

Bamboo and giant cane management plan for Bartholomew District Park

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Abstract

*Golden bamboo (*Phyllostachys aurea*) is a non-native, invasive plant that readily forms dense colonies. These colonies are difficult to control and displace native vegetation. Due to citizen concerns regarding encroachment of stands of bamboo into their yards from the adjacent Bartholomew District Park, a management plan was developed to eliminate bamboo from City of Austin property at this location and restore the site to native riparian vegetation. As stands of another invasive grass, giant cane (*Arundo donax*), are also present at this site, the plan incorporates elements to control this species as well. This report provides the original management plan, developed in May 2015, and updated information from September 2015.*

Background

An infestation of golden bamboo (*Phyllostachys aurea*) in Bartholomew District Park has been encroaching on residential lots adjacent to the park, causing significant citizen concern. The individual patches of bamboo vary from high-density monoculture to more widely separated runners that are intermixed with annual plant species, a few shrubs, and tree seedlings from a volunteer planting event.

The area is characterized by moderately steep slopes (varying from 4:1 to 2:1) and a lack of tree canopy. The infestation is generally outside of the Critical Water Quality Zone and regulatory floodplain but is almost entirely within 100 ft of the centerline of the Tannehill Branch of Boggy Creek.

Based on inspection of aerial photography, bamboo has been at this location since at least 2003. Residents of the neighborhood have indicated that bamboo was originally planted in a yard adjacent to Bartholomew Park in the early 1970s and was likely spread throughout the area by construction work for bank stabilization in the 1980s. In 2011, the Watershed Protection Department (WPD) Grow Zone Program staff participated in a project to bring the bamboo under control using park volunteers. However, the aggressiveness of the plants has exceeded the

capacity of the volunteer efforts and the stand has not been significantly impacted by this work. Additionally, the volunteer effort has not prevented movement of the bamboo into three adjacent private residential lots.

There are three distinct stands of bamboo in this area (Figure 1). Bamboo Patch A is the most aggressively spreading patch and of most concern to neighbors of the park. Bamboo Patch B is a small, dense stand on a gradual slope that is relatively distant from the creek. As this stand should be relatively easy to control and will require minimal restoration, it will be treated concurrently with Bamboo Patch A.

Bamboo Patch C is a dense monoculture of bamboo behind 2013 and 2015 Singing Brook Drive. Due to the size and density of this stand, the steepness of the slope and the presence of engineered streambank stabilization elements, no control will be performed on this stand until restoration has been completed on the other patches. At that time Grow Zone Program staff will consult with WPD engineers to develop a management plan that does not impact the engineered stream structures. Control of Bamboo Patch C would likely commence in 2017.

There are currently two stands of another invasive plant, giant cane (*Arundo donax*, Figure 1) in the creek adjacent to Bamboo Patch A. Giant cane in waterways is a significant management issue for WPD and, since control methods are similar for bamboo and giant cane, treatment will be performed concurrently on the cane and bamboo stands.

Management Plan

Golden bamboo is a perennial grass growing to 20 ft or more in height that spreads readily by horizontal underground stems (rhizomes). It is highly invasive and difficult to eradicate once established. WPD and the Parks and Recreation Department (PARD) will work together to control the bamboo population at Bartholomew Park. This management plan complies with City of Austin policy for management of invasive plants on public land per the City of Austin Invasive Species Management Plan (COA 2015) and the PARD Integrated Pest Management (IPM) Plan (PARD 2011).

Management of Bamboo Patches A and B and the giant cane stands will proceed in four phases:

1. Manual removal of above-ground material – bamboo and giant cane will be cut to ground level and the material will be taken to a mulching or landfill facility. Material will be allowed to re-grow to a height of 2 to 3 ft to allow for expansion of new leaves.
2. Herbicide treatment – once a height of 2 to 3 ft has been reached, plant regrowth will be treated with a foliar spray application of a glyphosate formulation approved for aquatic use. Work will be performed by a Texas Department of Agriculture-licensed pesticide applicator contracted by WPD. All PARD herbicide treatment notification and re-entry guidelines will be followed. Woody plant seedlings and shrubs will be protected from overspray using plastic shielding.
3. Spot treatment and monitoring – stands of bamboo and giant cane will be evaluated every 30 days for regrowth. Fully expanded leaves will receive spot treatment using the approved herbicide formulation. Monitoring and treatment will continue through the 2015 growing season (typically ending in October) and resume in the 2016 growing

season (typically beginning in March). Spot treatment will continue until 100% control of the bamboo and giant cane has been achieved in the park area. Monitoring will continue for 1 year after it is determined that 100% control has been achieved.

