

Rhododendron atlanticum

Dwarf Azalea

Ericaceae



Rhododendron atlanticum courtesy Alan Cressler, Lady Bird Johnson Wildflower Center

***Rhododendron atlanticum* 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

501 E. State St.
PO Box 420
Trenton, NJ 08625-0420

Prepared by:
Jill S. Dodds
jsdodds@biostarassociates.com

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For:
New Jersey Department of Environmental Protection
Office of Natural Lands Management
New Jersey Natural Heritage Program
natlands@dep.nj.gov

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Life History

Rhododendron atlanticum (Dwarf Azalea) is a low-growing deciduous shrub in the Ericaceae. The plants are generally under a meter in height but they are strongly rhizomatous and can form extensive colonies via clonal growth. Branching is alternate but sparing, and the twigs are generally hairy when young but become smooth with age. The leaves are entire: They can be highly variable in shape and size, even on the same plant. *R. atlanticum* blooms occur in clusters of 4–13 and their strong fragrance is frequently noted. The flowers have rows of glandular hairs along the center of each lobe that are conspicuous when the species is in bud (see photo on page 18). The petals are fused at the base, forming a long, narrow tube that ends in five flaring lobes, and the style and five stamens are prominently exerted. The flowers occur in a variety of colors that Fernald (1941) described as perplexing—they are typically white and flushed with pink but some are pure white, purple to pink throughout, or even yellow-tinged, and multiple color forms may occur in a single population. The white-flowered form is prevalent in New Jersey (Snyder 1986, 2000). The fruiting capsules, which are held on erect pedicels, are 1–2.4 cm long and 4–8 mm wide. (See Ashe 1917, Coker 1920, Wilson and Rehder 1921, Fernald 1950, Gleason and Cronquist 1991, Kron 1993, Luteyn et al. 1996, Judd and Kron 2020).



Larry Chen, 2023.



Francis Raskin, 2018.

Rhododendron atlanticum typically blooms in the spring, just before or at the same time as its leaves are beginning to expand (Wilson and Rehder 1921, Weatherby and Griscom 1934, Kron 1993, Leopold 2005, Horn 2019, Judd and Kron 2020). The buds develop about a month before the flowers open (Wherry 1939) and the fruits mature between August and October (Weakley et al. 2024). Blooming times can vary. In New Jersey, *R. atlanticum* has been found in flower

from April to June (Hough 1983, Snyder 2000, NJNHP 2024). At the southern end of its range the azalea may bloom from March to early May but late May to June is typical for plants growing in northern gardens (Coker 1920, Wyman 1937 & 1939, King 1977, Wade et al. 2008, Susko et al. 2016, Horn 2019). At some sites sporadic flowering has occurred as late as November, particularly following fires (Kron 1993, Weakley et al. 2024).

Rhododendron atlanticum has been placed in a subgroup of the genus identified as Section *Pentanthera*, which is characterized by flowers with a narrow corolla tube and stamens that are much longer than the petals (Kron 1993, 1996), although King (1977, 1994) suggested that the group was not strongly supported when chemical and morphological data were combined. A genetic study by Chappell et al. (2008) indicated that the nearest relative of *R. atlanticum* was *R. flammeum*, which does not occur in New Jersey, and that *R. viscosum*—which is present in the state—was also closely related. *R. viscosum* flowers later in the season after its leaves have expanded, and it is generally taller and less rhizomatous (Ashe 1921, Kron 1993, Judd and Kron 2020). *R. periclymenoides*, which can also be found in New Jersey, blooms at the same time as *R. atlanticum* and Coker (1920) noted that careless observers might confuse the two species but Fernald (1941) pointed out that the flowers of *R. periclymenoides* are odorless and usually lack the rows of glandular hairs, and it is also taller than *R. atlanticum*.

