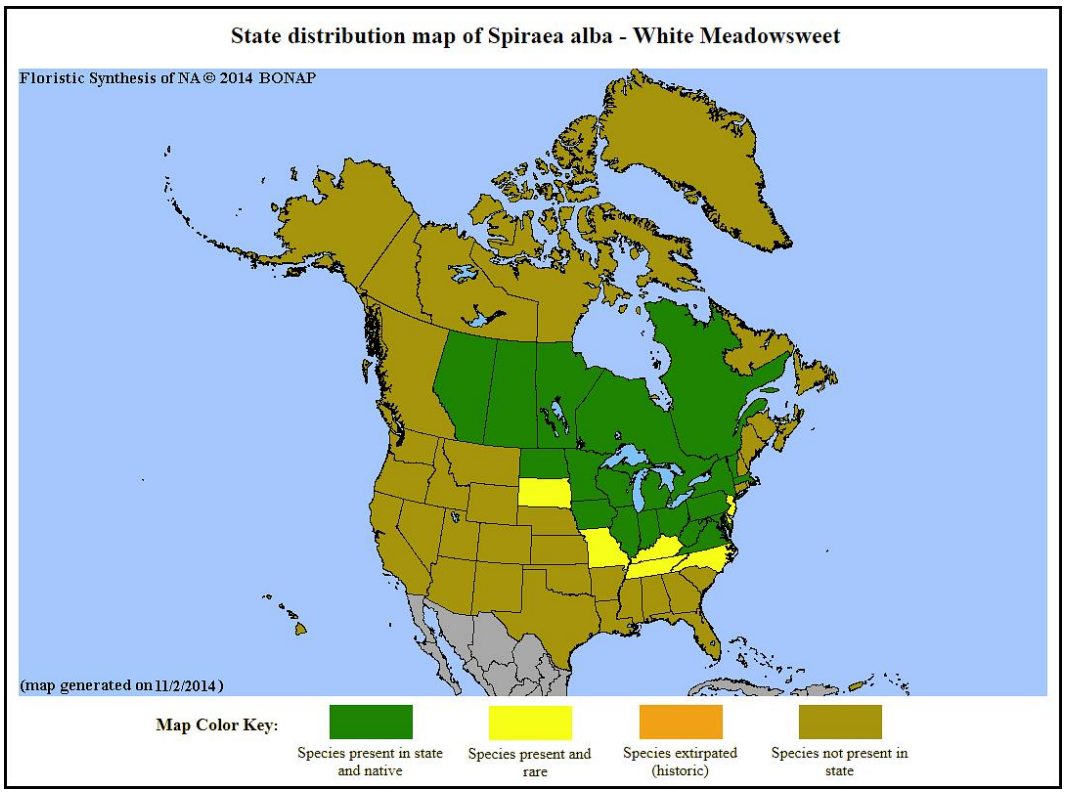

Figure 1. Distribution of S. alba in North America, adapted from BONAP (Kartesz 2015).