4. Restoration – native seed mix combined with a cereal winter cover (oats) will be spread over treated areas once the 2015 growing season has ended. Seed mix will be applied again when it has been determined that the bamboo and giant cane has been fully controlled. Coir logs will be installed as needed to ensure slope stability. A tree seedling planting event will be held in January 2017 if needed to help re-establish native woody vegetation.

Stakeholder Outreach

Residents along the west side of Waterbrook Dr (addresses 5100 through 5116) will receive flyers describing the proposed management plan for the park and recommending methods for controlling bamboo on private property. Control of bamboo on private property is essential to prevent the re-infestation of the area once the bamboo has been eradicated from City of Austin property. However, the City of Austin does not perform invasive plant control in private yards, so it is very important that residents manage the bamboo on their property. Recommended methods for bamboo control on private property include:

- Frequent mowing to deplete the energy stores of rhizomes
- Digging and removal of rhizomes
- Treating leaves with commercially-available formulations of the herbicide glyphosate

A list of common products containing appropriate glyphosate formulations for residential use will be provided. The outreach materials will also emphasize proper safety when handling these products and the importance of following all label directions.

A pdf of the flyer will be emailed to other known Bartholomew Park stakeholders. The flyer will also provide contact information for the WPD Invasive Plant Management Coordinator.

Schedule

Stakeholder outreach will begin in early June. Treatment will begin between 30 and 60 days after notification of the adjoining residents. Follow-up spot treatments will be performed as needed to eradicate the bamboo from City land. It is anticipated that these treatments will need to continue through the 2016 growing season.

June 2015	Perform stakeholder outreach
July-August 2015	Cut Bamboo Patches A and B to ground and allow re-growth
September-October 2015	Treat Patches A and B with glyphosate when it reaches 2 ft-3 ft height
October 2015	Spread native/cereal seed mix for winter cover, install coir logs as needed
March-October 2016	Perform spot treatment in Patches A and B as needed

October 2016	Spread native/cereal seed mix for winter cover as needed
January 2017	Schedule volunteer seedling planting event if needed. Evaluate treatment options for Bamboo Patch C.

