

Proposal for the Establishment of the SNHU Arboretum

In the past five years, Southern New Hampshire University has experienced tremendous growth at the school's Manchester campus. Unfortunately, this means that the campus's natural heritage and ecological beauty is quickly disappearing.

There can be no better time than now to consider the implementation of an arboretum at SNHU. Such a space provides countless opportunities for education, partnership, and even recreation, which no other single facility can provide.

What is the Arboretum?

To begin, it should be noted that although many “formal” definitions for arboreta exist, there is no one official certifying body (Kollie, 2008). What is true of all is that they fit the broad description as “a place where trees, shrubs, and herbaceous plants are cultivated for scientific and educational purposes,” as defined by *Merriam-Webster*.

All taken into account, the Arboretum at SNHU should be loosely defined as a place dedicated to the preservation and cultivation of native trees and shrubs for educational and scientific purposes. The space itself may be 25 acres or more in size, and could include any number of items commonly found at university arboreta, including nature and interpretive trails, a botanical garden and/or greenhouse, and a modern conference facility and classroom and/or a small visitor center. In large part, the advantage of the Arboretum as an alternate form of development versus the raising of additional hard structures is this inherent flexibility.

Benefits on Campus

Education and academics. The Arboretum provides unparalleled opportunities for local, advanced, and ongoing fieldwork as part of SNHU's growing science program. Classes including botany, ornithology, geology, ecology, and plant physiology, have, at their core, extensive

opportunities for students to engage in fieldwork that is either impractical or impossible currently. Additionally, the Arboretum has the potential to generate large datasets available for use in the school's mathematics program.

While STEM classes currently make up a small fraction of UC students, the Arboretum benefits other fields of study as well. Dr. Allison Cummings, Associate Professor of English at SNHU, sees the potential for writing and arts courses to benefit from the Arboretum. Not only does the Arboretum allow for greater creativity in these curriculums, but also its closeness and ease of access would encourage more faculty to take advantage of the natural setting (personal communication, February, 2015).

Beyond even graded outcomes of coursework is the setting itself. Outdoor courses provide a unique context outside the usual parameters of a traditional classroom (Mirkin & Middleton, 2014, p. 232). Studies have even shown positive social motivators for students in outdoor settings, wherein they are less encumbered by preconceived notions of peer relationships (Mirkin & Middleton, 2014, p. 232).

Recruitment and retention. It is well understood in higher education that the quality of the campus is a crucial element in attracting new students (Bruce, 2011, p. 180). In fact, a recent study showed that the number one factor in determining student college choice was the school's learning environment, of which a beautiful campus was the third most significant contributor behind a modern environment and reputation (see Figure 1). And while campus beauty can be viewed as a subjective qualification, it should be noted that of the top fifteen most beautiful campuses chosen by The Princeton Review for 2015, ten of them feature arboreta or nature preserves (Svokos, 2014). A campus is often seen as the symbol of a university, and is frequently

prominent in promotional materials (Speake, Edmonson, & Nawaz, 2013, p. 29), allowing the Arboreta to aid recruitment for SNHU's College of Online and Continuing Education.

Subsequent to recruitment, arboreta also assure greater retention rates. Studies have shown that these green spaces, like other incentives such as promotions and pay raises, give significant emotional and mental benefits. Uniquely, however, such benefits afforded by green spaces have been shown to last for years, while many other factors give only short term benefits (Anonymous, 2014, p. 59).

Supporting and promoting sustainable initiatives. The Arboretum allows SNHU to bolster existing efforts and advance new ones far beyond anything provided by another green building. By putting a value on such benefits as carbon capture, pollution remediation, water conservation, it is possible to compare investment in green spaces as part of infrastructure with "harder" financial investments (Ibrahim, 2009). Stabilizing the natural environment allows organic and natural cycles to be maintained or restored as sustainable campus aspects (Bruce, 2011, p. 184), and allows the school realize operations and maintenance savings by means of reduced use of water, energy, and other additives (Way et al., 2012, p. 25). The Arboretum is a captivating, high-visibility flagship of SNHU's commitment to sustainability.

