Invasive Species Management at the City of Austin

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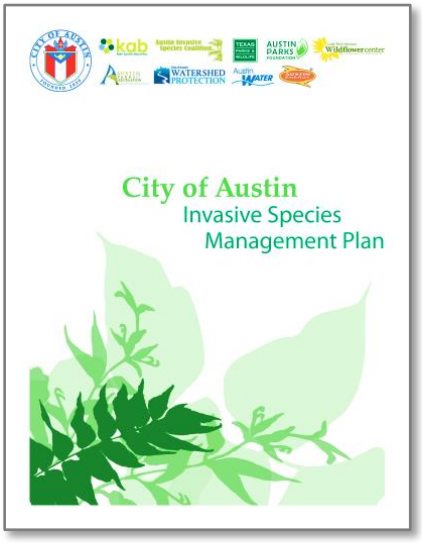


In 2010 the Austin City Council passed a resolution directing the City Manager to develop an Invasive Species Management Plan (ISMP) to guide efforts to minimize the harmful environmental and economic impacts of invasive plant species on city-managed properties. Subsequent to that resolution, an agreement with the Lady Bird Johnson Wildflower Center led to creation of a working group with representatives from several City departments, the Austin Parks Foundation, Keep Austin Beautiful, Texas Parks and Wildlife and the Austin Invasive Species Coalition.

Over the course of ten consensus-based meetings, the Working Group developed strategic five-year goals based on a central framework of prevention, early detection-rapid response and long-term control at prioritized sites. The plan also includes recommendations for implementation including staffing, funding sources, centralized mapping and monitoring, and education and outreach. To improve the plan's success, the working group developed a preliminary list of priority invasive species and an invasive species resource manual with identification fact sheets and best management practices to control priority species.

The plan and other information about the City of Austin's approach to invasives management can be viewed at the following links:

Book 1 - Invasive Species Management Plan (pdf)
Book 2 - Field Resources Guide (pdf)
Book 3 - Appendices (pdf)

The plan was approved by City Council in 2012. An update and evaluation of progress on the 5-year goals of the plan is due in 2017. This will be coordinated through the Public Land Management group within the Imagine Austin Green Infrastructure Priority Program Implementation Team (GIPPIT-PLM). Membership in GIPPIT-PLM consists of land managers from the Watershed Protection, Development Services, Parks and Recreation, Austin Water Utility, Austin Energy and Public Works departments, many of whom participated in drafting the ISMP.

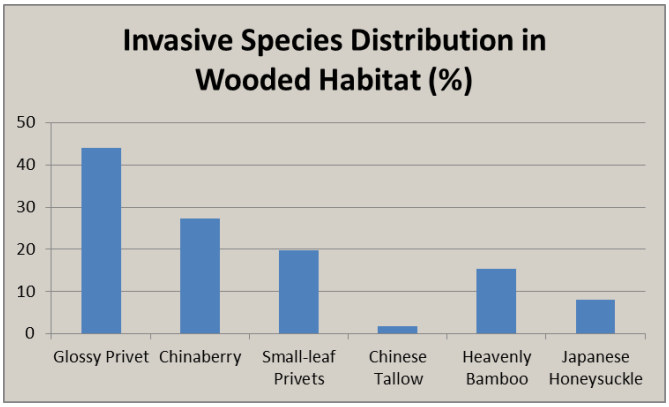
The City of Austin Watershed Protection (WPD) and Parks and Recreation Departments (PARD) work closely together on many aspects of invasive plant control and citizen education and engagement. The following sections highlight several invasives management projects initiated on City parkland by WPD and PARD since approval of the ISMP. The Austin Invasive Management (AIM) moniker and associated logos shown below have been developed to provide clear branding for invasive management activities at the City, but to date have principally been used on materials produced by WPD.

AUSTIN INVASIVE MANAGEMENT

Measuring the Impacts of Invasive Plants

In 2013 WPD performed a sampling study to evaluate the presence of invasive plants on City-owned lands. Collection of vegetation data was conducted in 25 parks across 37 City parks and greenbelts, totaling 1836 acres. A total of 2,248 10-meter plots were sampled with an average density of 1.5 plots per acre.

The study identified a number of parks and greenbelts where the invasive species are present in more than 90% of the plots sampled. The three most abundant invasive species are glossy privet (*Ligustrum lucidum*), chinaberry (*Melia azedarach*), and small-leafed privets (*Ligustrum chinense* and *L. quihoui*). Glossy privet is especially abundant in woodlands, appearing in 44% of all closed-canopy plots.



Future analyses will make use of additional data collected regarding presence and abundance of both invasive and native woody species in groundcover, understory and canopy to evaluate the impacts of invasives on native woodland demographics. The parcel prioritization and data collection methods used in the 2013 study have been summarized in the Austin Invasives Management (AIM) Project Development Guide (pdf).

Developing Management Techniques

WPD, through its riparian restoration program, takes an active role in the development and implementation of invasive plant management techniques, especially those that can be applied at broad-scale with minimal inputs and can be performed by volunteers. One current study is the evaluation of the impacts of tree girdling on stands of glossy privet. Girdling may prove to be a valuable alternative method of control compared to other mechanical and chemical methods in that it allows for gradual opening of canopy gaps, does not generate large amounts of brush in a short timeframe and utilizes tools that are safe and available to minimally-trained volunteers. The study will also compare recruitment of native species in the canopy gaps of girdled trees to non-girdled controls to evaluate the appropriateness of passive restoration approaches. More information about the City's riparian restoration program is available here - http://www.austintexas.gov/creekside.