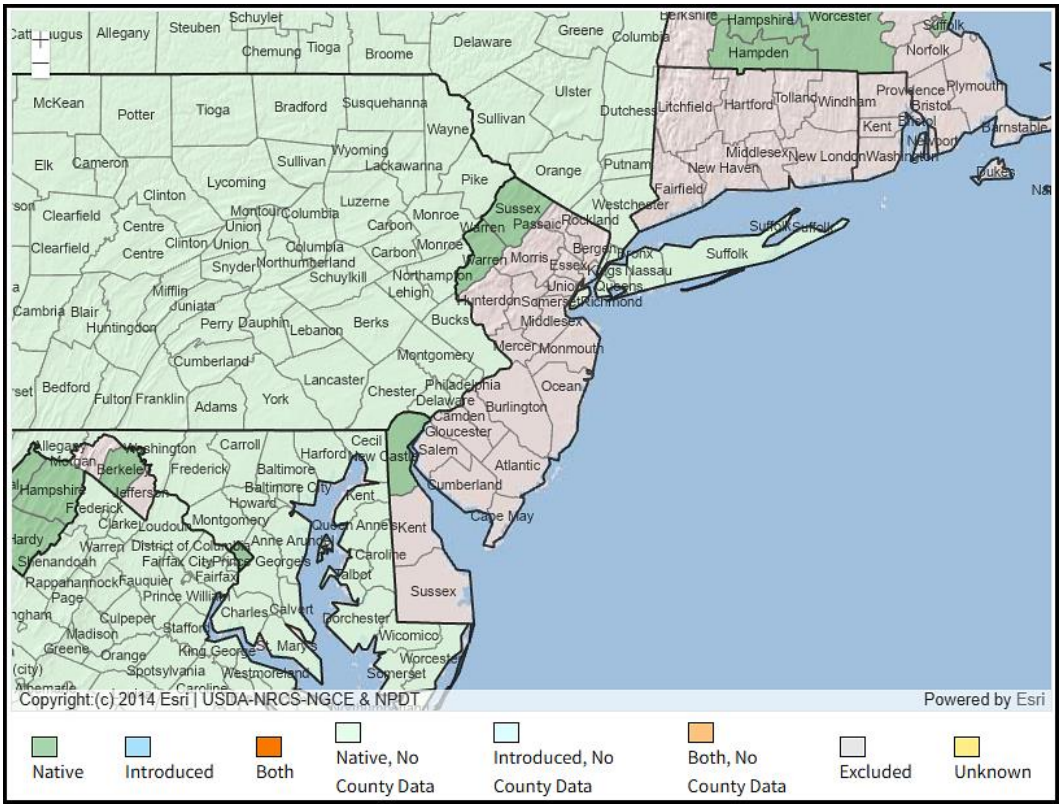

Figure 2. County records of S. alba in New Jersey and vicinity (USDA NRCS 2025b).

The USDA PLANTS Database (2025b) shows records of *Spiraea alba* in two New Jersey counties: Sussex and Warren (Figure 2 above). The species has also been reported in Bergen, Camden, Mercer, Morris, Somerset, and Union counties (Hough 1983, NJNHP 2024, Mid-Atlantic Herbaria 2025). The data include historic observations and do not reflect the current distribution of the species.

Conservation Status

Spiraea alba 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 *Spiraea alba* throughout its native range. The shrub is vulnerable (moderate risk of extinction) in two provinces and critically imperiled (very high risk of extinction) in four states. In much of its range the species is secure, apparently secure, or unranked.

