



Maryland DNR Forest Service
580 Taylor Ave., E-1
Annapolis, MD 21401
Publication # - 02-7192012-588
August 1, 2012

Forest Pests

Invasive Plants and Insects of Maryland

Invasive plants and insects can be problematic for forest landowners. From vines that take over disturbed areas, forest edges, and tree canopies to insects that defoliate and girdle trees, these pests not only decimate the natural ecosystem, they are difficult to control and can be expensive to eradicate. This informational sheet discusses the grass commonly known as golden bamboo.

Golden Bamboo (*Phyllostachys aurea* (Carr. ex A. & C. Rivière))



Chuck Barger, University of Georgia, Bugwood.org

DESCRIPTION

Golden bamboo is a perennial reed-like member of the Grass (*Poaceae*) family. Canes can reach 25 to 30 feet in height and have inflated internodes, or joints. Canes have bushy tops full of lance-shaped leaves without lobes that alternate on the stem. Golden bamboo rarely flowers and when flowers are present, it is considered a sign of the plant dying. Golden bamboo prefers full sunlight, and generally spreads into recently disturbed areas and young secondary forests.

ORIGIN & SPREAD

Golden bamboo is native to China and has been grown in Japan for hundreds of years. It was introduced to the U.S. in Alabama around 1882. It has since spread across the southeast and currently ranges from Maryland to Florida to Arkansas and Louisiana. Golden bamboo's spread has been worsened by its popularity as an ornamental plant and natural fence for landowners.

Once established in an area, golden bamboo is extremely difficult to eradicate. New shoots form along the rhizomes (thickened roots) of existing plants, creating dense clumps of canes. These clumps shade out all competition and completely alter the natural ecosystem. The removal of natural vegetation in the infested area also changes the food sources and habitat of local wildlife.



James H. Miller, USDA Forest Service, Bugwood.org

CONTROL OPTIONS

Hand Control

There are manual, mechanical, and chemical methods of addressing infestations, and usually some combination of the three is most effective. If detected when the clump is small, hand pulling and grubbing the cane and rhizomes can be effective. It is important that all plant matter pulled up be piled and burned, or bagged and disposed of to discourage re-establishment. It is very difficult to get all of the rhizomes. Remaining rhizomes can continue to resprout throughout the season and repeated pulling and grubbing will eventually exhaust the stored energy in the rhizomes and the golden bamboo will die. Similar results may be obtained by cutting or mowing the canes frequently during the growing season for several years.

Equipment & Herbicide Control

Larger infestations will usually require the use of herbicides or, in some cases, heavy equipment. Since golden bamboo creates dense thickets, equipment like bull dozers or skidsteers can be used with root rakes to push over and pull up the canes and rhizomes. Miller, Manning, and Enloe (2010) suggest using a bull dozer and root rake to excavate the root crowns and rhizomes, then pile and burn it. The authors note not to bulldoze bamboo infestations where blackbird species frequently roost because the infectious fungus, histoplasmosis can be present in the soil and cause deadly lung infections. Again, if all of the rhizomes and canes are not removed, re-establishment may occur.

Golden bamboo can be effectively controlled with herbicide. As with all invasive plants, control methods are currently being researched and documented. Table 1 shows some of the suggested uses of herbicides as found in Miller, Manning, and Enloe (2010), Swearingen et al (2010), and the Southeastern Exotic Pest Plant Council Invasive Plant Manual (2003).

The most commonly used herbicides for controlling golden bamboo include glyphosate (e.g. Accord[®] XRT) and imazapyr (e.g. Arsenal[®] AC). The following methods are some of the most common ways of applying herbicide to the canes.

Foliar Spray Method

This method is common for very large infestations where there are no other desirable species. Generally, an herbicide solution is sprayed on the foliage just enough to wet it, not drip. The herbicide is absorbed through the leaves and is carried to the root system.

