Prunus pumila var. *depressa*

Low Sand Cherry

Rosaceae

Prunus pumila var. *depressa* by Nate Martineau, 2022

Prunus pumila var. *depressa* Rare Plant Profile

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

Prunus pumila var. *depressa* (Low Sand Cherry) is a low, mat-forming shrub in the Rosaceae that is less than 30 cm in height. The stems are rope-like and trail on the ground (Fernald 1923). The twigs are alternate and smooth, with new shoots being reddish and shiny. The leaves are 3.9–7.5 cm long and 1–2 cm wide, toothed, and tapering at both ends—they are green on the surface but pale on the underside. Small clusters of 2–4 flowers develop along the branches. The flowers have 5 white petals 3–9 mm long and numerous stamens. The fruits are fleshy, single-seeded drupes 6–12 mm in diameter that are black when fully ripe. (See Bean 1914, Fernald 1950, Gleason and Cronquist 1991, Bragg 2004, Rohrer 2020).

Left: Britton and Brown 1913, courtesy USDA NRCS 2025a. Top right: Sean Blaney, 2022. Bottom right: Nate Martineau, 2022.

There are four generally accepted varieties of *Prunus pumila*. In addition to var. *depressa* only one other occurs in New Jersey, var. *susquehanae*, and that variety is also rare in the state (S3). Some sources treat *P. pumila* var. *susquehanae* as a separate species. Although the other varieties of *P. pumila* often have some trailing stems they almost always have some that are upright. Variety *susquehanae* also differs from var. *depressa* in having densely hairy twigs (visible at 10x magnification) and it occurs in different habitats (Fernald 1923, Catling et al. 1999, Rohrer 2020, Weakley et al. 2024).

Prunus pumila var. *depressa* reproduces clonally, generating new shoots from roots and rhizomes, so it can be locally abundant when conditions are favorable. The shrub is deciduous

and remains dormant during the winter. In the spring, flowering occurs as the leaves unfold. The plants may bloom from April to June, depending on their location. Fruits develop during the summer: They are initially red but become black when they mature in the fall. The leaves turn orange-red before they are discarded at the end of the season (Hough 1983, Grisez et al. 2003, Bragg 2004, Taylor 2006, Rhoads and Block 2007, Shrestha and Lubell 2015, Rohrer 2020, Lubell-Brand and Brand 2021, Weakley et al. 2024).

Pollinator Dynamics

Prunus flowers are attractive to a wide array of bees and many other insects including wasps, flies, mosquitoes, beetles, and butterflies (Robertson 1929, Stubbs et al. 1992, Hilty 2020, Lake Diver 2022). Study of another variety of *Prunus pumila* found that nearly half of the visitors were early-emerging Dipterans, and the most frequent pollinators were syrphid flies, wasps, and halictid bees (Lake Diver 2022). Most *Prunus* species are self-fertile and do not require a pollinator to set fruit (Grisez et al. 2003). Insect exclusion experiments by Lake Diver (2022) confirmed self-fertility in *P. pumila*.

Seed Dispersal and Establishment

Prunus pumila seeds are primarily animal-dispersed (Grisez et al. 2003, Bragg 2004). The fruits are edible and highly sought out by humans (Fernald 1923) and other mammals including bears, raccoons, coyotes, foxes, skunks, and opossums (Willson 1993). The fruits of *P. pumila* are also attractive to birds (Craven and Ellarson 1986). Avian dispersal of *Prunus* seeds may be carried out by both early migrants and resident species (Stiles 1980). Given the habitat preferences of *P. pumila* var. *depressa* (see next section), some fruits or seeds might also be transported to favorable germination sites by water currents.

Prunus seeds are dormant at the time of dispersal and require a period of cold stratification before they can germinate. A 120-day stratification period was recommended for *P. pumila* var. *besseyi* (Grisez et al. 2003). Although various types of mycorrhizae have been documented in the genus (Wang and Qiu 2006) it is not clear whether *P. pumila* var. *depressa* requires any fungal associates. *Prunus pumila* plants can begin to flower and fruit at 2–3 years of age (Taylor 2006). Established populations are probably largely maintained by vegetative reproduction. Lubell-Brand and Brand (2021) found that the *P. pumila* was easy to propagate from stem cuttings because the shoots grew vigorously and multiplied rapidly.