Most *Rhododendron atlanticum* plants are diploid ($2n = 26$) but triploids have been documented (Li 1957). Dwarf Azalea can hybridize with some related species, including *R. canescens* and *R. periclymenoides*, and a hybrid with the latter species has been marketed as *Rhododendron* \times *pennsylvanicum* (Kron 1993, Judd and Kron 2020). Some intergeneric hybridization between *Kalmia* and *Rhododendron* was previously alleged but Grant et al. (2004) determined that the putative hybrids were mutant *Rhododendron* plants.

Pollinator Dynamics

Rhododendron species are pollinated by insects that are attracted by their showy floral displays, scents, and nectar rewards (Zomlefer 1994, Luteyn et al. 1996). The strong fragrance of *R. atlanticum* is usually described as sweet and pleasant but occasionally the odor can be somewhat musky or disagreeable (Coker 1920, Kron 1993 & 1996, Horn 2019, Judd and Kron 2020). Hand-pollination experiments have shown that most *Rhododendron* species, including the closely related *R. viscosum*, are self-compatible (East 1940, Rathke 1988). However, insect vectors are required to effect fertilization because, although the individual pollen grains are small, they are usually clumped together in sticky masses (East 1940). Zomlefer (1994) noted that sometimes the entire contents of an anther are removed at once and carried to the next flower.

The pollinators of *Rhododendron atlanticum* do not appear to have been documented but the flowers of similar species are frequently visited by bees. The Azalea Mining Bee, *Andrena cornellii*, flies from May to July and is a specialist on *Rhododendron* (Fowler and Droege 2020). Bees recorded visiting *Rhododendron* flowers have included a variety of *Andrena* and *Bombus* species as well as occasional *Dialictus*, *Evylaeus*, *Halictus*, or *Megachile* species (Stubbs et al.

1992, Hilty 2020, Varkonyi 2022). Rathcke (1988) indicated that *R. viscosum* was only pollinated by *Bombus* spp. (bumblebees).

Epps et al. (2015) recently took a close look at the pollinators of *Rhododendron calendulaceum*, another species in Section *Pentanthera* that features protruding reproductive organs. The investigators found that bees visiting *R. calendulaceum* collected either nectar or pollen but did not make contact with both anthers and stigmas. The only visitors observed coming into contact with both male and female floral reproductive organs were large butterflies like the Eastern Tiger Swallowtail (*Pterourus/Papilio glaucus*) and the Great Spangled Fritillary (*Argynnis/Speyeria cybele*), which transported pollen on their wings. The wing-flapping behavior of the first species made it the most efficient pollinator, and the exclusion of butterflies from *R. calendulaceum* blooms resulted in an almost complete failure to set seed.

Seed Dispersal and Establishment

Rhododendron seeds are small and more than 100 may be present in a single capsule (Judd and Kron 2020). Wind is the primary dispersal mechanism in the genus (Rathcke 1988, Stephenson et al. 2007, Wang et al. 2014). A dispersal study of *R. ponticum* (Stephenson et al. 2007) found that the majority of its propagules traveled less than 10 meters from the parent plants, although the distances seeds are moved can vary depending on wind speeds and habitat characteristics. In some settings, the distribution of a low-growing species like *R. atlanticum* could be limited by the height of the surrounding vegetation (Howe and Smallwood 1982).

The seeds of *Rhododendron atlanticum* apparently germinate on the surface (Leopold 2005). Most members of the genus form typical ericoid-type mycorrhizae (Read 1983, Wang and Qiu 2006), although it is not clear whether a fungal partner is required during the seedling phase. The process of colony development in *R. atlanticum* was inferred from a genetic study that included several populations (Chappell et al. 2008). It was observed that multiple genotypes often formed interconnecting patches, suggesting that populations were initiated by a small number of individuals but their subsequent clonal spread limited the availability of suitable sites for new seedlings to establish. At a botanical garden in Russia, two-year-old *R. atlanticum* seedlings that were planted outdoors in September bloomed the following spring and the plants began to reproduce vegetatively four years after they first flowered (Shevchuk 2012).

