

Natural Areas Management

Why we do things differently in Midwest native plant stands

Inger Lamb
Prairie Landscapes of Iowa LLC
515.963.7681, 515.250.1693
ingerlamb@mchsi.com

The ultimate goal in natural areas management is to establish and maintain an area completely filled in with native plants, with essentially no bare ground. This is important because *both erosion and management requirements are greatly reduced once the soil is covered with mature vegetation*. Many natural areas management activities are based on this general goal; however additional goals may include increasing plant diversity, improving the stand as habitat for wildlife, improving accessibility, providing educational opportunities, and increasing public acceptance.

Another important management concept is summarized by a phrase often used by successful natural areas manager Jack Pizzo: “*natural areas management is not so much about making native plants grow, it’s about making non-native plants NOT grow*”. In other words, get the undesirable plants out of the way and the native species will dominate; the competitiveness of mature deep-rooted Midwest native species allows the land manager to stand back and let nature take its course.

An additional natural areas management guideline to remember is that *monitoring and management decisions are adaptive - they vary as the vegetation matures and with weather patterns*. A young stand will require much more work and monitoring than a mature stand, and the management will be significantly different. All natural areas should be routinely monitored, less so as the stand matures but at least annually. In particular, after extremes of weather it’s important to evaluate the stand condition and take action to counter any detrimental effects that have occurred.

Think “low input” when contemplating natural areas management: no fertilizers, no watering, no annual re-planting, minimal mowing after establishment. These and other aspects of native vegetation/natural areas management that vary significantly from traditional landscape management are outlined below.

A review of natural area management rationale that differs from traditional landscape management:

1) Fertilizers are bad

- a) Native plants are adapted to our soils and environment and do not need fertilizer.
- b) Use of soil amendments such as compost and/or application of fertilizers will cause the native plants to exceed normal height, sometimes to a dramatic extent, become unattractive and “leggy”, flop over or break off at the ground, and sometimes, die.
- c) Additionally, fertilizers will benefit weedy non-native species.

2) Fire is good

- a) Prescribed fire is a commonly used natural areas management tool. For example, the Polk County Conservation Board staff burn hundreds of acres in Polk County annually.
- b) Prescribed fire not only removes dead vegetation, it stimulates the natural vegetation. It is often said that Iowa’s native species are fire tolerant; however, a more accurate phrase would be that our *native species are fire dependant*.

- c) A large area can be cleared in a short amount of time using prescribed fire. This is much more efficient than mowing and removing clippings, and additionally kills tree seedlings that have to be individually stump-treated with herbicide if only mowing is employed to cut the old vegetation back.
 - d) *Proper training and preparation is essential before conducting a prescribed fire.* The highest standard is the National Wildfire Coordinating Group guidelines & incident command system.
 - e) Some individuals will coordinate prescribed fires for a fee, in addition to some County Conservation Boards and rural fire departments.
 - f) In general, half to a third of a stand is burned at a time, providing refugia for insects and animals in the area.
- 3) Bare soil is bad
- a) To take advantage of the low-maintenance aspects of native vegetation, the area needs to be completely covered with vegetation. Otherwise, weeding (both native and non-native species will self-seed) will be a perennial requirement to maintain the site.
 - b) Bare soil is subject to erosion, the deep roots of native species stabilize the ground.
 - c) Mulched areas “count” as bare soil – weeds will grow just fine on mulch
- 4) Most weeds are not a problem once a native plant stand is established
- a) This is why mowing is so important the first years after seeding a natural area – it reduces seed set by annual weeds and aids establishment of the native species by reducing completion and increasing availability of sunlight.
 - b) Once the native stand is mature, competition for water and nutrients from the deep rooted native species, and lack of bare soil, enormously reduces many weed problems.
 - c) Some perennial weeds, and tree seedlings, do need *ongoing monitoring* and treatment if they become problematic.
- 5) Pre-emergent herbicides and seed germination inhibitors (e.g. “Preen”) are bad
- a) It is desirable to allow the native plants to reseed naturally (and no weeds should be allowed to set seed anyway). In this manner the natives will “find” micro-environments that are the most suitable for them and the stand will evolve to it’s most stable state and be best suited to withstand environmental extremes.
 - b) If a traditional landscaping style of groupings or drifts of similar species separated by mulched areas is desired, a seed inhibitor may be used in the unvegetated areas, but it is to be expected that annual weeding will still be required. This style of landscaping is much higher maintenance than a solid stand of vegetation.
- 6) Use of fertilizers or herbicides on areas adjacent to native vegetation must be done carefully
- a) *This applies especially to grass near ponds and rain garden areas – watch what is downslope and downwind from any chemical application.*
 - b) The broadleaf weed killer in “weed & feed” products will kill most native species.
 - c) Fertilizers will cause native plants to grow inordinately tall AND will benefit weedy species.
 - d) Also *avoid aerial drift* onto native plants if herbicides are sprayed nearby