Habitat

Prunus pumila var. *depressa* grows on sandy, gravelly, or rocky substrates at elevations of less than 200 meters above sea level (Rohrer 2020). The species flourishes in open, sunny sites along the shores of rivers, lakes, or streams. Typical habitats include sandy banks, gravel bars, alluvial islands, riverside ledges, and inland spits (Fernald 1923, Coddington and Field 1978, Sorrie 1987, Weber and Rooney 1994, Rhoads and Block 2007, Garon-Labrecque 2017, NJNHP 2024,

Weakley et al. 2024). It has also been reported on scree slopes, along floodplain forest edges, and at the edge of a canal (Catling et al. 1999, MANHESP 2015).

Many of the sites where *P. pumila* var. *depressa* occurs are seasonally flooded. In the northeast, Low Sand Cherry is a characteristic species of riverside ice meadows and similar habitats that have historically been maintained by scouring in the spring when large chunks of ice are carried downstream by snowmelt-swollen waters (NYNHP 2007, Marks and Martin 2013, MANHESP 2015, David 2021, Garret 2024). On islands in the Delaware River ice scour can result in a community known as Riverside Prairie Grassland, in which *P. pumila* var. *depressa* is co-dominant with grasses like *Andropogon gerardii* and *Sorghastrum nutans* (Sneddon 2010). The harsh habitats utilized by *Prunus pumila* var. *depressa* support few other plants (Bragg 2004). Many woody species are scraped off of the substrate by ice but some that can share the habitat with Low Sand Cherry include willows (*Salix exigua*, *S. interior*), River Birch (*Betula nigra*), Sycamore (*Platanus occidentalis*), Cottonwood (*Populus deltoides*), Round-leaf Service-berry (*Amelanchier sanguinea*), and poison ivy (*Toxicodendron radicans*) (Sorrie 1987, MANHESP 2015, NJNHP 2024).

Sjöman et al. (2025) recently evaluated the life history strategies utilized by more than 300 woody species relative to the three categories (competitive, stress-tolerant, ruderal) outlined by Grime (1977). Grime observed that stress tolerant plants tend to be somewhat slow-growing and require limited resources while competitive plants utilize more resources and grow faster. *Prunus pumila* var. *depressa* was characterized as 78.8% stress-tolerant and 21.1% competitive. The mixture was indicative of a high stress tolerance with a relatively good growth rate (Sjöman et al. 2025).

Wetland Indicator Status

Prunus pumila 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 2023)

PRPUD

Coefficient of Conservancy (Walz et al. 2020)

CoC = 9. 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 *Prunus pumila* var. *depressa* is restricted to southeastern Canada and the northeastern United States (POWO 2025). The map in Figure 1 depicts the extent of the variety in North America. It appears that the core range of Low Sand Cherry extends south as far as New Jersey and Pennsylvania while a few isolated populations occur in states beyond that (Bragg 2004).