Habitat

In New Jersey, *Rhododendron atlanticum* has usually been found growing in sandy or loamy soils associated with dry pine-oak woodlands (Snyder and Vivian 1981, Hough 1983, NJNHP 2024). In Pennsylvania, where the shrub is only known from a single southeastern county, the habitat was described as moist oak woods (Wherry 1939, Rhoads and Block 2007). Like most members of the genus, *R. atlanticum* seems to prefer acidic substrates (Wyman 1937, Kron 1996). The species can grow equally well in sun or shade (Wyman 1937, Leopold 2005, Weakley et al. 2024). Dwarf Azalea can also thrive under a wide array of moisture conditions that range from dry to very wet (Ashe 1917, Weatherby and Griscom 1934, Fernald 1941,

Hartshorne 1972, Kron 1993). Moist soil has been noted as beneficial for cultivated plants (Wyman 1937, Leopold 2005) and mulching with pine needles improved the establishment success of transplanted seedlings (Shevchuk 2012).

Throughout its range, *Rhododendron atlanticum* has been found at elevations of 0–200 meters above sea level (Judd and Kron 2020). Historically it has been particularly abundant in pine-dominated lowlands on the southern coastal plain, and extensive colonies often spread into adjacent fields (Coker 1920, Wilson and Rehder 1921, Horn 2019). Many of the communities utilized by *R. atlanticum* are fire-prone (Judd and Kron 2020, Simha et al. 2025) although the shrub was able to persist in a woodland where fires had been suppressed (Shelingoski et al. 2005). Sorrie et al. (1997) noted the presence of *R. atlanticum* in a habitat where characteristic Piedmont and Coastal Plain vegetation overlapped. Richardson (2003) found that the clonal azalea was present in both tall (pine-dominated) and short (shrub-dominated) pocosin communities but its stem density was ten times greater in the short pocosins. *Rhododendron atlanticum* has also been observed in a number of anthropogenic habitats such as damp ditches, old fields and pastures, mowed roadsides, and vacant urban lots (Musselman et al. 1977, Wade et al. 2008, Taggart 2010, Brodsky 2016, NJNHP 2024).

Wetland Indicator Status

Rhododendron atlanticum is a facultative species, meaning that it occurs in both wetlands and nonwetlands (U. S. Army Corps of Engineers 2022).

USDA Plants Code (USDA, NRCS 2025)

RHAT

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

The global range of *Rhododendron atlanticum* is restricted to the Atlantic coastal plain in the eastern United States (Kron 1996, POWO 2025). Fernald (1942) noted that the species was a true coastal plain endemic. The map in Figure 1 (below) depicts the extent of Dwarf Azalea in the North America.

