
AN AMERICAN PUBLIC GARDEN. WHAT SHAPE CAN HERITAGE MANAGEMENT PLANS FOR BOTANICAL GARDENS TAKE TODAY?

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ABSTRACT

The U.S. Botanic Garden's (USBG) "Collections Management Plan and Curatorial Policy" defines a botanic garden as a "healthy, well-cared-for, and well-ordered plant collection, properly documented, identified, and guided by a vision for its growth and development." However, for many U.S. botanic gardens, the formulation of a clear vision for future growth and development is hampered by challenges such as controversial historical origins, property status issues, inadequate funding and staffing, and a general absence of regulatory standards.

This research posits that botanic gardens are not just collections of plants, but cultural and social places. Therefore, their management and development should be guided by a plan that recognizes them as heritage sites, preserving their environmental and cultural significance. While this concept is not new, the research reveals that many U.S. botanic gardens lack comprehensive management plans that balance future growth with the protection of their historical and natural assets.

What management strategies, drawn from both American and international examples, can be adapted to the unique historical and cultural characteristics of individual botanic gardens in the U.S.? And, how can community involvement help identify areas of significance within botanic gardens and foster future programming?

To answer these questions, the paper reviews management guidelines and criteria from botanic gardens in the United Kingdom, World Heritage Sites, and the U.S., focusing on those included in the U.S. National Register of Historic Places. It draws comparable data, makes a synthesis of those guidelines into a set applicable to the US, and demonstrates their application through a case study of the University of Idaho Arboretum & Botanical Garden.

The UI Garden's management report begins with a historical overview, using archival records from the University of Idaho Library's Special Collections and is further developed with community input gathered during a design charrette, which engaged local stakeholders in discussing the values, challenges, and potential future visions for the garden. The research is supported by The Linda Milbourn Fellowship in Landscape Architecture, awarded by the American Public Gardens Association.

Keywords

heritage; management plan; botanic gardens; master pla

1 INTRODUCTION

The purpose of the paper is to identify criteria for developing a botanic garden management plan; section 2 contains a comparison of plans and presents what criteria were found in summary form. In section 3, these findings were used to develop a management plan for the University of Idaho Arboretum & Botanical Garden, as a real-world application of the findings. The gardens are one of the areas included in the University of Idaho Campus' nomination package to the National Register of Historic Places, which started in spring 2024 and involved some of the authors of this paper.

The research's assumption is that botanic gardens are not merely plant collections, but cultural and social places, and hence that a vision for their growth and development should be guided by a management plan mindful of their status as heritage sites. This notion is not new, and section 2 describes its origin. What international and national guidelines can be instilled and adapted to the local management of botanic gardens mindful of the historical and cultural qualities of place? After a general overview of botanic gardens' historical development, section 2.1 reviews and compares English Heritage's guidelines and criteria for sites included in the 'Register of Historic Parks and Gardens of special historic interest in England' and UNESCO's guidelines and criteria for World Heritage Sites (WHS). The research considers the plans of two botanic gardens inscribed as WHS and one botanic garden included in the English Heritage register ("purposive sampling", Deming & Swaffield, 2011, pp.130-131)

Section 2.2 compares guidelines and criteria that inform the preparation of management plans for cultural landscapes in the United States drawing from the "Guide to Cultural Landscapes Reports" published by the National Park Service (1998).

A comparison of the British and United States' framework reveals similarities between the plans' contents, confirming there are common processes and methodology utilized. One of the findings of the research is that the management plans are a structured sequence of 5 sections, and specifically a key section is that of determining the "significance" or "Outstanding Universal Value" of the property.

The research also expounds the latest trend in management plan development, to involve the community in management decisions and rely on community engagement in developing a future vision. How can community engagement be used to determine the significance of certain areas, and encourage programming that is cultural significant? In addressing the challenge of proposing a vision for the UI changing socio-ecological landscape, the author tests management policies derived from the research through on-site community engagement.

2 COMPARISON OF GUIDELINES AND CRITERIA INFORMING BRITISH AND AMERICAN MANAGEMENT PLANS FOR BOTANIC GARDENS

The western botanical garden has been broadly defined as "an establishment where plants are grown for the purpose of furthering botanical ends, either economic, scientific or aesthetic" (Bennett, 1931). The meanings and uses of botanic gardens have changed throughout history. In the ancient mediterranean culture (Egypt, Persia, Greece, and Rome) the garden was a walled and protected sanctuary, an organized space where plants were agents of healing. The Middle Ages hortus conclusus -- walled monastery garden where medicinal plants were grown -- evolved into the renaissance botanic garden where plants became subjects to be studied and shared, and, during the renaissance, into a teaching laboratory for university students studying medicine, botany, and pharmacology. As instruments of colonialist expansion, botanic gardens transformed into grounds for experimentation in production of economically important crops and ornamental plants used in western private and public parks and gardens.

The modern western botanical garden is dedicated to promoting an understanding of plants and their importance. It addresses this mission through the establishment of educational programs, display and interpretation of collections, and research initiatives (Rakow & Lee, 2015). Botanic gardens' collections and the application of their knowledge in areas such as taxonomy, botanical research, conservation, horticulture and public education have the potential to substantially contribute to the Convention on Biological Diversity (CBD) -- the first global agreement (established in 1993) to a comprehensive strategy for "sustainable development", and to its three main objectives: the conservation of biological

diversity; the sustainable use of the components of biological diversity; and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources. Botanic gardens can also provide a major link between in situ and ex situ conservation and could be involved in national planning processes for the development of national biodiversity strategies (USBG, 1993).

In recent times, botanic gardens participate to a generalized trend throughout the cultural sector where there has been an increasing turn towards social relevance, and, as such, have made tentative steps towards broadening their audiences and engaging with community concerns and needs. It is felt that botanic gardens could play an important role in re-connecting people with the world of plants, educating them, and showing them models for sustainable living. However, few have reached their potential as significant sites for addressing social and environmental changes (Dodd & Jones, 2010).

While ideologies informing the scope and purposes of botanic gardens have evolved, management policies that can take these gardens onto such grounds are still uncertain.

2.1 British plans for botanic gardens

By the early 2000, the United Kingdom had already 26 sites listed as world heritage by the UNESCO, whose management plans were written since the early 1990s (Blandford, 2006).

The designation of botanic gardens as heritage sites was justified by the formal recognition of “cultural landscapes” by UNESCO in 1992 as a new category of World Heritage Sites (WHS) having “Outstanding Universal Value”. In 1972, UNESCO adopted the Convention Concerning the Protection of the World Cultural and Natural Heritage, which proposed the making of a World Heritage Sites list. The convention was ratified in 1975, and selection criteria for inscribing properties on the list were developed in 1978 (UNESCO, 1972). The first botanic garden listed was the one included in the Hungarian Millenary Benedictine Abbey of Pannonhalma (1996) followed by the Orto Botanico in Padua (1997). The biggest and most outstanding were the Royal Botanic Gardens in Kew (2003).

Today of the 1223 properties on the UNESCO WHS list, only 9 fall under the heading “botanic garden” or “botanical garden” (UNESCO, 2024). Despite that, in the last twenty years there has been a growing interest in botanic gardens’ potential as cultural heritage and tourism product (Paiva, Sousa & Carcaud, 2020; Demir, 2014; Silva & Carvalho, 2017). The recent designation of the Singapore Botanic Gardens as WHS (2015) has spurred a wealth of academic papers debating the impact of the listing on visitors’ attendance (Lee, Phau & Quintal, 2018) and the motivations underlying the governments pursuit of inscription on the World Heritage list, including perceived opportunities for tourism growth (Henderson, 2014).

Since 1997, the submission of a management plan has been a prerequisite of WHS inscription (Blandford, 2006). However, the World Heritage Convention’s Operational Guidelines (2005) only set out general requirements for the inscription of a WHS, which – either monuments, groups of buildings or sites – may be inscribed as cultural, natural or ‘cultural landscapes’ (i.e. a mix) and must fulfil one or more of the criteria listed in the guidelines demonstrating that the site is of ‘Outstanding Universal Value’ (see list in 3.1.2 below). Supporting documents such as the Feilden - Jokilehto Management Guidelines for World Cultural Sites (1998) first published by ICCROM in 1993, useful for planning management at simple owner/manager sites such as monuments or single major buildings where architectural conservation had primacy, proved insufficient in dealing with broader cultural landscapes.

