

# *Salix lucida* var. *lucida*

Shining Willow

Salicaceae



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*Salix lucida* var. *lucida* by Peter M. Dziuk, 2014

## ***Salix lucida* var. *lucida* 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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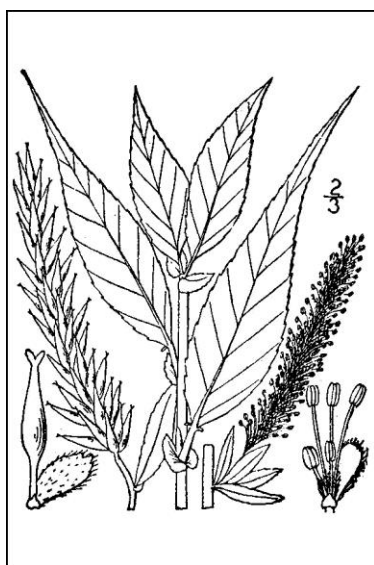
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## **Life History**

*Salix lucida* var. *lucida* (Shining Willow) is a deciduous woody plant in the Salicaceae. Most recent sources do not recognize any varieties. The Pacific Willow (*S. lasiandra*) was previously viewed as a subspecies of *S. lucida* (see Synonyms and Taxonomy section) so some of the information that has been provided about *S. lucida* by various authors was partially based on studies of *S. lasiandra* (e.g. Hardig et al. 2010, Fryer 2015). The two species are closely related and are currently placed in *Salix* section *Salicaster* based on both morphological and molecular characteristics (Argus 1997, Lauron-Moreau et al. 2015, Wu et al. 2015, Argus 2020). In addition to *Salix lucida* two other members of that section may occur in New Jersey: *S. serissima* is native but rare in the state and *S. pentandra* is occasionally introduced. Despite the similarity of *Salix lucida* to closely related willows, Fernald (1904) described it as "one of the handsomest and easiest recognized of New England willows" due to its "lustrous foliage and closely flowered golden-yellow staminate aments." After that, he went on to discuss how many *S. serissima* plants had been misidentified as *S. lucida* due to their marked resemblance.



Left: Britton and Brown 1913, courtesy USDA NRCS 2025a. Center and Right: Male (c) and female (r) catkins, Peter M. Dziuk 2016 & 2014.

*Salix lucida* can grow as a large shrub or a small tree six meters or more in height. The branches are smooth and shiny, occurring in various shades of yellow, red, or gray-brown. The alternate leaves are serrate and lance-shaped, developing long, tapering tips as they mature. They are typically glossy above and green or pale below, ranging from 5.5–13.3 cm in length and 1.1–4.3 cm in width. Juvenile leaves frequently have a mixture of white and reddish-brown hairs on the undersides. Leaf-like stipules are present at the bases of the leaves early in the season and they often persist. Glands can be found on the margins of the stipules and the lower parts of the leaves. *Salix lucida* is a dioecious species (Bressman 1934), meaning that individual plants are either male or female. The inflorescences are arranged in densely flowered catkins (aments). The staminate catkins are 19–69 mm long and brightly colored, with 3–6 stamens per flower. The pistillate catkins are initially 23–56 mm long but they become longer in fruit. The capsular



fruits are 5–7 mm in length and greenish or straw-colored. (See Griggs 1905, Britton and Brown 1913, Fernald 1950, Fassett 1957, Gleason and Cronquist 1991, Argus 1986a, 2006, & 2020).

*Salix lucida* may bloom from late April to mid-July, with May being typical, and the fruits mature during July and August. That is one way in which it differs from the similar *S. serissima*, which generally flowers later and fruits in the fall—sometime retaining capsules on the plants for more than a year (Fernald 1904, Hough 1983, Argus 2006, Weakley et al. 2024). *Salix serissima* and *S. pentandra* can also be distinguished from *S. lucida* by the absence of stipules and lack of hair on the juvenile leaves (Argus 2020). Identification of willows can be challenging because most species exhibit some morphological variability and hybridize readily (Rocha 1991, Dorn 2003). Although reports of hybridization between *S. lucida* and *S. serissima* have not been confirmed, *S. lucida* can hybridize with some species that are introduced in New Jersey including *S. alba* and *S. × fragilis* (Griggs 1905, Argus 2020). Curtis and Lersten (1980) observed resin filaments extruding from the glands of *S. lucida* that might be unique to the species, although those would not be detectable in the field.