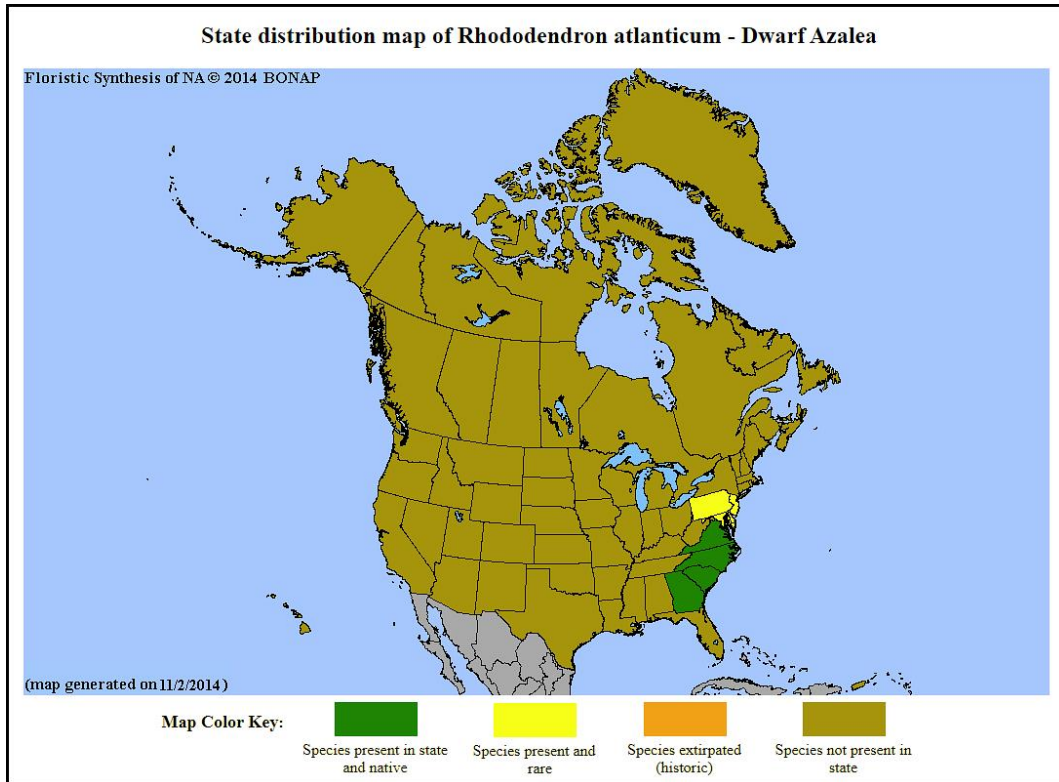


Figure 1. Distribution of *R. atlanticum* in North America, adapted from BONAP (Kartesz 2015).

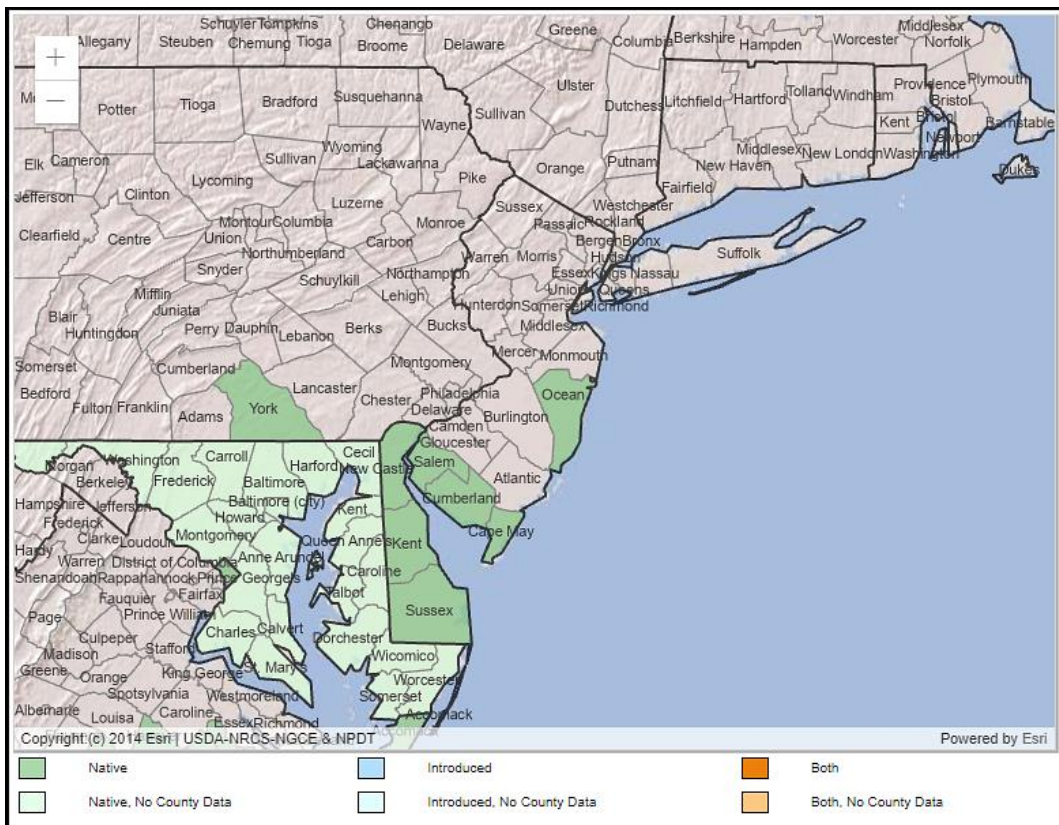


Figure 2. County records of *R. atlanticum* in New Jersey and vicinity (USDA NRCS 2025).