In this gap of knowledge, the United Kingdom drew from the knowledge created by Historic England while managing its “Register of Historic Parks and Gardens of special historic interest in England”. The register was established with the 1983 English Heritage Act, which mandated the English Heritage (EH, from 2015 renamed Historic England) to create a register of gardens and parks situated in England and appearing of special historic interest (Thomson, 2014). Currently, the register identifies over 1,600 sites assessed to be of particular significance, with 156 records for ‘botanic gardens’, which include whole properties or specific elements within the properties (Historic England, 2024). The British focus on botanic gardens is also implied in its 18th century history, when such gardens were implemented in London (the Kew Gardens) and in the colonies. For the gardens in the register, the UK tested the preparation of management plans at various scales, learning from practical experience rather than formal guidelines.

Guidelines for making a management plan: Table 1 compares UNESCO's guidelines for World Heritage Sites (Column A) with the English Heritage guidelines for sites included in the 'Register of Historic Parks and Gardens of special historic interest in England' (Column B). The latter are distilled from Natural England's guidelines for "Preparing a Heritage Management Plan" (Natural England, 2008). Natural England is the "government's adviser for the natural environment in England [helping] protect and restore our natural world"; it is sponsored by the Department for Environment, Food and Rural Affairs. Table 1 also compares three sample plans of British and British influenced botanic gardens (Columns C, D, E). Table 2 expands the five guidelines (management plan categories) identified in Table 1: Column A details guidelines for preparing plans for WHS (Blandford, 2006) while Column B details guidelines for "Preparing a Heritage Management Plan" distilled by Natural England.

The comparisons in Table 1 and Table 2 show that WHS and English Heritage's plans follow five guidelines (Column A and B). Contents in WHS Botanic Gardens in Kew (UNESCO, 2003) are similar to the contents of British management plans made for parks and gardens listed in the English Heritage register. Further, plans contained in WHS nominations for former British colonies, for instance Singapore Botanic Gardens, nominated in 2015 (UNESCO, 2015) follow a similar scheme. Singapore Botanic Gardens nomination documents were made by an international team of experts that involved English firms. All management plans revolve around a key guideline: identifying/ assessing the site's "significance" or "Outstanding Universal Value" (row 2). The first guideline (row 1) suggests the construe of the site's history that comes from a site-analysis and archival research, and is used as the main determinant for assessing the site's significance. For both WHS management plans, and British Plans, the investigation of the site's boundaries and its description contemplates the concept of "buffer Zone". UNESCO defines the buffer zone as "clearly delineated area(s) outside a World Heritage property and adjacent to its boundaries which contribute to the protection, conservation, management, integrity, authenticity and sustainability of the Outstanding Universal Value of the property" (UNESCO (2011)). The reconstruction of the site's history leads to defining "character areas" of the site - areas that are significant in their own right. Guideline 3 (third row) is concerned with revealing the site's issues that might affect its significance. Lastly, the plan's vision and objectives (row 4) focus primarily on safeguarding the inherent cultural, social, and environmental "values" of the site. The last guideline is to consider the impact of community engagement and stakeholder's participation on the parks' management. It is noted that Natural England's guidance lacks a stakeholder's perspective and seems not to consider community engagement. However, both the plan for the WHS gardens at Kew (Table 1, Column C) and the plan for Glasgow Botanic Gardens (Table1, Column E) do. This shows that in the UK over the years communities' and stakeholder's inputs have been progressively integrated in the plans.

Table 1. Comparison of plans and management plan guidelines for World Heritage Sites and for gardens in the English Heritage register

Guidelines		Botanic Gardens Management Plans		
A	B	C	D	E
WHS Nomination	Natural England, 2008	Royal Botanic Gardens Kew, 2020-2025	Singapore Botanic Gardens (WHS nomination) 2014	Glasgow Botanic Gardens, 2016 - 2019
Site Boundaries and Description	1 Description and history	Section 2: History	Sections 1, 2: Identification of the property/ description	Section 2: history/conservation and heritage/community involvement
Identifying Outstanding Universal Value	2 Assessment of significance and current condition	Section 3: Outstanding Universal value	Section 3: Justification for inscription	Section 3: vision/ key objectives
Revealing Key Site Issues	3 Management issues	Sections 4,5: Management Risk and disaster management	Section 4: State of conservation and factors affecting the property Section 5: Protection and management of the property	Section 4: action plan/ community involvement: actions/ marketing Section 5: plan monitoring/ survey, customer feedback
Long-Term Visions and Objectives	4.a Aims, Management objectives, Specific objectives related to condition	Sections 9, 12-14: Managing development/action plan	Section 6: monitoring	
	4.b Work programmes, Monitoring and review of plan			
Stakeholder Participation/ community engagement/ education	5.a	Management includes plans to work with external partners	Intro to the heritage nomination specifies that stakeholders and public were consulted during dossier preparation	Waived throughout plan/ section 6.6: public consultation
	5.b	Section 10: visitors engagement		Section 6.4: education strategy; section 6.5: funding resources

Table 2. Detailed management plan guidelines for World Heritage Sites (A) and gardens in English Heritage register (B)

Column A: WHS	Column B: Natural England
1 Site Boundaries and Description The baseline for the plan should be a comprehensive description of all aspects of a site, which includes planning, land use, landscape or townscape, ecology, tourism, access, etc. The concept of "buffer zone" is considered. 2 Identifying Outstanding Universal Value The heart of the plan is the analysis of significance, which determines the WHS boundary. The statement of Outstanding Universal Value (OUV) needs to clearly set out the sites' key qualities, specifying why they are considered to have OUV. 3 Revealing Key Site Issues To assess the wide range of pressures that have and will influence change in the WHS, a multidisciplinary approach should be used. 4 Long-Term Visions and Objectives The plan must include a vision for how the site may change and be enhanced over a certain period (usually 30 years). The plan's objectives and policies need to reflect the site's core values and address the key issues identified. In addition, a task-related action plan dealing with the first five years of the plan should be included. 5 Stakeholder Participation Developing management plans in a consensual way should be a common practice, to achieve a balance between conservation of the Outstanding Universal Values, tourism and public access, contribution to local community, and contribution to sustainable economic growth	a. Purpose of the plan: Short description of the purpose and identification of the parties involved in the plan's preparation process. b. Description and history. Section includes location and extent of property and ownership(s); brief description of the physical character of the property and its broader context - concept of "buffer zone" is introduced; summary description of statutory designations, assessments, and policy context; summary of significant stages in the history of the property (detailed site analysis with maps and photos illustrating different stages in history of the property) Assessment of significance and current condition Section identifies and explains the outstanding interest of those key aspects and features for which the property has been designated. Includes: brief description of features/elements within exempt area with photographs or maps; assessment of significance including statement of outstanding interest explaining why the property and each feature are significant. The report prescribes to assess the significance of a site and its defining character areas; section should include an assessment of the diverse areas' vulnerability. Management issues: Section discusses the main management issues that arise on the property, the current management, constraints, and conflicts that arise. It identifies short-term opportunities and includes estimated programs for implementation, sets out long term aspirations, and identifies resources. a. Aims and management objectives, and specific objectives related to condition: Section sets out the overall aims (broad policies) for managing the property, considering uses and interests, conservation of designation status and practical management realities. Aims are a "vision": a clear statement of the overall purpose to maintain and preserve the cultural, social, and environmental importance of the property. It is helpful to present several specific aims, each relating to a different aspect of significance. b. Work programs: set out the timescale for delivering actions identified in the management objectives. Allocate resources (staff, time, finance); identify priorities; phased approach. c. Monitoring and review of the plan

Criteria used for identifying/ assessing a site's significance: UNESCO lists 10 criteria for identifying/ assessing the site's "Outstanding Universal Value" (row 2), subdivided in "cultural" and "natural" criteria (UNESCO, 2004). Botanic gardens are generally listed under criterium II (to exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in landscape design), criterium III (to bear a unique or at least exceptional testimony to a cultural tradition which is living or which has disappeared), criterium IV (to be an outstanding example of a type of landscape which illustrates (a) significant stage(s) in human history): Singapore Botanic Gardens (criterium II, IV); Royal Botanic Gardens at Kew (criterium II, III, IV); Orto Botanico in Padua (criterium II, III).

The process of assessing the significance of a botanic garden can use the 6 criteria listed by Natural England's report for "Preparing a Heritage Management Plan" (Natural England, 2008, p. 11):

- "Existing designations"
- Property as "historical document": is there any significant evidence of the past that is obvious in the present (e.g. architectural styles, settlement/field patterns, archaeological remains, designed views)? Are there any significant cultural associations (e.g. was the ornamental landscape designed by a famous landscape designer, or an important previous owner)? Is the property/feature associated with historic or cultural events, people, artefacts or stories? Does the property/feature illustrate a significant stage or culture in national history?
- "Aesthetic value" of the property/feature: does it have/contribute to high scenic value (e.g. part of an Area of Outstanding Natural Beauty, National Park or local designation such as a Special Landscape Area)? Is there harmony, contrast, interest in the scenery? Is there a strong sense of place (and what contributes to distinctiveness)?
- Property as a "scientific resource": are there any features that have scientific interest either singly or in combination? For example, are there any good examples of physical geography? Are there habitats or species of interest?
- Rarity or representativeness" of the property: are there any elements/features/aspects that are nationally rare? Or notably representative?
- "Condition" of the property: are the features of significance in good condition? Is there clear evidence of the design? Are important features or designed layouts still intact?