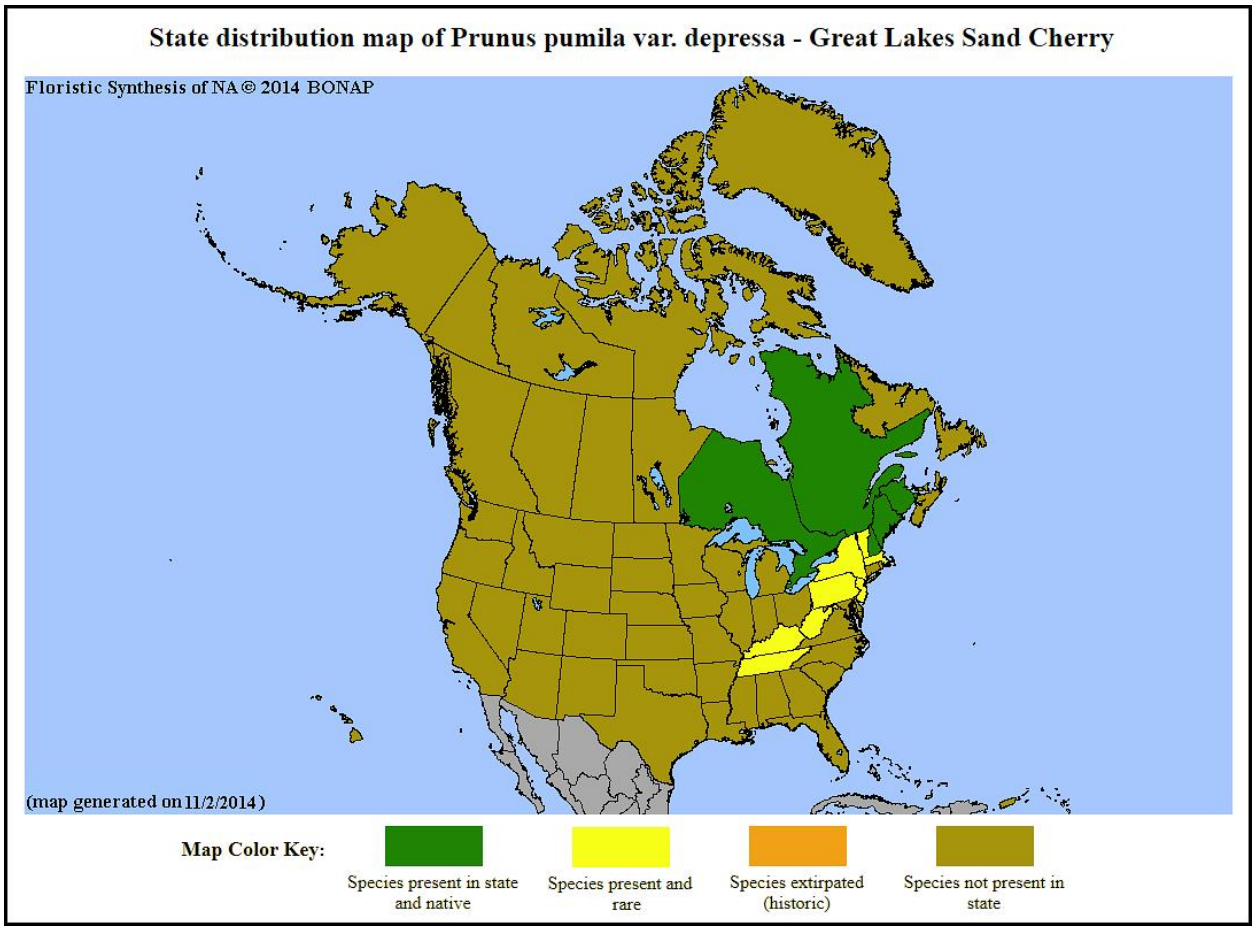

Figure 1. Distribution of P. pumila var. depressa in North America, adapted from BONAP (Kartesz 2015).

The USDA PLANTS Database (2023) shows records of *Prunus pumila* var. *depressa* in four New Jersey counties: Hunterdon, Morris, Sussex, and Warren (Figure 2 below). The data include historic observations and do not reflect the current distribution of the species.

