

ABSTRACT

Title of Thesis: HERITAGE SPECIES FOR HISTORIC PRESERVATION

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The United States has no standardized concept to recognize nonhuman species of cultural significance. This thesis argues that the field of historic preservation should play a role in cultural species documentation to fill this gap. To achieve this, preservation practice must expand the documentation process to include culturally significant nonhuman species to fully understand the complex historical relationship between species, people, and places and manage cultural landscapes holistically as dynamic systems. This thesis provides an overview of policy and practice, explains cultural landscape documentation and programs, discusses a brief legislative and regulatory history of the nature-culture divide, and provides examples of how nonhuman species are typically captured through current documentation methods, focusing on the National Park Service's (NPS) National Register of Historic Places (National Register), Cultural Landscape Inventories (CLI), and Cultural Landscape Reports (CLR). I introduce a new

concept to identify culturally significant nonhuman species: *heritage species*. The heritage species definition and criteria are grounded in existing frameworks such as ethnobiology's Cultural Keystone Species (CKS) and World Heritage Species. I apply the proposed heritage species concept and evaluate example heritage species, including Mexican free-tailed bats along Congress Avenue Bridge in Austin, Texas and old-growth trees within Glencarlyn Park in Arlington, Virginia, against the National Register. This study finds that heritage species can fit into existing documentation methods within our preservation framework and presents a set of five actionable options geared toward historic preservation professionals which act as possible steps forward to integrate heritage species into documentation. Out of these proposed actionable options, this study suggests preservation professionals document heritage species *and* their habitat, *heritage species habitat*, when appropriate rather than the living species itself; this approach fits more easily into the existing place-based framework. Beyond proposed actionable options, additional recommendations to update preservation practice include updates to the current cultural landscape guidance published by the NPS. The proposed heritage species concept is intended to serve as a catalyst for preservationists to update preservation practice from a peoples-first to a living-species-first approach. This paradigm shift has many implications for communities and resource managers regarding the Section 106 process and integrated resource management. This study aims to initiate conversations about integrating species, people, and places within historic preservation theory and practice to reconcile how to preserve living landscapes.

Subject Headings: Heritage species, cultural landscapes, National Park Service, historic preservation, National Register of Historic Places, wildlife conservation, human-animal relationship, World Heritage Species, Cultural Keystone Species

HERITAGE SPECIES FOR HISTORIC PRESERVATION

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This work is dedicated to my favorite human, my partner, Rob, who steadfastly supported and encouraged me throughout my graduate studies journey, and my favorite nonhumans, our two black cats, Luna and Leo, who accompanied me through hours of research and writing.

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CHAPTER I: INTRODUCTION

In the spring of 2016, Congress signed the National Bison Legacy Act, which formally adopted the American bison (*Bison bison*) as the national mammal of the United States (Appendix I). The text of the Act explains the primary justification for establishing the bison as a national symbol, which is to “celebrate and officially recognize the historical, cultural, and economic significance of the North American bison to the heritage of the United States.”¹ The Act declares bison are considered a historical symbol of the United States because they are “integrally linked with the economic and spiritual lives of many Indian tribes through trade and sacred ceremonies.”² Bison are recognized for their ecological importance and keystone role in grassland habitats, economic value for rural communities, and the conservation effort throughout the 1800s to save the species after near extinction. The text provides additional supporting evidence that bison are a cultural icon, including listing various places one might see bison depicted: state flags, on the official seal of the Department of the Interior (since 1912), and several sports team mascots. A few sentences regarding the history of bison are included in the Act text, including the role of bison in creating the first wildlife refuge in the United States (the Wichita Mountains Wildlife Refuge).³

¹ William Clay Lacy, “National Bison Legacy Act,” Pub. L. No. H.R.2908 (2016), <https://www.congress.gov/bill/114th-congress/house-bill/2908>.

² Lacy.