### **Pollinator Dynamics**

*Salix lucida* is not capable of self-fertilization because the male and female flowers are on separate plants. *Salix* species have nectaries in both staminate and pistillate flowers and they are generally pollinated by insects, although some may utilize a combination of insects and wind (Fisher 1928, Argus 2006). Wind probably doesn't play a significant role in the pollination of *S. lucida*, as the species did not set seed when insects were excluded (Argus 1974).

In the eastern United States, *Salix* is among the plant genera that have the highest number of specialist bees. At least fourteen kinds of bees specialize on willow pollen and the majority are *Andrena* species (Fowler and Droege 2020). Generalist bees recorded on *Salix* include species of *Agapostemon*, *Andrena*, *Augochlorella*, *Bombus*, *Ceratina*, *Colletes*, *Dialictus*, *Evylaeus*, *Halictus*, *Lasioglossum*, *Nomada*, *Osmia*, and *Sphecodes* (Stubbs et al. 1992). During a pollinator study in Connecticut the vast majority of insects documented on *Salix lucida* were andrenid and colletid bees, although a number of other bees and wasps were also collected (Grandstaff et al. 2023). A syrphid fly (*Orthonevra pictipennis*) has also been observed visiting *S. lucida* flowers (Hilty 2020).

### **Seed Dispersal and Establishment**

*Salix lucida* has 18–24 ovules per ovary and a mature female plant may produce thousands of seeds (Argus 2006). On the end of each *Salix* seed is an aril covered with long, silky hairs. When the capsules are ripe they split into two parts, releasing the seeds. Aided by the hairs, wind facilitates removal of the seeds from the capsules and carries them away from the maternal plants. When conditions are favorable the seeds may be dispersed over distances of several miles (Fryer 2015). The seed coats are hydrophobic and the arils are unwettable, so seeds that land on water are able to float for several days (Steyn et al. 2004). In addition to maintaining buoyancy in the air, the hairs on willow seeds can further aid in water dispersal by acting as little

sails (Boland 2014). Seiwa et al. (2008) reported that the hairs may also play a role in assuring that *Salix* seeds end up in favorable microsites for germination by trapping them on wet soil.

Most *Salix* seeds lack food reserves and have a very brief period of viability (Argus 2006). While the seeds of some fall-dispersing willows can overwinter, those of summer-dispersed species like *Salix lucida* are not dormant and typically germinate within 24 hours of reaching a suitable substrate (Densmore and Zasada 1983). Moisture is required in order for the seeds to retain viability for even a short time: Deno (1993) found that *Salix* seeds typically remain viable for only a few days and die quickly upon drying. The seeds of summer-dispersed willows contain a significant amount of chlorophyll and they have transparent coats; consequently, germination increases with light (Densmore and Zasada 1983). Both moisture and light continue to be important as the young plants develop (Argus 2006). Young willows usually grow quickly, producing their first fruits after 5–10 years (Fryer 2015). *Salix* species generally form fungal associations, although the abundance of mycorrhizae may vary seasonally (Marshall and Pattullo 1981, Wang and Qiu 2006).

Most willows can also spread vegetatively, developing new shoots from their roots or from fragments of broken stems (Rocha 1991, Argus 2006). When cut back to the ground, *Salix lucida* sprouts vigorously from the stumps (Mosseler et al. 1988). Plants that develop from crown sprouts can generally produce seeds within a year or two (Fryer 2015).

