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VEGETATION MANAGEMENT GUIDELINE
Canada thistle (*Cirsium arvense*(L.) Scop.)

SPECIES CHARACTER

Description
Canada thistle is a 2 to 5 foot (0.6 to 1.5 meters) tall forb with deep, wide spreading, horizontal roots. The grooved, slender stems branch only at the top and are slightly hairy when young, becoming covered with hair as the plant grows. The oblong, tapering, sessile leaves are deeply divided, with prickly margins. Leaves are green on both sides with a smooth or slightly downy lower surface. Numerous small, compact (3/4 inch or 1.9 cm. diameter), rose-purple or white flowers appear on upper stems from June to September. Seeds are small (3/16 inch or 0.5 cm long), light brown, smooth and slightly tapered, with a tuft of tan hair loosely attached to the tip.

Similar Species
Canada thistle is distinguished from other thistles (Cirsium spp.) by its deep-running perennial rootstocks, more slender stems, and small compact heads. Canada thistle should be accurately identified before attempting any control measures. If identification of the species is in doubt, the plant's identity should be confirmed by a knowledgeable individual and/or by consulting appropriate books.

Distribution
Canada thistle, which is naturalized from Europe, occurs throughout the northern U.S. east of the Rocky Mountains. It is common in the northern half of Illinois and rare in the southern half. This species is very rare in southern Indiana and is not a serious problem in Missouri natural areas.

Habitat
Canada thistle does best in disturbed areas (overgrazed pastures, old fields, waste places, fence rows, along roadsides). It

sometimes occurs in wet areas where water levels fluctuate (along stream banks and ditches). It can invade sedge meadows and wet prairies from adjacent disturbed sites. This thistle does not do well in undisturbed prairies, good to excellent pastures, or in woodland. Plants are tall and lax, with few flowers, on sites that are shaded most of the day.

Life History
This dioecious, weedy perennial occurs in patches, commonly in disturbed areas. Introduction to new areas occurs mostly by windborn seed or sometimes by run-off in ditches. It spreads rapidly by rhizomes or root segments. Lateral roots 3 or more feet deep spread from a fibrous taproot. Aerial shoots are sent up at 2 to 6 inch intervals. Basal leaves are produced the first year, flowering stems the next. Pollination is mostly by honeybees, and wind pollination is limited. Most seeds germinate within one year. Some seeds immediately produce rosettes before winter and emerge to flower the next spring. Seeds remain viable in soil up to 20 years in some cases. Emergence occurs in early May, with vertical growth in mid-to-late June. As frequency of Canada thistle increases at a site, species diversity decreases, possibly due to allelopathic substances.

Effects Upon Natural Areas
Canada thistle is an alien species capable of crowding out and replacing native grasses and forbs. It is detrimental to natural areas where it occurs, particularly non-forested communities, and it can change the natural structure and species composition where it becomes well-established. Prairies, barrens, savannas, and glades are susceptible, particularly those sites that have been disturbed and are reverting naturally to native species, as well as those undergoing manipulative restoration management.

Current Status
Canada thistle is a noxious weed under Illinois law.

CONTROL RECOMMENDATIONS

RECOMMENDED PRACTICES IN NATURAL COMMUNITIES OF HIGH QUALITY
Prescribed fire can be effective in controlling this species and is a preferred treatment. Late spring burns, between May and June, are most detrimental to this noxious weed and should be used when possible. Prescribed burns to control this plant should not be conducted early in the spring, as early spring burns can increase sprouting and reproduction of this species. During the first 3 years of control efforts, burns should be conducted annually.
Management practices that maintain and encourage the development of healthy stands of native species will help prevent establishment of Canada thistle or help shade and weaken plants on sites already infested.
Repeated and frequent pulling or hand-cutting of individual plants will eventually starve underground stems. Cutting or pulling should be at least 3 times each season, in June, August, and September. This treatment is feasible for light and moderate infestations, but may be relatively time consuming in heavy infestations. Spot application of the amine formulation of 2,4-D according to label instructions can control this plant. Individual plants of Canada thistle should be treated with a wick applicator or hand sprayer. The herbicide 2,4-D amine is selective for broadleaf plants. To reduce vapor drift, use an amine formulation of 2,4-D rather than an ester formulation. Precautions should be taken to avoid contacting nontarget plants with the solution. **Do not spray so heavily that herbicide drips off the target species.** The herbicide should be applied while backing away from the areas to avoid walking through the wet herbicide. By law, herbicides may only be applied as per label instructions and by licensed herbicide applicators or operators when working on public properties.

RECOMMENDED PRACTICES ON BUFFER AND SEVERELY DISTURBED SITES
Control procedures recommended above for high quality natural communities are also applicable to buffer and severely disturbed sites. Additional control measures are as follows. On large sites (old fields, ditch banks, roadsides) with heavy infestations, thistles should be mowed when in full bloom, and as close to the ground as possible. Cut flower-heads should be removed to prevent scattering seeds on site. Repeated mowing may be needed for several years to obtain adequate control.
A foliar application of a 1-2% solution of Roundup (a formulation of glyphosate) applied in spring when plants are 6-10 inches (15.2 -25.4 cm) tall is an effective herbicide treatment. Individual plants should be spot-treated with a wick applicator. Roundup normally kills the entire plant, including the roots, when applied in this manner. Roundup is a nonselective herbicide and precautions should be taken to avoid contacting nontarget plants with the solution. **Do not spray so heavily that herbicide drips off the target species.** As with 2,4-D amine, Roundup should be applied while backing away from the areas to avoid walking through the wet herbicide. Roundup should not be used in high-quality natural areas during the growing season because of the possibility of harming nontarget plants.
On severely disturbed sites with heavy infestations, such as cropland or abandoned cropland, the site could be plowed and sowed to a cover crop (wheat, alfalfa, rye), if practical and desirable. The following May, the cover crop should be plowed under and desired native species should be seeded.

FAILED OR INEFFECTIVE PRACTICES

Fire early in the growing season can increase sprouting and reproduction. Prescribed burns in late spring are effective, as discussed previously.
Tillage disturbance of soil may provide ideal conditions for reinvasion and for introduction of other exotics.
Grazing is not an effective control measure as the prickles prevent livestock from grazing near Canada thistle.

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