

Description of Invasive Species Control Methods

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Control Method	Description	Pros	Cons	Notes
Biological	Introduction of a biocontrol agent (e.g., insect, pathogen) from the invasive species' native range	Dramatic reduction in abundance with minimal costs; Minimal site accessibility issues	Limited number of invasive species have agents; Potential for unintended consequences if the biocontrol agent 'switches' to non-target species	Requires extensive time and effort to provide effective host-specific agents; Numerous federal regulations provide significantly reduced risk of impacts to non-targets species
Mechanical	Physical removal of all or portions of an invasive species	No requirement for specialized training; Can be performed by volunteers	Very labor intensive; May require specialized equipment; Site accessibility issues, impractical for large infestations; Re-sprouting or further invasive species dissemination may occur	Common techniques include mowing, cutting, pulling and girdling
Chemical	Application of herbicide to all or portions of a plant	Most effective and efficient method in most cases; Staff can be assisted by volunteers	Labor intensive; Site accessibility issues; Requires specialized training/license and equipment; May require repeated applications for more difficult species	Common applications include foliar, cut stump, basal bark and injection; Mechanical and chemical controls may be combined for cut stump and hack-and-squirt methods
Cultural	Removal of invasive species through broad land use activities	Very cost effective	Does not apply well to forest habitats	Primarily applies to agricultural systems, but may apply to the maintenance of early successional natural systems including grasslands; Techniques include prescribed fire and prescribed grazing
Ecological	Allowing natural ecological processes (e.g., competition for light and soil resources) to reduce invasive species over time	Very cost effective; Utilizes natural processes	May not occur in many systems due to persistent or continuing human impacts (e.g., overabundant deer, continual physical disturbance, habitat fragmentation, etc.)	Primarily applies to forest systems; As an example, very strong anecdotal evidence suggests that overabundant deer facilitate infestations by Japanese stiltgrass and other invasive species in forests.

Specific Control Techniques by Invasive Species Class

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Invasive Species Class	Suggested Treatment Techniques ¹	Notes
Large tree	Girdling or Harvesting	May be combined with herbicide application to girdled area
Large shrub / small tree	Basal bark, Hack-and-Squirt, Cut Stump, Girdling	Mowing may be used as a pre-treatment to reduce plant size prior to chemical treatments
Small shrub / tree sapling	Basal Bark, Foliar Spray, Cut Stump, Pulling	Mowing may be used as a pre-treatment to reduce plant size prior to chemical treatments
Large vines	Basal Bark, Cut Stump, Hack-and-Squirt	Many vine species have extensive root systems that require herbicide treatment
Forest herbs, woody seedlings and small vines	Foliar Spray, Pulling	Mulching may be utilized in garden beds or other human-modified areas