



Natural Heritage & Endangered Species Program

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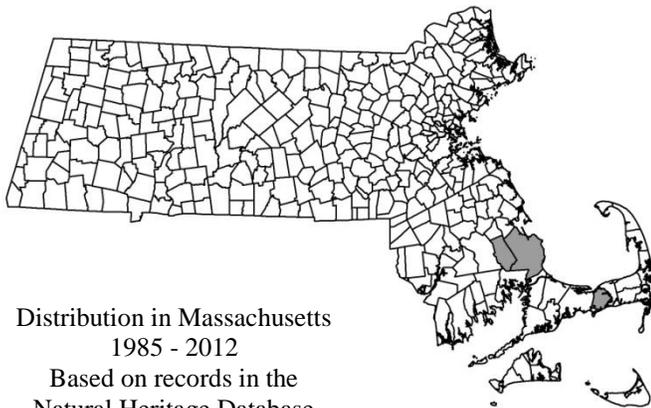
Massachusetts Division of Fisheries & Wildlife

Inundated Horned-sedge *Rhynchospora inundata* (Oakes) Fern.

State Status: **Threatened**

Federal Status: **None**

DESCRIPTION: Inundated Horned-sedge is a large perennial species in the Sedge family (Cyperaceae), reaching 20 to 60 cm tall. Plants form extensive loose colonies spreading in shallow water by underground rhizomes. The upright flowering stem (or culm) is triangular in cross-section and is often overtopped by narrow leaves and leafy bracts. The terminal and axillary inflorescences are branched and loosely spreading, with open clusters of 1 to 6 coppery spikelets. Plants generally produce 1 or 2 achenes (dry, one-seeded fruits) per spikelet. The achenes are subtended by bristles and capped by a long horn or beak. The achene with its bristles and horn are enveloped by several overlapping coppery scales. Each fruiting stem may produce 100 to 200 long-lived seeds that require drying and exposure of pondshore substrate for germination. *Rhynchospora* derives its name from the Greek words *rhynchos* for beak or horn and *spora* for seed. The specific epithet *inundata* refers to the species dependence on flooding and changing water levels. This species has several common names including Inundated Horned-sedge, Inundated Beak-rush and Drowned Horn-rush.



Inundated Horned-sedge has open clusters of coppery spikelets.
Photo by Jennifer Garrett.

AIDS TO IDENTIFICATION: Leaves are slender, erect, and flat or slightly inrolled (4–7 mm wide). Most leaves originate at the base of the stem. The loosely branching inflorescence is 10 to 25 cm in diameter. The achene (4–6 mm long; 2–3.5 mm wide) is subtended by 5 to 6 bristles that extend beyond the achene and are ~8 to 9 mm long. At the top of the achene is a very long (14–19 mm) awl-shaped horn, also called a beak or tubercle.

SIMILAR SPECIES: Inundated Horned-sedge is similar in appearance and sometimes confused with the more common species, Big-headed Horned-sedge (*Rhynchospora macrostachya*). Big-headed Horned-sedge grows in thick tussocks rather than loose colonies, and is taller (1–2 m), has broader leaves (1 cm wide), and has more dense clusters of spikelets within the terminal inflorescence and leaf axils (up to 10–50 spikelets per cluster). Big-headed Horned-sedge is more common in Massachusetts and is usually found in coastal plain ponds in slightly higher and drier portions

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

Massachusetts Division of Fisheries & Wildlife

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of the shoreline. Broadfruit Horned Beak-sedge (*Rhynchospora careyana*) sometimes intergrades with Inundated Horned-sedge to the south, but does not occur in New England.

POPULATION STATUS IN MASSACHUSETTS:

Inundated Horned-sedge is listed under the Massachusetts Endangered Species Act as Threatened. 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. In Massachusetts, Inundated Horned-sedge is known only from Barnstable and Plymouth Counties.

RANGE: Inundated Horned-sedge is native to eastern North America along the Atlantic coastal plain from southeastern Massachusetts to Florida. It also occurs in portions of the Gulf coastal plain in western Florida and Alabama. It is considered rare throughout its range north of the Carolinas.

HABITAT: Inundated Horned-sedge is an obligate wetland species found on peaty or mucky shores of shallow freshwater coastal plain ponds. This species requires variable periods of inundation and drawdown to complete its life cycle. Inundated Horned-sedge often produces viable seeds during periods of inundation. The barbed bristles on the achenes expand in water to keep the achenes afloat, thereby dispersing the hard-seeded fruits throughout the pond. Achenes may remain dormant in the seed bank for years until water levels recede and moist substrates are exposed. Seeds require a period of drying and exposure to germinate.

Plants associated with Inundated Horned-sedge within the pond shore zone of frequent inundation and less frequent drawdown include Bayonet Rush (*Juncus militaris*), Canada Rush (*Juncus canadensis*), Water Bulrush (*Schoenoplectus subterminalis*), Water Lobelia (*Lobelia dortmanna*), Spike-sedge (*Eleocharis tuberculosa*), and White Beak-sedge (*Rhynchospora alba*). Inundated Horned-sedge may occur with other state-listed species such as Plymouth Gentian (*Sabatia kennedyana*), Long-beaked Bald-sedge (*Rhynchospora scirpoides*), and Terete Arrowhead (*Sagittaria teres*).

THREATS AND MANAGEMENT

RECOMMENDATIONS: Artificial withdrawal of water and other changes in ground and surface water

hydrology may change the specialized cycle of flooding and drawdown required by Inundated Horned-sedge. Extant populations should be monitored to gain a better understanding of population dynamics, cycles of flooding and drawdown, and current threats. Sites that supported Inundated Horned-sedge historically should also be surveyed periodically, as this species may persist in the seed bank for many years until drawdown conditions are suitable for germination. Off-road vehicles and excessive foot traffic or recreational use should be prohibited in coastal plain pondshore habitats. Best management practices should be implemented to prevent or reduce nutrient enrichment of coastal plain ponds from lawn fertilizers, faulty septic systems, and flocks of grazing ducks or geese. Currently, there are no known threats from invasive plants. However, monitoring for invasive species such as Mud-mat (*Glossostigma cleistanthum*) may allow for early detection and control. Mud-mat was recently discovered in central Massachusetts and could potentially pose a threat to Inundated Horned-sedge by dominating exposed pond sediments critical for seed germination. 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 and Fruiting in Massachusetts

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

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