

Reviving the SMCM Healing Garden

**An Independent Sustainability Project
Submitted for Consideration to Professor Barry Muchnick
For ENST 450: Applied Sustainability Practicum**

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Executive Summary

Since the first Earth Day in the 1970s, countries around the world have been taking steps toward a greener planet and toward a more sustainable lifestyle. A relatively young concept within the realm of sustainability initiatives is that of integrated landscaping, loosely defined as the design of a space so that natural ecosystem elements are enhanced and/or mimicked for a domestic human setting. Sustainability efforts like these have become an increasingly popular focal point on college campuses, including St. Mary's College of Maryland (SMCM). Healing gardens are spaces that reconnect users with nature and that provide a physical or psychological restorative effect. As of late, SMCM's healing garden has fallen victim to neglect and is no longer a functional site. Through this document, I aim to highlight the topics of sustainability, of sustainable landscaping, and of healing gardens, and to propose the process by which the SMCM healing can be restored to a greater level of functionality via integrated landscaping methods for the benefit of campus residences and the local community.

INTRODUCTION

As human beings, we are drawn to natural settings, whether they are in our own back yards, at parks in our community, or amidst green spaces within city limits. We are drawn to things that are aesthetically pleasing to us: fountains or fish ponds or trellises with flowering vines. We beautify our homes in a way that reflects our character and that reflects how we live our lives. We design these personal landscapes for our own use yet rarely pause to consider the myriad of biotic (living) and abiotic (non-living) systems at play in such spaces. We rarely recognize that the majority of the plants we use to ornament our homes are non-native, or even invasive, species. Understanding what inputs are included in the design of public and private landscapes, and what systems are functioning in these spaces, is at the core of sustainable landscaping.

The accepted operational definition of sustainability is that actions of the present to fulfill needs should not limit the ability of future generations to meet their own needs. Sustainability is as much a global initiative as it is a local and personal initiative. Sustainability projects can be developed through a variety of outlets, one of which is landscaping. Benson and Roe (2007) attempt to define a “landscape” as an area of land viewed in a single gaze and as an ever-expanding intersection of art and science. However, these authors are quick to point out that “landscape” can mean many different things, depending on context. The denotation of landscape for the purpose of this paper manifests itself in the form of a domestic, planted space of land property.

An integrated landscape is one that mimics natural systems. For example, soil fertility is linked to the health of vegetation that, in turn, attracts wildlife, contributing to soil fertility by top-layer disturbance and nutrient addition after consuming the products of the vegetation; a recycling, self-perpetuating system. Sustainable landscaping, or “integrated landscaping” as was

coined by Chase-Rowell *et al.* (2012), is considered to be a holistic approach that perpetually considers the aspects of design, establishment, and care with regard to a planted landscape or outdoor designed space. Strategic design that preserves cycles like these in public areas promotes a complex space capable of maintaining natural components in an otherwise human-dominated environment. Naturally enriched spaces like these also lend themselves to differential effects on humans: relaxation, education, and general mental healing. Spaces that are intended for this last use are appropriately termed healing gardens.

Healing gardens are designed to accomplish a singular objective: to restore the broken. Restoration varies with individual, but many find solace in an area that blocks urban sounds or engulfs them in natural wonder and beauty. In these spaces where flora and fauna abound, we find ourselves, collect our thoughts, remove ourselves from the turbulent world around us, and emerge with quieted minds and revitalized integrity. The healing garden at St. Mary's College of Maryland is in need of this same restorative energy. The remainder of this piece will focus on the method that can be used to restore the healing garden at SMCM so that its benefits and power may be extended to the members of this campus, as well as members of the community. I provide here the necessary resources for campus community members to coordinate and complete this initiative in the nearest feasible future.

