

# *Hypericum ascyron* ssp. *pyramidatum*

Great St. John's-wort

Hypericaceae



*Hypericum ascyron* ssp. *pyramidatum* by Katy Chayka, 2008

## *Hypericum ascyron* ssp. *pyramidatum* 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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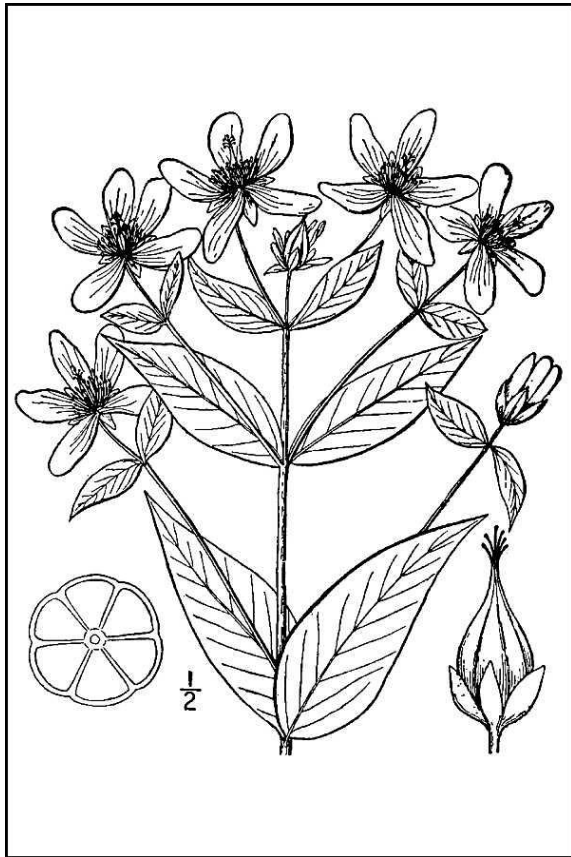
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New Jersey Natural Heritage Program  
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## Life History

*Hypericum ascyron* ssp. *pyramidatum* (Great St. John's-wort) is a perennial herb that can easily be distinguished from the other members of the genus that occur in New Jersey. *Hypericum* has traditionally been included in the Clusiaceae but it was recently transferred to the Hypericaceae (APG III 2009, Kartesz 2015). Several subspecies of *H. ascyron* have been described but ssp. *pyramidatum* is the only one that occurs in North America. *H. ascyron* is most similar to *H. prsewalski*, which is restricted to Asia. The two taxa were formerly placed in their own section of *Hypericum* (sect. *Roscyna*) based on shared morphological characteristics (Robson 2001) but a subsequent phylogenetic analysis indicated that the section was not monophyletic (Nürk et al. 2013).



Left: Britton and Brown 1913, courtesy USDA NRCS 2025a. Right: Katy Chayka, 2008.

*Hypericum ascyron* ssp. *pyramidatum* stems are 0.5–2 meters tall. The lower portion is four-lined and the upper part is nearly square in cross-section. The paired, oblong-lanceolate leaves are stalkless and clasping at the base: The larger leaves of the main stem are 4–8.5 cm long and 1.8–3.7 cm wide while those on secondary branches are smaller but similar in appearance. A single plant may produce 1–35 flowers. The flowers are five-parted with acute-tipped sepals and large yellow petals. They are notable for having 150 stamens arranged in five clusters (fascicles) of 30. The five styles are fused at the base but separate and spreading at the top, ending in capitate stigmas that are often reddish. The fruit is a five-parted, cylindrical capsule 9–22 mm in

length. (See Aiton 1789, Britton and Brown 1913, Fernald 1950, Gleason and Cronquist 1991, Robson 2020).

*Hypericum ascyron* is not known to hybridize (Robson 2001). When the plants are in bloom the species can readily be distinguished from other herbaceous St. John's-worts in our region by its large flowers, multitudinous stamens, and style structure. Throughout its range *H. ascyron* ssp. *pyramidatum* may flower from June through August (Rhoads and Block 2007, Robson 2020, Weakley et al. 2024). In New Jersey the species usually begins to bloom in July and fruits can be found in September and October (Stone 1911, Hough 1983).