³ This refuge was created in 1905 when William Hornaday and Theodore Roosevelt, as part of the newly formed American Bison Society, sent fifteen captive-bred bison from the New York Zoological Park (now known as

This National Bison Legacy Act passed through the House and Senate within two days, codifying the bison as a national symbol alongside the bald eagle. The National Park Service (NPS) Biological Resources Division subsequently published a yearlong *Bison Bellows* series in 2016, in which one article stated:

Although the recognition [of bison as the national mammal] does not convey new protections for the bison, the Act recognizes the great conservation success story and importance of its comeback to Native Americans and rural communities alike. This new and permanent designation conveys a vision of shared values of unity, resilience, and healthy landscapes and communities. No other species is so iconic of American history and culture like the bison.⁴

While creating the first national mammal is a well-needed step forward in recognizing culturally significant nonhuman species and their connection to people and places, there are two main problems with the national mammal concept. First, as the NPS stated above, the Act “does not convey new protections for the bison [...]”⁵ Second, the national mammal concept presents a species out of context without supporting documentation or in-depth storytelling in relation to place. The two-page public law document is not sufficient (nor intended) to fully understand the history behind bison and it is unlikely to be read by members of the public. The United States

the Bronx Zoo) and reintroduced them to the wildlife refuge. The Act, however, provides little information about the importance of bison to Native American tribes, or the role that colonizers played in decimating bison herds as a way to subsequently decimate indigenous peoples as well. See Lacy.

⁴ National Park Service, “Bison Bellows: America’s New National Mammal,” *Bison Bellows* (blog), accessed March 5, 2023, <https://www.nps.gov/articles/bison-bellows-5-12-16.htm>.

⁵ National Park Service.

needs an updated way to celebrate and officially recognize culturally significant nonhuman species, beyond national icons like bison and bald eagles, at the local and state levels.⁶

To fulfill this goal, the tools of historic preservation should be used. Historic preservation is the discipline charged with documenting places of historical significance within the United States. Thus, it should play a role in documenting culturally significant nonhuman species at the local, state, and national levels. But to do so, historic preservationists must update their theories and practices regarding including nonhuman species if we are to accurately document places associated with nonhuman species relevant to United States history and manage landscapes utilizing a systems-based and living-species-first approach. This is especially true considering historic preservationists have historically focused on the built environment and not living species. Nevertheless, I argue that historic preservation should expand the documentation process to include culturally important nonhuman species, which I call *heritage species*, to fully understand the complex relationship and history between species, people, and places and manage landscapes holistically. I aim to push historic preservationists to consider a living-species-first approach and urge building-oriented practitioners to document landscapes comprehensively.

This thesis introduces the concept of heritage species to historic preservation. I define heritage species as a nonhuman species of cultural importance to a community that historically or currently contributes to a cultural landscape or community's sense of place, culture, identity, or ecology. I utilize the ethnobiological framework of Cultural Keystone Species (CKS) and World Heritage Species to define criteria for the proposed heritage species concept. To be clear, using

⁶ This idea is not new: countries such as India have a Natural Heritage Animals list, which includes iconic species such as elephants (which includes federal protections). See: Raman Sukumar, "Iconic Fauna of Heritage Significance in India," *Indian Journal of History of Science* 51, no. 2.2 (2016): 369–79.

the term *heritage* is not new when describing living species. Additional terms exist, such as heritage trees, seeds, and cattle. Further, the NPS, consultants, and other entities have used legacy vegetation and witness trees to describe mature trees of cultural significance as a way to identify more than their ecological importance to a landscape. Additionally, as discussed in the introduction of this chapter, the United States has a national mammal (bison) and national bird (bald eagle), and each state has a state bird, mammal, and plant. In addition, the United States has an endangered species list for federally and threatened species. There are also state equivalences to these, and some states assign the term heritage to these programs; the Virginia Department of Conservation (DCR) has a Natural Heritage Program which is limited to rare plant and animal species, for instance. Despite these many lists, terms, and programs protecting rare species, no overarching or well-established term within historic preservation describes culturally significant nonhuman animal and plant species. A species need not be threatened or endangered to be culturally significant. Thus, I put forth the heritage species concept and provide a suggested definition and criteria, acknowledging that these should act as a starting point for discussion. A finalized definition and criteria should be a collaborative effort amongst people of varying backgrounds, geographic regions, ethnicities, motivations, and skillsets within the natural and cultural resource realms.

