

**Title: Update of the Urban Forestry Section of the Morris Arboretum Web Site**

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**Abstract:**

The Morris Arboretum's web site is an important promotional and marketing tool, as well as a way to inform the public about our mission and our collection. As is the case with most organizations maintaining web sites, our site is updated periodically to reflect changes in our institution. One of the sections that has been in need of an update for a few years is the Urban Forestry section. With this in mind, I have spent a large portion of my time as an intern at the Arboretum updating some of the existing Urban Forestry pages on our web site, and developing new portions to reflect the Arboretum's current programs. Using digital photographs I have taken, images from the previously existing Urban Forestry pages, and images that others have allowed us to use for the web site, I have designed dozens of individual pages, all of which are brought together under the common theme of Urban Forestry; for an idea of how these pages are organized, see Figure 1 (Flow Chart). Much of the text from the previously-existing Urban Forestry pages was re-used, but there is a great deal of additional text in the pages now, most of it original, and the rest of it quoted from other sources.

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## DEFINITIONS

For those readers who are not exactly adept users of the internet, and for reasons of clarity, I will briefly explain some terms that will appear in this paper.

- **HTML** (noun): “Hyper-Text Markup Language”; the code that computers use to portray a web page
- **URL** (noun): “Universal Resource Locator”; the unique “address” which the browser uses to locate a web site on the internet; usually in the form of <http://www.webpage.com>, but there are several variations; “www” means “world wide web”, often used interchangeably with “internet” but not exactly the same thing (“http” means “hyper-text transfer protocol” and tells the browser that the resource it is being directed to will be in an HTML format; another common protocol is “ftp”, which means “file transfer protocol”)
- **Download** (verb): to save information from the internet to your own computer (used as a noun, a “download” is a document or set of documents that is saved to a computer from the internet or a local server)
- **Upload** (verb): to transfer information from your computer or network onto the internet (used as a noun, an “upload” is a document or set of documents that is transferred to the internet or a local server)
- **Web Page** (noun): a single HTML document that can be viewed at one time; you may need to scroll down to view the entire contents of a page, or it may all be visible at once
- **Web Site** (noun): a virtual “location” on the internet, usually several related pages
- **Home Page** (noun): the first page of a web site (also called “main page” or “index”)
- **Web Master** (noun): the person responsible for uploading and integrating web pages for the web site
- **Navigate** (verb): to “move” around a web page or the internet as a whole; also “surf”, as in “net-surfing” or “surfing the internet”, although given the ephemeral nature of internet-related slang, it is not clear how much longer the term “surf” will be considered valid
- **Browser** (noun): a computer application (program) that allows you to navigate on the internet; some common browsers are Microsoft Internet Explorer and Netscape Navigator

- **Link** (noun): an object that, when clicked, takes you somewhere else on the same web site, or to a completely different web site; links can be images or text on a page (as a verb, “to link” means to provide an automatic connection to a document or web page either within the web site or on an external web site)
- **HTML Editor** (noun): a computer application that allows you to write HTML for the purpose of creating a web page; if you don’t know HTML, don’t worry– the editor will write it for you!

## OBJECTIVES

My two goals in this project were to update the existing Urban Forestry pages, and to create a group of web pages for the Outreach Arborist Consulting Program. The existing Urban Forestry (UF) main page is reached by a link from the Education main page, which in turn is reached by a link from the Morris Arboretum home page; this setup will not be changed for the new pages. The main page for the new Outreach Arborist Consulting Program will be reached by a link from the UF main page (see Flow Chart, Fig. 1). Even though the Arboretum no longer has an Urban Forestry program *per se*, the Urban Forestry Internship continues to exist because it is fully funded through the Martha S. Miller Endowment. The UF Intern now engages in urban forestry activities through other departments (Horticulture and Public Programs); this further complicates the hierarchical structure of the web site, but I believe the current organization scheme for the site is sufficient.

The UF pages were originally incorporated into the Arboretum’s web site between 1999 and 2001, but the most current of them had apparently not been updated since 2002. In their original form, the UF pages were divided up into five topics: “Paper Mill Run”; “Trail Link”; “NEPA”; “Growing Your Future”; and “Arboriculture”. These five, along with “Urban Forestry Home” and “Morris Arboretum”, were all arrayed horizontally across the top of the main UF page in small grey rectangles with black text. The header and background were completely different from any other page on the Morris Arboretum web site. Furthermore, each of the five menu items led to another page with a different background and format; not only were the UF pages not consistent with the rest of the Morris Arboretum’s site, they weren’t even consistent with each other!