September 2015 Update

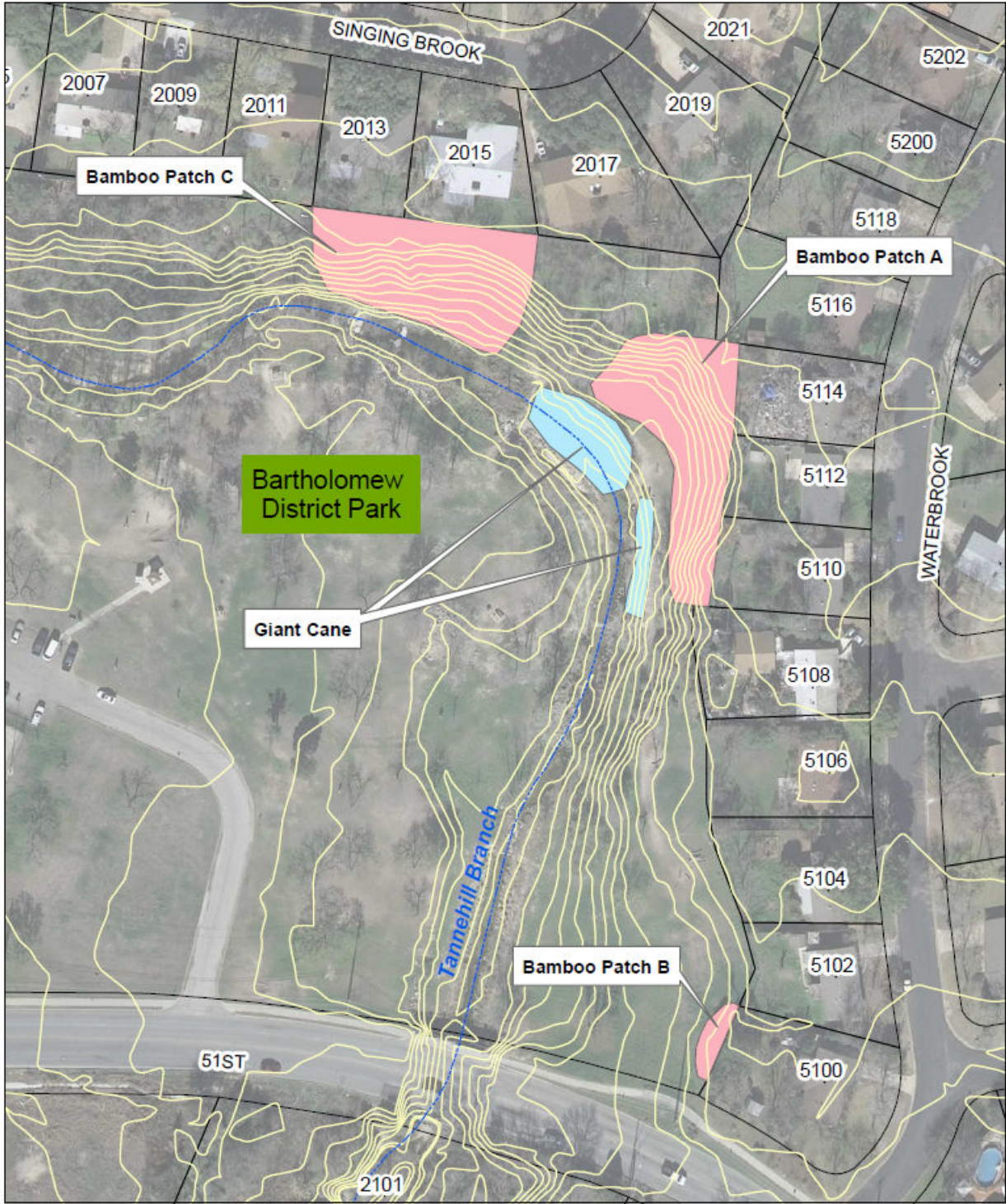
Due to difficulties with scheduling a contractor for the vegetation work, the bamboo was not cut until August 2015, no herbicide treatment has been performed and no treatment actions have been taken on the giant cane. A contractor mistakenly performed a significant amount of work on Bamboo Patch C, so the decision was made to continue the work and begin control measures on this stand.

Since the giant cane was not cut, a different treatment method will be utilized. The material will be treated at full height in October 2015, per recommended City of Austin methods (Richter and Gilroy, 2013).

A meeting to hear citizen concerns and provide information on the City's control plan was held on July 29, 2015, with Councilmember Gregorio Casar, WPD staff and PARD staff attending.

The revised schedule for bamboo and giant cane control is:

September-October 2015	Treat bamboo patches with glyphosate when it reaches 2'-3' height. Treat giant cane at full height with imazamox.
October 2015	Spread native/cereal seed mix for winter cover, install coir logs as needed.
March-October 2016	Perform spot treatment on bamboo patches as needed.
October 2016	Spread native/cereal seed mix for winter cover as needed. Re-treat giant cane as needed.
January 2017	Schedule volunteer seedling planting event if needed.



**Distribution of Bamboo and Giant Cane
at Bartholomew District Park**

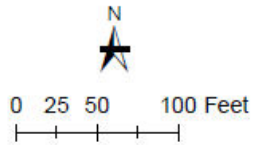


Figure 1

References

- City of Austin (COA). 2015. Invasive Species Management Plan. Austin, Texas.
- City of Austin Parks and Recreation Department (PARC). 2011. Integrated Pest Management Program. Austin, Texas.
- Richter A, Gilroy M. 2013. *Arundo donax* Herbicide Survival Assessment. City of Austin Watershed Protection Department SR-13-07.