

# Dwarf Glasswort



*Salicornia bigelovii*



Photo credits: *Kimberly J. Smith*

**Scientific Name** *Salicornia bigelovii*  
Torr.

**Family Name** Chenopodiaceae  
Goosefoot Family

## Did you know?

New York botanist John Torrey named this salt marsh plant after its discoverer Jacob Bigelow, a Harvard professor of medicine and botany who published one of the first two American botanical books with color illustrations. For the illustrations he used etched stone instead of metal plates, an unusual technique at the time (Norman 2006).

## Summary

**Protection** Threatened in New York State, not listed federally.

This level of state protection means: listed species are those with: 1) 6 to fewer than 20 extant sites, or 2) 1,000 to fewer than 3,000 individuals, or 3) restricted to not less than 4 or more than 7 U.S.G.S. 7 ½ minute topographical maps, or 4) listed as threatened by U.S. Department of Interior.

**Rarity** G5, S2S3

A global rarity rank of G5 means: This species is demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.

A state rarity rank of S2S3 means: Imperiled or Vulnerable in New York - Very vulnerable to disappearing from New York, or vulnerable to becoming imperiled in New York, due to rarity or other factors; typically 6 to 80 populations or locations in New York, few individuals, restricted range, few remaining acres (or miles of stream), and/or recent and widespread declines. More information is needed to assign a single conservation status.

## Conservation Status in New York

There are 12 existing populations but half of these have less than 100 plants each. There are 22 records from the late 1800s through the 1970s that have not been rediscovered.

### Short-term Trends

Most of our populations have only been visited one time, so short term trends are unclear, although three of the larger populations seem to be stable.

### Long-term Trends

There are almost twice as many historical records as there are current records, so this species seems to have declined over the past 100 years, although many historical sites have not been resurveyed.

# Conservation and Management

## Threats

Hydrologic changes from ditching and road traffic, as well as invasion of common reed (*Phragmites australis*) is a threat to some of the salt marshes where this species occurs.

## Conservation Strategies and Management Practices

Common Reed should be controlled in the salt marshes where it exists and steps taken to prevent new incursions. Natural buffers should be established around salt marshes to decrease pollution runoff and other direct human disturbances.

## Research Needs

Research is needed to determine how this species interacts with other species of *Salicornia* and what limits its population size within these large marshes.

# Habitat

In New York dwarf glasswort is known only from maritime wetlands, including high salt marsh, salt panne, and salt shrub natural communities (New York Natural Heritage Program 2011). Middle levels of saltmarshes (FNA 2004). Salt marshes (Crow and Hellquist 2000).

## Associated Ecological Communities

### High Salt Marsh

A coastal marsh community that occurs in sheltered areas of the seacoast, in a zone extending from mean high tide up to the limit of spring tides. It is periodically flooded by spring tides and flood tides. High salt marshes typically consist of a mosaic of patches that are mostly dominated by a single graminoid species.

### Salt Panne

A shallow depression in a salt marsh where the marsh is poorly drained. Pannes occur in both low and high salt marshes. Pannes in low salt marshes usually lack vegetation, and

the substrate is a soft, silty mud. Pannes in a high salt marsh are irregularly flooded by spring tides or flood tides, but the water does not drain into tidal creeks. After a panne has been flooded the standing water evaporates and the salinity of the soil water is raised well above the salinity of sea-water.

### **Salt Shrub**

A shrubland community that forms the ecotone between salt marsh and upland vegetation. Salinity levels are generally lower here than in the salt marsh (soil pore salinity ranges 7 ppt to 27 ppt), and the elevation is higher. Salt shrub does not usually develop on deep peat. More often, it occurs on a thin (0-10 cm) layer of peat, and soils share characteristics of both estuarine and maritime terrestrial settings.

### **Other Probable Associated Communities**

Brackish meadow

### **Associated Species**

Salt-marsh False-foxglove (*Agalinis maritima*)  
Purple False Foxglove (*Agalinis purpurea*)  
Eastern Baccharis (*Baccharis halimifolia*)  
Inland Saltgrass (*Distichlis spicata*)  
Marsh Fimbry (*Fimbristylis castanea*)  
Black-grass Rush (*Juncus gerardii*)  
Sea-lavender (*Limonium carolinianum*)  
Common Reed (*Phragmites australis*)  
Seaside Plantain (*Plantago maritima* var. *juncooides*)  
Sea Pink (*Sabatia stellaris*)  
Glasswort (*Salicornia depressa*)  
Russian Thistle (*Salsola kali*)  
Samphire (*Sarcocornia pacifica*)  
Seaside Goldenrod (*Solidago sempervirens*)  
Saltwater Cordgrass (*Spartina alterniflora*)  
Saltmeadow Cordgrass (*Spartina patens*)  
White Sea-blite (*Suaeda maritima*)  
Perennial Salt-marsh Aster (*Symphyotrichum tenuifolium*)  
Seaside Arrowgrass (*Triglochin maritima*)