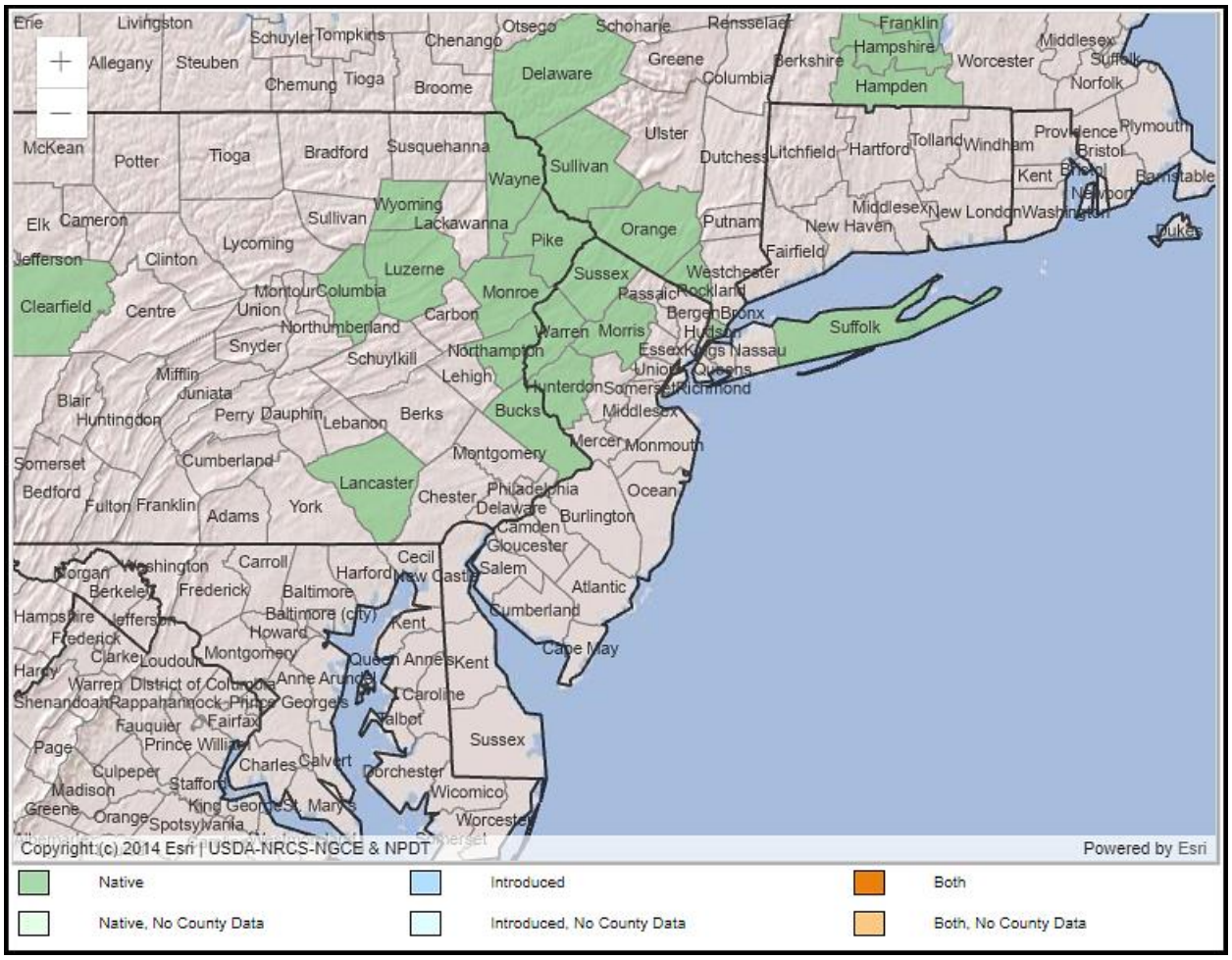

Figure 2. County records of P. pumila var. depressa in New Jersey and vicinity (USDA NRCS 2023).

Conservation Status

Prunus pumila var. *depressa* 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) illustrates the conservation status of Low Sand Cherry throughout its range. The shrub is imperiled (high risk of extinction) in four states and critically imperiled (very high risk of extinction) in two states. It is apparently secure in the three Canadian provinces where it occurs, and has not been ranked in three states.