CONTEXT

Sustainability as a whole has been making its way from large, global operations to smaller arenas. The most important of these is the college campus. Throughout the Applied Sustainability Practicum course, we have analyzed a spectrum of articles and literature that encourage the introduction of sustainability to college campuses, if for no better reasons than to engage and educate students. College campuses provide a unique environment in which

intellectuals of diverse backgrounds can band together to develop and implement sustainable practices on a small scale before expanding their ideas to larger endeavors. At universities, sustainable landscaping is a relatively young field of interest, while in urbanized settings, it is much more developed and necessity-driven. The construction of buildings on a property, by default, reduces the area of natural space for users (e.g. humans, animals, plants), and so regenerating these spaces after the fact is useful and encouraged. Sustainable landscapes encourage us to “live within our ecological means” (Thompson and Sorvig, 2008) while restoring nature-based spaces, which is crucial in a developed area since we become distanced from natural systems. How, then, do we go about preserving the nature in our homes, on our campuses, or in our cities?

Douglas Tallamy (2009) explains how plants are the “lifeblood” of the Earth and how they facilitate wildlife populations in addition to fulfilling human needs and desires. Plants, in this light, are part of ecological communities that contribute to the life support systems of the world. Humans often remove themselves as actors in these ecological communities, despite being considered the most influential of all natural actors. Wu (2008, 2013) describes humans as “environmental engineers.” As such, we use technology to manipulate our environments, for better or worse. Recognition of our place in the natural order places us in an opportunistic position to create novel methods by which all living things can benefit. Knowing this, one may accept that we are part of a larger ecological system where every biotic or abiotic component contributes to a shared environment.

Meadows (2008) outlines a way of thinking in systems: considering each aspect of life as we know it feeding back into a cyclical continuum. She gives the simple example of a bath tub: water flows in at an adjustable rate, is retained at an adjustable level, and flows out at an equally

adjustable rate only to return to the tub at the “entrance.” We see systems all around us, both abiotic and biotic. Landscapes are biotic systems; they provide food and shelter for animals that provide for plants that further the landscape, and the cycle continues. Anthropogenically formulated landscapes operate in a similar manner, with the exception that humans actively control the system. We water our gardens, determine what species stay and which are removed, and introduce non-natural materials to the space. In contrast to generic gardens, a fundamental principle of sustainable/integrated landscaping is the minimization of human interference, a proverbial “letting go of the reigns.” By selecting specific species to occupy the site, one allows for natural systems to take hold and control the productivity of the space, which can then be harvested for human benefit.

A paper by Groot *et al.* (2002) outlines the benefits, or derived services, of ecosystems (including anthropogenic sustainable landscapes). The authors describe how ecosystems fulfill a multitude of purposes including medicinal, educational, and recreational, among others, and are, therefore, worthy of conservation and preservation. Focusing on the medicinal qualities of ecosystems, healing gardens emerge as forerunners. Healing gardens are broadly defined as spaces that have a therapeutic or restorative effect on users (Ulrich, 1999, Lau and Feng, 2009). Studies have shown that individuals of all ages can benefit from exposure to these natural spaces (for example, see Hartig *et al.*, 2011). Some studies suggest that children between the ages of eight and ten have significantly reduced anxiety when allowed to be outside for ten or more hours each week (Kight, 2011). Among college students, anxiety levels run high, whether due to exams, social conflicts, or the turmoil of self-discovery. This volatile environment creates the atmosphere in which a healing garden can work wonders.

Healing gardens, as first implemented by Ulrich (1999), were originally designed for hospital settings. In these environments, patients are able to leave the confines of their rooms, travel a short distance to an outdoor space (e.g. a rooftop garden or courtyard), and be surrounded by flowering plants and their accompanying wildlife. Many studies have investigated the benefits of such gardens (e.g. Moore, 1999; Marcus, 2007; Whitehouse, 2001; etc.), showing that patients and hospital staff were better able to deal with the stresses of their conditions or the work day, respectively. Recently, healing gardens have been making their way to college campuses (see Lau, 2009) but research has yet to fully investigate the benefits of these spaces on university campuses. Vapaa (2002) emphasizes that, in university settings especially, it is crucial for site designers to consider both the aesthetics and function of the space. With this in mind, the application of sustainable landscaping techniques becomes possible. The crossover between the high level of natural material and energy of sustainably landscaped gardens and the components of a healing garden fuse effortlessly. As will be discussed in the next section, several locations and institutions have already recognized and begun taking advantage of this emerging potential.