The remainder of this introductory chapter first discusses inspirations for this thesis, which drew from environmental historians and non-United States landscape assessment methodologies and approaches. Second, I introduce the field of historic preservation, limiting this discussion to elements pertinent to this thesis (I do not provide a comprehensive history of the field). Third, I discuss ongoing discussions within preservation, like the nature-culture divide,

sense of place, and a peoples-first approach for preservation. Lastly, I provide a section clarifying the narrow scope of this study before providing an overview, or thesis plan, of what to expect within each forthcoming chapter.

Inspirations

The creation of heritage species and this thesis have two leading inspirations outside the United States historic preservation field. First, I was inspired by the published works of many environmental historians exploring the nonhuman-human relationship within an environmental history and wildlife conservation context. Environmental historian Michelle Nijhuis documents human and nonhuman animal histories through species such as bison, whooping crane, and black rhinoceros within her book *Beloved Beasts: Fighting for Life in an Age of Extinction*.⁷ She also confronts difficult histories surrounding conservation history, which she states is dominated by racism and colonialism. Second, Emma Morris and her book *Wild Souls, Freedom and Flourishing in the Non-Human World* inspired the use of “nonhuman animal” and “nonhuman species” terminology rather than just the terms wildlife, fauna, or wild animal.⁸ She argues that individual sentient creatures matter, an important ethical approach and detail to remember when discussing nonhuman species as cultural resources: they are not the same as buildings and structures.

Other environmental historians note that humans and nonhuman animals have been co-habituating places and interacting at increasing rates in urban landscapes. Consider Pedals the

⁷ Michelle Nijhuis, *Beloved Beasts: Fighting for Life in an Age of Extinction* (New York: W.W. Norton & Company, 2021).

⁸ Emma Marris, *Wild Souls: Freedom and Flourishing in the Non-Human World* (New York: Bloomsbury Publishing, 2021).

black bear in Peter Alagona's *The Accidental Ecosystem: People and Wildlife in American Cities*, dubbed "New Jersey's suburban Sasquatch." Alagona describes how Pedals "captured the hearts of thousands of people who encountered him in their neighborhoods" and became a local celebrity, partially due to the typical absence of black bears within suburban landscapes.⁹ Beyond Pedals, human and nonhuman species relationships can be found in all landscape typologies at various levels of interaction and connection to humans. Nonhuman species are ubiquitous in our landscapes, from osprey and their nesting platforms dotting coastal landscapes to one of the last remaining breeding populations of the ocelot in the Laguna Atascosa National Wildlife Refuge in Los Fresnos, Texas, and the largest urban bat colony in the world of Mexican free-tailed bats in Austin, Texas.¹⁰ Stories of relationships between people and nonhuman animals are also found at all scales of significance, from local celebrities like Pedals to national icons like bison and the bald eagle. Alagona emphasizes the need for understanding species, people, and places. He also promotes the idea we should question our inherent human exceptionalism within Western society and reanalyze our relationship to nonhuman species.

Cohabitation has brought human relationship to the natural environment to the forefront of society as we become more attached to technology, and there is a call for people to reconnect with places and nature.¹¹ Since 2020, the importance of greenscapes and humans re-connecting with the outdoors has put the human-nature relationship in the limelight due to the COVID-19

⁹ Peter S. Alagona, *The Accidental Ecosystem: People and Wildlife in American Cities* (Oakland: University of California Press, 2022), 83.

¹⁰ Ocelot in Laguna Atascosa National Wildlife Refuge are one of the last remaining two breeding populations within the United States (not worldwide).

¹¹ An example of a published work which calls for people to re-connect with place is: Jenny Odell, *How to Do Nothing, Resisting the Attention Economy* (Brooklyn: Melville House Publishing, 2019).

pandemic, which forced quarantines around the globe and reinforced the importance of access to the outdoors. Yet if species are connected to human culture and are omnipresent in our daily lives and landscapes, why are culturally significant species largely absent from the field of historic preservation, charged with providing an accurate account of the United States history and acknowledging places (and contributing resources) of cultural importance?¹² Secondly, can we shift this paradigm and push the people-first approach in historic preservation further to become *living-species-first*?¹³

The second leading inspiration for this thesis occurred from looking outwards toward other countries to understand how the United States can expand its cultural landscape approach. Natural England's *An Approach to Landscape Character Assessment (LCA)* is especially useful because it encompasses elements of landscapes that are not currently included in the United States' approach to cultural landscape documentation.¹⁴ On one hand, the LCA approach considers aspects within the cultural landscape documentation process familiar to the United States' approach (although with different terminology), such as enclosure, land use, associations, hydrology, geology, and soils.¹⁵ However, the LCA approach takes the documentation process a step further. It considers many other aspects important to a cultural landscape, such as sounds,

¹² I am specifically not using the term *protect*, as the National Register does not provide such protections and is primarily an honorary title (although the National Register can indirectly provide protections by elevating the community's awareness to a particular place and its history and importance).