7) Watering is bad

- a) Irrigation is needed for native plant seedlings and plant plugs during establishment stage (first month after planting) and during unusually dry spells *for the first growing season only*.
- b) Watering native plants after they are established will cause the same problems as fertilizing – they will get inordinately tall, flop over or break off at the root, or die.

8) Mowing is essential during establishment of a native plant stand – but at a **MINIMUM** height of 6 – 8 inches

- a) Iowa's native plants have extremely deep and fibrous root systems, which are established in the first few years of growth; *during this establishment phase above-ground growth is quite reduced but needs ample sunlight*. To keep the high sunlight - requiring young plants from being shaded by more vigorous weeds or the cover crop, *mowing is necessary during the establishment phase*. Native plants are adapted to grazing and trampling, so the effects of mowing are tolerated and are preferable to the effects of excess shade and nutrient competition from other plants.
- b) After mowing, clippings should be removed to further increase sun exposure.
- c) After the stand is established the site needs to be mowed or burned once per year.
- d) *It is essential NOT to mow as short as a traditional turfgrass lawn – leave a minimum of 6 inches, and preferably 8 inches, of plant material intact. This will provide the benefit of reduced competition from weeds while not stressing the native seedlings with a severe cut.*
- e) Use of a string trimmer is acceptable in smaller areas and for spot weed problems
- f) *DO NOT MOW buffalo grass turf unless it gets more than 5 inches tall. This species usually stays less than 4", if it does exceed 5", mow to 4 inches NOT the standard turfgrass height of 2.5 inches.*
- g) Routine lawn mowing adjacent to native areas should not encroach into native plant stands. If this tends to happen, large rocks, fence stakes, wooden poles, or signage placed along the edge of the stand will help define the natural area and deter mowers.
- h) Frequency of mowing:
 - **During first year after seeding** a native plant stand should be mowed to 6 -8 inches about once per month, more often if there is high weed pressure and less often if there are few weeds.
 - **During the second and third year** after establishment mowing, or spot mowing/weed whipping, should occur periodically as required by weed pressure. Mowing should be done at a height of 6 - 8 inches.
 - Once established (**three years and beyond**), a native plant stand may need to be mowed once per year, particularly if it is not burned. This should be done to a height of approx. 4 - 6 inches, preferably in early spring before April 15 start of nesting season. This allows the dead vegetation to provide winter habitat but is removed before significant spring growth occurs or bird nesting begins.
 - In years when the stand is not burned it is preferable to remove the clippings after the spring mowing where feasible.

9) Tall vegetation along pond and lake edges is good

- a) As a goose deterrent:
 - Geese are detrimental to public natural areas – they are aggressive during nesting and fledgling periods, create health hazards, and add to nutrient problems in water bodies.
 - *Geese want a good view* of the landscape, to look for small predators like cats or foxes.

This means a golf course-like site is an ideal location for nesting geese, but vegetation 2 feet or more tall, especially along the edge of a water body, will make them nervous when leaving the water or sitting on a nest. Consequently, they will look elsewhere for nesting sites.

- *If public access to a pond or lake is desired, mow a path at an angle to the lake front so a goose on the water sees a solid wall of tall vegetation*

b) For bank erosion control:

- Vegetation:
 - (1) Plants at the water's edge and in the slightly deeper "emergent" zone are *important in breaking wave action that leads to bank erosion and destabilization.*
 - (2) A halo of plants around a water body further reduces erosion by *soil stabilization by roots.*
- Wave Dampening Structures:
 - (1) *Even small waves eventually break down and undercut the edges of ponds and lakes, ultimately causing bank destabilization and failure.*
 - (2) Hard structures such as rocks (piers, outcroppings, islands), underwater mounds (rock, dead trees, or soil) and dock pilings help *dampen wave action and consequently reduce bank damage by waves.*
 - (3) Downed trees allowed to fall into the water also dampen wave action and reduce wave damage to banks. A desirable secondary effect of *leaving downed trees in the water is that they create/improve habitat* by providing places for fish to hide from herons and cranes, and basking surfaces for turtles and frogs.