The construction process for the Paper Mill Run (PMR) demonstration project was described, and the PMR pages included a full plant list for the project, as well as a construction photograph sequence and several pages of photos of the various people involved in the project as they worked. However, the UF pages contained absolutely no reference to the Wetland reconstruction project; in fact, the only mention of it anywhere on the Morris Arboretum’s web site is an obscure little page entitled “Wetland Restoration Project” that can be reached by a link on the “Explore the Garden” page of the site. This page contains a sparse five sentences of text and a single, small photograph, featuring the Cotswold Sheep sculpture prominently in the foreground and a tiny sliver of the wetland just barely visible off in the distance. This was clearly not sufficient to describe such a major alteration of the Arboretum’s landscape.

As of the summer of 2004, some subtopics on the UF page were no longer relevant to the current UF program; the Morris Arboretum was no longer a partner in the NEPA program as of

2002, and the “Growing Your Future” program seems to have only happened in 1999. The menu topic “Arboriculture” never linked to a page at all; the entire time the UF pages have been online, there has been text below the menu heading that said “under construction”, although to my knowledge there has never been any plan to “construct” anything until the summer of 2004, when Bob Gutowski, the Director of Public Programs, suggested I make it part of my project. So, although the Outreach Arborist Consultants have been an active and important part of the Arboretum for several years, the program has never had even a rudimentary web page.

In summary, the objective of my project has been to update the Urban Forestry web pages and expand them in appropriate directions. This included replacing irrelevant topics with new ones that reflect the current UF program—particularly in areas such as the demonstration projects at Paper Mill Run, the Thomas Mill Ravine, and the Wetlands—and creating web pages for the Outreach Arborist Consulting program. I have been producing web pages as finished products (.html files) to be fit into the existing web site by the Arboretum’s web designer.

## **METHODS**

***Software.*** After an initial planning stage—in which Bob Gutowski and I discussed the topics I should address in the pages I would create and how these would be incorporated into the Arboretum’s web site as a whole—I selected the software required for the project. After a brief exploration of the various HTML editors available, and reading users’ reviews of several of them, I decided to use a product called Dreamweaver® MX 2004, a versatile and relatively simple-to-use application produced by Macromedia®. For a price of \$99, the Public Programs department purchased a copy of it for my use, and a few days later it was delivered on a single CD-ROM. I installed it on the computer in my office space, registered the license online, and started learning to use it. After several basic tutorials and some experimentation with Dreamweaver® (technically referred to in the industry as “fiddling around” with it), I started creating web pages.

***Guidelines.*** In designing the web pages for which I was responsible, and in choosing the text and images for them, I followed certain stylistic guidelines given to me by our web designer, Rose Koch. In the beginning of the project, she provided me with a basic design template, and all of my pages were to be modeled on this template. By using this template, I would be assuring that the pages I created would be stylistically consistent with the other new pages that she has been producing to update parts of the website for the past few months. This template includes a background image, a header that says “The Gardens at the Morris Arboretum” in a dark green Trebuchet font, and a footer in the same font that contains the Arboretum’s address, phone number, and the e-mail address to which visitors may address general correspondence or questions/comments to the web master. The background image is a solid light olive-tan with an olive-green botanical line drawing, originally drawn by Anna Anisko, the artist who has been working with Ann Rhoads and Tim Block on books published as part of the PA Flora Project. This background image is a pleasant, subtle combination of light colors, but it is not distracting to the reader when text or images are overlaid on top of it. The sub-headers and side menu navigation bars on all the pages that I created as bitmaps have a consistent color scheme and use the same fonts.