CASE STUDIES

Mefford, 2009 – Hotels

Kevin Mefford, Manager of ValleyCrest Landscape Maintenance, spotlights Loews Lake Las Vegas, a “Moroccan-themed hotel and resort surrounded by 10 acres of landscaped grounds.” The major problem faced by this resort and those like it is drought, given its location in Henderson, NV. Mefford describes upgrades to irrigation systems and the transition to succulents and other low-water use plants. While the majority of the landscape changes are

directed at hotel landscaping organizations, Mefford outlines several points that are versatile enough to be applied to smaller gardens.

Mefford's first point is that landscapes should be maintained "in harmony with the environment." This can be done through effective soil management, the intentional construction of wildlife habitats (e.g. pollinator-friendly areas), and efficient storm water management. His second point is to practice hydro-zoning, where plants with comparable water requirements are grouped together. In the article, this specifically refers to irrigation systems with the intentions of reducing the chance of overwatering vegetation. As it applies to sustainable gardens, plants should be selected to be compatible with one another, namely that the conditional requirements for sustaining one species overlaps with those of other species in a constructive manner, so as not to deprive any particular plant of necessary resources. Mefford's third point is that one should plant perennials instead of annuals. This is a cost-effective way of reducing the number of individual plants that are added each year. Additionally, this significantly reduces the amount of human input needed to maintain the space. His fourth point is that existing landscapes should be retrofitted with native plants, which are considered the basis of a sustainable garden. Native plants not only are extremely hearty in their natural environments, but they are also effective wildlife mediators and crucial members of the biotic community with regard to environmental conditions (e.g. preventing erosion, nutrient cycling, etc.). The final important point that Mefford makes, is that one should use "pruning techniques that highlight the individuality of each plant." In confined growing areas, some pruning must be done to keep the space accessible for users. In sustainable gardens, one should consider the time of year that plants are pruned, the extent to which each specimen is pruned, and what is done with these cuttings.

By understanding each of these points as they apply to sustainable landscaping, we can design a truly sustainable healing garden at SMCM. The healing garden will use water efficiently, employ perennial plant species that are native to Maryland, and be maintained through a coordinated process of annual pruning that will promote healthy growth of each plant species. The incorporation of professional advice into a student-governed project is, in itself, extremely useful for refining methods and choosing a correct course of design.

Lau and Yang, 2009 – University of Hong Kong

In the work by Lau and Yang, the authors first review a brief list of “requirements for a restorative environment” that are conveniently present in natural settings and spaces. The first requirement is that of “being away.” Space like forests and lakes remove individuals from the grind of everyday life and, so, diminish the stresses of such lifestyles. In gardens, this requirement is accomplished through the abundance of natural entities: trees, flowers, water pieces, etc. The second point is that of fascination; individuals from urban or heavily developed areas often lack exposure to such natural spaces. When one sees a deer for the first time, for example, one is met with a sense of awe and of inner peace. These emotions can be carried into anthropogenic sites through the installation of green spaces, like gardens. The third requirement holds that one must feel extended to the outside world. Lau and Yang propose the incorporation of artefacts or the “down-scaling” of a larger setting into a garden to transmit a sense of connectedness to the world-at-large. Finally, the authors address compatibility, which is to say that users of a space ought to be engaged in activities associated with nature-oriented interactions. For example, walking a dog joins together man and nature, just as bird watching or planting crops does. By focusing these requirements for a restorative space, the maximum potential of the space can be established.

