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**VEGETATION MANAGEMENT  
GUIDELINE: Quaking aspen  
(*Populus tremuloides* Michx.)**

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Quaking aspen (*Populus tremuloides* L.), is a rapidly growing, aggressive pioneer species. It quickly colonizes recently burned or bare areas and soon establishes dense stands of young trees. Quaking aspen is a problem in some disturbed prairie areas where it forms large clones. It tends to exclude prairie species and provides favorable conditions for other trees and shrubs to become established. This species grows in a variety of soils, including shallow rocky soil; clay soil; rich soil; or nutrient-deficient, sandy soil. Best growth occurs in rich, porous, limey soils.

Establishment of quaking aspen by seed is uncommon compared to establishment by root suckering. Suckers emerging from extensive lateral roots create stands that are clones. Quaking aspen begins to produce seed at 15 to 20 years of age and continues for about 50 years, although good seed crops are produced only every 4–5 years. Flowers in catkins appear in April and May before the leaves, and fruits ripen four to six weeks later. Male and female catkins occur on separate trees. Fruit is in elongated clusters of capsules, each of which contains numerous seeds with cottony hairs that allow the seeds to become airborne.

Girdling, burning, and herbicide application offer solutions for control. No effective biological controls that are feasible in natural areas are known. Girdling is the preferred management technique, if practical, and it minimizes resprouting. Girdled trees die slowly over one to two years. Girdling is easiest in late spring or early summer when the bark readily peels away from the sapwood. At other times of the year, one must be more careful not to girdle too deeply into the sapwood. When girdling a tree, the bark and phloem must be removed from a band around the tree trunk and the xylem must remain intact. If girdled too deeply, the tree will respond as if it had been cut down and will resprout from the roots.

Two parallel cuts 7–10 cm apart, cutting through the bark slightly deeper than the cambium are needed. The bark is knocked off using a blunt object like the head of an ax. The girdles should be checked every several weeks at first to make sure bark does not develop over the cut area. When big stems are girdled, it is important to cut any small stems present; this minimizes the amount of resprouting. If the trees are too small to be girdled, cutting twice in one year is sometimes effective. Nearby seed sources also should be controlled if possible.

A common mistake is to cut down large trees without any other treatment, which results in vigorous resprouting of hundreds of small stems. However, resprouting of cut trees can be controlled with herbicide application as discussed below.

A continuous burning program (with burns approximately every other year), will control aspen within a few decades. Late spring (1 to 2 weeks after aspen flowering) seems to be an especially effective time to burn. Successful burning requires a sufficient quantity of leaf litter and/or grass to provide the fuel base to carry a fire thoroughly under aspen groves. Cutting canopy trees to eliminate shade and produce fuel may be necessary in conjunction with burning to achieve adequate control.

On severely disturbed sites or buffer areas, managers may prefer to cut stems and treat the stumps with herbicides if there is not

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enough labor to pursue mechanical treatments. Stems should be cut and the stumps treated with Roundup (a formulation of glyphosate) within two to three hours after cutting. While the Roundup label recommends a 50 to 100% concentration of Roundup for stump treatment, a 10 to 20% concentration has proven effective. Roundup can be applied by spraying individual stumps with a low-pressure hand sprayer or by wiping each stump with a sponge applicator (sponge-type paint applicators can be used.)

The herbicide fosamine (trade name Krenite) can be used on severely disturbed sites or buffer areas. Fosamine is an effective herbicide for small saplings and root suckers when applied as a foliar spray according to label directions. Thorough cover with a soft water carrier is required and a nonionic surfactant will improve results. Coverage of foliage should be complete. Fosamine should be applied only from July to September. No effects will be observed during the autumn season following application. Slight regrowth may occur the following season but saplings will die during summer. Fosamine kills only woody species and is not volatile.

If either herbicide is used, care should be taken to prevent contacting nontarget plants with the herbicide. The herbicide should be applied while backing away from treated areas so as not to walk through the wet herbicide. By law, herbicides must be applied according to label directions and by licensed herbicide applicators or operators when working on public properties.

#### GENERAL REFERENCES

- Converse, C. 1987. Element stewardship abstract. The Nature Conservancy, Arlington, Virginia. 17 p.
- Packard, S. 1987. Complete control of aspen by shallow girdling (Illinois). Restoration and Management Notes 5(1):50.
- The Nature Conservancy. Element stewardship abstract for *Populus balsamifera*, *P. grandidentata*, *P. tremuloides*. The Nature Conservancy. Minneapolis, Minnesota.