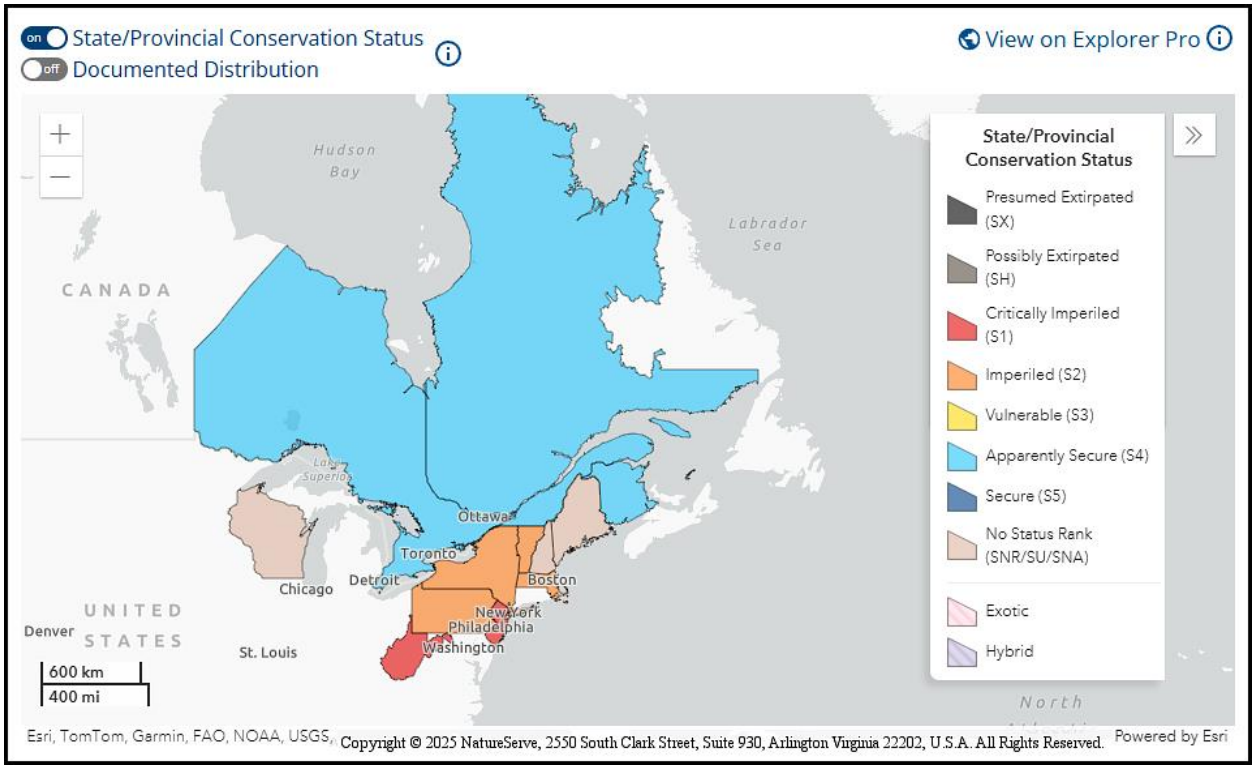

Figure 3. Conservation status of P. pumila var. depressa in North America (NatureServe 2025).

New Jersey is one of the states where *Prunus pumila* var. *depressa* 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. *P. pumila* var. *depressa* is also listed as an endangered species (E) in New Jersey, meaning that without intervention it has a high likelihood of extinction in the state. Although the presence of endangered flora may restrict development in certain communities, being listed does not currently provide broad statewide protection for plants. Additional regional status codes assigned to Low Sand Cherry signify that the variety is eligible for protection under the jurisdictions of the Highlands Preservation Area (HL) and the New Jersey Pinelands (LP) (NJNHP 2010).

Most of the early New Jersey observations of *Prunus pumila* var. *depressa* were made at sites along the Delaware River in Hunterdon, Warren, and Sussex counties (Taylor 1915, Hough 1983), although it was also reported at a Morris County location during the early 1900s (NJNHP 2024, Mid-Atlantic Herbaria 2025). Many of the stations were only documented by a single collection. One Hunterdon occurrence, rediscovered by Vincent Abraitys in 1957, was the sole known New Jersey location of the rare shrub during the early 1980s (Snyder and Vivian 1981, Snyder 1984) so the sand cherry was identified as a priority species on the initial state list of threatened plants (NJONLM 1984). In 1985 four additional populations were discovered by David Snyder on Delaware River islands and gravel bars. Recent searches of two sites—including the longstanding Hunterdon County location—failed to turn up any plants, and three other occurrences have seemingly not been monitored since they were first observed in 1985 (NJNHP 2024).

Threats

Depending upon their location, some individual populations of *Prunus pumila* var. *depressa* could decline as a result of overcollection or trampling but alteration of habitat is the primary threat to the variety (Snyder and Vivian 1981, Bragg 2004). Two frequently noted concerns are closely tied together: Changes in the natural hydrologic regime or disturbance cycle can damage existing plants and facilitate the establishment of species that are likely to shade out the sun-loving sand cherry (NYNHP 2007, MANHESP 2015, PANHP undated). The loss of one historic New Jersey occurrence of *P. pumila* var. *depressa* was attributed to woody succession and another population was apparently destroyed by a series of severe floods (NJNHP 2024). The Riverside Prairie Grasslands on the Delaware River islands often occur in very small patches, increasing their vulnerability, and without regular disturbance the sites can be overtaken by invasive plants (Sneddon 2010). Some species that have been noted as particular concerns along the shores of the Upper Delaware River include *Lythrum salicaria*, *Reynoutria japonica*, *Artemisia vulgaris*, *Phragmites australis* ssp. *australis*, and the invasive form of Reed Canarygrass (*Phalaris arundinacea*). Other plants that sometimes spread aggressively in such habitats include non-native *Lonicera* spp., *Elaeagnus umbellata*, *Rosa multiflora*, *Persicaria perfoliata*, *Centaurea stoebe*, *Poa compressa*, and *Euphorbia cyparissias* (NYNHP 2007, USNPS 2022, Garret 2024).

Threats to Low Sand Cherry from herbivory or disease appear to be minimal. *Prunus pumila* is often lightly browsed by deer (Howard 1937, Garret 2024) but Shrestha and Lubell (2015) found that overall damage to *P. pumila* var. *depressa* plants was limited because removal of the long outer stems resulted in more interior branching. Garon-Labrecque (2017) recorded three types of mites on *P. pumila* var. *depressa*: *Eriophyes emarginatae*, which forms finger-shaped galls on *Prunus* leaves; *Aculus schlechtendali*, which is a widespread crop pest; and *Typhlodromus caudiglans*, a predatory species that probably helps keep the others in check. Damsteegt et al. (2007) tested an assortment of *Prunus* species for susceptibility to Plum Pox, a viral disease that can do serious damage to members of the genus. *P. pumila* var. *depressa* plants in their study that were deliberately infected were confirmed to be harboring the virus but exhibited no evident symptoms.