The USDA PLANTS Database (2025) shows records of *Rhododendron atlanticum* in four New Jersey counties: Cape May, Cumberland, Ocean, and Salem (Figure 2 above). Fernald (1941) cited a specimen from Gloucester County. The data include historic observations and do not reflect the current distribution of the species.

Conservation Status

Rhododendron atlanticum has a global rank of G4G5, meaning there is some uncertainty as to whether it should be considered apparently secure or secure. A G4 species has a fairly low risk of extinction or collapse due to an extensive range and/or many populations or occurrences, although there is some cause for concern as a result of recent local declines, threats, or other factors. A G5 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 Dwarf Azalea throughout its range. The species is vulnerable (moderate risk of extinction) in two states and critically imperiled (very high risk of extinction) in two states. *R. atlanticum* is secure or apparently secure in four of the states where it occurs and it remains unranked in Georgia.

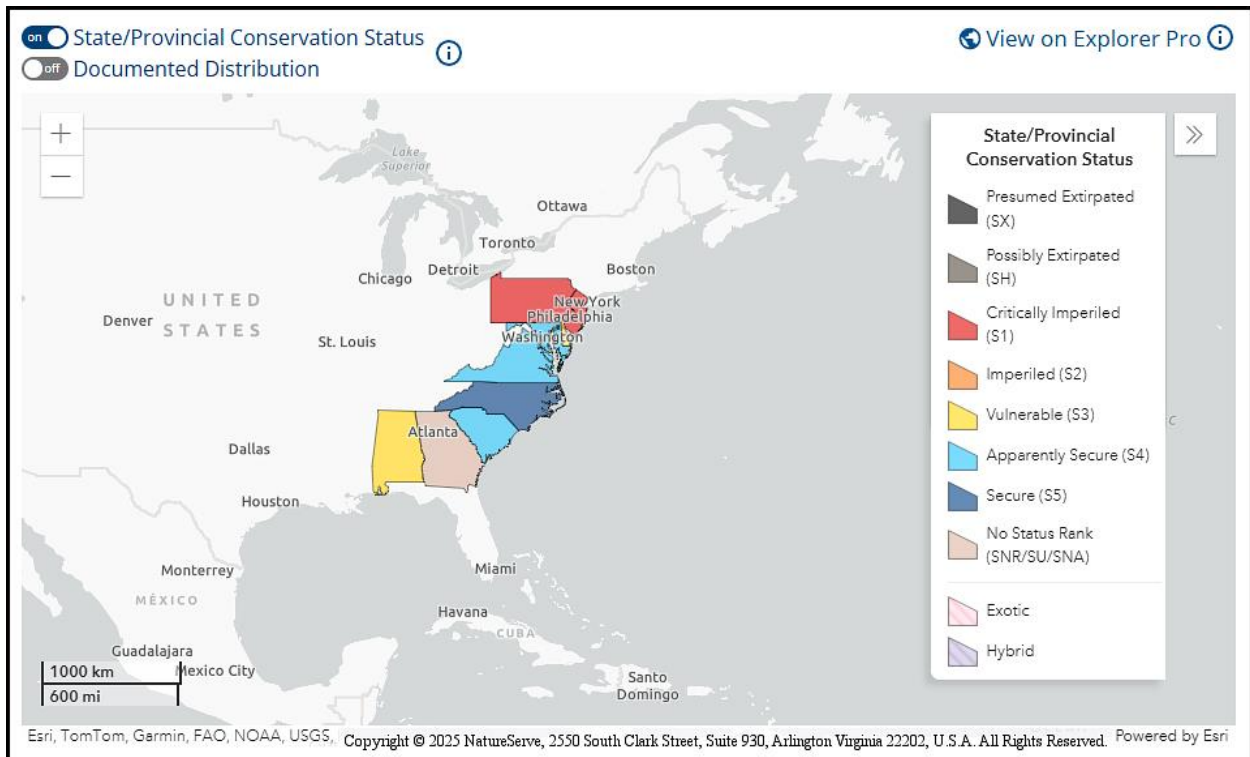


Figure 3. Conservation status of *R. atlanticum* in North America (NatureServe 2025).

