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OAK OPENINGS REGION BEST MANAGEMENT PRACTICES

Narrowleaf Cattail

Typha angustifolia



Control

BMP assembled April 2021
by Brian Yahn
OO CWMIA Coordinator

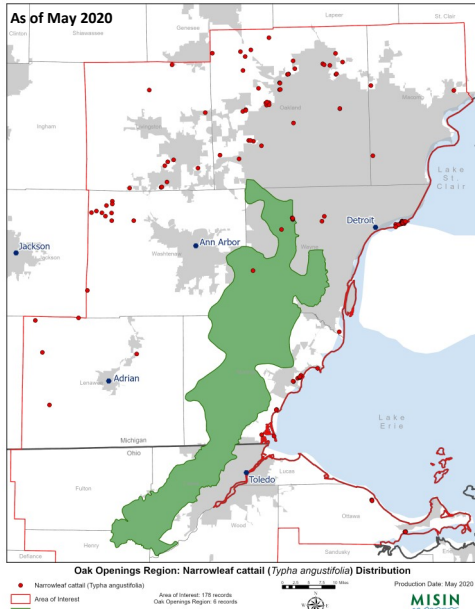
This Best Management Practice (BMP) document provides guidance for managing Narrowleaf Cattail in the Oak Openings Region of Northwest Ohio and Southeast Michigan. This BMP was developed by the Green Ribbon Initiative and its partners and uses available research and local experience to recommend environmentally safe control practices.

INTRODUCTION AND IMPACTS — Narrowleaf cattail (*Typha angustifolia*), sometimes called lesser bulrush, is an invasive monocot introduced from Europe. It is a grass-like, large herbaceous plant from the Typhaceae family (“the cattail family”). In general, cattails are distinctive sun-loving plants of open wetlands. Narrowleaf cattail (n.l. cattail) likely arrived in North America by accident, in dry ballast material from incoming European ships. It first established itself along the Atlantic seaboard and then spread westward, and now occurs throughout much of the United States. N.l. cattail is found in most Ohio counties, especially those in the north-central, northeast and central parts of the state ([OIPC Fact Sheet 11, 2010](#)). In Michigan, the Upper (UP) and Lower Peninsula (LP) are both impacted by n.l. cattail. The UP’s point distribution follows the margins of the Great Lakes and associated wetlands, while the LP’s records are scattered thinly across the area. Similar to the UP, several high-density areas are associated with bays, tributary streams and margins of Lake Michigan, Huron and Erie (see [MISIN](#)).

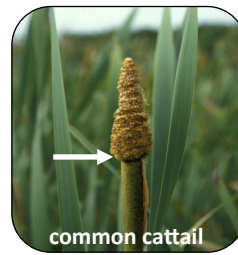
Narrowleaf cattail and America’s native common cattail (*Typha latifolia*) hybridize to form *Typha x glauca*, a sterile hybrid that reproduces vegetatively and tolerates a greater range of conditions than its parents. Both the *T. x glauca* hybrid and n.l. cattail pose serious concerns to maintaining healthy wetland systems in the U.S.

The Midwest Invasive Species Information Network (MISIN) has 178 records of n.l. cattail (see map: red points) that are just outside of the Oak Openings Region (OOR); with only 6 records within the OOR boundaries (see map: green polygon). However, records are found in 5 of 7 OOR counties, with 4 in MI (data from multiple sources). OOR land managers indicate that observations are underreported likely due to difficulties differentiating n.l. and common cattail.

Narrowleaf cattail and hybrid *T. x glauca* have many characteristics that contribute to their classification as a nuisance species. They are aggressive and often establish dense monocultural stands, outcompeting native wetland plants. Both form dense rhizomatous mats that spread rapidly. N.l. cattail can reproduce prolifically; in one year, a single plant can produce 250,000 soft downy seeds. These seeds are wind-dispersed, with seed bank viability of up to 100 years!



