



Natural Heritage & Endangered Species Program

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Massachusetts Division of Fisheries & Wildlife

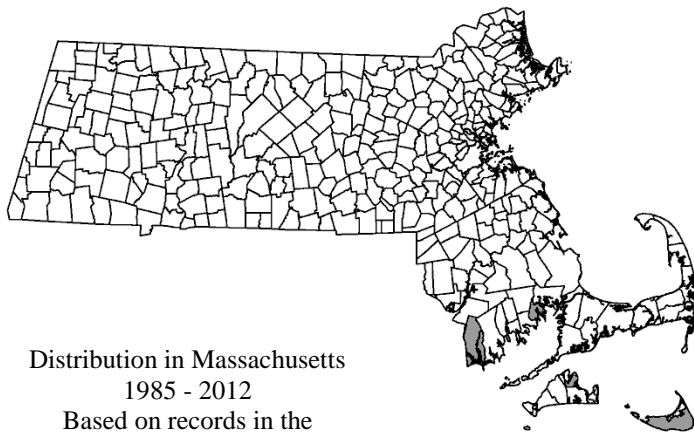
Northern Gama-grass *Tripsacum dactyloides* (L.) L.

State Status: **Endangered**

Federal Status: **None**

DESCRIPTION: Northern Gama-grass is a large, perennial member of the Grass family (Poaceae) that is 1 to 2 meters tall (occasionally up to 4 m). It grows in clumps from stout, knotty rhizomes in sandy-cobble substrates in coastal southern New England. Northern Gama-grass is the native species most closely related to Maize (*Zea mays*) and other Teosinte species (*Zea* spp.), with which it shares many morphological characteristics. It has been used in important evolutionary studies of these grasses. The genus name is derived from the Greek “to rub”, referring to the smooth joints; the species name “with fingers like Dactylon” refers to the finger-like arrangement of rames (flowering spikes). Northern Gama-grass is the larval food plant of the Owlet Moth (*Amphipoea erepta ryensis*), a species that is Critically Imperiled globally.

AIDS TO IDENTIFICATION: The leaves of Northern Gama-grass are 9 to 35 mm wide, and 30 to 75 mm long, with scabrous margins. The terminal rames are somewhat digitate. Pistillate spikelets on the lower portions of each rame are 6 to 8 mm long, imbedded in



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

Northern Gama-grass grows on exposed sites near coastal dunes and salt marshes (top). The rames appear digitate, with pistillate spikelets below, and staminate spikelets above (bottom). Photos by Michael W. Nelson.

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

Massachusetts Division of Fisheries & Wildlife

1 Rabbit Hill Rd., Westborough, MA; tel: 508-389-6300; fax: 508-389-7890; www.mass.gov/dfw

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the shiny, thickened rame axis. The glumes cover the rachis hollows between the joints, giving the appearance of even thickness to the rame. The staminate spikelets are in sessile to subsessile pairs in the upper portion of the rame. At maturity, the yellow seed-like axes of the pistillate portions break off at the joints.

SIMILAR SPECIES: Other large grass species that may grow near Northern Gama-grass are Switchgrass (*Panicum virgatum*) and Big Bluestem (*Andropogon gerardii*). Switchgrass can be distinguished by its large, open, loosely-branched panicles, ovoid spikelets, and narrower leaves (3 to 15 mm). Big Bluestem has 2 to 6 rames that are smaller (5–11 cm) than those of Northern Gama-grass, with most spikelets both pistillate and staminate; it also has white hairs on the rachis, and narrower leaves (5–10 mm). Corn (*Zea mays*), an annual species that occasionally is found growing wild, has axillary pistillate inflorescences and a terminal staminate inflorescence.

POPULATION STATUS IN MASSACHUSETTS: Northern Gama-grass is 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. Northern Gama-grass is currently known from Bristol, Plymouth, Dukes and Nantucket Counties.

RANGE: Northern Gama-grass reaches its northern range limit in Massachusetts, Rhode Island and Connecticut. It is more abundant south of New England, extending south to Florida and west to Michigan, Nebraska, Oklahoma, and Texas; it also occurs in Central and South America.

HABITAT: Northern Gama-grass is found in open, maritime habitats on sandy-gravelly cobble substrates at the edges of coastal salt ponds, salt marshes, maritime shrublands, and beach strands that are typically wet. It occurs in dynamic maritime habitats, often just above spring tide (highest tide) levels, where plants are exposed to storm surge, wind, and salt spray. Northern Gama-grass typically grows in areas with sparse vegetation, often near dunes and salt marshes. Associated species are Prairie Cordgrass (*Spartina pectinata*), Switchgrass, Sea-side Goldenrod (*Solidago sempervirens*), and Sea-lavender (*Limonium*

carolinianum). Associated woody species are Bayberry (*Morella pensylvanica*), Groundsel-tree (*Baccharis halimifolia*), Eastern Red Cedar (*Juniperus virginiana*), Beach Plum (*Prunus maritima*), and Rose (*Rosa* spp.). Associated vines include Poison Ivy (*Toxicodendron radicans*), Fox Grape (*Vitis labrusca*), and Virginia Creeper (*Parthenocissus quinquefolia*). Some locations where Northern Gama-grass is found are also potential habitat for Bristly Foxtail (*Setaria parviflora*), a species listed as Special Concern in Massachusetts.

THREATS AND MANAGEMENT

RECOMMENDATIONS: Northern Gama-grass inhabits dynamic maritime environments where spring tides or storm surges could destroy populations; these threats may increase as sea level rises in coming decades. Regular monitoring is needed to identify imminent threats to populations in such dynamic habitats. Extant populations should be protected from vehicles and trampling of young plants along paths and edges of shores. Special care is needed when using large equipment for landscaping or other purposes to avoid damage to populations. The seeds of Northern Gama-grass are eaten by deer, other mammals, and seed-eating birds, which may limit reproduction from seed. Non-native invasive species may also threaten populations of Northern Gama-grass. In particular, Common Reed (*Phragmites australis*) is a common invasive species that occurs in similar habitats and may outcompete Northern Gama-grass. Other invasive species known to occur with Northern Gama-grass include Oriental Bittersweet (*Celastrus orbiculatus*) and Morrow's Honeysuckle (*Lonicera morrowii*). Monitoring is needed to evaluate these populations. All active management of state-listed 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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- deWet, J.M.J. , J.R. Harlan, and D.E. Brink. 1982. Systematics of *Tripsacum dactyloides* (Gramineae). American Journal of Botany 69: 1251-1257.
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