*Hypericum* species have been employed for an assortment of traditional medicinal treatments around the globe. Recent studies have focused on identifying the substances produced by the plants and evaluating their potential for nutritional and pharmaceutical uses. Compounds derived from the seeds of North American *H. ascyron* plants only demonstrated low to moderate levels of antioxidant and antimicrobial activity (Borchardt et al. 2008) but some phytochemicals produced in the leaves of both the North American and Asian varieties of *H. ascyron* appear to be more promising—exhibiting notable antibacterial, anticancer, anti-inflammatory, antioxidant, and antiviral properties (Force et al. 2014, Vincent et al. 2021).

### **Pollinator Dynamics**

*Hypericum* flowers do not produce nectar and many are scentless. Insects are attracted by copious amounts of pollen, particularly in species like *H. ascyron* that have numerous anthers (Robson 1981). While *Hypericum* flowers look yellow to the human eye, examination under ultraviolet light has shown that the anthers appear darker to insects, as do portions (or in some species the entirety) of the outer petals. Eisner et al. (1973) suggested that the darker outer surfaces prevented the buds from distracting potential visitors to receptive flowers while the contrast between the anthers and open petals served to attract them. Multiple *Hypericum* species examined by Gronquist et al. (2001) showed the same characteristics in ultraviolet light, and their study of *H. calycinum* indicated that chemicals in the pigments may also deter insect herbivory.

The dense aggregation of stamens in *Hypericum ascyron* can serve as a landing platform for insects, which then transfer the pollen that adheres to their undersides as they move from flower to flower. Robson (1981) noted that the strategy favors generalist pollinators like syrphid flies and bumblebees. *Bombus* species appear to be the primary cross-fertilization agents for Great St. John's-wort—sometimes engaging in buzz pollination—but other bees (including species of *Agapostemon*, *Augochlora*, *Ceratina*, *Halictus*, *Lasioglossum*, *Megachile*, and *Xylocopa*) and beetles have also been recorded on the flowers (Robertson 1929, Strickler et al. 1996, Hilty 2020, Holm 2014).

Most *Hypericum* species are self compatible (Robson 1981). A number of taxa are capable of producing seeds from unfertilized ovules but that is not the case for *H. ascyron* (Matzk et al. 2003, Nürk et al. 2013).

## **Seed Dispersal and Establishment**

The fruits of *Hypericum ascyron* contain numerous, narrowly-winged seeds (Gleason and Cronquist 1991, Robson 2020). When the capsules are mature they split open along the seams and most of the seeds are dispersed by gravity, remaining close to the parent plant. The narrow wings could facilitate a limited amount of wind dispersal, and seeds that land in the water might float for short distances. On occasion, propagules clinging to wet or muddy feet may be transported over longer distances by animals (Robson 1981).

Seed banking has been documented in some other *Hypericum* species (e.g. Leckie et al. 2000), although no reports were found for *H. ascyron* and during one study it failed to emerge from the seed bank despite being present in the vegetation (Hanlon et al. 1998). While light promotes germination in many St. John's-worts it does not appear to be essential for all members of the genus (Robson 1981, Deno 1993 & 1996). Carta (2014) found that the seed dormancy requirements of *H. elodes* were influenced by local climactic conditions. Upon germination, *Hypericum* seedlings rapidly develop a ring of strong root hairs that anchor the young plants to the substrate (Robson 1981). Mycorrhizae were documented in some species but noted as absent in others (Wang and Qiu 2006).

Despite the lack of specific information about the establishment requirements of *H. ascyron* ssp. *pyramidatum* this does not appear to be a limiting life stage for the plants. The species seems to have spontaneously colonized a number of restored habitats in New Jersey (Wentzell et al. 2021) but it is not clear whether the source seeds were already present in the soil or freshly dispersed to the sites. Great St. John's-wort has successfully been established via direct seeding at other locations, and the species is sometimes included in seed mixtures designed for the restoration of native plant communities (Howe 1994, Mingione et al. 2025).

## **Habitat**

The typical habitat for *Hypericum ascyron* ssp. *pyramidatum* in New Jersey consists of river islands, banks, and adjacent alluvial terraces (Latham and Rhoads 2006, Stalter et al. 2011, NJNHP 2024), although it has occasionally utilized open wetlands further inland (Wentzell et al. 2021). Throughout its range, Great St. John's-wort is frequently found in settings that are associated with the floodplains of rivers and streams (Russell 1953, McVaugh 1958, Crow and Storks 1980, Reveal and Broome 1981, Domville 1984, Bartgis and Hutton 1988, Roosa et al. 1991, Robertson et al. 1995, Rhoads and Block 2007). Other common habitats include swamps, marshes, woodland borders, savannas, prairies, and fens (Nekola 1994, DeLong and Hooper 1996, Thompson 2004, Allison 2002, Catling 2008). Useche and Shipley (2010) suggested that the slow growth rate of *H. ascyron* ssp. *pyramidatum* might help it to compete in low-nutrient environments.