Climate Change Vulnerability

Information from the references cited in this profile was used to evaluate the vulnerability of New Jersey's *Prunus pumila* var. *depressa* populations to climate change. The variety 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 *P. pumila* var. *depressa* was assessed as Extremely Vulnerable, meaning that it is very likely to either disappear or experience a substantial decline throughout New Jersey by 2050. The same conclusion was reached when the shrub was evaluated in Pennsylvania (PANHP undated).

Temperatures are rising at an unprecedented rate in New Jersey, with the change being especially pronounced during the winter months. Modifications to global circulation patterns are also resulting in atypical weather patterns and increasing the frequency and intensity of both droughts and floods (Hill et al. 2020). *P. pumila* var. *depressa* appears to be secure in the northern part of its range but imperiled to the south (Figure 3). Although Low Sand Cherry can withstand cold conditions during the winter months (Roberts 1937) the extent of its heat tolerance is not known. Erratic temperature shifts are also leading to more frequent incidents of false spring—early periods of unseasonably warm weather that are followed by late frosts. *P. pumila* var. *depressa* relies on climactic cues to trigger leaf out and blooming, making the plants particularly prone to damage. Studies of another variety of *P. pumila* indicated that the buds can survive light frosts but hard freezes decrease reproductive success (Lake Diver 2022, Lake Diver and Savage 2023).

The greatest climate-related threat to New Jersey populations of *Prunus pumila* var. *depressa* is habitat loss because the sites utilized by the sand cherry are highly susceptible to alterations in seasonal river flow patterns. All of the extant local occurrences are situated in communities that have historically been maintained by ice scour. Much of the snowmelt and ice driving the process has originated upstream in New York, where the winters are now warming three times faster than the summers (NYDEC 2023). Reduced river ice and snowmelt can permit more growth of woody species, significantly altering light availability in river shore communities. Additionally, large storms that result in excessive flooding during the growing season can threaten rare species in those settings by hampering reproduction or dislodging plants. Severe floods have already destroyed one population of *P. pumila* var. *depressa* in the state (NJNHP 2024). Ongoing changes from climate warming increase the likelihood that flooding events in the Delaware Basin will intensify in both frequency and magnitude with the passage of time (Schopp and Firda 2008, UDS 2008).

Management Summary and Recommendations

The foremost management recommendation for *Prunus pumila* var. *depressa* in New Jersey is an updated statewide assessment. The three populations listed as extant have not been monitored for 40 years, and they were initially associated with relatively fragile communities. Some other formerly known occurrences have disappeared but there are four historical collection sites where suitable habitat might still be present and those should be searched (NJNHP 2024).

Little can be done to mitigate the threats to New Jersey's Low Sand Cherry populations from climate change. However, if there are surviving occurrences in the state they could probably benefit from efforts to reduce the abundance of more competitive plants. *Prunus pumila* can resprout from rhizomes and roots following fire (Taylor 2006) but burning may not be practical in the places where populations have been documented. The National Park Service has addressed the invasive species problem in similar habitats along the Delaware River with a combination of biological controls and hand removal (USNPS 2022). In the absence of ice scour, site-specific strategies applied to preserve open habitat for *P. pumila* var. *depressa* will need to be repeated periodically.

Synonyms

The accepted botanical name of the species is *Prunus pumila* L. var. *depressa* (Pursh) Bean. Orthographic variants, synonyms, and common names are listed below (Catling et al. 1999, ITIS 2025, POWO 2025). The varietal name is often credited to Gleason (e.g. Kartesz 2015, USDA NRCS 2023, Weakley et al. 2024, NatureServe 2025). While Gleason recognized multiple varieties of *P. pumila* in the 1952 edition of Britton and Brown's Illustrated Flora of the Northeastern United States and Adjacent Canada, var. *depressa* had previously been published by Bean (1914).

Botanical Synonyms	**Common Names**
Prunus pumila L. var. *depressa* (Pursh) Gleason	Low Sand Cherry
Prunus depressa Pursh	Eastern Sandcherry
Cerasus depressa (Pursh) Ser.	Prostrate Dwarf-cherry
	Sandbar Cherry

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