SIMILAR SPECIES - During times when plants are without flower structures, cattails can look similar to other large grasses or monocots. However, when reproductive structures are displayed, cattails can be easily distinguished. Identification difficulties do arise in telling one cattail species from another (i.e. n.l. cattail from N.A.’s native common cattail and also their hybrid offspring). Common cattail has wider leaves 6-15 mm and male and female portions of the spike are continuous (or only slightly separated). N.l. cattail has thinner leaves (3-8 mm), with male and female parts more clearly separated



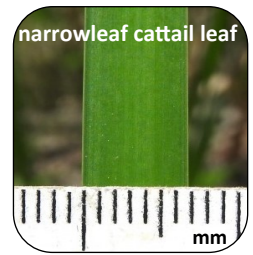
common cattail

© G. E. Crow



narrowleaf cattail

© Keto Gyekis



narrowleaf cattail leaf

© R. Schipper

(the hybrid is also separated). Also, n.l. cattail has sheaths w/ prominent auricles, where common cattail’s are tapered or truncate.

HABITAT— Invasive and native cattails have demonstrated the ability to establish and spread readily in wet disturbed habitats of the OOR, primarily in nutrient-rich soils of open wetland habitats to a depth of ~3 ft., including ditches and shallow ponds. Habitats can include higher quality wetlands like wet prairies, fens, marshes and lakeshores; also tolerates brackish and polluted waters.

IDENTIFICATION - Habit: A perennial, grass-like aquatic monocot reaching heights of 12 ft. (4-12 ft. or 1.2- 3.7 m). Long, strap-like leaves with a distinct cylindrical flower spike that is dark brown-fuzzy.

Leaves: Upright, flat and crescent-shaped in cross-section; up to 1 m (3 ft) long and 0.6-1.25 cm (0.25-0.5 in) wide with parallel veins; leaves dark green in color.

Stems: Upright; 1-2 m (3-6 ft) long.

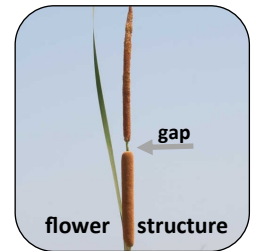
Flowers: Borne in dense, dark brown, terminal spikes; separated



top of sheath



cross section of leaf



flower structure

© Southeastern US Plant Identification Resource

male and female spikes on stalk, male flowers are 2-10 cm (0.75-4 in) above the female flowers; male portion 7-20 cm (3-8 in) long, 7-15 mm wide (2.75-6 in); female portion 10-20 cm (4-8 in) long, 1-2 cm wide (0.4-0.8 in)

Fruits and Seeds: Up to 250,000 tiny, wind-dispersed seeds/plant; with soft, fluffy, hair-like attachments.

Roots: Plants form dense rhizomatous mats.

Narrowleaf Cattail Timeline	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Life History	rhizome dormancy		vegetative growth		flowering		maturing	fruits mature, seed dispersal		above-ground death, rhizome growth		rhizome dormancy
Cut/Mow + Flood or Herbicide						cut or mow, then flood (3" above cuts) (most effective)			cut or mow after herbicide			
						herbicide, multi-year retreatment necessary						
Cut/Mow <u>only</u>					1st cut/mow when heads are well formed		2nd cut/mow ~1month later when 2-3 ft of growth					
Prescribed Fire	not a significant treatment unless roots can be burned OR fire is followed by flooding (depth 8-18")											
Integrated Flooding	2. (cont.) keep flooded into July 3. late July: dry site/drain for several weeks 4. burn in mid-August 5. immediately re-flood, repeat 2 years						1. herbicide in late August - Sept 2. immediately flood (>8") through winter					

REPRODUCTION AND DISPERSAL—Narrowleaf cattail reproduces through wind dispersal of seeds (up to 250,000/plant) and vigorous vegetative reproduction through rhizomes. These seeds can remain viable in the seed-bank for up to 100 years, so control efforts need to be long-term. Root expansion can also be rapid when physical and chemical disturbances occur, giving n.l. cattail a competitive edge. Examples of such disturbances include discharge of nutrients, increased salt, silt, excavating, wetland drainage and other hydrologic changes. **Thoroughly cleaning equipment is a critical prevention measure for narrowleaf cattail in the OOR. Land managers should consider incorporating pre- and post-project equipment cleaning into contracts.**

REPORTING—Narrowleaf cattail is identified as a control species in the OOR. Reporting n.l. cattail and its hybrid is essential for control in the OOR. Report narrowleaf cattail at www.misin.msu.edu and/or to the local (OO-CWMA) or county CWMA or CISMAs.