While *Hypericum ascyron* ssp. *pyramidatum* can grow in woods and thickets the plants are often located along the woodland edges and in fields, meadows, or other open settings (Crow and Storks 1980, Bartgis and Hutton 1988, Cooperrider 1989). Weakley et al. (2024) characterized it as a species that has some tolerance for shade but is more likely to thrive in sunny places. Most

of the sites where it occurs have moist or moderately moist substrate (Cooperrider 1989, Ruch et al. 2009). In western Pennsylvania the species has been found both on dry ridges and in wet depressions but it is considerably more abundant in the latter (Williams et al. 1999). When growing in dry sites the blooming period is shortened considerably (Holm 2014). Although most of its habitats are situated in lowlands, *H. ascyron* ssp. *pyramidatum* has been recorded at elevations of up to 1,500 meters above sea level (Robson 2020). Disturbed habitats where the species has been recorded include ditches and banks along roads and railways (Fay and Thorne 1953, Churchill et al. 1976, Robson 2020).

### **Wetland Indicator Status**

*Hypericum ascyron* 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 2025b)**

The USDA identifies the plant as *Hypericum ascyron* (HYAS80) but does not recognize any subspecies.

### **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 native range of *Hypericum ascyron* ssp. *pyramidatum* is restricted to the central and eastern portions of the United States and Canada (POWO 2025). The map in Figure 1 depicts the extent of the species in North America.

The USDA PLANTS Database (2025b) shows records of *Hypericum ascyron* in six New Jersey counties: Atlantic, Burlington, Hunterdon, Mercer, Sussex, and Warren (Figure 2). The data include historic observations and do not reflect the current distribution of the species.

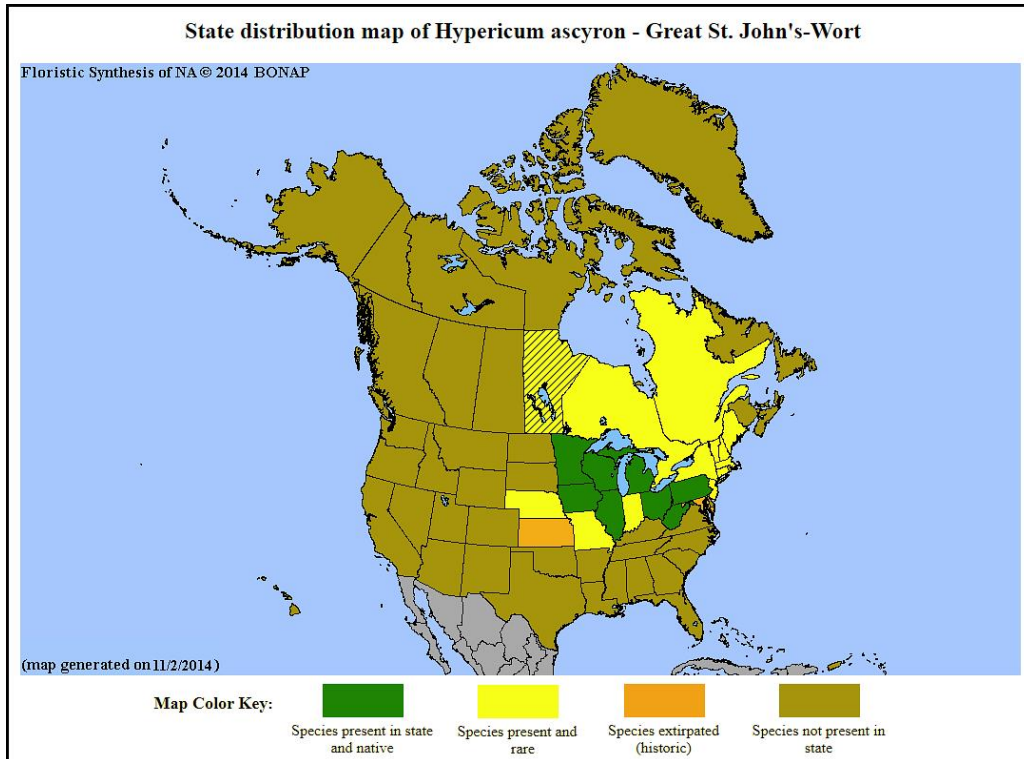


Figure 1. Distribution of *H. ascyron* in North America, adapted from BONAP (Kartesz 2015). Cross hatching /// indicates a questionable presence.