New Jersey is one of the states where *Rhododendron atlanticum* 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. *R. atlanticum* 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).

Rhododendron atlanticum was collected in Cumberland and Salem counties prior to 1940. By the early 1980s no extant populations were known in New Jersey although botanists thought it was probably still present somewhere in the state (Snyder and Vivian 1981, Hough 1983, NJONLM 1984). When Snyder (1986) found a population in Cape May County in 1985 he remarked that *R. atlanticum* was "perhaps more frequent in New Jersey than records now indicate since it is easily overlooked when not in flower." Dwarf Azalea was initially listed as S1 and endangered in the state (NJONLM 1990) but additional populations were found by Snyder between 1989 and 1996. Around the beginning of this century the shrub was known to be extant in four counties (Snyder 2000, Breden et al. 2006, Moore et al. 2016) and its state status was modified accordingly. As recently as a few years ago *R. atlanticum* was still listed as an S2 species but the status reverted to S1 after it was determined that an Ocean County occurrence had been extirpated (NJNHP 2021, 2024).

Threats

Human population growth and the associated development and infrastructure pose a threat to *Rhododendron atlanticum* throughout its range (McDonald 2001, Richardson 2003, Chappell et al. 2008). McDonald (2001) noted that colonies of Dwarf Azalea situated in utility right-of-ways (ROWs) were particularly vulnerable to some of the management techniques utilized to maintain open corridors. Her observation was validated by the extirpation of New Jersey's Ocean County occurrence. The population was situated in a powerline ROW and its demise was attributable to a combination of excessive mowing, access road construction, deposition of woody debris, and all-terrain vehicle traffic. Off-road vehicles and the dumping of trash threaten another New Jersey population of *R. atlanticum* that is located in a ROW, and the potential use of herbicide has also been identified as a concern at that site. Two of the state's other extant occurrences are on roadsides that are subject to periodic mowing (NJNHP 2024).

The extent of the threat to *Rhododendron atlanticum* from mowing may depend on timing and frequency. Widely spaced management events might allow populations to recover via vegetative growth. Mowing is sometimes used as an alternative to burning in order to keep habitats open in sites that were historically maintained by fire and, as previously mentioned, *R. atlanticum* has often been found in fire-prone communities. A recent North Carolina study determined that the leaves of Dwarf Azalea had relatively low flammability in comparison to other plants in a Longleaf Pine-Wiregrass community (Simha et al. 2025). *R. atlanticum* appears to be heavily reliant on clonal growth for regeneration so intense fires that burn down into the substrate could be harmful.

Rhododendrons are susceptible to a fungal infection that causes root rot in woody plants. The disease (*Phytophthora cinnamomi*) inhibits water uptake, ultimately resulting in leaf damage and increased risk of mortality. The foliage of infected plants often exhibits a change in color.

Cryan et al. (2024) reported that the presence of discolored leaves was significantly associated with higher fatality rates in experimentally inoculated *Rhododendron atlanticum* plants.

Extensive herbivory by leaf beetles (*Pyrrhalta rufosanguinea*) can be damaging to some azaleas. A host choice study by King (1994) found that the insects fed preferentially on *Rhododendron periclymenoides* and showed little interest in *R. atlanticum*. However, further experimentation using hybrid plants indicated that the beetles' preferences might change in the future as a result of gene introgression in places where the *Rhododendron* species co-occur (King 2000).

Climate Change Vulnerability

Information from the references cited in this profile was used to evaluate the vulnerability of New Jersey's *Rhododendron atlanticum* 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 climatic conditions in accordance with the guidelines described by Young et al. (2016) and the state climatic computations by Ring et al. (2013). Based on available data *R. atlanticum* was assessed as Moderately Vulnerable, meaning that it is likely to show some decrease in abundance or range extent in New Jersey by 2050.

