



Natural Heritage & Endangered Species Program

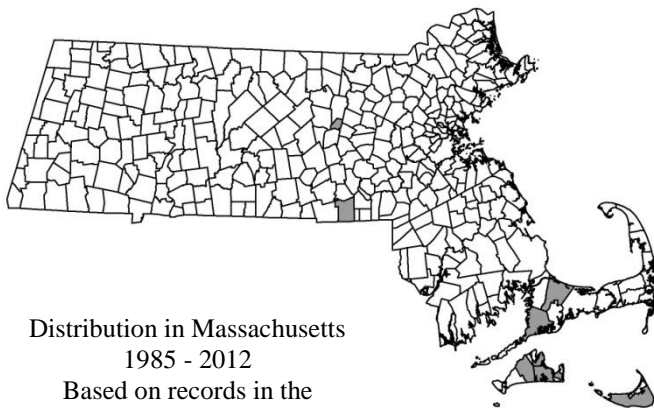
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Massachusetts Division of Fisheries & Wildlife

Papillose Nut-sedge *Scleria pauciflora* Muhl. ex Willd.

State Status: **Endangered**
Federal Status: **None**

DESCRIPTION: Papillose Nut-sedge is a slender, perennial species in the Sedge family (Cyperaceae). Stems arise from short, branched, knotty rhizomes with fibrous roots. Plants are 10 to 50 cm tall, forming small clumps with numerous bluish-green leaves (1–2.5 mm wide) and 3 to 10 flowering culms. A larger number of flowering culms may develop after fire. Flowering culms often have a solitary terminal inflorescence that is sessile and subtended by a leafy bract, and a second short-stalked inflorescence lower on the stem. The scales are ovate. Achenes (dry, one-seeded fruits) are 1 to 2.5 mm long (up to 5 mm), white, and subglobose, with a short stiff tip. Achenes are covered with horizontally arranged warty projections. A disk called the hypogynium, found at the base of the achene, has six rounded tubercles or knobby projections, a diagnostic characteristic for this species. Flowering stems often produce only 1 to 4 fruits. Seeds may require the heat of a fire, physical abrasion, or long periods of saturation to break dormancy and germinate. Studies throughout the range suggest that seeds of Papillose Nut-sedge may remain viable in the soil seed bank for many decades until conditions are favorable for germination.



Distribution in Massachusetts
1985 - 2012
Based on records in the
Natural Heritage Database



Papillose Nut-sedge fruiting culm, with white achene covered with warty projections (left), and characteristic cespitose (clumped) growth form (right). Photos by Jennifer Garrett.

AIDS TO IDENTIFICATION: Technical manuals should be consulted to distinguish nut-sedge species. Papillose Nut-sedge is characterized by:

- Cespitose growth form
- White achenes with warty projections
- Hypogynium with six rounded tubercles

Papillose Nut-sedge varieties are separated by the degree of plant hairiness. *Scleria pauciflora* var. *caroliniana* has spreading, weak hairs, 0.5 to 1 mm long. *Scleria pauciflora* var. *pauciflora* is glabrous or sparsely hairy, with hairs less than 0.4 mm long.

SIMILAR SPECIES: Papillose Nut-sedge may occur with another rare *Scleria* species, Tall Nut-sedge (*S. triglomerata*), which is also listed as Endangered in Massachusetts. Tall Nut-sedge is a much larger plant with sparse, bright yellow-green leaves, long culms (40–100 cm) and large, shiny white achenes that have no surface detailing. Pondshore Nut-sedge (*S. reticularis*) is an uncommon annual species found on pond shores that is easily distinguished from Papillose Nut-sedge by the wavy reticulations on the surface of the achene and the fact that this annual does not have a cespitose growth form.