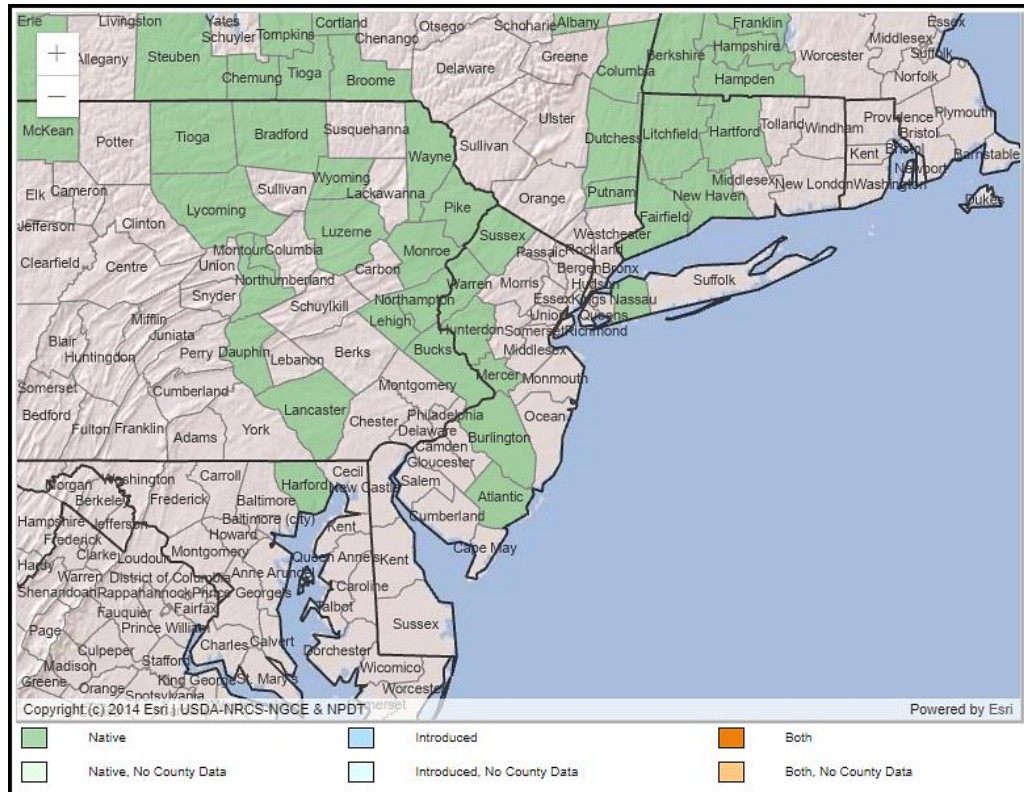


Figure 2. County records of *H. ascyron* in New Jersey and vicinity (USDA NRCS 2025b).

## Conservation Status

*Hypericum ascyron* ssp. *pyramidatum* 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 Great St. John's-wort throughout North America. *H. ascyron* ssp. *pyramidatum* is vulnerable (moderate risk of extinction) in two states and one province, imperiled (high risk of extinction) in three states and one province, and critically imperiled (very high risk of extinction) in four states. The species is apparently secure or unranked in other states where it occurs.

