



Illinois Nature Preserves Commission

VEGETATION MANAGEMENT MANUAL

Overview of Vegetation Management Guidelines Volume 1, Number 3 through Volume 1, Number 38

PURPOSE OF THE MANUAL

This Vegetation Management Manual was developed by the Illinois Nature Preserves Commission to provide volunteer groups, laypersons, natural areas owners, wildland owners, and other interested individuals with easy-to-understand methods for controlling undesirable vegetation in natural areas.

The manual primarily consists of 36 individual guidelines, each describing the best control techniques recognized to date for given species. Because each natural area is composed of a unique set of environmental factors, the recommended methods are not guaranteed to work in every situation.

The first section of this manual presents a “philosophy” of vegetation management. All persons should read this section before proceeding to recommendations for controlling a specific plant. Every guideline was written with this philosophy in mind, and this understanding is necessary to make best use of the guidelines.

CONSIDERATIONS IN CONTROLLING OPPORTUNISTIC AND ALIEN (EXOTIC) PLANT SPECIES

Aline (Exotic) and Opportunistic Native Species

There are two kinds of troublesome plant species in natural areas. Members of the first group are called aliens or exotics. These are plants that are not native to the flora of the region in which they are found. Often, these plants were introduced from Europe or Asia accidentally, or for horticultural or other purposes. Members of the second group are called opportunists. They are plants that are native components of the regional flora, but that have become overly abundant and/or aggressive due to environmental conditions that are different than conditions before European settlement (e.g, heavy grazing, lack of fire, or creation of disrobed habitats).

Healthy Ecosystems

Invasion or increase of alien and/or opportunistic species usually is the result of a disturbance or degradation of a natural system. A healthy, well-managed system usually will not experience problems with these species. Therefore, long-term control of problem species ultimately depends on restoring the natural processes that originally maintained the health of the system. In many cases, measure that concentrate solely on control of problem species without restoring natural processes will merely trat symptoms of the”disease”. For example, lack of periodic fire contributes to invasion of alien and exotic species in fire-adapted communities. In these communities, fire must be restored to the site to ultimately achieve long-term control of problem species.



Eradication vs Control

The goal in protecting natural areas from exotic and opportunistic species is maintaining or restoring ecosystem health and the native biodiversity of the natural areas. Eradication of non-native exotic plants is a preferred goal. Although complete eradication of an undesirable plant may be ideal for the health and aesthetics of an ecosystem, it can be difficult to achieve due to the labor and resources required. Controlling an alien or opportunistic species by reducing density and population size to low levels sometimes is a more practical goal than is complete eradication.

Certain control measures, such as herbicides, can be harmful to native flora and fauna, and the potential risks must be considered carefully. It rarely is desirable to risk degradation of ecosystem health and diversity by using pesticides to eliminate an alien species completely. Rather, herbicides could be used to control (reduce the population size) an alien species, and then a less risky measure (e.g., fire, cutting, or hand pulling) could be used to eliminate or further reduce the problem species.

For opportunistic native plants, eradication usually is undesirable if these native species belong in the ecosystems in which they are found, and have simply become overly abundant and/or aggressive due to a change in ecosystem conditions since presettlement times. For example, a species may have been held in check by very hot fires. Because prescribed burns we use to manage many areas today are small tens or hundreds as compared to ten-thousands of acres, prescribed fires may not achieve temperatures needed to retard the expansion of such a species. In such cases, the species should be managed to return it to presettlement abundances.

Whether it is desirable to control native opportunistic species on a site depends on what other species are present on the site and whether these are rare or sensitive enough to require special protection. For example, if a prairie is large enough to provide refuge for grassland animals that need large treeless acreages for long-term reproductive success, then complete removal of aggressive shrubs or trees to eliminate edge habitat may be desirable. If a natural community is very small and of high quality, it may be more important to preserve rare species or species diversity. In most cases native opportunistic species diversity. In most cases, native opportunistic species should be controlled and not be eliminated.

Chemical vs. Mechanical or Natural Control

Use of herbicides to control exotics in a natural area should be initiated only after critical consideration of the effects that pesticide use may have. Use of pesticides should be avoided when natural (e.g., fire) or mechanical (e.g., cutting, girdling, mowing) control measures exist. Chemicals should be used only when the consequences of not using the chemical are worse than the risk of chemical.

Herbicide use often is justified when labor available to manage alien or opportunistic plants is severely limited, or when mechanical methods are ineffective due to the extent of the infestation or to environmental limitations (too wet, too rocky, etc.). Even so, non-chemical methods always should be given first consideration when management of exotic species is undertaken. Chemicals should be used only when the threatened spread of exotic species under non-chemical control is more harmful than the risks posed by use of the chemical.

When using herbicides in natural communities, use of safety precautions is imperative. By law, herbicides must only be applied in accordance with label instructions and precautions.

Extreme care should be taken to avoid contacting nontarget species with the herbicide, and to minimize drift. When applying herbicides, plants should not be sprayed to the point of runoff as this can harm nontarget species. The minimum effective concentration of an herbicide should be used, rather than higher concentrations. In natural communities, only closed containers should be used for herbicides as open containers can spill. In state-designated nature preserves or state-owned natural areas, herbicides should only be applied by a licensed pesticide applicator or operator.

Control May Take Several Years

The time needed to control exotic species by various methods in an important consideration. Some exotic species gradually are displaced by native species once presettlement conditions (such as fire or hydrology) are restored and native species are given several years to compete under these new conditions.

In cases where native plants can outcompete exotic plants in the long-term, use of herbicide or limited labor resources may be unwise. Sometimes managers may need patience in controlling exotics in an area. While it can be satisfying to eradicate a species in 1 year, it is sometimes more realistic, more resource-efficient, and better for ecosystem health to consider a 3-, 5-, 10-, or 20-year time frame to achieve desired results. Certain alien plant species, however, spread very rapidly. These species (e.g., purple loosestrife, garlic mustard) are easiest to control when control measures are taken as soon as the species is noticed.

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