As it directly pertains to college life, university students are prone to what Kaplan (1995) describes as “directed attention fatigue,” which is the condition that one experiences while intensely focusing or working on a task for an abnormally long time. These health-limiting effects are clearly seen in the students of the University of Hong Kong (HKU), China. This campus is a 14.5 hectare site (~36 acres) that is bounded by city buildings and a Park. Despite having green spaces, like a Lily Pond, the majority of the campus is developed and built. An initial survey of students showed that individuals spent only 10-20 minutes in any of the public green spaces at any given time. The survey also teased out the motivations for students visiting the sites, the reasons that they were unable to stay longer or even visit the sites, and offered insight into possible renovation options to make more green spaces accessible to students with little spare time.

Lau and Yang describe the utility of a courtyard or atrium garden as a solution to the confined space problem. In fact, they planned to design HKU as “an integrated garden network” using the framework of healing gardens. Not only were the grounds redesigned, but it was recommended that building façades be adjusted (i.e. windows added) to accent and increase the exposure to the green spaces. This was most apparent with the Lily Pond at the campus, as it was the most frequented green space. Designers of the campus proposed that the aspect ratios of the campus be adjusted to give a perception of a larger, more open space, and that native plants should be utilized for all garden plantings to be both an economically and environmentally sound decision. These are just a few of the proposed changes in an effort to make the campus a more sustainable, accessible, and health-promoting campus.

From these proposed changes at HKU, we can extract several key questions to consider in the renovation of the SMCM healing garden. What is the purpose of the space? How can this

purpose be achieved? How do the features of the campus contribute to this action plan? These questions provide direction and a foundation for the efficient design of the healing garden. The purpose of the space is to maximize the restorative energy of the garden using a strategic sustainable landscaping method. To achieve this purpose, we need to understand the campus environment, the location, the students and faculty who will be using the space; we need to recognize the strengths and limitations of each of these bodies. Finally, we must consider the campus as a whole: the people, the structures, and the history. By heavily relying on the strengths of the campus community and St. Mary's City/County, individual members of these communities are able to derive a greater benefit from the healing garden, just as students have from HKU.

PROJECT OVERVIEW



Figure 1. The SMCM healing garden as of 29 March 2015.

The current healing garden at SMCM has only a brief history on the campus. The garden is located on a small plot that lies between Cobb House, which is currently an office space for the International Language faculty, and the St. John's Historic Museum, which is owned and operated by Historic St. Mary's City (HSMC; City, 2013). According to Justin Mattingly of the

campus' Physical Plant (personal communication, 3 April 2015), the site was once used as a kennel space for a former-President's dogs (personal communication, 3 April 2015). After this President left the college, the site was unused until the Urgo Administration. In 2011, Jessica Ditillo (a senior student at the time and the project lead for the garden installment), Mrs. Lesley Urgo (President Joseph Urgo's wife), and the St. Mary's Arboretum Association planted and opened the garden that remains today (Kight, 2011).

Since this inaugural ceremony, little has been done to maintain the garden's original purpose of healing. Mattingly also commented that Mrs. Urgo had not allowed Physical Plant staff to work on the garden, as it was "her own project" (personal communication). Regardless of project ownership, several Physical Plant members have performed light tree trimming, sprayed and weeded out pest species, and established garden boundaries for ease of mowing. The site was also furnished with a slate stepping-stone pathway and a slate platform with flower pots and benches (Figure 1). Mattingly personally assisted with the installation of these pieces and also helped to install a split-rail fence that divides the garden from property owned by HSMC. This presents an additional hindrance to renovations of this site, as the presence of historic property adjacent to the site limits the amount of space and the activities of the healing garden. This conflict of interest in site design has, from my limited perspective, created a barrier between the garden's current state and its full potential.

In order for the healing garden to be restored, several steps must be taken to prepare and redesign the site. The first of these is the cleaning of the site. Just as an artist primes a canvas before painting a masterpiece, so too must a landscaper prepare a site. Plans have recently been made to remove all debris and leaf litter that currently covers the ground. This effort will be mainly handled by Physical Plant staff, as there is growing push from administration for the site

to be reborn. Following this initial procedure, the site must be surveyed for current plant species after the spring growing season. In performing this measure, individuals tasked with the replanting of the site in the future will be better suited to select complimentary flora that (1) maximizes wildlife habitat, (2) expands on the diversity that is already present, (3) that highlights the garden as an integrated, yet distinguishable, subunit of the greater ecosystem at the site, and (4) that maintains focus on creating a restorative location.