A Species of Greatest Conservation Need in the Massachusetts State Wildlife Action Plan

Massachusetts Division of Fisheries & Wildlife

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Please allow the Natural Heritage & Endangered Species Program to continue to conserve the biodiversity of Massachusetts with a contribution for 'endangered wildlife conservation' on your state income tax form, as these donations comprise a significant portion of our operating budget.

www.mass.gov/nhesp

POPULATION STATUS IN MASSACHUSETTS:

Both *Scleria pauciflora* var. *caroliniana* and *S. pauciflora* var. *pauciflora* are listed under the Massachusetts Endangered Species Act as Endangered. All listed species are protected from killing, collecting, possessing, or sale, and from activities that would destroy habitat and thus directly or indirectly cause mortality or disrupt critical behaviors. *Scleria pauciflora* var. *caroliniana* is known from Barnstable, Dukes, Nantucket, and Worcester Counties. *S. pauciflora* var. *pauciflora* is known only from one site in Worcester County and it has not been seen in recent years.

RANGE: *Scleria pauciflora* var. *caroliniana* occurs from Florida north to Massachusetts and New York, west to Kentucky, Illinois, Missouri, Kansas, Oklahoma, and Texas. *S. pauciflora* var. *pauciflora* has a similar but spottier distribution and extends farther north into New Hampshire and Ontario, Canada.

HABITAT: Papillose Nut-sedge occurs in dry to moist sandy soils of maritime grasslands, pine and oak barrens, disturbed forest openings, and powerline rights-of-way. Common plant associates are Little Bluestem (*Schizachyrium scoparium*), Scrub Oak (*Quercus ilicifolia*), Pennsylvania Sedge (*Carex pensylvanica*), Skydrop Aster (*Aster patens*), Pinweed (*Lechea minor*), and Sweet Goldenrod (*Solidago odora*). Papillose Nut-sedge also occurs less frequently with rare species such as Bushy Rockrose (*Crocantemum dumosum*), Sandplain Flax (*Linum intercursum*), Sandplain Blue-eyed Grass (*Sisyrinchium fuscatum*), and Tall Nut-sedge (*Scleria triglomerata*).

THREATS AND MANAGEMENT

RECOMMENDATIONS: Papillose Nut-sedge populations are threatened by development pressure, particularly on unprotected lands on Cape Cod, Martha’s Vineyard, and Nantucket. Populations on permanently protected sites are threatened by plant succession, fire suppression, and lack of disturbance. Small isolated populations in fragmented habitats may also be subject to inbreeding depression. Populations should be monitored to evaluate population dynamics, critical ecological processes, land-use history, and potential threats. Additional surveys are needed for *Scleria pauciflora* var. *pauciflora*. Active management may be needed to maintain and restore early successional habitats for Papillose Nut-sedge, including prescribed fire, mowing, or other mechanical treatments in

combination with light soil scarification. However, careful planning is needed as disturbances such as brush hogging or bulldozing can potentially eliminate plants and seeds within small populations. All active management of rare plant populations (including invasive species removal) is subject to review under the Massachusetts Endangered Species Act, and should be planned in close consultation with the Massachusetts Natural Heritage & Endangered Species Program.

Flowering in Massachusetts

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Fruiting in Massachusetts

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

REFERENCES:

Core, E.L. 1936. The American species of *Scleria*. *Brittonia* 2: 1-105.

Fernald, M.L. 1950. *Gray’s Manual of Botany*, 8th edition. American Book Company, Boston, MA.

NatureServe. 2010. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, VA. <http://www.natureserve.org/explorer>.

Reznicek, A.A., J.E. Fahey, and A.T. Whittmore. 2002. *Scleria*. P.J. Bergius. Pages 242-251 in Flora of North America Editorial Committee (Editors), *Flora of North America North of Mexico, Volume 23. Cyperaceae*. Oxford Univ. Press, NY.

Zaremba, R. E. 2004. *Scleria pauciflora* Muhlenberg ex Willdenow var. *caroliniana* Alph. Wood and *Scleria pauciflora* Muhlenberg ex Willdenow var. *pauciflora* (Few-flowered nut-rush) Conservation and Research Plan for New England. New England Wildflower Society, Framingham, MA.

Updated 2015

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