The assessment of the "significance" of a botanic garden and its defining character areas can also refer to one of the four "heritage values" identified by the English Heritage in its report "Conservation Principles, Policies and Guidance For the sustainable management of the historic environment" (2008, pages 27-32):

- evidential value - the potential of a place to yield evidence about past human activity
- historical value - the ways in which past people, events and aspects of life can be connected through a place to the present
- aesthetic value - the ways in which people draw sensory and intellectual stimulation from a place
- communal value - the meanings of a place for the people who relate to it, or for whom it figures in their collective experience or memory.

2.2 United States' plans for botanic gardens

In the United States, the National Register of Historic Places is the official list of historic places worthy of preservation. Authorized by the National Historic Preservation Act of 1966, the National Park Service's register is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect America's historic and archeological resources. This institution has 98,000 properties listed (as of the end of 2023). However, the register lists only 5 botanical gardens: Foster Botanic Garden in HAWAII, Missouri Botanical Gardens, New York Botanical Gardens, Fort Worth Botanic

Garden in TEXAS, Florida Botanical Gardens and Arboretum (US National Register of Historic Places, 2024). The low number of botanic gardens listed in the register surfaces the reality that botanic gardens in the United States are generally not valued for their historical/ cultural significance, and this might most probably be reflected in the lack of an exhaustive management plan that addresses their heritage value.

Guidelines for making a management plan: Table 3 compares guidelines that inform the preparation of management plans for WHS and the English Heritage (Column A and B) taken from Table 1, with guidelines that inform the preparation of management plans for cultural landscapes in the United States drawn from the “Guide to Cultural Landscapes Reports” made by the National Park Service (Page, Gilbert & Dolan, 1998) (Column C) and management plans made for two of the five botanic gardens listed in the US National Register for Historic Places (Foster Botanic Garden in HAWAII – Column D, and Fort Worth Botanic Garden in TEXAS – Column E).

Table 3. Comparison of management plan guidelines for World Heritage Sites, English Heritage/Natural England and United States guidelines made by the National Park Service (1998)

Guidelines				Botanic Gardens Management Plans	
A		B	C	D	F
WHS Nomination		Natural England, 2008	Guide to Cultural Landscapes Reports. US National Park Service, 1998	Foster Botanic Garden HAWAII, 2003	Fort Worth Botanic Garden Tx, 2010
Site Boundaries and Description	1	Description and history	Site history, existing conditions. Overview of landscape characteristics	Section 2.1: Description and history	Background and Context: history
Identifying Outstanding Universal Value	2	Assessment of significance and current condition	Analysis and Evaluation: National Register Criteria Aspects of Historic Integrity Guidelines for selecting boundaries	Section 6: significance criteria/determination	Background and Context: National Register of Historic Places: Statement of significance and contributing resources (areas of significance); Key Strengths & Garden Districts
Revealing Key Site Issues	3	Management issues	Analysis and evaluation of landscape characteristics		
Long-Term Visions and Objectives	4.a	Aims, Management objectives, Specific objectives related to condition	Treatment: Policies, Guidelines, and Standards Defining a Management Philosophy Determining Treatment Evaluating Treatment Actions	Section 2.3 project goals Section 2.4: description of improvements: Section 3: land laws and regulations; section 4: environmental impacts and mitigative measures	The Master Plan: planning principles and issues; list of resources; recommendations for each Key Strength & Garden District
	4.b	Work programmes, Monitoring and review of plan	Record of treatment	Section 2.5: costs and phasing plan	
Stakeholder Participation/ community engagement/ education	5.a			Section 2.2: community planning process	Background and Context: planning process -- ample community and stakeholders' involvement
	5.b				Education in the Garden

The comparisons in Table 3 confirm the sequence of five management plans' guidelines. The US National Parks Service “Guide to Cultural Landscapes Reports” suggests that a management plan for cultural landscapes should revolve around the sites’ “Analysis and Evaluation” – what the WHS and British guidelines define respectively as “Identifying Outstanding Universal Value” and “Assessment of Significance”. The US National Park Service’s guide lists 5 steps for the site’s analysis and evaluation, which contemplate the notion of “redefining boundaries” (the buffer zone) and identifying “Cultural Landscape Character Areas” already mentioned in Tables 1 and 2. The US analysis and evaluation process takes into account the four aspects of significance defined by the National Register Criteria (please see list in 3.2.2. below). The four aspects of significance are very close to the four “heritage values” listed by the English Heritage (2008) which may be attached to places in the process of assessing the “significance” of a site and its defining character areas. Also, it is worthy of note that the US Guide to Cultural Landscapes Reports lacks a stakeholder’s perspective and seems not to consider community engagement. However, both U.S. management plans for botanic gardens do (Foster Botanic Garden in HAWAII – Column 4, and Fort Worth Botanic Garden in TEXAS – Column 5). This again shows that

over the years in the US, just like in the UK, communities and stakeholders' inputs have been progressively integrated into the plans.

Criteria used for identifying/ assessing a site's significance: The "Guide to Cultural Landscapes Reports" made by the National Park Service (1998) lists 5 steps for the site's analysis and evaluation, and therefore for assessing a cultural landscape's significance ((Page, Gilbert & Dolan, 1998, pp. 68-78):

1. **Defining Significance.** A cultural landscape must possess significance in at least one of the four aspects of cultural heritage defined by the National Register criteria.
2. **Statement of Significance.** Every CLR has a written statement of significance that explains the relationship between the cultural landscape and specific historic contexts, National Register criteria, and period(s) of significance.
3. **Historic integrity** relates to the ability of the landscape to convey its significance. The National Register defines seven aspects of integrity that address the cohesiveness, setting, and character of a landscape, as well as the material, composition, and workmanship of associated features.
4. **Redefining Boundaries.** The boundaries of a cultural landscape are initially defined in the project agreement according to National Register guidelines. Boundaries generally conform to the boundaries defined in the CLI. A boundary may conform to existing natural features, political jurisdictions, cultural elements, or if appropriate, historic boundaries. Based on the findings of the analysis and evaluation, boundaries should be reassessed to ensure that all significant resources and land areas are included.
5. **Cultural Landscape Character Areas.** These areas are defined by the physical qualities of a landscape (such as landforms, structural clusters, and masses of vegetation) and the type and concentration of cultural resources. Character areas are based on the existing condition of the characteristics and features that define and illustrate the significance of the landscape.

The "National Register Criteria for Evaluation" (US National Park Service, 1997) developed standards, or criteria, by which every property that is nominated to the National Register is evaluated. The National Park Service applies these criteria in evaluating the wide range of properties that may be significant in local, state, and national history. Nominated properties must comply with at least one of these criteria. The 4 criteria for evaluation are:

- That properties are associated with events that have made a significant contribution to the broad patterns of our history
- That properties are associated with the lives of persons significant in our past
- That properties embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction
- That properties have yielded, or may be likely to yield, information important in prehistory or history.

3 THE NEW UNIVERSITY OF IDAHO ARBORETUM & BOTANICAL GARDEN MASTER PLAN

The U.S. Botanic Garden (USBG) "Collections Management Plan and Curatorial Policy" defines what a botanic garden is, and how it should be managed as "a healthy, well cared-for, and well-ordered plant collection, properly documented, identified, and guided by vision in its growth and development" (USBG, 2017). However, for several United States botanic gardens, controversial historical origins and developments, property status and challenges (lack of funding and labor), and a generalized absence in regulatory standards, hamper a clear vision for future growth and development. The research uncovers

that botanic gardens in the United States are oftentimes devoid of an exhaustive management plan -- one that informs a vision for growth mindful of the gardens' present-day challenges and their historic, environmental, and cultural value; such a vision implies new development as well as protection of the gardens' existing cultural and natural heritage. As such, what guidelines can be instilled from overseas and American management plans and adapted to local management of botanic gardens that are mindful of their historical and cultural qualities of place?

The research makes use of data presented in Section 2 to develop a management plan for the University of Idaho's Arboretum & Botanical Garden.