## **Habitat**

*Salix lucida* may occur in an assortment of wetland communities at elevations of 0–600 meters above sea level. Most *Salix* species are relatively shade-intolerant (Argus 2006), but Shining Willow appears to be equally at home in sun or shade (Weakley et al. 2024). Reported habitats include bogs, swamps, floodplains, wet meadows, stream banks, lake or pond shores, fens, alvars, and vernal pools (Fassett 1957, Hough 1983, Rhoads and Block 2007, Argus 2020). *S. lucida* can sometimes be found in tidal wetlands (Tiner 2009). At one New York site, the species voluntarily established in a wetland that developed on some iron tailings from an abandoned mine (Bader 2016). Habitats recorded in New Jersey include calcareous fens, lake and pond shores, swamps, thickets, and a wet meadow (Johnson and Walz 2013, NJNHP 2024).

During a botanical survey on a peninsula in Lake Erie, *Salix lucida* was identified as one of the dominant species in shrubby zones along the water's edge. Closely associated shrubs included other willows (*S. discolor*, *S. sericea*, *S. nigra*, *S. cordata*), *Cephalanthus occidentalis*, *Rosa carolina*, and *Sambucus canadensis*. Outside of the shrub zone, *S. lucida* colonized patches of sand that had recently been exposed by muskrats (Jennings 1909). Willows often benefit from small-scale disturbances that create favorable germination sites (Argus 2006).

## **Wetland Indicator Status**

*Salix lucida* is a facultative wetland species, meaning that it usually occurs in wetlands but may occur in nonwetlands (U. S. Army Corps of Engineers 2020).

### USDA Plants Code (USDA, NRCS 2025b)

The USDA code for *Salix lucida* is SALU. No varieties are recognized by the USDA NRCS. Their site shows three subspecies of *S. lucida*, with those in our region belonging to ssp. *lucida* (code SALUL2).

### 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 *Salix lucida* is restricted to the central and eastern portions of the United States and Canada (POWO 2024). The map in Figure 1 depicts the extent of the species in North America.