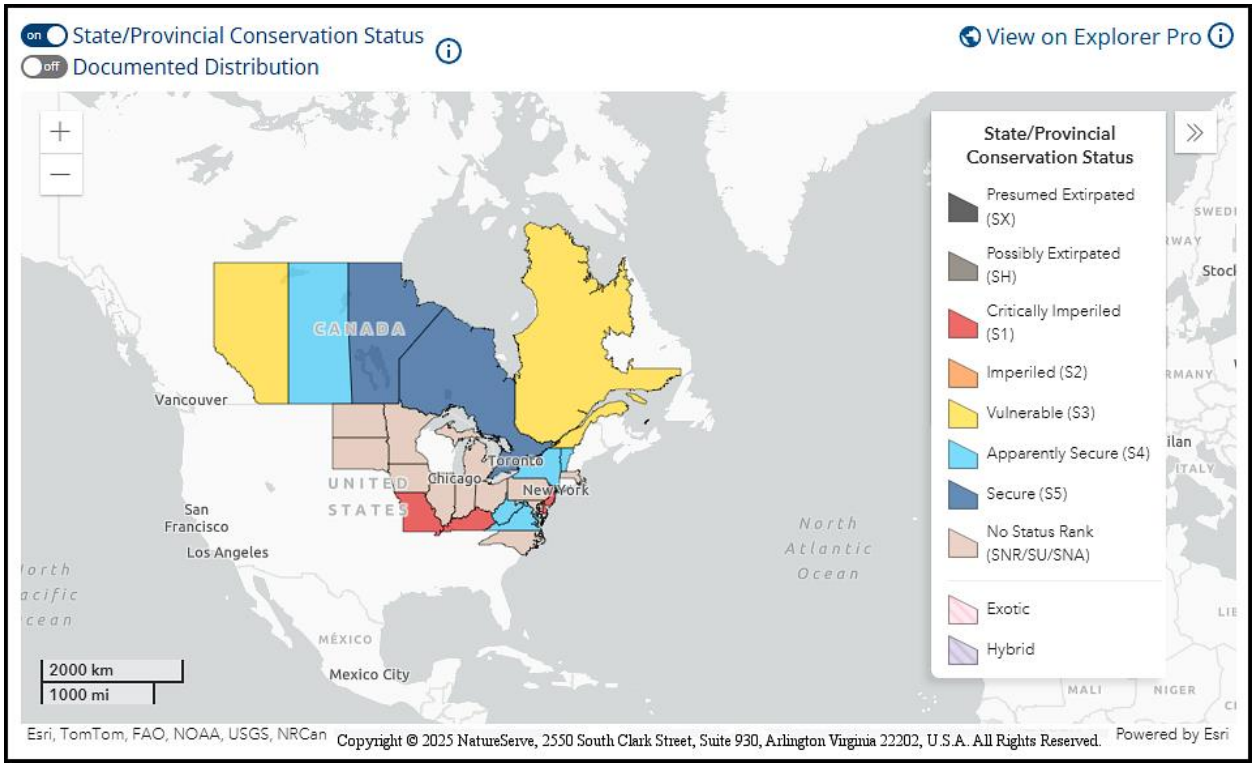

Figure 3. Conservation status of S. alba in North America (NatureServe 2025).

New Jersey is one of the states where *Spiraea alba* is critically imperiled (NJNHP 2024). 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. *S. alba* 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).

Spiraea alba was not included in early New Jersey floras (e.g. Britton 1889, Taylor 1915) although it was collected from a site in Camden County during 1861 and from a Mercer County location in 1885. Some scattered reports of *S. alba* from around the state during the early 1900s may have been based on plants with intermittent characteristics. David Snyder documented a number of populations in the northern counties during the 1980s and another in 2008. Only two extant occurrences are presently tracked by the Natural Heritage Program (Snyder 2000, NJNHP 2024).

Threats

No threats to New Jersey's extant populations of *Spiraea alba* have been identified (NJNHP 2024). However, some techniques implemented for habitat management or the control of invasive plants have proven harmful to the species in other locations. Bowe et al. (2024) found that survival rates for *S. alba* were significantly lower in sites that had previously been treated with herbicides for *Phragmites* control. The cover of *S. alba* was also significantly reduced in places where plowing or disking were employed as strategies to maintain grassland communities. In contrast, the use of fire as a habitat management tool did not diminish populations because the shrubs rapidly regenerated from their rhizomes (Halvorsen 1981). Only burns that are intense enough to reach the root zone could eliminate stands of *S. alba* (Zasada and Stickney 2008).

Spiraea alba can be utilized as a larval host plant by the Spring Azure, *Celastrina ladon* (Barrett 2023), but the butterfly is a generalist so that species is not likely to seriously threaten healthy meadowsweet populations. Impacts from insect herbivory might also be reduced by the attractiveness of *S. alba* flowers to predatory insects that feed on the herbivores (Fiedler and Landis 2007). One particular kind of aphid, *Aphis spiraephila*, sometimes becomes abundant on *Spiraea alba*. Large scale aphid infestations can cause extensive damage to the host plants and weaken their resistance to attacks from other insects or pathogens (Guerrieri and Digilio 2008). Aphid populations often grow in size when they are tended by ants. McPhee et al. (2012) found that tending of *Aphis spiraephila* by an invasive ant species, *Myrmica rubra*, increased aphid abundance and reduced predator impacts to a greater extent than tending by native ants. *Myrmica rubra* has slowly expanded its range since it was introduced to North America and it has now spread through the northeastern United States (Invasive Species Centre 2025).