The UI botanic gardens are one of the areas included in the University of Idaho Campus' nomination package to the National Register of Historic Places, which started in spring 2024 and involved some of the authors of this paper. The historical review of the inception and development of the gardens has relied on archival research and oral history (interviews with Mr. Paul Warnick, Superintendent of the arboretum for over twenty years, responsible for its daily management and ground improvements). The research reveals that while an original masterplan was made for the UI botanical garden in the 1980s, the plan was only partly implemented, probably because the site's daily-base maintenance and development of the plant collection has mostly relied on community grassroots management, in the form of volunteerism and private donations. In this sense, this case study exemplifies many of the challenges faced by other botanic gardens across the United States, not least limited funding, and raises the question of grassroots participation in management decisions. How can community involvement help evaluate the significance of certain areas, and encourage programming that highlights site-based history?

In addressing the challenge of proposing a vision for this changing socio-ecological landscape, the authors test management policies derived from the research through on-site community engagement.

In conclusion, an outdated masterplan, and the realization of imminent encroachment of private development on the boundaries of the property, which threatens to undermine the gardens' aesthetic values and original design features, as well as its environmental assets, led the authors to the decision to formulate a new plan for the gardens.

A management report was construed beginning with the foundational history of the UI Arboretum & Botanical Garden (records for which were sourced from the University of Idaho Library's Special Collections Archive) cross referencing community data generated during the project's design charrette, involving around 40 community members in debating the values and constraints faced by the current botanical gardens' management, and exploring possible, alternative visions for the future. This research is supported by The Linda Milbourn Fellowship in Landscape Architecture, granted by the American Public Gardens Association.

The proposed management plan contains in its documentation an in-depth account of the evolution of the property since its inception. This forms the basis to clearly define the arboretum's cultural, social, and environmental significance as a standalone entity and as part of the broader geo-sociological context, while addressing some of its current challenges, and, in Robert's words, suggest "a method to initiate discussion regarding the future of the property". While taking his MLA at the University of Idaho, Robert Castelo worked as a groundskeeper at the UI botanical garden for two consecutive years (2022 and 2023) and defined his final master's project on the UI Arboretum & Botanical Garden Heritage Management Plan.

The masterplan's contents are specifically modeled from the guidance set forth by heritage plans discussed in Section 2 of this paper, and comprise 5 sections: 1) Site boundaries and description.

2) Identifying outstanding universal value. 3) Revealing key site issues. 4) Long term visions and objectives. 5) Stakeholders participation.

3.1 Site boundaries and description of the property

This section was organized to include the location and extent of property and ownership(s); a summary of significant stages in the history of the property (detailed site analysis with maps and photos illustrating different stages in history of the property); a brief description of the physical character of the property and its broader context – the concept of "buffer zone" is introduced.

Location and extent of property and ownership(s): The University of Idaho is presently home to two distinct arboreta, the Shattuck Arboretum and its southward expansion, the University of Idaho Arboretum & Botanical Garden. A road separates the arboreta, Nez Pierce Drive; otherwise, they are adjacent and maintained by the same grounds crew. The Shattuck Arboretum was the original campus arboretum, started in 1910. The Arboretum & Botanical Garden was a southern expansion of the Shattuck Arboretum, designed in 1980. The research considers the two arboreta as a single unit referred to as the University of Idaho Arboretum & Botanical Garden.

The identification of the property locates it within maps of the Pacific Northwest, the city of Moscow, and the university grounds. The extent of the property and its boundaries include 2 areas: the Shattuck Arboretum, the Arboretum and Botanical Garden (figure 1, left).

Summary of significant stages in the history of the property.

With texts, maps and photographs, and the examination of the diverse university master plans (six plans dating from the 1925 to the 1997 plan, and especially the 1980 arboretum plan), this section of the new 2023 management plan reconstructs the property's expansion. The shifting management focuses included: forest laboratory, educational resource for courses in general forestry, silviculture, dendrology, forest mensuration, forest ecology, etc., recreational site. Diverse university departments and faculty members fostered the arboretum's developments. In investigating and showcasing the close ties between the arboretum, the university and its members, and the broader community, the management plan seeks to demonstrate the social and cultural significance of the property.

The original arboretum was established in 1910, and has grown in size and significance throughout its 114-year history. It began as an educational tree-growing effort encouraged by the State of Idaho, envisioned and managed by UI forestry programs (University of Washington, 1947). While it is still sporadically used by students as an educational or research resource, but mostly as a recreational site, it no longer serves all of its initial purpose, that being to research and supply trees to the State.

The University acquired the land which is now the northern portion of the Arboretum in 1906, four years before the School of Forestry's Arboretum and Nursery was established in the area now known as the Shattuck Arboretum. At that time, the School of Forestry began growing and shipping seedlings all across the State of Idaho and across the nation (ArborNotes, 2006). The arboretum was initiated in 1910 by Charles Houston Shattuck, who had arrived at the University of Idaho in 1909 as the head of the newly created Department of Forestry, the second such program established in the Western United States (Archives West, 2022). With C.L. Price, the first person hired to oversee campus plantings, Shattuck turned the 12 acres just southwest of the Administration building (the first building made on campus, and one of the architecturally most outstanding ones) into an experimental nursery that in time held over 12,000 trees representing 150 species. Over the years, several notable UI professors and departments have been associated with the arboretum's research efforts and history of plant propagation.

The Shattuck Arboretum is one of Western North America's oldest university plantings (UI Arboretum & Botanical Garden, 2024). In the first decades of the 1900 it contributed extensively to research on forestry, as well as propagating trees and shrubs for sale in Idaho, and providing trees for the university campus. At its inception, the campus was treeless; its original landscape design (1908) is accredited to John C. Olmstead's of the Olmsted Brothers firm, whose office was placed in Brookline, Massachusetts (Olmsted Brothers, 2008).

Out of a concern that there was not enough plant diversity in the campus landscape, in 1975 an Arboretum Committee, made primarily by UI professors, was formed to discuss the use of land adjacent to the existing golf course as the appropriate site for the Arboretum's expansion. Through a life grant, in 1960 the University had acquired the site, which was a farm, from Amil and May Fleiger. The barn was retained by the University for use as part of the Arboretum and integrated in the 1980 masterplan. In 1978, the Friends of the Arboretum was established as the Arboretum Associates to assist with raising funds for the project (Eiguren, 1979). The Arboretum Associates is a volunteer, fundraising group supporting the Arboretum that is still active today. Landscape Architecture firm Richard Carothers Associates (RCA), based in Boise, was appointed to outline a master plan proposal, which dates 1980 (Richard Carothers Associates, 1980). The master plan report involved several local community members

and the Faculty Arboretum Committee, which counted members from the Plant and Soil Sciences, Botany, Forestry, Physical Plant and Landscape Architecture. Till this day, the UI Arboretum & Botanical Garden has not had any other master plans made.

The 1980 master plan set to organize the new botanical gardens' sixty-three acres addition. To do so, the firm made a detailed site-survey and analysis and, on that basis, developed the program's objectives: to provide the State of Idaho with its first public arboretum and botanical garden; to develop an active teaching and research program in the plant sciences; to serve as a regional information, display, and dissemination center for plant materials; to serve as outdoor study area and resource for teaching and research projects for various university departments; to serve as a passive recreational resource.

Despite the 1980 plan, by the late 1990s the site was still devoid of plants. However, the arboretum could count on the university reclaimed irrigation system which had been installed in 1977 (University of Idaho, 2022). Also, in 1985 a water main was installed, and two ponds were added in the gardens, which were later enlarged, and the islands were added, providing a small wetland area and a natural habitat (ArborNotes, 2006). One of the original policies of the site's development was that no university funds would be spent on the collections. Oral interviews and the examination of the monthly Arboretum Associates' newsletter ArborNotes show that all the plantings and other assets in the Arboretum have been donated as gifts to the university and continues to be the only way to add plants to the site. Also, the daily maintenance of the gardens has relied on UI students' part-time employment and community volunteers. A pivotal moment in the botanical garden's history is the appointment in 1987 of Dr. Richard Naskali as arboretum director and the first paid arboretum employee. Dr. Naskali served in that role until his retirement in 2003. He was instrumental in developing the backbone of the current collections of primarily ornamental species and cultivars arranged based on where they are originally native. The ArborNotes are filled with details of the monthly achievements, plant additions, and the recognition of donors and students that supported those efforts. In the August 1994 newsletter, director Naskali writes to the community: "Annual contributions through Arboretum Associates for fiscal year 1994 exceeded \$5,700; additional dedicated donations to memorial funds and endowments brought total revenues to over \$31,000. Your support is greatly appreciated and with your continuing help, we look forward to further development of a marvelous resource" and "As the major construction programs and routine watering, mowing decline, my major outdoor efforts will turn to plaquing groves, mapping plants, and some labeling of individual specimens. Thus far, more than 70% of our plants are computer mapped". To help fundraising and further strengthen the ties with community and university, over the years designed stone benches have been installed which have been funded by philanthropic giving ((ArborNotes, 1994), and for the Centennial Presidential Grove in 1988, one hundred oaks of 13 different species were planted along the eastern side of the Arboretum, one tree for each year of the University and one species for each of the 13 presidents who had served up to that time (May 2006).