¹³ A discussion of the current peoples-first and place-centered approach within historic preservation is provided within chapter one and chapter two of this thesis.

¹⁴ Natural England is a United Kingdom-based non-departmental public organization that is charged with the protection and improvement of England's natural environment. The LCA approach is described within: Christine Tudor, "An Approach to Landscape Character Assessment" (Natural England, October 2014).

¹⁵ These terms are included within the documentation process for the National Register of Historic Places, Cultural Landscape Inventories (CLI), and Cultural Landscape Reports (CLR). These types of documentation and resources included are discussed throughout this thesis.

smells, colors, and, most pertinent to this thesis, *flora and fauna* (Fig. 1). This thesis primarily addresses the flora and fauna portion of the wheel in figure 1 and discusses how to incorporate living nonhuman species into preservation practice.¹⁶

¹⁶ Additional research should consider the remaining elements, essential to a landscape like soundscapes, that continue to be excluded from the United States' cultural landscape approach.

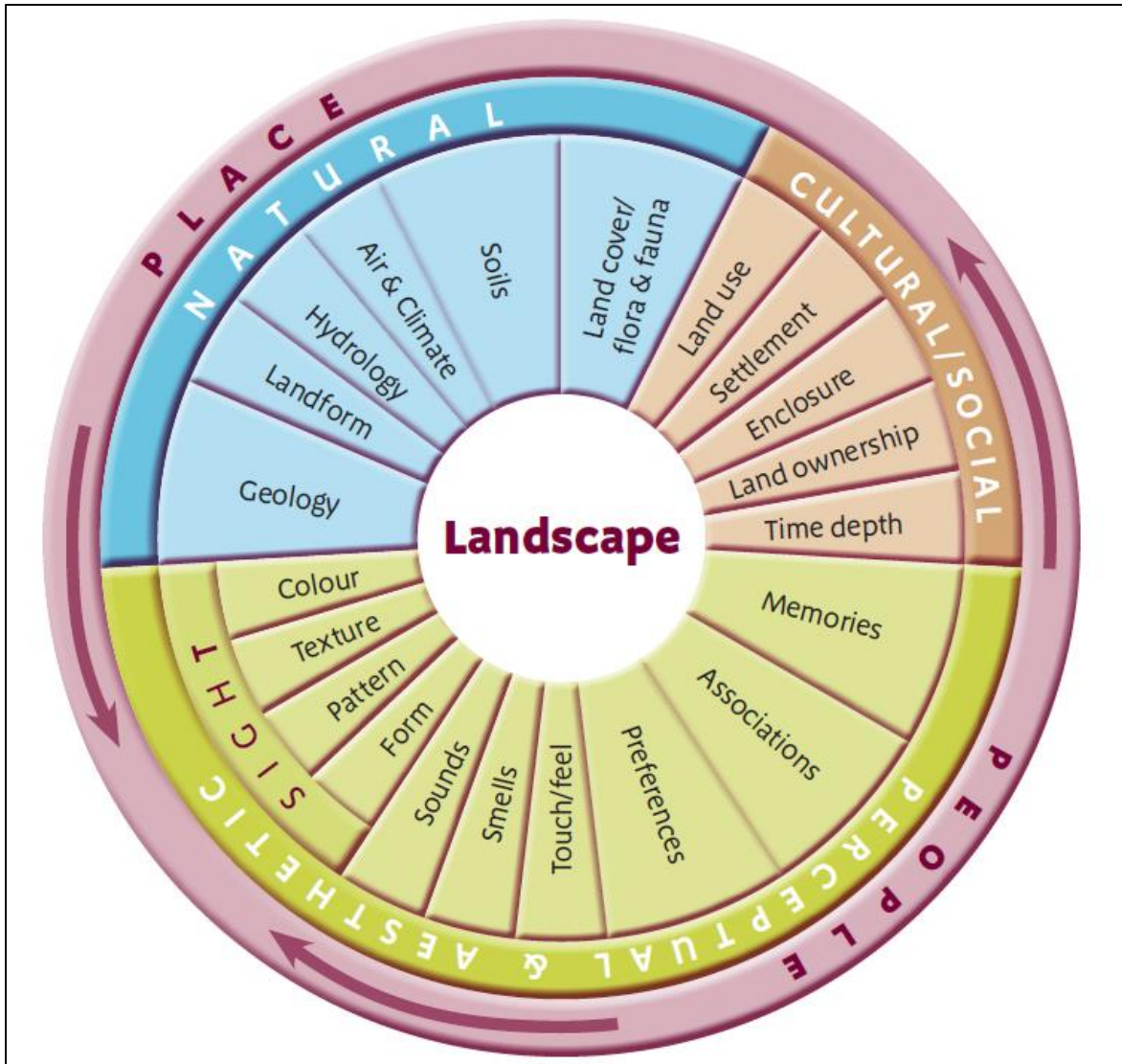


Figure 1: Landscape characteristics identified through the Landscape Character Assessment (LCA) approach in Tudor's landscape character assessment approach.¹⁷

U.S. Historic Preservation: A Limited Overview

The field of historic preservation was formalized with the enactment of the National Historic Preservation Act (NHPA) of 1966, a successor to numerous statutes involved in the

¹⁷ Tudor, "An Approach to Landscape Character Assessment," 9.

preservation of cultural resources such as the Antiquities Act of 1906 and Historic Sites Act of 1935. The NHPA codified the primary framework used today to document places of historical significance across the United States, the National Register of Historic Places (National Register).¹⁸ The creation of the National Register continued decades of practitioners identifying places important to United States history, favoring individual buildings of high-architectural style and integrity and buildings associated with white, wealthy, able-bodied, male histories.¹⁹ To understand how heritage species fit within the current preservation framework and how policy and practice relate, this section briefly introduces the legal framework of historic preservation within the United States (focusing on the federal level) and introduces the NPS cultural landscape approach. I also clarify the relationship between the National Register, Cultural Landscape Inventories (CLI), and Cultural Landscape Reports (CLR), which are the three forms of documentation this thesis focuses on.²⁰