Notable consequences of climate change in New Jersey include rising sea levels, higher temperatures, prolonged periods of drought, and atypical weather patterns that include more frequent severe storms (Hill et al. 2020). While all of New Jersey's *Rhododendron atlanticum* populations are situated on the coastal plain the sites vary in their degree of exposure to the effects of sea level rise. None are likely to experience inundation in the short term—although that could be a longer term concern at some locations—but several are vulnerable to inland flooding or increased salinity following severe storms (NJ Adapt 2025). While mature *R. atlanticum* plants can tolerate a wide range of moisture conditions lengthy droughts may deter seedling establishment.

Rhododendron atlanticum can grow in hardiness zones 6b to 8b so warmer conditions in New Jersey are not expected to be a problem for the species. However, some recent winters in the state have been punctuated by spells of unseasonably warm weather. As with many woody species, the buds of *R. atlanticum* typically harden in the winter to resist frost and dehardening in the spring to resume growth. Once the species has hardened it is relatively resistant to frost (Anonymus 1943, Scheiber et al. 2000), but its frost tolerance decreases after three consecutive days of temperatures that are high enough to initiate dehardening so a rapid shift back to freezing conditions could be damaging (Kalberer et al. 2007, Arora and Rowland 2011).

Management Summary and Recommendations

The loss of the *Rhododendron atlanticum* population in Ocean County suggests that steps should be taken to protect other New Jersey occurrences in roadside or ROW habitats. The development of cooperative agreements with agencies responsible for mowing or otherwise

controlling the growth of woody plants on sites that currently support populations of the azalea is recommended. Considerations for mowing regimes may include the impact of equipment used on local vegetation as well as the timing and frequency of cuts. Application of herbicides should be avoided at all locations, and off-road vehicles should be barred from sensitive sites to the greatest extent possible.

As Snyder (1986) pointed out, Dwarf Azalea can be overlooked when it is not in bloom so there could be undiscovered populations in the state. Two historical collection sites have apparently not been searched in decades (NJNHP 2024). Some additional historic records of the rare azalea might also be available on herbarium sheets that predate the species' description: Wilson and Rehder (1921) noted that *Rhododendron atlanticum* specimens collected before 1917 had generally been labeled as either *R. perichlymenoides* or *R. viscosum*.

Although *Rhododendron atlanticum* can become locally abundant when circumstances are favorable the azalea's limited geographic distribution is likely to increase its global vulnerability. There are several areas where additional information would be beneficial for range-wide conservation planning. It is important to gain a better understanding of the fertilization agents utilized by *R. atlanticum*, particularly since those of related species seem to vary. Pollinator identification research should make note of both floral visitors and their effectiveness in transporting pollen. Very little data is available regarding potential means of long-distance dispersal, seed dormancy, or germination requirements. Fire effects studies could help to define burn characteristics (timing, frequency, intensity) that favor the species and evaluate the relative contribution of sexual and clonal reproduction to post-fire regeneration. As the climate continues to change, understanding the impact of saltwater exposure on *R. atlanticum* plants is likely to become increasingly consequential.

Synonyms

The accepted botanical name of the species is *Rhododendron atlanticum* (Ashe) Rehder. Some orthographic variants, synonyms, and common names are listed below. Ashe (1917, 1920) described *Azalea atlantica* and *A. neglecta* as two different species but shortly thereafter Wilson and Rehder (1921) transferred them to *Rhododendron atlanticum* and reduced *neglecta* to a form of that species. A number of additional forms have been described (see Fernald 1941) but none are currently recognized and *R. atlanticum* is simply viewed as a variable species (Kron 1993, Judd and Kron 2020, ITIS 2025, POWO 2025, USDA NRCS 2025).

Botanical Synonyms

Azalea atlantica Ashe
Azalea neglecta Ashe
Rhododendron neglectum (Ashe) Ashe

Common Names

Dwarf Azalea
Coastal Azalea

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