The 1980 master plan proposed developing two different "use areas": the "central building complex and display garden area" which would be the "central hub of activity for the garden facility"; and the "regional plant display area" which would occupy most of the site and serve for mainly academic uses. In this area, four specific zones would represent four different global regions (Asia, Europe, Eastern North America, and Western North America). Each zone would contain the major plant habitats respective to the region. While most of the 1980 plan was not implemented, the development of the botanic garden proceeded with the geographical division of the plant collection. A sequence of aerial images documenting the past three decades of the botanic garden's slow expansion into the southern valley after the completion of the 1980 master plan, shows that in 1993 the site was devoid of any plants, with a progressively growing plant population in the sequence of maps from 2003, 2011, and 2023 (figure 1, right). The archival research demonstrated that the arboretum's growth proceeded thanks to the help of many volunteers from the community and the various associated university departments.

Today, the ensemble of arboretum and botanical garden is the first of five botanical gardens and arboretums in Idaho (UI Arboretum & Botanical Garden, 2024).

2.0 IDENTIFICATION OF THE ARBORETUM & BOTANICAL GARDEN AND THE TWO OTHER PROPERTIES

2.1 LOCATION AND EXTENT OF THE PROPERTIES

2.1a State and Country

Idaho, USA

2.1b City and Country

Moscow, Latah County

2.1c Names of the Properties (listed North to South)

- i. University of Idaho Arboretum & Botanical Garden
- ii. Latah County Parcel #2430
- iii. Edington Subdivision Development

2.1d Geographical Coordinates to Nearest Second

The center of the University of Idaho Arboretum & Botanical Garden is at:

Latitude: 46°43' 7"N

Longitude: 117° 1' 1"W

The center of Latah County Parcel #2430 is at:

Latitude: 46°42' 47"N

Longitude: 117° 0' 58"W

The center of the Edington Subdivision Development is at:

Latitude: 46°42' 39"N

Longitude: 117° 1' 4"W

2.1e Area of the Properties

i. Area of Arboretum: 34 hectares

ii. Area of Parcel #2430: 18.5 hectares

iii. Area of Edington Subdivision: 12.5 hectares

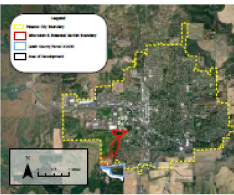
2.1f Maps showing locations of the properties



MAP 1: LOCATION OF PROPERTIES WITHIN NORTH AMERICA



MAP 2: LOCATION OF PROPERTIES WITHIN THE PACIFIC NORTHWEST



MAP 3: LOCATION OF THE PROPERTIES WITHIN THE CITY OF MOSCOW, ID



1993



2003



2011



2023

Note: Imagery sourced from Google Earth Pro

Figure 1. Identification of the property that locates it in maps of the pacific northwest, the city of Moscow, and the university grounds (left); Sequence of aerial images documenting the past three decades of the botanic garden's slow expansion into the southern valley (right).

3.2 Identifying outstanding universal value

The process of identifying the "significance" or "outstanding universal value" of the UI Arboretum and Botanical Garden included an analysis and evaluation of landscape characteristics; defining character areas; re-evaluating the property's boundaries and "buffer zone"; and lastly attributing value on the base of the US National Register Criteria and assessing aspects of historic integrity. A statement of outstanding interest explains why the property and each feature are significant.

Analysis and evaluation of landscape characteristics: The new plan has attempted to identify the "Character of the Arboretum & Botanical Garden and its Surrounding Environment". Investigations of the geology, soils, topography, hydrology, climate, land uses (using GIS mapping) unveil that the botanic garden is embedded in a component of the Columbia Plateau known as the Palouse, whose unique conformation of rolling hills informs the site, and is clearly visible from the property. The valley's walls enclosing the arboretum to the east and west create a visual funnel that directs the view of visitors southward onto the Palouse (figure 2, left).

The plan's "analysis and evaluation of landscape characteristics" was supported by a "visual inventory" that was part of the evaluation of the property made in the 1980 master plan, which considered vistas and characteristics of the diverse areas of the site. The visual inventory's map highlights the "expansive views to the Palouse hills sw to se" (figure 2 right, red circle on the map). On the base of these findings, the southern visual funnel towards the Palouse hills was considered as contributing to the significance or outstanding value of the whole UI botanic gardens.

It is noted that in the 1980 plan visual inventory map no buffer zones are considered: both the east and west sides are scheduled for "residential development".

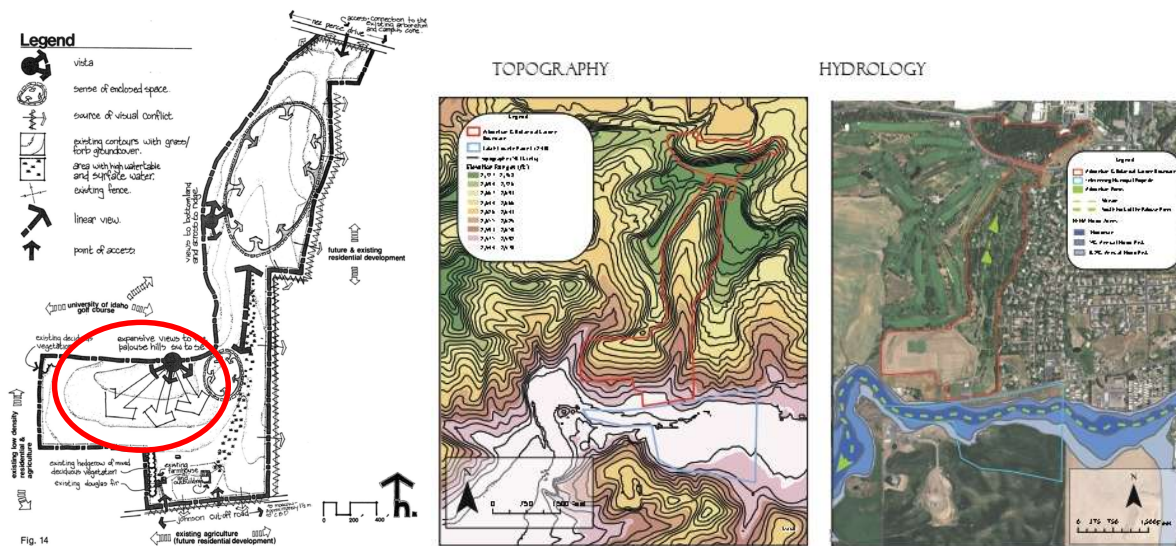


Figure 2. 1980 Masterplan “Visual Inventory” map highlighting the “expansive views to the Palouse hills sw to se” (left); Investigation of “Character of the Arboretum & Botanical Garden and its Surrounding Environment” using GIS maps (right)

Defining character areas: Over the years, the 1980 masterplan concept “regional plant display area” has been realized. As initially planned, the area today is organized into four quadrants. The proposed 2023 plan defines these as “character areas” or areas of significance: Northeast (N.E.), Northwest (N.W.), Southwest (S.W.), and Southeast (S.E.). Each quadrant is host to plants that are native to four different regions of the world: Asia, Europe, Western North America, and Eastern North America.

The new 2023 plan also acknowledges as significant features the constructed ponds built in 1985, which are oriented on the north/south axis of the valley and occupy its central swale. Lastly, other two significant areas are the “demonstration garden” catered for community education and recreation, and the “research platt” which is dedicated to agricultural research and where the historic farm barn has been retained. The barn is used as an educational facility of UI Extension, which serves the land-grant university mission by partnering with local communities to provide research-based education and information.

Figure 3, left shows a “concept development” map from the 1980 masterplan, which highlights the northern connections between the old arboretum and the botanical garden (realized), a proposed development area on the south (black asterisks) which are today the “demonstration garden” and “research platt”, and the “marsh/pond system” which still exists today (circled route on the south). Figure 3, right shows the areas and features in the 2023 proposed plan which contribute to the property’s outstanding value: the 4 quadrants or character areas, the pond-canals system and the “demonstration garden” and “research platt” areas. Figure 4 shows details of some of the characteristic features of the property as well as the planting scheme in each quadrant or character area, which all contribute to the property’s significance.