Policy Versus Practice

In 1966, the NHPA authorized the Secretary of the Interior to expand and maintain the National Register. As a result, a select group of historians, architectural historians, and

¹⁸ An important aspect to note is that the National Register does not actually protect places and is an honorary designation; for example, a building in the National Register can be demolished without any local review process (unless it is also listed as a local historic property or district that has those protections). However, while a National Register listing or determination of eligibility does not stop demolition or change, federal agencies must at least consider effects and avoid, minimize, or mitigate adverse effects.

¹⁹ The United States began “collecting” places long before the National Register was instituted and there are also other lists used within the United States such as National Historic Landmarks (NHL), National Heritage Areas (NHA), and National Natural Landmarks (NNL).

²⁰ Chapter two provides more details regarding the inception of historic preservation in the US starting from the Historic Sites Act of 1905.

archaeologists began crafting the National Register criteria in 1967.²¹ NPS historian John Sprinkle states, “in 1969, the NPS formally published the criteria and criteria exceptions that would shape the existing content and scope of the National Register of Historic Places.”²² The criteria and procedures to nominate properties to the National Register were codified within 36 Code of Federal Regulations (CFR) Part 60 (36 CFR Part 60) and are relied upon today.

One of the most important aspects to currently understand about historic preservation within the United States is that 36 CFR Part 60 does not contain a set of comprehensive definitions and procedures; rather, much of historic preservation practice has been shaped and guided by publications from the NPS which have provided methodologies and definitions beyond the NHPA and 36 CFR Part 60.²³ For example, the National Register criteria (codified in 36 CFR Part 60) have remained unchanged since 1969.²⁴ However, Sprinkle notes, “while the criteria have remained unaltered, the listing process has been illuminated and augmented by a series of National Register bulletins that provide advice on how various types of resources might be recognized.”²⁵ Examples include: Bulletin 15, *How to Apply the National Register Criteria*

²¹ The NHPA, however, has been amended several times since its passage in 1966. For details on the history of how the NHPA, National Register, and criteria came to be see: John H. Sprinkle, *Crafting Preservation Criteria: The National Register of Historic Places and American Historic Preservation* (New York: Routledge, 2017), 87.