## **Identification Comments**

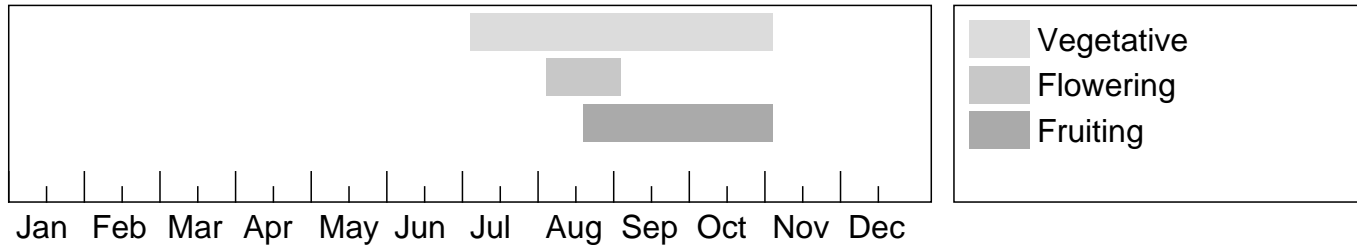
Dwarf Glasswort is an annual, fleshy, erect herb with thick jointed stems (up to 6 mm wide), growing up to 60 centimeters in height (but is often much shorter). Its leaves are opposite, sessile, and fleshy, enclosing the stems, the tips scale-like and mucronate (pointed). The flowers are arranged in triangular groups of 3, emerging from fleshy bracts near the tip of each stem. Each fruit (a utricle) holds a single seed 1 to 1.5 mm long (Gleason and Cronquist 1991). The entire plant, beginning with the tips, may turn red as it ages, especially in autumn.

## Best Life Stage for Identifying This Species

The key characters for identification are the leaf tips and thick stems, so this species can be identified in either vegetative or reproductive form.

## The Best Time to See

The plants emerge in July and may persist until October.



The time of year you would expect to find Dwarf Glasswort in New York.

## Similar Species

The only other species of *Salicornia* known from New York is *Salicornia depressa*. It has obtuse or subacute leaf and bract tips, contrasting with the acute and mucronate leaf tips of *S. bigelovii*, and its stems are half as thick as *S. bigelovii* (FNA 2003). *Sarcocornia*, a closely related genus, has a similar form with fleshy, scale-like leaves. *Sarcocornia perennis*, the only New York species, differs from *Salicornia* species in being a perennial, in having many rhizomatous, mat-forming, vegetative stems, and in having its flowers arranged in a row rather than in a triangle.

## Taxonomy

**Kingdom** Plantae

└ **Phylum** Anthophyta

└ **Class** Dicots (Dicotyledoneae)

└ **Order** Caryophyllales

└ **Family** Chenopodiaceae (Goosefoot Family)

## Additional Common Names

Chicken-claws  
Glasswort  
Samphire

## Synonyms

*Salicornia virginica* (L.)

## Additional Resources

### Links

#### Flora of North America Vol. 4

[http://www.efloras.org/florataxon.aspx?flora\\_id=1&taxon\\_id=242415614](http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=242415614)

#### USDA Plants Database

<http://plants.usda.gov/java/nameSearch?mode=sciname&keywordquery=SALICORNIA+BIGELOVII>

#### Nearctica - Eastern Wildflowers

<http://www.nearctica.com/flowers/bandc/chenop/Sbige.htm>

#### NatureServe Explorer

<http://natureserve.org/explorer/servlet/NatureServe?searchName=SALICORNIA+BIGELOVII>

#### Google Images

<http://images.google.com/images?q=SALICORNIA+BIGELOVII>

### Best Identification Reference

Crow, Garrett E. and C. Barre Hellquist. 2000. Aquatic and Wetland Plants of Northeastern North America: A revised and enlarged edition of Norman C. Fassett's a Manual of Aquatic Plants. Volume One: Pteridophytes, Gymnosperms, and Angiosperms: Dicotyledons. The University of Wisconsin Press. Madison, Wisconsin. 536 Pages.

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