Swearingen et al (2010) documents a specific approach to controlling golden bamboo developed by Dr. Francis Gouin, formerly the University of Maryland Agronomist. It is listed here with slight modification. Cut the bamboo down to the ground in late spring (e.g. June). Depending on the type of bamboo you are working with, you will need a chain saw, weed whip or weed whacker, Swedish brush axe, pruning snips or other tool that will cut through the bamboo stems. Cut down as low as is comfortable and leave alone for the summer, allowing it to regrow. In October or early November, on a sunny, non-breezy day, spray the leaves of regrown plants with a 2% rate of glyphosate (e.g., Accord[®] or Roundup[®] Pro), mixed with water, according to the label directions. Apply thoroughly just to the point of drip. Wait 10-14 days and reapply the glyphosate at the same rate. After the second treatment, leave the bamboo alone. Do not cut, mow, or remove plant material. The following spring, the bamboo will be browned out and should not grow back. At this point, you can cut and remove the dead vegetation. If any bamboo remains or does reappear, repeat the procedure.



Chuck Barger, University of Georgia, Bugwood.org

Cut Stem Method

Simply cut the cane near ground level, in between the nodes. Apply the herbicide directly to the stem and in the stem cup. This is generally done with a paint brush or plastic spray bottle. Once applied, the herbicide is absorbed throughout the root system. This method is preferred when the infestation is surrounded by other desirable species.

Soil Surface Method

Soil injection can be effective in extensive forest settings where golden bamboo has taken over an area and there are no desirable species around it. This is done by applying the herbicide to the soil surface in spots on a grid pattern. See herbicide label for the spacing of the grid pattern.

SUMMARY

When dealing with golden bamboo, it is important to remember that these applications may not completely control the infestation on the first attempt. Several attempts may be needed over several years. If rhizomes remain, sprouts may take hold and begin to grow again.

Table 1. Herbicide Suggestions for Controlling Golden Bamboo Infestations.

| Application Method | Active Ingredient | Brand Name | Percent Solution | Time of Year |
|--|--------------------------|--------------------------|------------------------------|----------------------|
| Foliar Spray | Imazapyr | Arsenal [®] AC | 1% in water and surfactant | September to October |
| Foliar Spray (Use in combination with Imazapyr) | Glyphosate | Roundup [®] Pro | 10% in water, and surfactant | September to October |
| Foliar Spray | Glyphosate | Accord [®] XRT | 2% in water, and surfactant | July to October |
| Cut Stem | Imazapyr | Arsenal [®] AC | 1% in water and surfactant | September to October |
| Cut Stem (Use in combination with Imazapyr) | Glyphosate | Roundup [®] Pro | 10% in water and surfactant | September to October |
| Cut Stem | Glyphosate | Accord [®] XRT | 25% in water and surfactant | April-October |
| Soil Surface | Hexazinone | Velpar [®] L | 2 gal per acre | See Label |

Use pesticides wisely. The information in this sheet is intended to illustrate methods that are currently being practiced and does not endorse or promote any of the herbicide products listed. Please be sure to read herbicide labels, even if you have experience with the herbicide, as labels are updated frequently. All information in this sheet is based on the information of the herbicide labels at the time of printing. Please contact the Maryland Department of Agriculture (MDA) if you have any questions about pesticides. The MDA website (www.mda.md.state.us/plants-pests) contains a searchable pesticide database where you can search for pesticides, applicators, dealers, and businesses.

REFERENCES

Miller, James H.; Manning, Steven T.; Enloe, Stephen F. 2010. A management guide for invasive plants in southern forests. Gen. Tech. Rep. SRS-131. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 120 p.

Southeast Exotic Pest Plant Council. 2003. Invasive Plant Manual. <http://www.se-eppc.org/manual/index.html>

Swearingen, J., B. Slattery, K. Reshetiloff, and S. Zwicker. 2010. Plant Invaders of Mid-Atlantic Natural Areas, 4th ed. National Park Service and U.S. Fish and Wildlife Service. Washington, D.C. 168pp.