CONTROL—The best control of n.l. cattail and hybrid cattail is integrated control. To limit invasion by cattails in wetlands, avoid changes in hydrology, salinity or fertility. Management of established populations should focus on reducing both seed production and rhizome growth. Cutting and flooding is an effective technique but not every site will have the ability to control water levels. Cutting and follow-up herbicide is a good, effective control measure. Cutting only (multiple cuts in one year) is also an effective technique (see timeline). In addition, muskrats have been known to graze enough young plant material to have a positive control effect.

Chemical: It is the responsibility of the applicator to ensure compliance with herbicide labels and regulations when planning chemical treatments. Narrowleaf cattail is a wetland species so extreme care should be taken to use herbicides approved for aquatic areas. Herbicides should be used with an appropriate non-ionic surfactant.

Hand Swiping ("Glove of Death"): For small mono-specific populations or small populations mixed with native wetland species; wipe each stem and leaf by hand using a wicking glove & inner chemical-resistant glove. Non-selective herbicides, like glyphosate, are a good choice for this technique as the chemical is applied directly rather than sprayed, thus reducing harm to non-target species.

Herbicide	Trade Names	Concentration
Imazapyr	Polaris ®, Arsenal ®	1-1.5% by volume (low) 2 to 4 pints/acre (high volume)
Glyphosate	Rodeo ®, Aquamaster ®, Glypro ®	1-2.5% by volume (low) 4.5 to 6 pints/acre (high volume)

Foliar Spraying (backpack or hand sprayer)—Best for small to medium mono-specific dense stands; spray on leaves at close range, using low pressure. Overspray can kill desirable plants.

Wick or Dauber—Moderately-dense to dense stands and > an acre; wick upper layer of vegetation twice, (wicking from both directions), leaving lower layer of veg. untreated or nearly so. Set-up may include ATV and boom-sprayer with absorbent material around arms; apply herbicide at low pressure.

Boom Sprayer—Since cattails are tall and thin with leaves that remain in a vertical plane, spraying with a boom may prove less effective and too costly as too much of the chemical may miss the leaves and be wasted; after weighing options, this method is for dense stands > an acre; attach a low pressure boom sprayer to an ATV or tractor. Monitor wind and weather.

Mechanical: Mowing and cutting—Most effective when used in combination with flooding, also with herbicide, or just additional cuttings. Bushhog, brushcutters, weed-trimmers can be used. The initial cut/mow treatment should be when heads start to form (~May/June); follow-up mow/cut, herbicide or flood during mid to late summer (see timeline).

Covering, Disking, and Hand-Pulling/Digging - Not recommended. With mechanical removal, ensure equipment is cleaned and all viable seed material & roots are disposed of appropriately (see **Disposal**).

Biological: According to the Ohio Invasive Plant Council, population levels of ten muskrats per acre, when combined with high spring water levels, can nearly eliminate the emergence of cattails within a span of two years. Water levels of four to five feet also favor the winter-time survival of muskrats in flooded areas ([Fact Sheet 11, 2010](#)).



Prescribed Fire: Burning may help to reduce thatch and biomass for easier follow-up treatment with herbicide or cutting. However, the root system is typically not effected by burning and thus Rx fire is not a significant control technique.

Hydrological: Where water levels can be manipulated (3 inches of water above cut stems in summer), extended periods of flooding coupled with herbicide and/or repeated cutting, can have good results.

DISPOSAL—*Liquefying*—place roots or seed material in heavy-duty garbage bags, seal; lay bags in direct sunlight for at least 1 week.