Engaging Citizens in Invasives Management

Austin is fortunate to have a number of community organizations and other partners who actively contribute to invasives management in our natural spaces. The **Lady Bird Johnson Wildflower Center** played a significant role in developing the ISMP and regularly holds trainings on identifying and mapping invasive species. In the spring of 2013 they also provided training to 111 City staff and 144 volunteers as part of the implementation of the ISMP. **Keep Austin Beautiful** mobilizes volunteers through its

Adopt-a-Creek program, which supports volunteer riparian restoration efforts, including invasives management. The **Austin Parks Foundation** trains and supports volunteers through the City's Adopt-a-Park program. **TreeFolks** is a local organization dedicated to improving the urban forest and supports riparian restoration through its *Ready, Set, Plant!* seedling planting events. This is in addition to numerous groups with a more specific focus, such as **The Trail Foundation**, **Shoal Creek Conservancy** and the **Barton Creek Greenbelt Guardians**.

The City of Austin's **Grow Zone** program is a partnership between WPD and PARD that facilitates volunteer restoration activities in streamside areas of parks. Many of these areas were previously frequently mowed and as they recover, they are susceptible to invasion. WPD and PARD work with volunteers in both wooded and recovering Grow Zones to manage invasive plants. As the program is focused on restoration, we encourage volunteers to "Put back more than you take out." In other words, if non-native plants are going to be removed, those activities should be followed up by native seeding and tree planting events that will increase the diversity and function of the restored area. The Adopt-a-Creek, Adopt-a-Park and *Ready, Set, Plant!* programs are all significant elements of the Grow Zone program.

WPD supports volunteer efforts through the development and delivery of training materials and by providing restoration supplies such as seeds, seedlings, erosion control blankets and coir logs. PARD supports volunteer invasive management activities by leading and supporting volunteer events in greenbelts and preserves, making crews and equipment available for brush haul-off for large events and providing expertise during planning and implementation of volunteer activities.

Invasive Plant Management and Restoration

Large-Scale Citizen-Led Projects

A number of local organizations have obtained funding and developed plans to manage invasive plants on specific properties that are considered to have high environmental or cultural/recreational value. These projects have the potential to significantly reduce invasive plant populations on these tracts and demonstrate the value of a motivated, environmentally-aware citizenry to the management of public lands in Austin.

Some areas where non-profit or other community groups have recently implemented invasives management plans include:

- The Barton Creek Greenbelt from the Zilker entrance to the Gus Fruh entrance (Greenbelt Guardians)
- Pease Park north of Gaston Lane (Pease Park Conservancy and Shoal Creek Conservancy)
- Blunn Preserve (Blunn Creek Partnership)
- The Ann and Roy Butler Hike and Bike Trail on Lady Bird Lake (The Trail Foundation)

Collectively community groups have raised over $200,000 for invasive plant management and related restoration activities from a combination of Austin Park Foundation grants, City of Austin Urban Forestry grants, private donations and other sources.

Volunteer Project Coordination and Environmental Protection

Planning of large-scale invasive management projects in City parks often requires coordination among many different groups within PARD and sometimes other departments as well. For

example, developing the plan for the Barton Creek Greenbelt Guardian work required consultation with endangered species experts from the Austin Water Utility's Wildlands Conservation Division and wildfire fuels management experts from Austin Fire Department, in addition to coordination amongst the Park Rangers, Parks Preserve manager and Parks Forestry staff.

Such extensive coordination is necessary for large projects, as they may have equally large unintended impacts. Excess clearing of woody vegetation can:

- Increase wildfire risk through fuel accumulation
- Impact critical environmental features or endangered species
- Negatively impact the urban forest
- Increase the difficulty of restoring native woodland vegetation
- Lead to significant logistical challenges for brush removal by City staff
- Contribute to erosion and water quality issues

In order to facilitate review of large-scale volunteer projects, staff have developed guidance for individuals and organizations proposing large-scale invasive management projects on City land. The Environmental Review for Volunteer Invasive Plant Management Projects (pdf) document identifies information that is needed by WPD and PARD staff prior to project approval. Staff works with volunteer leaders and their contractors to develop this information and to create a management plan that will ensure a successful project while also protecting the environment.

Projects Managed by the Watershed Protection Department

In addition to supporting volunteer work in parks, WPD also directly manages species that have the potential to negatively impact waterways. Currently, WPD has a program to control populations of giant cane and elephant ear on Lady Bird Lake, and is working to restore a portion of Bartholomew Park that is severely impacted by a large stand of invasive bamboo.

Giant cane on Lady Bird Lake is being managed with an EPA-approved herbicide. Due to the extensive root masses these plants that have developed on banks that may be susceptible to erosion, it is not possible to manage these populations by manual removal. As stand densities decrease with additional treatments, areas become candidates for volunteer tree planting events led by TreeFolks or The Trail Foundation.

Elephant ear is being controlled by a combination of manual and chemical means. Some stands are on shallow benches that are not subject to erosion. Plants can be dug by hand in these areas and replaced with diverse native vegetation. Plants on banks will be treated with the same herbicide used to manage giant cane.

The Bartholomew Park bamboo infestation is more than 0.5 acres in size. It has almost entirely replaced the native vegetation along this portion of the creek, has made a portion of the park essentially unusable for park visitors and is encroaching into neighboring residential yards. The bamboo was cut to the ground in 2015 and as it re-grows it is treated with an herbicide. These treatments will continue through 2016 and will be followed by extensive planting of native trees and herbaceous plants.

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