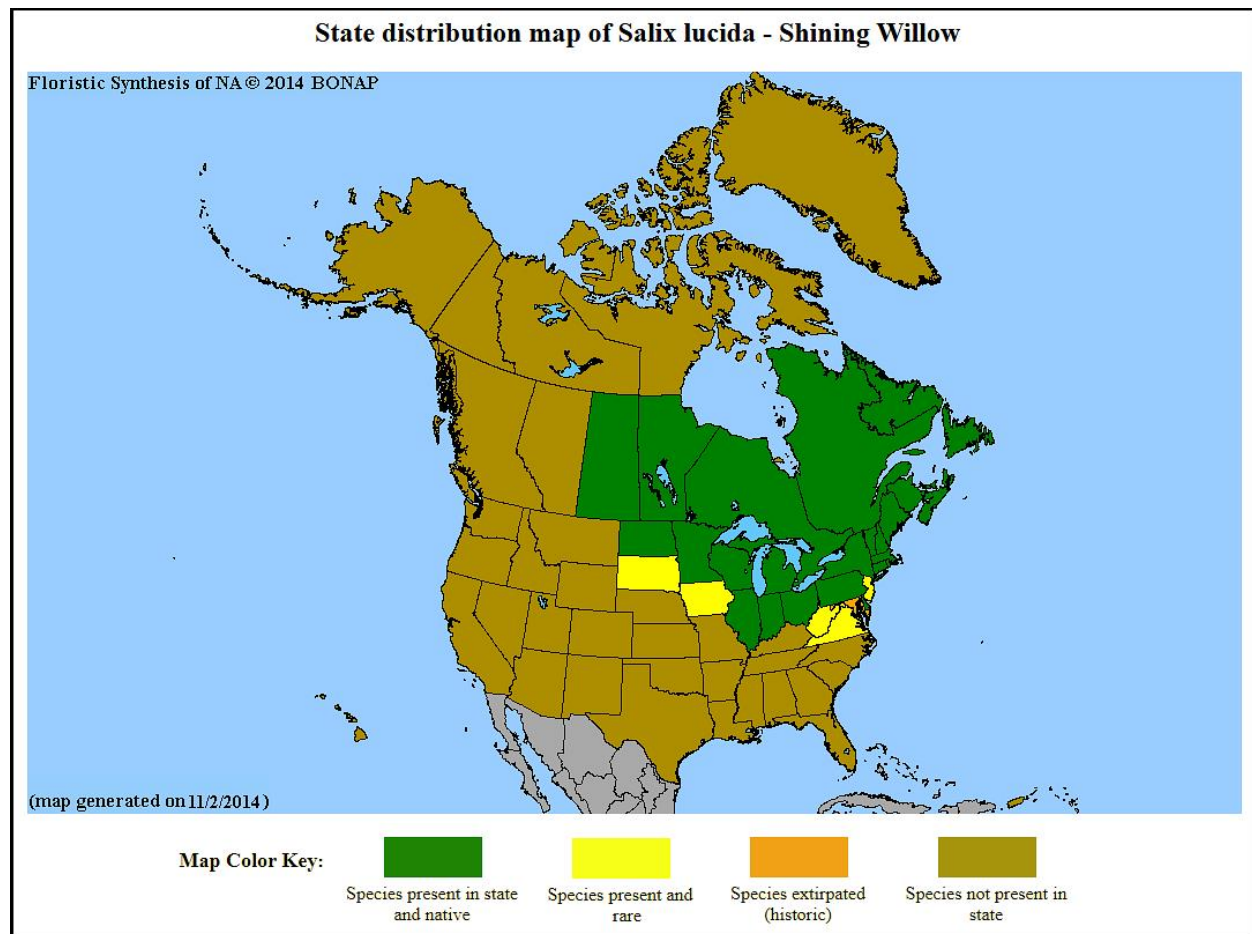


Figure 1. Distribution of *S. lucida* in North America, adapted from BONAP (Kartesz 2015).

The USDA PLANTS Database (2025b) shows records of *Salix lucida* ssp. *lucida* in ten New Jersey counties: Bergen, Essex, Hudson, Hunterdon, Monmouth, Morris, Passaic, Somerset, Sussex, and Warren (Figure 2). Shining Willow has also been reported in Atlantic and Camden counties (Mid-Atlantic Herbaria 2025). The data include historic observations and do not reflect the current distribution of the species.