Attributing value on the base of the US National Register Criteria and assessing aspects of historic integrity: In evaluating the “outstanding value” of the University of Idaho Arboretum & Botanical Garden, the criteria for assessing significance listed by the National Register for Historic Places were taken into consideration (21). The UI botanic garden is one of the areas included in the University of Idaho Campus’ nomination package to the National Register of Historic Places, which started in spring 2024. The university’s campus designation falls under:

Criterion A – place associated to a series of events or activities, or patterns of an area’s development; and

Criterion C – a building form – in this case a semi-designed landscape - or artistic values, based on a stage of physical development).

In the UI campus nomination, the campus' areas of significance were identified in education, landscape architecture, and social history. Looking into the aspects of integrity, it was evaluated that the property possesses integrity of location and setting, design, materials (plants), feeling, and association. In essence, the UI campus nomination states that the Arboretum & Botanical Garden represents an important aspect of the area's history (the history of the town of Moscow and the University of Idaho's history) and possesses the requisite quality of integrity. The understanding of the gardens' significance came from the archival and on-site research which identified cultural, social, and environmental values of the property, whose evolution and boundaries were defined on the base of the outcomes of the study. The research framed the property in its historic context – the historical patterns identified through consideration of the history of the property and the history of the surrounding area. The theme that the property represents, and the ways in which the property represents it, were spelled out, as were the geographical limits and chronological period that provided a perspective from which to evaluate the property's significance.

This discussion is an excerpt from the Interim Planning Report as presented to the University of Idaho Foundation, Inc. in March, 1978. The observations made and direction given in this discussion have been modified and expanded in the Master Plan Report, however, the decisions made here dictated the final physical form of the Shattuck Arboretum and Botanical Garden.

DEVELOPMENT/DESIGN CONCEPTS

The two alternative concepts were presented as follows:

Concept Similarities

1. They utilize the same program elements, including: public and administrative facilities, research/maintenance facilities, marsh/pond system with walkways and observation platforms, a small outdoor classroom and an overlook.

2. Their basic pedestrian and vehicular circulation concepts are similar. Aside from small service vehicles, no vehicular traffic is allowed within the arboretum.

There is a hierarchy of pedestrian circulation. The major path system is 8 feet

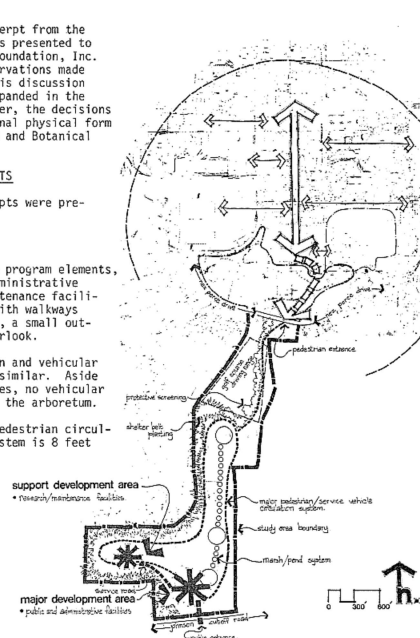


Figure 3. 1980 Masterplan “Concept Development” which highlights some of the features that have been retained in the new 2023 plan (left); character areas and features in the 2023 proposed plan which contribute to the garden’s significance

4.3 ILLUSTRATION OF PLANTINGS AND SELECTED FEATURES

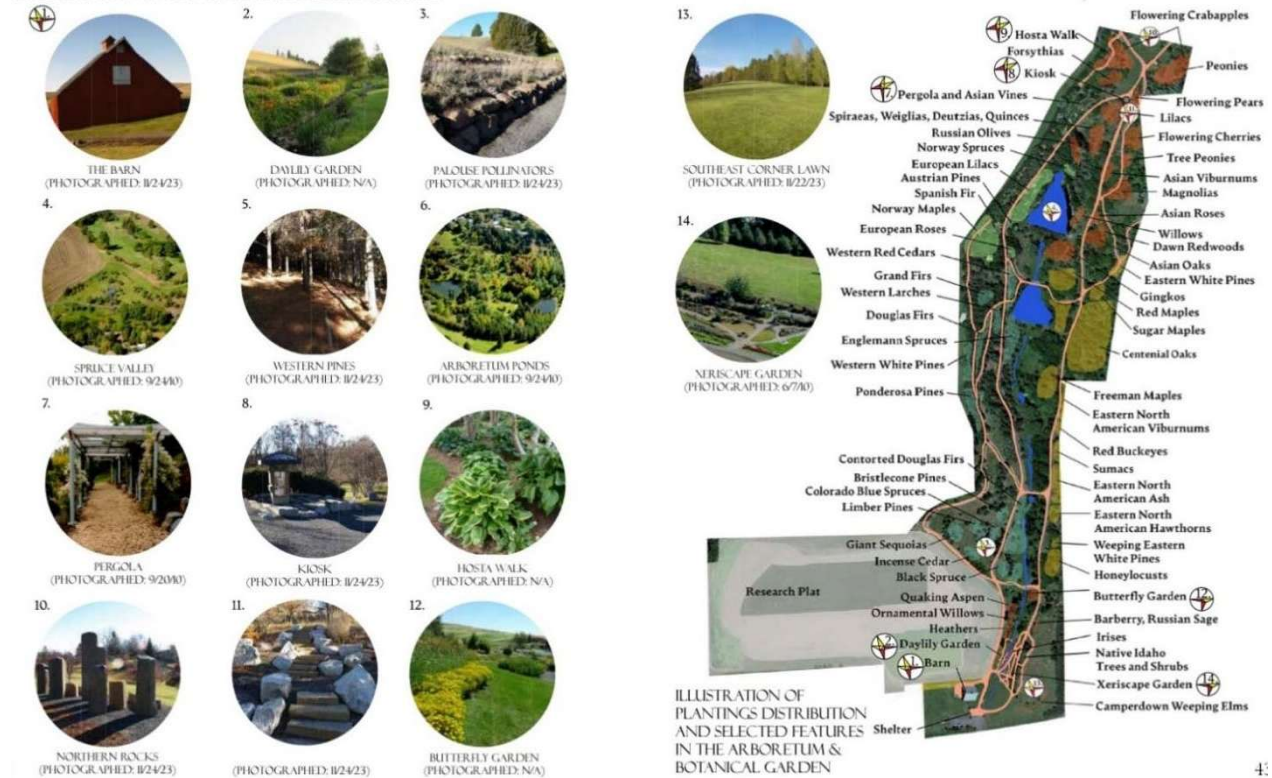


Figure 4. Characteristic features of the property (left); The planting scheme in each quadrant or character area (right).

Statement of outstanding interest explains why the property and each feature are significant: In

This 2023 proposed botanic garden management plan adopts the same criteriums (A and C), areas of significance, and aspects of integrity as the UI campus nomination. The finalized 2023 plan's statement of significance reads: "forty-four years since the publishing of the original master plan, the resulting University of Idaho Arboretum & Botanical Garden is a cherished community asset that is a valued educational tool for the University and, simultaneously, a sacred place for the public to enjoy the collections and experience peace and tranquility". The four existing regional quadrants are significant because they hold a varied and exhaustive plant collection of plants that are both native and imported and have well adapted to the climate and physical characteristics of the region, providing opportunities for regional environmental restoration and educational projects in times of climate change. Together with the "demonstration garden" and the "research platt" they serve the university, town and region through an educational, research and recreational mission advocated already by the 1980 masterplan.

3.3 Revealing key site issues/ re-evaluating the property's boundaries and "buffer zone"

As distilled from the analysis of US and UK's management plan guidelines, this section should include an assessment of the diverse areas' vulnerability. An outcome of the property's assessment of significance was the recognition of the pressure exerted on the historic and culturally valuable Arboretum & Botanical Garden at the University of Idaho from a changing landscape in the southern view-shed of the gardens, a former parcel of farmland where there is an active construction of a mixed residential development, the Edington Subdivision. Figure 5 shows the southern part of the Arboretum and Botanical Garden, and an area in the southern view-shed of the gardens that is proposed by the new masterplan as a buffer zone -- the Latah County Parcel #2430, a former parcel of farmland (figure 6) which stands between the botanical gardens and a mixed residential housing development called the Edington Subdivision Development Plan.

The physical changes in the land are driven by modern day socioeconomic forces, mainly the increased demand for housing and the accompanying political decision pertaining to where to develop additional

housing. One of the specific goals of the plan is to express concern, as the residential development has the potential to disturb the Arboretum's harmony of place and will alter the view from the arboretum onto the pacifying lines of the Palouse, which the plan has identified as a distinct land formation iconic to the Pacific Northwest.