After the plant survey, the possibilities for design are quite endless. In my research, I uncovered the SITES rating system (Center, 2014), which is a set of formal criteria used to quantify the sustainability of a landscape. This professional document provides a strict set of guidelines that curb design efforts and forces designers to consider the effects of each piece of the landscaping process. It also includes a score card/checklist for consultation throughout the process. I recommend that the designer of the new healing garden on campus review and strongly consider adhering to this document to ensure that the garden meets the highest standards possible for a sustainable site.

With regard to content, all newly-planted vegetation should be native to Maryland or to the eastern shore region. Franz (2004) emphasizes that native plants require less input for maintenance (e.g watering, pest control, etc.) because they have naturally evolved for the areas that they inhabit. The University of Maryland Extensions Program (2015) offers an updated species list for Maryland that is published by the Howard County Master Gardeners. The Maryland Native Plant Society (2015) also offers an extensive list of native species that may be used in the garden. Using resources like Chase-Rowell *et al.* (2012), Thompson and Sorvig (2008), and Tallamy (2009) to construct a site that is layered and balanced will allow users to seclude themselves from outside distractions while in the garden. Using taller shrubs or trees

along the perimeter of the site, then adding moderately tall perennial grasses just inside of this established boundary encapsulates users. Within the grass boundary, planting brightly colored flowering plants, such as red lobelia, black-eyed susan, or bergamot, brings life and light to the setting. Plants that are toward the center of the site can also include edible plants (i.e. fruit bearing) and plants that are used for medicinal purposes (e.g. bergamot is considered to be a stimulant and has carminative effects; DeVries, 2014). Installed vegetation should also entice local wildlife to enter the garden. The project managers for the installation of the campus apiary should be included in the structural planning of this site to develop a pollinator-friendly ecosystem that complements the local apiary.

Following the selection of plants comes the installation. This portion of the process is fairly straightforward and can be accomplished in a relatively short period of time. Solicitation to the student body and various campus organizations can rally volunteers to accomplish this task on a weekend or in an afternoon, depending on the number of participants. Inclusion of students, faculty, and administration in all phases of this project is crucial for raising awareness of the site and the benefits it can confer, especially at the end of the project when the final product is fully actualized.

OUTCOMES

At the beginning of the planning process for this project, I envisioned an effort that was on par with a normal landscaping project: budget, site mapping, content selection, and installation. I was not sure what part of campus would be best suited for a novel landscape as it pertained to campus beautification and environmental stewardship. My ideas gained traction with the assistance of Shelby Kalm, the Sustainability Fellow *pro temp*, who suggested that I focus my attention on the restoration of the campus healing garden. I was quickly put in touch

with Justin Mattingly of Physical Plant and we were able to discourse over our design ideas while the snow melted from the ground. As the weather warmed, we were able to meet at the healing garden to discuss ideas in a more practical setting, as we both had been thinking the project over for longer by then.

Several issues surfaced at our most recent of meetings. The first issue is that the healing garden is located beneath cedar and pine trees. As may be common knowledge, soil pH in these coniferous environments tends to be very low relative to other deciduous species, meaning that only plants capable of tolerating the acidified soil will survive. This point must be among the criteria considered when selecting plants to ensure that new growth occurs following installation.

The second issue is that there are many invading species of plant life that surround the project site (the bounded garden itself). Herbicidal spraying generally occurs twice per annum, and this method tends to be non-specific with respect to plant death. One component of a sustainable garden is that it requires very little input from humans for long term maintenance. While this aspect may be sacrificed to keep the garden alive, it is still possible to keep these pest species at bay without using sprays or non-natural methods. This necessity for prolonged responsibility carries with it an opportunity for students to remain involved with the healing garden for years to come and for the campus community to feel the sense of ownership that prolongs the longevity of projects like this.