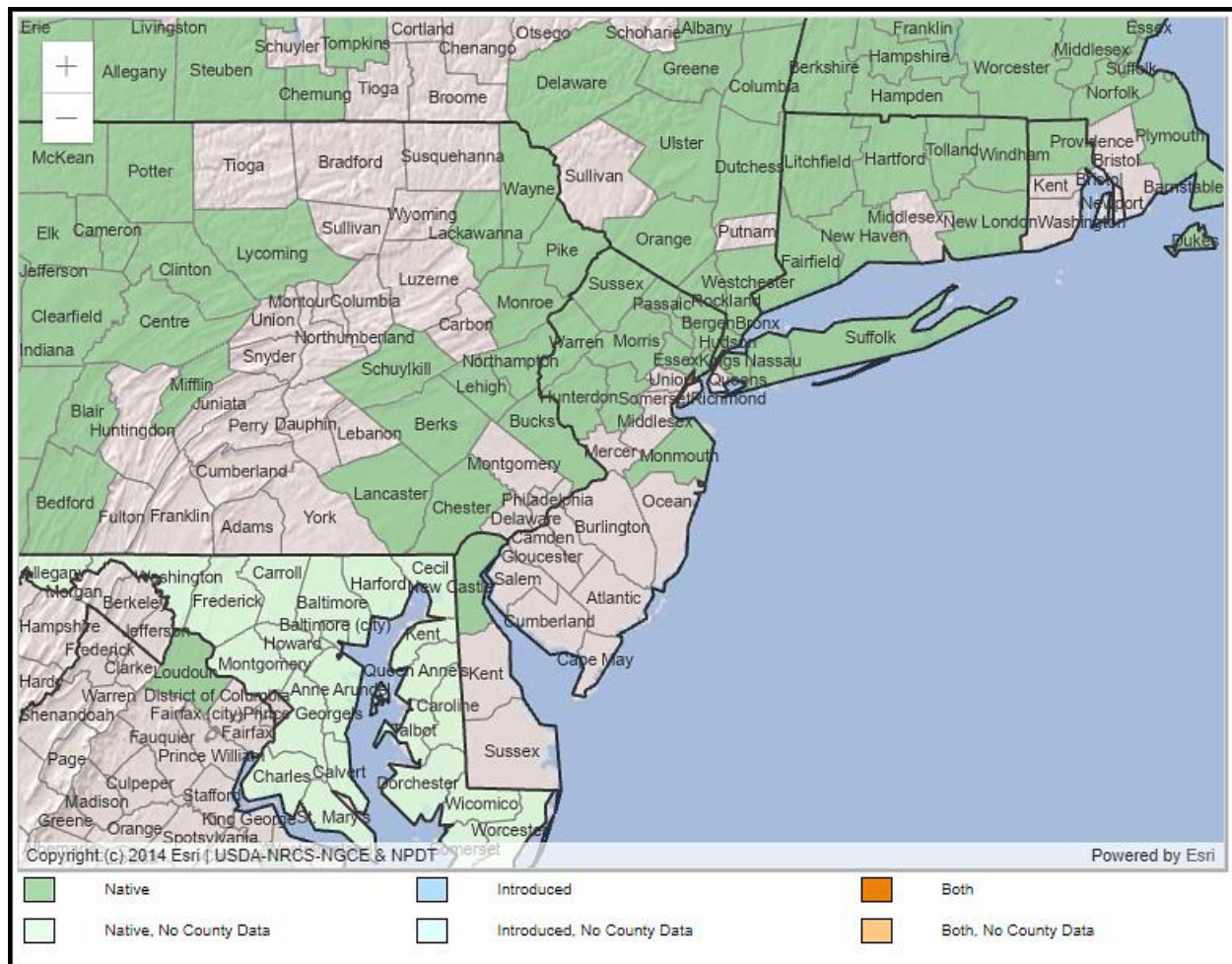


Figure 2. County records of *S. lucida* in New Jersey and vicinity (USDA NRCS 2025b).

## Conservation Status

*Salix lucida* ssp. *lucida* is considered globally secure. The G5T5 rank means the subspecies 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 *S. lucida* ssp. *lucida* throughout its range. The willow is vulnerable (moderate risk of extinction) in one province and critically imperiled (very high risk of extinction) in two states. Some states do not list it at the subspecific level: *Salix lucida* is also critically imperiled in two such states, imperiled (high risk of extinction) in one, and possibly extirpated in Maryland. In Virginia the species is generally not accepted as

indigenous (Argus 2020, NatureServe 2025), although Weakley et al. (2024) noted that the native status of *S. lucida* in that state remains uncertain.