While the plan does not suggest any legislative measures on its boundaries to impede private developments (because in the 1980 master plan there was no indication of buffer zones that should be preserved from construction), it seeks to identify and synthesize mitigating design solutions that argue for creative intervention on a municipal property which stands in between the botanic gardens and the residential expansion (City of Moscow Parcel #2340), addressing the present-day neighborhood development challenge. The plan does not want to present an idealized design, rather it presents a method to initiate discussion regarding the future of the property's immediate buffer zone.



*The photographs above were taken from different locations within the Arboretum & Botanical Garden.

Figure 5. Comparison of images of former southern view-shed and impacted southern view-shed.

REVEALING KEY SITE ISSUES



CENTRAL CONCERN:
CHANGING LANDSCAPE IN SOUTHERN VIEW-SHED
OF THE ARBORETUM

CENTRAL INTEREST:
DEVELOPMENT OF MUNICIPAL PARCEL #2340

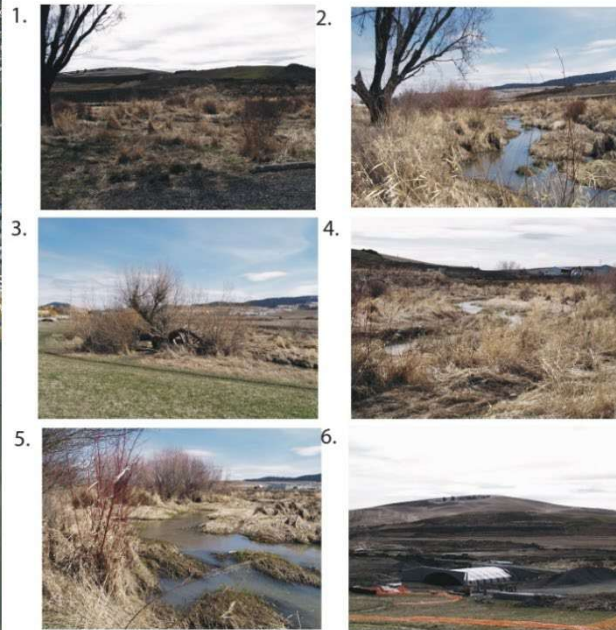


Figure 6. Detailed photographic survey of parcel #2340, the proposed “buffer zone”

3.4 Stakeholders’ participation

Developing management plans in a consensual way should be a common practice in order to achieve a balance between conservation of the site’s values and significance, tourism and public access, contribution to local community, and contribution to sustainable economic growth.

However, management plans for cultural heritage in the United States face many limitations that are all grounded in the inability to link the plans to a set of legislative measures that protect the property and their public use. Each state has its own laws, which seldom impede the heavy modification or even demolition of heritage sites. Ultimately, the perpetuity of properties listed in the National Register of Historic Places relies on the will of the local communities to protect those properties. In this sense, community participation in the management of these properties, and raising awareness of the properties’ cultural and environmental significance – or outstanding value - is vital.

To raise awareness on the significance of the UI Arboretum and Botanical Garden, Robert presented the garden’s management plan to the Friends of the Arboretum, faculty of the university, residents of the town of Moscow and City of Moscow’s representatives. In his words, the preservation of the property implies a “shift in cultural aesthetic” and “the rationalization of the land’s purpose and perceived value, which is malleable and determined by the subjective lens through which it is viewed”. As a second step in raising the community’s awareness, a design charrette was organized to address the perceived threat to the botanic gardens explained in point 4.3 of this paper.

The charrette wanted to involve residents in providing design concepts for the City of Moscow Parcel #2340 by “developing the Quality of the Arboretum - its modern-day significance and its storied legacy - into the fabric of the adjacent parcel”. The aim of the charrette was to raise awareness and advocate for the parcel to be developed into a public park that would act as a buffer zone and mitigate the visual and

environmental impact of the residential development, as well as depressurize the heavily visited botanical gardens.

The design charrette was held in the Great Room of Moscow's 1912 Center on April 11, 2023. An invitational postcard (figure 7, left) was mailed to addresses on the Friends of the Arboretum mailing list and handed out to peers in landscape architecture and other related design departments at the University. The charrette was organized in the following steps:

- Introduction to the project (10 minutes): a speaker presented the problem through slides projection (using amongst others figure 5 and 6)
- Organization into table-based teams and preliminary charrette (15 minutes): participants sat around eight circular tables arranged in a large, open room as illustrated in figure 7. The tables formed columns; within each table people were asked to independently consider and respond to a given scenario regarding the municipal property adjacent to the arboretum:

Scenario #1: How could the land be developed if the university were to purchase the land from the city?

Scenario #2: If the city pursues the development of the land, how could the land be developed?

Scenario #3: If neither the University nor the city develop the land, what could the Arboretum do to mitigate the impacts of the new residential development?

At least one person with experience in landscape architecture facilitated discussion at all eight tables. When the charrette began, tables 1,2 and 3 started to generate ideas in the scenario where the arboretum had expanded onto the property. Tables 3,4, and 5 responded from the city's perspective of ownership, and tables 7 and 8 kept their designs within the established boundary of the arboretum.

- Finalizing concepts for presentation (5 minutes).
- Team's presentations (3 minutes each)
- Survey. In total, 37 people attended the charrette, most attendees (51%) were over sixty-five years of age. Data were gathered on the attendees' frequency of visitation to the arboretum. Most participants (78%) reported visiting less than once a week. The most common frequency of visitation reported by the group was 4-6 times per year (24%). When asked if the construction affected their experience of visiting the Arboretum, nearly half (49%) of the attendees reported that the construction had affected their experience. Of these affirming respondents, 78% cited the impact on the view as the cause of effect on their experience. Others reporting adversely affected experiences mentioned loud noise from the construction equipment and the impacts on wildlife.



Figure 7. Design charrette with stakeholders.

Overall, the design charrette and survey surfaced that all participants were aware of the UI botanical garden's significance; they expressed concern for the threat presented by the residential encroachment on the outskirts of the property, and valued the southern viewshed as an important aesthetic resource. The participants advocated for a "buffer zone" for the botanic gardens, which they consider a public space and important asset for the community. They welcomed the idea that the buffer zone could be a public park. Included in the garden's management plan, are the alternative scenarios for the park's development produced during the charrette (scenario 2), re-organized into a standardized design language. Figure 8 shows that all scenarios place an emphasis on safeguarding the ecological value of the place (the existing watershed) and possibly enlarge it through a constructed wetland (blue shade); they propose a trees greenbelt and vegetative buffer (green shade) that partially or totally masks the new residential development; pedestrian connectivity between the arboretum and the park (red dotted lines); and open park grassland for unstructured recreation (yellow shed). The scenarios were afterwards discussed in a meeting with representatives of Moscow's city council and Friends of the Arboretum. In a separate meeting, the findings were also discussed with the residential property developer for the Edington Subdivision Development Plan.

The charrette's attendance had its limitations, as the attendees were mostly town's residents, as such, the UI students' perspective was not reflected. Site surveys made during the development of the plan revealed that the arboretum is visited daily by a consistent number of students who, when interviewed informally, disclosed that they find in its grounds rest and physiological relief. Another step in the future of the botanic garden's plan would be to involve these young people in similar activities so that the value of the property is further communicated.

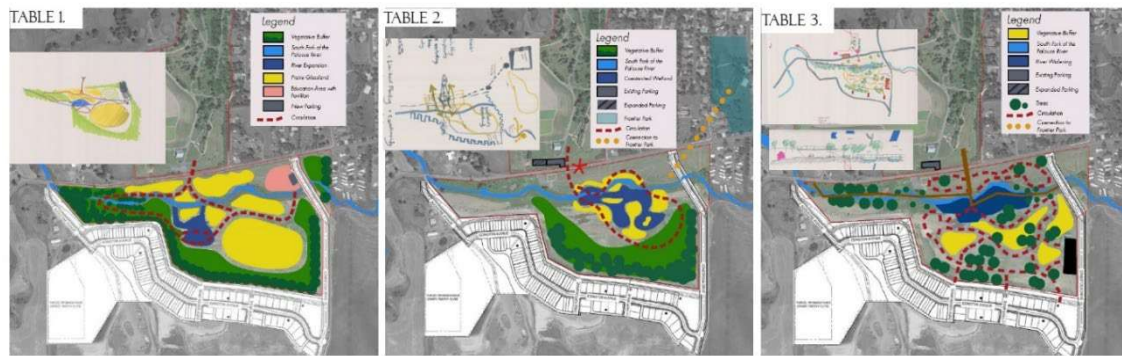


Figure 8. Design charrette's alternative scenarios re-organized into a standardized design language.