The screen resolution for most web site viewers was defined as 72 dpi (72 dots per inch) by Rose Koch, so all images embedded in the my web pages were reduced to a maximum

resolution of 72 dpi; any image that had a higher resolution would not necessarily look any better, but it would certainly take up more memory, and therefore would take longer to load on a viewer's browser, than an image at 72 dpi. Images used were either taken from the existing Arboretum web pages, digital photographs that I took myself, or other people's images which were either downloaded from the web or scanned from books or magazines; images that are protected by copyright were all used with the expressed permission (either verbal or written, in e-mail or on paper) of the copyright holders, with absolutely no exceptions. When others' images were used, credit was given under each image. Because of University of Pennsylvania restrictions, only sites for governmental ("dot-gov"), educational ("dot-edu"), or non-profit organizations ("dot-org") were listed with direct links on the "links" pages; businesses or private interest sites ("dot-com") were permitted to be listed, but no direct links were permitted to these sites.

***Oversight.*** Upon completion of my pages, they were to be reviewed by Bob Gutowski and others, depending on the pages in question; Pam Morris, the Horticulture Section Head of Natural Areas, was consulted regarding the Natural Areas and Thomas Mill Ravine pages, and Bill Graham and Jason Lubar, of the Outreach Arborist Consultants team, were consulted regarding their pages. After necessary revisions, the pages were shown to Kate Sullivan, the web master for the Arboretum's web site, for final approval. The finished, approved web pages were then saved on a CD-ROM and sent to Rose Koch, the Arboretum's web designer; it was her job to check that the pages all linked correctly to the other pages of the site, and to upload them to the University's server.

## **DISCUSSION**

Web sites are one of the best ways to advertise a public garden. The internet is a vast expanse in which real distances mean nothing; your web page is as easily accessed next door as it is thousands of miles away! The investment in web site development is generally a small fraction of the cost of producing and distributing paper publications, not to mention the fact that no paper is used for a web site.

***High-Tech vs. Low-Tech.*** Although current internet technologies allow visitors to a web site to enjoy such features as up-to-the-minute weather conditions, 360° views of a garden, even live views of the garden via webcams, a web site does not necessarily have to be high-tech to have an impact. In fact, to appeal to the greatest possible audience, it may be wise to keep a web site low-tech, because the majority of people browsing the internet do not actually have the most advanced computers and software. Incorporating moving images and flashy graphics into a page can complicate and slow the loading of the web page when it is viewed. Attempting to view high-tech web pages with an out-of-date computer can be painstakingly slow, or it can crash the visitor's browser altogether. For this reason, web sites often present visitors with options for low-tech viewing, or simply keep their entire sites low-tech, despite the temptations of flashy graphics.

If an institution such as the Morris Arboretum wishes to present a lower-tech web site to the public, the constraint of simpler technology need not be a disadvantage. Presenting a simple web site fits into the overall philosophy of the Arboretum; it reflects our attitudes of simplicity, sustainability, and accessibility that make our gardens so appealing to the public. Our web site is not an entertainment site; it is meant as a way to inform the public about what we have to offer, and to get them to visit us in person. After all, a public garden can be seen as a still-life painting that the viewer can walk through and interact with; it is *not* an action-adventure movie, so it

doesn't need to have an action-adventure flavor. There are still endless possibilities for content and growth, just as there are endless ways for the plants and trees to grow and change.

A web site is not a static entity like a traditional brochure or catalog; it can be updated as often as necessary to reflect developments or seasonal changes, and this makes it seem more connected to the institution it represents. The Arboretum's home page features a new photograph or photographs every few weeks, to show off prominent seasonal features in the garden.

**Essentials of Web Design.** The contemporary view in the internet technology world today is that one of the most important aspects of web page design, and the thing that can determine whether visitors to the site can/will use it and understand it, is the user's **initial impression** of the home page. Although some visitors will connect to a web page for a specific reason, others will visit a web site out of curiosity and "surf" around for a while until they get bored; unless, that is, they become interested in the contents of the page. According to the most current research on web page preferences, the best predictor of overall preference for web pages is the "beauty" of the home page. Pages that contain more color and images than text are generally preferred, and generally attract more attention; people viewing them are more likely to "stay" at the web site and explore it if it appeals to them aesthetically. Text should be presented in relatively simple, legible fonts, and the color of the text should contrast strongly with the background color to maximize readability (preferably the text should be dark, and the background should be light, which is called "positive text"). Textured backgrounds were in vogue for a while in the recent past, but their popularity appears to have waned; this is probably for the best, because research shows that a textured background slows reading speed.