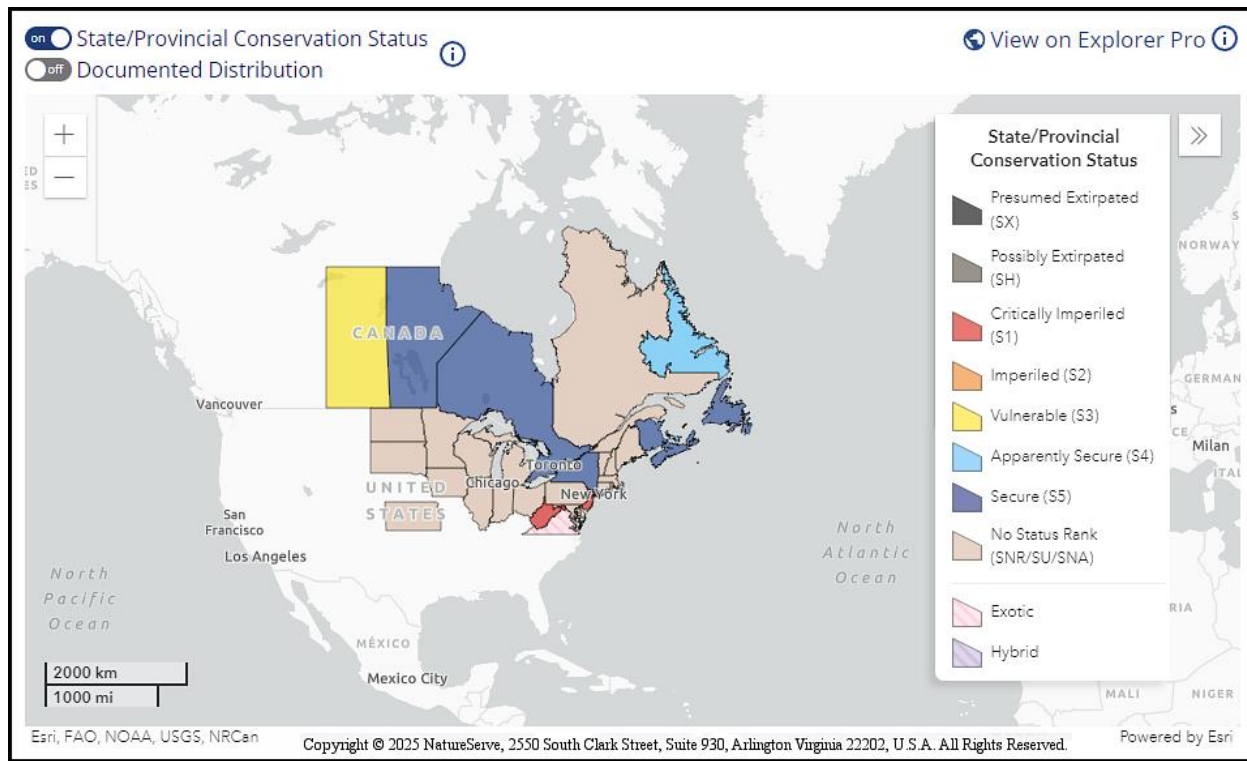


Figure 3. Conservation status of *S. lucida* in North America (NatureServe 2025).

*Salix lucida* var. *lucida* 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. *S. lucida* var. *lucida* 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).

During the late 1800s and early 1900s there were a few scattered records of *Salix lucida* in New Jersey's northern counties and one occurrence was known from Monmouth County (Willis 1874, Britton 1889, Keller and Brown 1905, Stone 1911, Taylor 1915). No observations of *S. lucida* were recorded in the state after 1917 until Snyder (2000) found a population in Morris County during 1980. That occurrence has disappeared, but four or five additional populations were subsequently discovered in Warren and Sussex counties (NJNHP 2024).

## Threats

The majority of extant *Salix lucida* populations in New Jersey are situated in fens, which are sensitive habitats that require stable hydrological regimes in order to maintain their unique plant communities (Johnson and Walz 2013). At the site of one *Salix lucida* occurrence in the state, altered hydrology resulting from drawdown has been identified as a potential threat. At some



other sites the spread of invasive plants such as *Phragmites australis* ssp. *australis* and *Lythrum salicaria* was noted as a concern (NJNHP 2024).

Plants that grow rapidly are often vulnerable to air pollution, and *Salix lucida* is highly sensitive to ozone. Overexposure can result in the formation of angular, rust-colored leaf spots, tip burn, edge necrosis, chlorosis, or premature defoliation (Kline et al. 2008). Comparable damage might also be caused by a fungal infection. *Septoria musiva*, a leaf spot fungus usually associated with poplars (*Populus* spp.) was detected on *Salix lucida* by Feau and Bernier (2004). In addition to premature defoliation, extensive *Septoria* infections may result in the breakage of stems or branches (Feau et al. 2010).

Insect-initiated galls are frequent on *Salix* species, including *S. lucida* (Cosens and Sinclair 1916, Ryan 1995), but they usually do not cause any serious harm to the plants (OSUE 2017). Damage from insect herbivory is rare in *Salix lucida*: Curtis and Lersten (1980) suggested that the glandular secretions on the leaves might serve as a deterrent. Larger herbivores, including an assortment of birds and mammals, regularly consume willow catkins, twigs, or buds and the plants are sometimes subject to heavy browse by deer or moose (Brassard and Bernard 1937, Fassett 1957, Ryan 1995). Depending on the season, herbivory could take a toll on sexual reproduction but intensive browsing might also stimulate the production of new basal sprouts. The resprouting capacity of *Salix lucida* makes the species relatively resistant to fires, which typically only kill the aboveground parts of the plants. However, intense fires that damage the crown or roots can be lethal (Fryer 2015).