Browsing by larger herbivores may also threaten some populations of *Spiraea alba*. Although deer sometimes disperse *S. alba* seeds, their activity can take a notable toll on established plants. Flaherty et al. (2018) found that the cover of *S. alba* increased in an area where deer had been excluded by fencing.

Climate Change Vulnerability

Information from the references cited in this profile was used to evaluate the vulnerability of New Jersey's *Spiraea alba* 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. alba* 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 the climate continues to warm, plant communities in New Jersey are increasingly exposed to higher temperatures and a longer growing season while shifting precipitation patterns are increasing the frequency and intensity of both droughts and floods (Hill et al. 2020). Climactic conditions can influence the timing of flower and fruit production in *Spiraea* species (Zasada and Stickney 2008). However, multiple cues come into play for *S. alba* including winter conditions, spring temperatures, and day length (Mickelbart et al. 2013, Flynn and Wolkovich 2018), making it hard to predict the shrub's response. Low winter temperatures may define the northern limits of the species' range (Wyman 1952). As previously discussed, *Spiraea alba* utilizes habitats where it can experience occasional flooding or temporary fluctuations in moisture availability. Mickelbart et al. (2013) observed a lack of growth in *S. alba* during one particularly hot, dry season but noted that the shrubs in the study might have already reached their maximum height. Although *Spiraea alba* has some strategies to reduce water stress during dry periods (Stanton and Mickelbart 2014b), the species' ability to tolerate extended periods of drought is undetermined.

Management Summary and Recommendations

In order to gain a better understanding of how *Spiraea alba* is distributed in New Jersey, Snyder (2000) noted the need for a critical study of local specimens that display intermittent characteristics between that species and *S. latifolia*. Clarification is also required as to whether (or to what extent) the two species can hybridize, and if the resulting offspring are fertile or sterile. Currently there is only one occurrence ranked as historical in the state and suitable habitat might still be present at the site but details regarding its location are limited. There may be additional historical populations that have not been tracked due to uncertainty regarding their identification. Updated assessments of New Jersey's two extant occurrences should also be implemented in order to determine the present status of the populations and identify site-specific management needs.

There are a few areas where additional knowledge about *Spiraea alba* could be helpful in planning for the long-term conservation needs of the species. Research that imparts additional information regarding the species' germination requirements, the development of young plants, or the capacity for drought tolerance would be particularly useful.

Synonyms and Taxonomy

The accepted botanical name of the species is *Spiraea alba* Du Roi. Some orthographic variants, synonyms, and common names are listed below. NJNHP (2024) views *Spiraea alba* and *S. latifolia* as two distinct species, as do Kartesz (2015) and Weakley et al. (2024). Some sources treat *Spiraea alba* as having two varieties: var. *alba* and var. *latifolia* (e.g. Lis 2020, ITIS 2025,

NatureServe 2025, POWO 2025, USDA NRCS 2025b) and in those cases the New Jersey plants are var. *alba*.

Botanical Synonyms	**Common Names**
Spiraea ciliata Raf.	Narrow-leaf Meadow-sweet
Spiraea cuneifolia Borkh.	White Meadowsweet
Spiraea flexuosa Raf.	
Spiraea lanceolata Borkh.	
Spiraea lancifolia Hoffmanns. ex K. Koch	
Spiraea paniculata (Aiton) G. Don	
Spiraea salicifolia var. *linearis* Wenz.	
Spiraea salicifolia var. *paniculata* Aiton	
Spiraea tomentosa alba Marshall	
Spiraea undulata Borkh.	

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