Environmental awareness. By combining experiential education with pure naturalistic experience, opportunities abound to raise students' awareness and understanding of local ecological concerns (Speake et al., 2013, p. 28). Studies have also shown improvement of students' awareness of local biodiversity and its management through campus green spaces (Speake et al., 2013, p. 29).

Elizabeth Richards, Director of SNHU's Center for Community Engaged Learning, points to the Arboretum as direct and ongoing support UC Strategic Plan, which calls for

increased service learning projects that result in a more beautiful physical campus (personal communication, January, 2015).

Health and safety. The positive health benefits of natural green space have been extensively documented, including their ability to serve as filtration for watersheds, and to provide clean, breathable air by sequestering pollutants (Frumkin & Louv, 2007; Maas, Verheij, Groenewegen, de Vries, & Spreeuwenberg, 2006; Speake, et al., 2013).

Exposure to nature lowers stress levels by reducing aggression and fatigue, allowing for refuge from daily pressures, instilling a sense of tranquility, and promoting outdoor activities and recreation (American Planning Association [APA], 2003; Frumkin & Louv, 2007; Sherburn & Devlin, 2004). By virtue of these positive effects, there is mounting scientific evidence that green spaces serve to decrease crime and illegal activity in communities where they are found (APA, 2003). Research has borne out the fact that levels of criminal activity are significantly decreased in areas with abundant greenery versus more barren areas such as parking lots (APA, 2003). SNHU owes it to its students and staff to develop its campus in such a way that promotes and sustains their health and safety. Says Dr. Katharine York, “SNHU is holding on to one of the last forested corners of the Manchester area; it is only responsible to preserve it” (personal communication, January, 2015).

Benefits to the Community

Environmental justice and social equity. What is unique about SNHU is that the school’s location just outside Manchester allows the Arboretum to function as an urban green space. Research has shown that urban arboreta are highly valued by members of the surrounding community for their biodiversity, as locations for sanctuary or escape, and as places for recreation and exercise (Spartz & Shaw, 2011). This natural space supports the City of

Manchester's three stated goals for improving neighborhood health and the lives of children in the city: preventing toxic stress and adverse childhood experiences, attaining health equity, and achieving environmental justice (Manchester Health Department, 2014).

Additionally, the Arboretum embraces the cultural diversity of the city, as urban green spaces are shown to provide environments for facilitating social contact (Zhou & Rana, 2012, p. 176). Neighborhoods with high violence are shown to encourage isolation and therefore inhibit the social support needed to cope with stressful events (Manchester Health Department, 2014). Thus, providing a safe, inviting, natural green space for the community becomes a matter of social responsibility for SNHU.

Local education. One of the most important aspects of urban green spaces is their ability to function as a second classroom for children (Zhou & Rana, 2012, p. 176). Studies have repeatedly shown the harmful effects of increased screen time and decreased nature-child connections for too many young people (Wirth & Rosenow, 2012, p. 42). Through the Arboretum, SNHU is able to fill a vital need for the 15,000 students served by the Manchester School District.

Whether through educational programming and partnerships provided by the university, or simply through access to the space itself, the Arboretum's ability to offer an environment for outdoor courses is central. For adolescents, social development goals are promoted through outdoor courses (Mirkin & Middleton, 2014, p. 244). The NH Governor's Task Force on K-12 STEM Education recommends making STEM learning "hands-on" from the earliest ages (2015, p. 26). The Arboretum has the potential to positively shape the lives of thousands of local students.

Research and scientific partnerships. By their very nature as outdoor laboratories, arboreta foster partnership building at all levels through joining and creating networks to share knowledge and research efforts (Olins, 1995). This is especially valuable for the scientific community, as one of only about a dozen arboreta located in northern New England. Studies have shown that the type of alliances that the Arboretum has the potential to foster can create opportunities for funding for sustainable university operations, as well as provide support in the community for applied research (Bilodeau et al., 2014, p.167).

Social events. The flexibility of the Arboretum design means that space for events can easily be implemented. Inclusion of a small conference facility would provide space for area businesses, organizations, and schools that highlights SNHU's sustainable practices. Additionally, open outdoor space has the potential to host a range of other community events that many arboretums have traditionally provided, such as concerts, weddings, etc.