### **Climate Change Vulnerability**

An evaluation by Ring et al. (2013) determined that *Salix lucida* was moderately vulnerable to climate change in New Jersey. As a result of global warming, plant communities in the state are increasingly exposed to both higher temperatures and shifting precipitation patterns that increase the frequency and intensity of local droughts and floods (Hill et al. 2020). Both *S. lucida* and the fen habitats that it favors in New Jersey are sensitive to changes in hydrology. As discussed in the previous section, *Salix lucida* is also highly susceptible to ozone. A study focusing on how air quality in the United States may be affected by climate change indicated that atmospheric ozone is likely to increase in the eastern and central parts of the country (Murazaki and Hess 2006).

A phenological study of willows by Savage and Cavender-Bares (2013) found that species like *Salix lucida* which are tolerant of cooler climates rely on day length to regulate their growth. The authors suggested that southern *Salix* species, which can begin growing earlier in the season, might outcompete the northern species if they expand their ranges northward as the climate continues to warm. Existing threats to *S. lucida* from *Phragmites australis* and other invasive plants are also likely to be exacerbated by climate change (Dukes et al. 2009, Tougas-Tellier et al. 2015, Eller et al. 2017).

## **Management Summary and Recommendations**

Updated site visits are needed for several New Jersey populations of *Salix lucida*. The present status of one population where some concerns were noted in 1998 is unclear, and two other reported occurrences have not yet been assessed. In addition to appraising the current condition of tracked populations, site visits can provide an opportunity to monitor the spread of invasive plant species that were previously identified as possible threats and determine whether active management is required.

Rocha (1991) grew *Salix lucida* in vitro in order to evaluate the species' potential for genetic manipulation, and her research demonstrated a reproducible method for micropropagation of the species. However, a recent review of regeneration in *Salix* showed that more information is needed about recruitment in natural settings, both for *S. lucida* and for willows in general (Díaz-Alba et al. 2023).

## **Synonyms and Taxonomy**

The New Jersey accepted botanical name of the species is *Salix lucida* Muhl. var. *lucida*. Some orthographic variants, synonyms, and common names are listed below. Most current sources do not recognize any varieties or subspecies (Kartesz 2015, Argus 2020, Weakley et al. 2024, ITIS 2025, POWO 2025). Two western willows, *Salix lasiandra* ssp. *caudata* and *S. lasiandra* ssp. *lasiandra*, were formerly treated as subspecies of *Salix lucida* by Argus (1986b, 1997) although he subsequently revised his opinion (Argus 2006). Those taxa are still shown as subspecies of *S. lucida* by USDA NRCS (2025) and NatureServe (2025) although the latter source noted that they have been transferred to *S. lasiandra*, making a designation of ssp. *lucida* superfluous.

### **Botanical Synonyms**

*Salix lucida* Muhl. ssp. *lucida*  
*Salix arguta* var. *hirtisquama* Andersson  
*Salix arguta* var. *pallescens* Andersson  
*Salix caudata* A. Heller  
*Salix lucida* var. *angustifolia* Andersson  
*Salix lucida* f. *densiflora* Andersson  
*Salix lucida* var. *intonsa* Fernald  
*Salix lucida* var. *latifolia* Andersson  
*Salix lucida* var. *ovatifolia* Andersson  
*Salix lucida* f. *pilosa* Andersson  
*Salix lyallii* A. Heller  
*Salix pallescens* Andersson  
*Salix pentandra* Nutt.  
*Salix pentandra* var. *lucida* (Muhl.) Kuntze  
*Diplima lucida* (Muhl.) Raf.  
*Pleiarina lucida* (Muhl.) N. Chao & G. T. Gong

### **Common Names**

Shining Willow  
Greenleaf Willow

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