Overall the home page, and its format, should be simple yet elegant, and should appear unified and interesting. A cluttered, over-busy, or otherwise distracting home page "turns off" visitors. In essence, a home page must look good in order to keep people's attention. Even the page's web address is important, as many people would like to be able to type in the URL and go immediately to the page, without the intermediate step of using a search engine. Although the Arboretum's main page has a rather cumbersome URL (see below), one can get to the web page simply by typing in the easily remembered [www.morrisarboretum.org](http://www.morrisarboretum.org), or if it is easier to remember that the Arboretum is part of the University of Pennsylvania, by typing [www.upenn.edu/arboretum](http://www.upenn.edu/arboretum); the browser does the rest. For reasons known only to the administration of the University of Pennsylvania, the URL for the "welcome" page for the Arboretum's web site is the following: <http://www.business-services.upenn.edu/arboretum/>. The URL for the actual home page is even worse:

<http://www.business-services.upenn.edu/arboretum/indexinside2.html>.

This last URL is likely to change in the future, as different manifestations of the web page appear during updates. For this reason, the Arboretum suggests that people wishing to bookmark our home page, or to create a persistent link on another web page, use the "welcome" page.

**Content.** Once a viewer has decided to "stay", the next most important thing is that he or she is able to understand what the web site has to offer. For reasons of clarity, information about a site's content is invariably conveyed by menus (also known as "navigation bars" for their common block-shaped format). Menus are easiest to use if they are visible in the first frame on the user's browser; if the user must scroll down to find a menu, the feeling of continuity of the page can be disrupted. Generally main menus are situated horizontally across the top of a page, or vertically down either side, or even in the center. Sometimes menus appear superimposed over a large central image, or as tabs on the top or side edge of the page. Regardless of where it

appears, the menu on the main page should break the contents of the entire site into a few coherent categories or topics; each main menu item, in turn, generally leads to another page, which may contain another menu of sub-topics relating to that topic.

It can be challenging to divide an entire web site and all of its offerings into logical sections and sub-sections, especially if the institution represented by the web site is as complex and interdisciplinary as the Morris Arboretum. Still, it is essential to present the viewer with the smallest number possible of obvious, logical choices, by which he or she can systematically find what he or she seeks on that web site. The key is “user-friendliness”; if the page is organized well, then it can be navigated intuitively, and the visitor is apt to stay and explore. Conversely, if the page is confusing or frustrating to navigate, the visitor may simply leave. Many home pages offer either a search engine that scans the entire site, or a “site map” that displays an overview of the contents of the site, in an outline format which allows the user to navigate to topics by clicking on outline items; some offer both of these choices.

As a visitor to a web site navigates from page to page, the experience is much more enjoyable if each page visited is presented with the same format; it can be jarring for the user if each new page has a new layout or new fonts. The overall experience of the web site should be one of smooth transitions between pages; this ensures continuity. Too much text can seem tedious to visitors; even for pages that must contain lots of information, it is important to include images here and there, even if they are relatively small ones, to break up the monotony of large blocks of text. The current trend seems to be that web sites are becoming more image-oriented and less text-oriented, especially if the site is designed to help sell a product. The Arboretum’s web site helps to promote and market for the garden itself, in that some admission ticket sales come as a result of visits to the web site. However, the site also currently markets for classes and special events held at the Arboretum, as well as wedding and party rentals.

***Accessibility.*** It should be noted that although English seems overwhelmingly to be the language of choice for web pages, many organizations with an international scope present visitors with a choice of language on their home page; often these organizations are commercial entities, and they provide this multilingual interface as a way to increase their business. Ideally, every web page would be available in every language, and there are actually automated web page translators that can be used (with varying reliability), but unfortunately it is generally not within a non-profit organization’s budget to provide this kind of access. The Arboretum’s web site is exclusively in the English language right now, and there do not appear to be any plans to make it multilingual.