It should also be acknowledged that such uses have the built-in ability to generate additional income for the school. As an example, the Minnesota Landscape Arboretum routinely generates one-third of its annual operating budget simply through earned income (Olins, 1995). Earned income has the potential to not only sustain the Arboretum itself, but can generate enough extra funds to be channeled to other needs on campus. Only a handful of other campus facilities have the ability to generate income above and beyond their roles in recruiting students.

Why Now?

Increased Development

Critically, the NH Division of Forests and Lands has identified the SNHU campus as a high-priority forested region in need of protection from multiple threats, including threats of

development. This region was identified as being under imminent threat of degradation in environmental services, such as its ability to produce clean water (NHDFL, 2010, p. 46).

The Arboretum serves to balance, as landscape architect Jeffrey Bruce says, “campus building expansion, parking, sports facilities, and other needs [that] have subordinated nature, ...cloaking an institution’s rich ecological heritage (2011, p. 180).” Instead of simply subverting the natural landscape, working with original ecology allows the school to develop for the future while preserving the past and celebrating its origins (Bruce, 2011, p. 184).

Growing Enrollment

In addition to directly driving “hard” development, SNHU’s growing student base is also driving green space implementation. The school has committed to providing inspiring outdoor spaces to students, yet it has been shown that a university campus needs multiple forms of green spaces to satisfy the requirements of a diversity of student users (Speake et al., 2013, p. 29). The importance of preserving this natural green space right now is realized when considering the costly, lengthy, imperfect, and wasteful restoration procedures involved with attempting to bring such a space back in the future.

The STEM Need

Recently, experts have addressed New Hampshire’s crucial need to graduate more STEM degree holders. The significance of this need for greater STEM education is underscored by the Governor Hassan’s proclamation of 2015 as “A Year of STEM” in NH, wherein “stakeholders across the state will work together to bring attention to these critical fields” (State of New Hampshire, 2015). The Arboretum puts SNHU in an elite group of institutions providing cutting edge opportunities to serve the STEM initiative, by allowing educators to follow the National

Research Council's suggestions to make STEM education more collaborative and interactive (Nielsen, 2011, p. 42).

Significantly, research has shown the importance outdoor science classes play in attracting students into these fields who otherwise would not self-identify as potential STEM learners. Studies have shown that after completing outdoor, civically-minded classes, students across the board rated higher in their self-assessments for attitudes towards science education, science application in their daily lives, and even their comfort doing STEM activities (Wheland et al., 2013, p. 48). Thus the Arboretum not only improves overall education for students already engaged in STEM learning, but serves to attract an entire demographic who would otherwise remain untapped.

Next Steps

Most pressingly, an adequate tract of undeveloped land on campus must be identified and set aside for a finite period. The most likely space would encompass the area currently located between the school's Operations center and the access road being constructed from Donati Drive. One major benefit of this location is the hilly topography and many wet or marshy areas, which preclude all but the most extreme types of development in any event. In addition, frontage on the road not only provides greater accessibility, but allows the Arboretum to serve as the visual and emotional "gateway" to campus for community members and visitors.

After the land is set aside, a department of the school may be formed to support the Arboretum. Such a department could be small, with one or two employees, and it could support a planning committee comprised of SNHU faculty and staff. Alternatively, a position or positions could be created within an existing department. In any case, the goal should be to identify other interested shareholders, finalize a start-up strategy, and establish a development and operational

plan for the Arboretum that ensures it would meet the needs of the school and community for decades to come.

Conclusion

Much like the school itself, the SNHU Arboretum is at once modern and leading- edge, while maintaining roots in time- honored, academic tradition. There is, quite simply, no other initiative that could be pursued which addresses so many vital school and community needs simultaneously. No other initiative reflects the school's unique New Hampshire environment and landscape, while simultaneously addressing contemporary issues on a global scale. No other initiative has the potential to bring both benefit and SNHU awareness to thousands of individuals, groups, and organizations through such a wide range of applications. And no other initiative can be operated in perpetuity with minimal cost, while demonstrating both the school's dedication to environmental conservation and its competitive advantage. The SNHU community deserves a space that spotlights its commitment to learning, dedication to its people, and care for the natural world. Now is the time to take advantage of this opportunity, and create a space that pays tribute to the past, while existing as a resource for education and partnership for today and for the future.

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