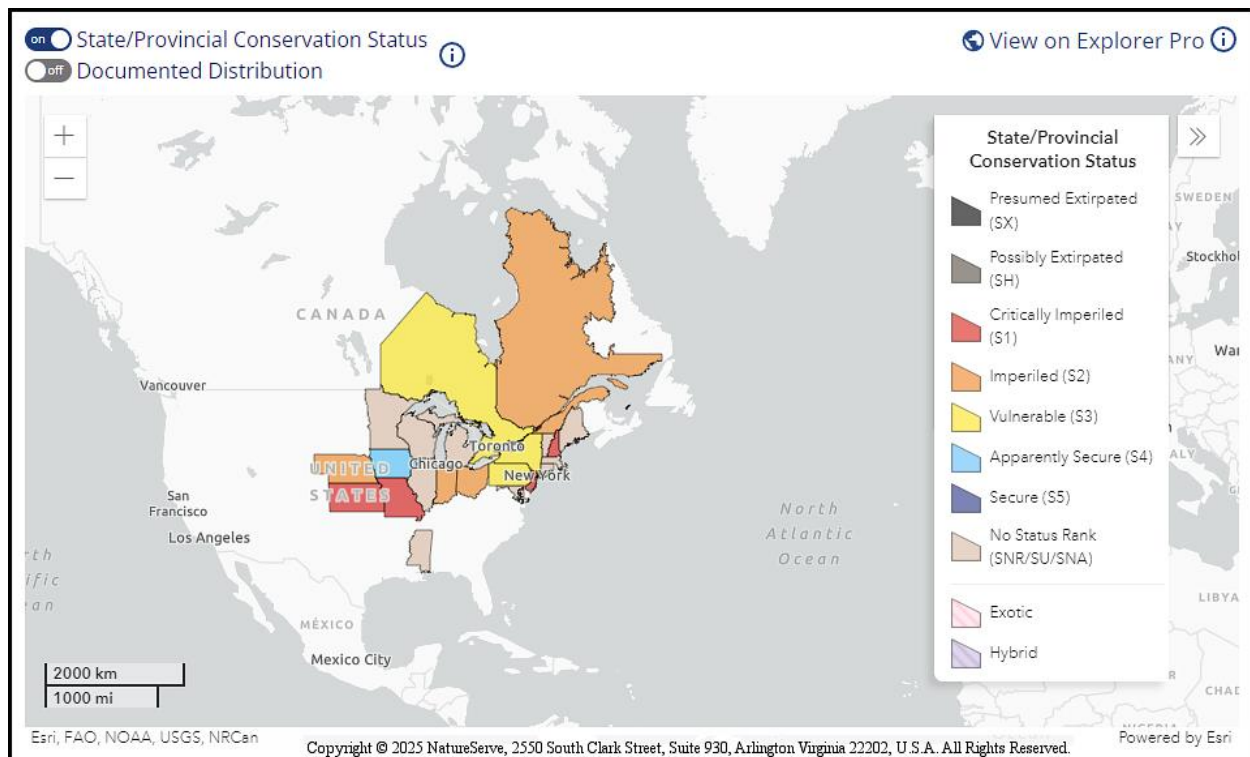


Figure 3. Conservation status of *H. ascyron* ssp. *pyramidatum* in North America (NatureServe 2025).

*Hypericum ascyron* ssp. *pyramidatum* 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. Great St. John's-wort 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).

Early New Jersey floras indicate that *Hypericum ascyron* ssp. *pyramidatum* was only known from the Delaware River Valley and all of the records were from river-adjacent communities (Willis 1877, Britton 1881 & 1889, Keller and Brown 1905, Stone 1911, Taylor 1915). It was also found on a Delaware River island in 1885 (Latham and Rhoads 2006). Schuyler et al. (1981) characterized it as uncommon in the state and Hough (1983) noted that the species had

not been seen in Burlington or Atlantic County for more than a half-century (although it is not clear where reports of *H. ascyron* in the latter county originated). Great St. John's-wort was previously listed as an S2 species and its status was only recently revised to S1 (NJNHP 2021, 2024). Although ten occurrences are currently tracked as potentially extant, three of those consisted of only a few plants when they were last observed over thirty years ago. More recently, steep declines have been documented in several other *H. ascyron* populations that were once large and vigorous. On the bright side, there appears to be a new record of the species from southern New Jersey (Wentzell et al. 2021).

## **Threats**

Although *Hypericum ascyron* ssp. *pyramidatum* does not seem to face any particular range-wide threats, individual occurrences can be imperiled by development, hydrological changes, recreational activities, erosion, succession, or invasive flora (Ventrella 2024). A Maryland population was destroyed by flooding following the construction of a dam (Reveal and Broome 1981). The proliferation of invasive plants is a particular concern for the extant populations in northern New Jersey: *Artemisia vulgaris*, *Celastrus orbiculatus*, *Elaeagnus umbellata*, *Ligustrum* sp., *Lonicera japonica*, *Lythrum salicaria*, *Persicaria posumbo*, *Reynoutria japonica*, *Rosa multiflora*, *Rubus phoenicolasius*, and *Sedum sarmentosum* have all been noted as problematic at one or more sites. *Melilotus officinalis* was also abundant at one or two locations but did not seem to pose a threat to the *Hypericum* plants. Several populations of the St. John's-wort were facing dual threats from natural succession and non-native flora, and two had been subjected to prolonged flooding during the growing season (NJNHP 2024).