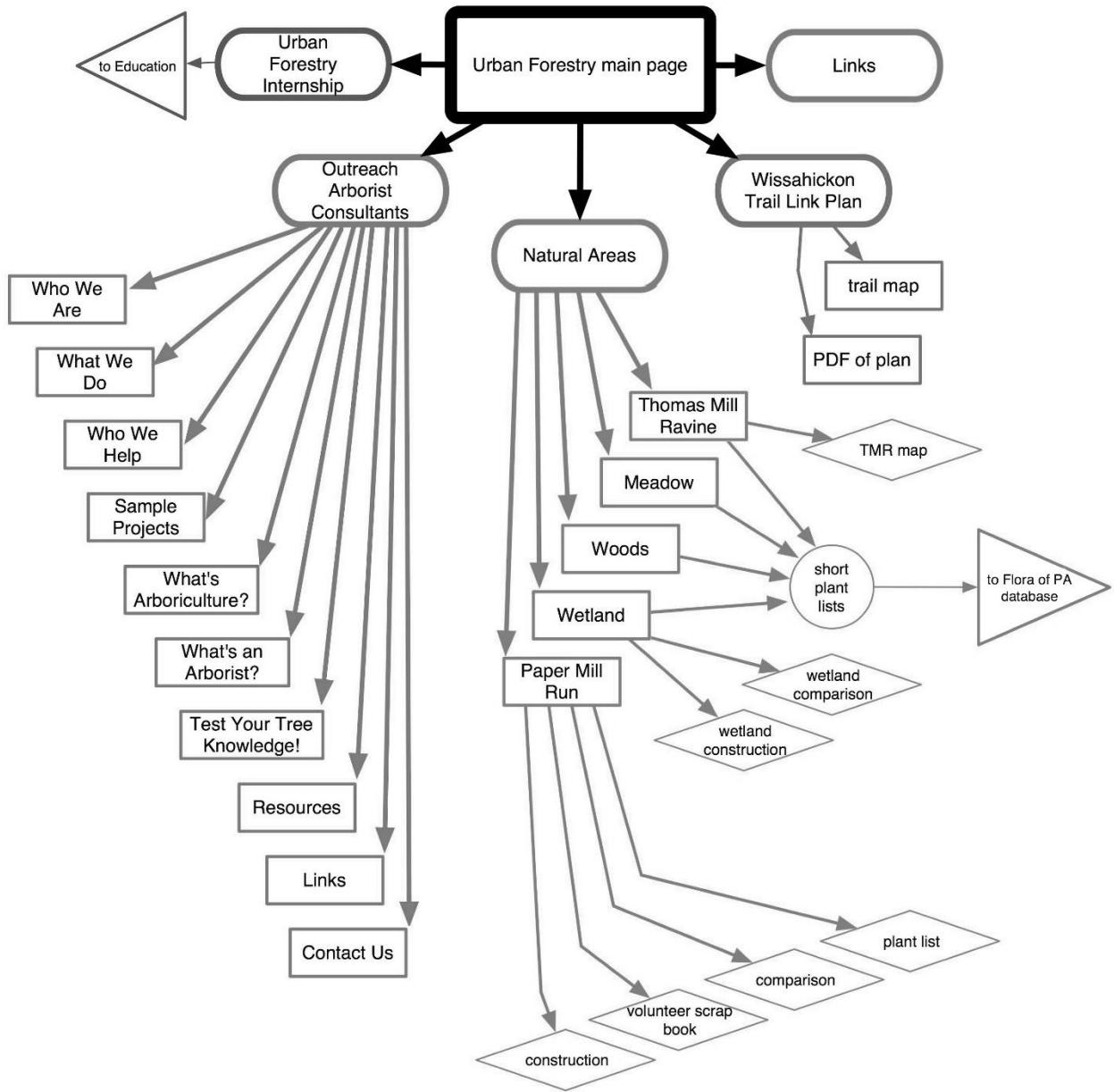
## CONCLUSION

As a result of this project, the new Urban Forestry web page looks like the rest of the pages that make up the Arboretum’s web site. The new UF pages are full of images and informative text about the various aspects of the Arboretum’s involvement in local urban forestry, conservation, and habitat restoration. Out-of-date information has been removed. The various demonstration projects (habitat restoration and rehabilitation) in which the Arboretum has participated are represented on the web site now, and the most up-to-date information is provided regarding these projects and their progress.

Furthermore, for the first time, the Outreach Arborist Consulting program has its own professional web site that effectively shows off the services it offers. Both the UF pages and the Outreach Arborist Consultants pages contain extensive links sections. All pages provide



immediate links back to the Arboretum's home page as well as the main Urban Forestry page. All pages that were created as part of this project will be put on a CD-ROM, which will be submitted for archival purposes following the completion of all parts of the web site.



**Figure 1:** Flow chart of web pages (triangles represent links to other web pages or other sites)

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