4 CONCLUSIONS

Botanic gardens have historically served a singular purpose: the cultivation of organized plant collections. However, their meaning and scope have evolved over time. Despite these changes, the management policies governing many U.S. botanic gardens have remained largely stagnant. For numerous gardens, challenges such as controversial historical legacies, property status issues, limited funding and labor, and a lack of regulatory standards hinder the creation of a clear vision for future growth and development.

This paper argues that botanic gardens are not just collections of plants, but vital cultural and social spaces. As such, their development should be guided by a management plan that recognizes their status as heritage sites. To support this, the research situates the history of botanic gardens within the broader context of cultural landscapes and heritage sites, while highlighting their roles as educational, social, recreational, and scientific resources.

The study identifies key guidelines for creating botanic garden management plans, drawing from sources such as English Heritage, UNESCO, and the U.S. National Register of Historic Places. These organizations are at the forefront of heritage landscape management. A comparison of plans was made, and findings presented in summary form. By comparing existing plans, the research synthesizes best practices, which are then applied to develop a management plan for the University of Idaho Arboretum & Botanical Garden as a real-world case study.

The proposed 2023 master plan for the UI Botanic Garden is specifically modeled on the guidance provided by English Heritage, UNESCO, and the U.S. National Register. The research highlights that these management plans universally emphasize the assessment of a site's "significance" or "outstanding universal value," and the new UI plan adopts this approach. It consists of five main sections: site boundaries and description, identifying outstanding universal value, revealing key site issues, long-term visions and objectives, and stakeholder participation.

Additionally, the paper tests the inclusion of community participation in shaping the future vision of the site, an element that has increasingly become a key component of management plans in both the U.S. and the U.K. over the years.

While the research is limited by time constraints, it reveals a significant gap: many U.S. botanic gardens are not regarded as heritage sites and lack a management plan that acknowledges their cultural significance. This paper aims to initiate a broader conversation in the fields of heritage studies and heritage management, particularly as they relate to cultural landscapes.

REFERENCES

- ArborNotes, (2006). A newsletter of the Arboretum Associates. Published by Arboretum Associates, May 2006. University of Idaho, Moscow, Idaho
- ArborNotes, (1994). A newsletter of the Arboretum Associates. Published by Arboretum Associates, December 1994. University of Idaho, Moscow, Idaho
- Archives West (2022). Charles H. Shattuck lantern slides collection, 1904-1910. Retrieved 4/5/2024 from:

- <https://archiveswest.orbiscascade.org/ark:/80444/xv40698/>
- Bennett, E. D. (1931). Arboreta and Botanic Gardens in the United States. *Bulletin of Popular Information (Arnold Arboretum, Harvard University)*, 5(14/15), 53-60.
- Blandford, C. (2006). Management plans for UK world heritage sites: evolution, lessons and good practice. *Landscape Research*, 31(4), 355-362.
- Deming, M. E., & Swaffield, S. (2011). *Landscape architectural research: Inquiry, strategy, design*. John Wiley & Sons.
- Sampling is the process of selecting what data to gather in a classification strategy. Purposive sampling seeks out data expected to be most helpful in addressing the research question.
- Demir, A. (2014). Determination of the recreational value of botanic gardens. A case study royal botanic gardens, Kew, London. *Revista de Cercetare și Intervenție Socială*, (44), 160-180.
- Dodd, J., & Jones, C. (2010). Redefining the role of botanic gardens: Towards a new social purpose. Leicester, UK: Research Centre for Museums and Galleries (RCMG), p.1
- English Heritage (2008). Conservation Principles, Policies and Guidance For the sustainable management of the historic environment. Retrieved 4/5/2024 from: <https://historicengland.org.uk/images-books/publications/conservation-principles-sustainable-management-historic-environment/>
- Eiguren, R. E. (1979). (rep.). Arboretum Project Annual Report.
- Henderson, J. C. (2014). Bidding for World Heritage: Singapore's botanic gardens. *Tourism Culture & Communication*, 14(2), 63-75.
- Historic England (2024). Registered Parks & Gardens. Retrieved 4/5/2024 from: <https://historicengland.org.uk/listing/what-is-designation/registered-parks-and-gardens/>
- Lee, S., Phau, I., & Quintal, V. (2018). Exploring the effects of a 'new' listing of a UNESCO World Heritage Site: The case of Singapore Botanic Gardens. *Journal of Heritage Tourism*, 13(4), 339-355.
- Natural England (2008). Preparing a Heritage Management Plan. Retrieved 4/5/2024 from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/350304/NE63-preparing-a-heritage-management-plan.pdf
- Natural England is a government's adviser for the natural environment in England, established by an Act of Parliament in 2006.
- National Park Service (1997) How to Apply the National Register Criteria for Evaluation (NRB 15). National Register of Historic Places Bulletins (Date of publication: 1990; revised 1991, 1995, 1997)
- Olmsted Brothers (2008). Report of University of Idaho. Brookline, Mass., May 28th, 1908
- Paiva, P. D. D. O., Sousa, R. D. B., & Carcaud, N. (2020). Flowers and gardens on the context and tourism potential. *Ornamental horticulture*, 26, 121-133.
- Page, R. R., Gilbert, C., & Dolan, S. (1998). *A guide to cultural landscape reports: contents, process, and techniques*. US Department of the Interior, National Park Service, Cultural Resource Stewardship and Partnerships, Park Historic Structures and Cultural Landscapes Program.
- Rakow, D. A., & Lee, S. A. (2015). Western botanical gardens: history and evolution. *Horticultural Reviews: Volume 43*, 269-310.
- Richard Carothers Associates, P.S. (1980). Master Plan Report: Shattuck Arboretum and Botanical Garden, University of Idaho.
- Silva, S., & Carvalho, P. (2017). On the UNESCO World Heritage route. Characteristics and behaviours of visitors to the University of Coimbra's Botanical Garden. In *Local Identity and Tourism Management on World Heritage Sites. Trends and Challenges. Conference Proceedings* (pp. 39-56).
- Thomson, V. (2014). Planning and the protection of historic parks and gardens: a review of current practice in England. *Garden history*, 3-20.
- UNESCO (1972) The World Heritage Convention. Retrieved 4/5/2024 from: <https://whc.unesco.org/en/convention>
- UNESCO (2024). World Heritage List. Retrieved 4/5/2024 from: <https://whc.unesco.org/en/list>
- USBG (1993). U.S. Botanic Garden Convention on Biological Diversity. Retrieved 4/5/2024 from: <https://www.bgci.org/our-work/inspiring-and-leading-people/policy-and-advocacy/convention-on-biological-diversity/>
- Convention on Biological Diversity (CBD). Strategic Plan for Biodiversity 2011-2020, Including Aichi Biodiversity Targets. Retrieved 4/5/2024 from: <https://www.cbd.int/sp>

-
- USBG (2017) "Collections Management Plan and Curatorial Policy" Revised 2017 Washington, DC. Retrieved from <https://www.bgci.org/resource/united-states-botanic-garden-collections-policy/>
- UNESCO (2011). The World Heritage Resource Manual Preparing World Heritage Nominations (2nd edition, UNESCO 2011) Retrieved 4/5/2024 from: <https://whc.unesco.org/en/glossary/199>
- UNESCO (2003). The Royal Botanic Gardens in Kew. Nomination file 1084, 2003. Retrieved 4/5/2024 from: <https://whc.unesco.org/en/list/1084/documents/>
- UNESCO (2004). The Criteria for Selection. Retrieved 4/5/2024 from: <https://whc.unesco.org/en/criteria/>
- UNESCO (2015). Singapore Botanic Gardens. Nomination file 1483, 2015. Retrieved 4/5/2024 from: <https://whc.unesco.org/en/list/1483/documents/>
- UI University of Idaho Arboretum & Botanical Garden (2024). History of the Arboreta. Retrieved 4/5/2024 from: <https://www.uidaho.edu/dfa/facilities/arboretum/about-us/history>
- University of Idaho (2022). University of Idaho 2022 CCR Drinking Water Report. Retrieved 4/5/2024 from: <https://www.uidaho.edu/infrastructure/facilities/ues/water-data/consumerconfidence-reports>.
- University of Washington (1947). Arboretum Bulletin. Seattle, Wa. Summer 1947, Volume X, n.2. "The Charles Houston Shattuck Arboretum of the University of Idaho", by Merrill E. Deters
- US National Register of Historic Places (2024). National Register Database and Research. Retrieved 4/5/2024 from: <https://www.nps.gov/subjects/nationalregister/database-research.htm>