Certain chemical compounds produced by *Hypericum ascyron* appear to discourage mammalian herbivory by causing gastrointestinal irritation. They do not seem to deter insect herbivores, as many invertebrates—including moth and butterfly larvae, leaf beetles, and aphids—consume various parts of the plants (Hilty 2020). The insects are mainly generalist feeders and none appear to pose a significant threat to St. John's-wort populations.

A rust fungus that specializes on plants in the Hypericaceae, *Uromyces triquetrus*, has been documented on *Hypericum ascyron* ssp. *pyramidatum* in both the eastern and central United States (Farlow and Seymour 1888, Tiffany and Knaphus 1984, Torres-Cruz et al. 2025). Rust fungi typically cause the formation of small rust-colored pustules that become surrounded by yellow rings as cells in the adjacent tissue die. Severe infections can reduce photosynthetic capacity and cause a decline in overall plant performance. The leaf spotting and discoloration caused by *U. triquetrus* tends to be most conspicuous early in the season (Arthur 1886, Gautam et al. 2022).

## **Climate Change Vulnerability**

Information from the references cited in this profile was used to evaluate the vulnerability of New Jersey's *Hypericum ascyron* ssp. *pyramidatum* 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 Great St. John's-wort was assessed as Moderately Vulnerable, meaning that it is likely to show some decrease in abundance or range extent in New Jersey by 2050.

In New Jersey, the impacts of climate change include both elevated temperatures and an increase in extreme conditions such as droughts and floods (Hill et al. 2020). It is not clear whether *Hypericum ascyron* is likely to be affected by rising temperatures, or whether the species' susceptibility to fungal infections will be modified by shifting climactic conditions. Prolonged flooding has already been identified as a threat to some New Jersey populations of *H. ascyron*, and ongoing changes from altered precipitation patterns increase the probability 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).

Invasive plant species—which are already the chief threat to New Jersey populations of *H. ascyron*—are likely to become an even greater menace in the state as the climate continues to warm. Some of the introduced species that had previously gained a foothold in the northeast are expected to become more abundant (Dukes et al. 2009, Coville et al. 2021, O'Uhuru 2022), and both the northeastern and mid-Atlantic regions are predicted to become hotspots for the establishment of additional nonnative plants (Bellard et al. 2013, Salva and Bradley 2023).

### **Management Summary and Recommendations**

A statewide status review is needed for *Hypericum ascyron* ssp. *pyramidatum*. The majority of known occurrences in northern New Jersey have not been monitored for more than a decade and those that have were found to be in decline. The extent and condition of the populations recently reported in the southern part of the state should also be assessed. Any occurrences that appear to be viable are likely to require development of site-specific habitat management plans to control the spread of invasive plants and slow the rate of succession. Monitoring visits can also serve as opportunities to check for signs of herbivory or disease.

The efficacy of long-term conservation planning for *Hypericum ascyron* ssp. *pyramidatum* could be enhanced by additional research. Areas where there are important gaps in knowledge about the species include self-compatibility, seed longevity, germination and establishment needs, fungal associations, response to fire, and the impacts of climactic factors such as temperature and moisture levels on reproduction and survival.

### **Synonyms**

The accepted botanical name of the species is *Hypericum ascyron* ssp. *pyramidatum* (Aiton) N. Robson. Orthographic variants, synonyms, and common names are listed below (ITIS 2025, POWO 2025). Some sources (e.g. Kartesz 2015, USDA NRCS 2025b) do not recognize any subspecies. Weakley et al. (2024) viewed *H. ascyron* as a strictly Asian species and followed

Aiton (1789) in identifying the North American plants as *H. pyramidatum*. Although NatureServe presently identifies the taxon as *Hypericum ascyron* ssp. *pyramidatum* the classification is still pending final recognition (Ventrella 2024).

### **Botanical Synonyms**

*Hypericum pyramidatum* Aiton  
*Hypericum ascyron* var. *americanum* Y. Kimura  
*Hypericum amplexicaule* Lam.  
*Hypericum ascyroides* Willd.  
*Hypericum bartramianum* Pursh  
*Hypericum bartramium* Mill.  
*Hypericum macrocarpum* Michx.  
*Roscyna americana* Spach

### **Common Names**

Great St. John's-wort  
Great St. Johnswort  
American Great St. John's-wort

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