The final concern about the design of this site was that the requirements set forth by Historic St. Mary's City would interfere with the installation and overall theme of the healing garden. There are stipulations that exist prohibiting the disturbance of more than approximately 3 inches of soil due to the history of the area. The installation phase of the project, then, must coincide with these rules and the project manager should actively seek to involve members of the

HSMC organization (specifically Ruth Mitchell) to preserve the historical background of the location.

Looking at this project in retrospect, not many things would be done differently. The major setback of the project remains to be time: the timing for this initiative was not in synchrony with what it was trying to accomplish. This is not to say that all these efforts were for naught, but the process that is required for a project of this scope will take a great deal more time to plan and critically analyze. Seeing as how the site had not been properly inventoried, this adds onto the time budget, as do the complications just mentioned. This project is extremely promising and can potentially be completed within the next calendar year, as long as someone is willing to dedicate themselves to the cause and to set aside enough time to address all of the minor details.

Following the meetings with Justin, I was able to sketch a rough blueprint of the current healing garden with the help of my housemate Michael Reinitz. Together, we were able to map trees, the pathway, and current signage and to measure relative distances of each component to better understand spatial relationships. This sketch was transcribed into a more formal sketch that was then presented with a poster at the Student Research Symposium. During the Symposium, I was approached by Margarita Rochow, the Director of the Elms Environmental Education Center, who enthusiastically volunteered Elms' resources for providing native plant species for the project. We also discussed the possibility of involving students that are reached by Elms in the planting days of the garden to include a stronger community component in the project and to provide a link between prospective high school graduates and college students that would promote SMCM as a sustainability-conscious campus. This interview, furthermore,

presented a potential job opportunity as a Master Naturalist (through Elms and AmeriCorp) for my after-college life.

RECOMMENDATIONS

Aside from the future realization of the healing garden in its current location, a short list of possibilities remains for those up to the task. After the completion of the current renovation, it may be fitting to add a healing garden to a more centralized location: one that is more accessible and open than the first. A possible secondary site would be behind the library near the swing set. This space is moderately secluded, overlooks the water, has existing boundaries, and can be a joint sustainability effort with the library building itself. If the healing garden itself is a flawed project for this campus, then I challenge those who come after me to find another site on campus that can be renovated using sustainable landscaping and to implement this strategy with the new space. Furthermore, I suggest that all sites on campus that are anthropogenically landscaped incorporate the integrated landscaping principles in an effort to make our campus ever greener.

Another potential future endeavor would be to organize a day of activities in the garden. On this day (ideally the day the garden is completed), students and campus employees join together to care for the garden, either by pruning, removing debris, or adding new features. Following a morning cleanup, an informal lecture or healthy lifestyle seminar is held within the space. These programs would highlight the purpose of the garden as well as provide a means for students and staff alike to become involved in the systems that govern the garden. The sense of ownership that accompanies this intimacy with the garden is what drives the health of the space. If students or staff members feel as though this is something that they are invested in, then they are more likely to care for it and ensure that it is well maintained for years to come. Only through community efforts like this will the garden thrive.

CONCLUSIONS

As has been shown here, gardens, as a whole, provide a variety of benefits to humans, whether they are tangible or not. We are a part of nature and it is crucial for us to integrate ourselves into natural systems in a manner that takes advantage of our role as superior environmental engineers. In a non-authoritative manner, we must influence nature by using our understanding of such concepts as sustainable landscaping to make ecologically moral decisions about our habitat. The full effects of a healing garden can only be realized if the space is designed with nature, a perfectly functioning, self-correcting system, in mind. In the small community that is the SMCM campus, we value nature and our interactions with it. We are, therefore, tasked with upholding this value: to live sustainably, to model nature, and to be one with the world around us.

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