²² Sprinkle, 206.

²³ The NPS has several types of guidance documents that they have labeled as briefs, bulletins, professional procedure guidelines, guides, best practices, brochures, and white papers. Ultimately, these documents act in the same way in that they are public-facing documents meant to be utilized by preservation professionals involved in the documentation or treatment of historic places.

²⁴ Sprinkle, *Crafting Preservation Criteria: The National Register of Historic Places and American Historic Preservation*; Thomas F. King, *Cultural Resource Laws & Practices*, Fourth (New York: Rowman & Littlefield Publishing Group, Inc., n.d.).

²⁵ Sprinkle, *Crafting Preservation Criteria: The National Register of Historic Places and American Historic Preservation*, 208.

for Evaluation and the *Secretary of the Interior's Standards for the Treatment of Historic Properties*, originally published in 1990 and 1997 and revised in 1997 and 2006, respectively. These guidance documents are cornerstones of preservation practice that extend well behind the NHPA and 36 CFR Part 60. Refer to Appendix II within this thesis for a detailed table that breaks down definitions within 36 CFR Part 60 crucial to the National Register nomination process (including property type, geographic boundaries, criteria, integrity, areas of significance, and contributing resource), compared to terms defined or expanded through Bulletin 15.

The NPS has published numerous bulletins and guidelines to assist evaluating and documenting a wide range of property types such as: suburbs, battlefields, cemeteries, and burial places, designed historic landscapes, post offices, historic rural landscapes, traditional cultural properties, historic vessels, and shipwrecks. While this guidance is aimed at assisting preservation professionals with documentation work like National Register nominations, since many local and state registers mirror the National Register criteria, the result is that it is wide-reaching and incredibly impactful on documentation methods for on the entire field of preservation.²⁶ Additionally, the National Register criteria are the backbone of other forms of documentation, such as Cultural Landscape Inventories (CLIs) and Cultural Landscape Reports (CLRs), discussed in the sections below. CLRs, while utilized by the NPS to manage the park system, are additionally used elsewhere to manage non-NPS owned landscapes. Thus, the NPS guidance and National Register criteria extend beyond the NPS itself and insert themselves at all levels of preservation.

²⁶ For example, the Virginia Department of Historic Resources (VDHR) states on its website that the Virginia Landmarks Register (VLR) has the same criteria and nomination process as the National Register, typical of many states throughout the United States.

The National Register nomination and documentation process requires field visits to evaluate places in person. Nominations also require thorough archival research and interviews with relevant community members to determine how a place is eligible for the National Register, what makes a place historically significant, and why. The National Register is used primarily as an honorary listing. It does not provide protections that local designations can and consists of nearly 100,000 resources representing more than 1.4 million individual resources.²⁷ Ultimately, as NPS historian Sprinkle writes, the National Register is “both a stationary and continually changing representation of a culturally constructed consensus of those places that embody the historical themes, persona, and events that are important to each generation” for the entire United States.²⁸

The fact that preservation practice does not rely solely on codified statutes is impactful. The result is that preservation has been able to expand its purview without the support of congressional action but with reliance upon the NPS staff to make those expansions. One NPS bulletin, brief, or other type of guidance document can shape preservation practice. Understanding this policy versus practice issue is pertinent to this thesis because it shows that there is flexibility within the preservation field that could expand and incorporate heritage species.

²⁷ Sprinkle, *Crafting Preservation Criteria: The National Register of Historic Places and American Historic Preservation*, 207.

²⁸ Sprinkle, 207.

Cultural Landscape Program at the National Park Service

The concept of cultural landscapes as an academic term dates back to the late nineteenth century to German geographers such as Friedrich Ratzel.²⁹ Geographer Carl O. Sauer introduced the English-speaking world to cultural landscapes in 1925 and throughout the twentieth century it was increasingly adopted in other fields of study.³⁰ The term cultural landscape existed long before it reached the historic preservation field; however, it was not until 1981 that the NPS first recognized cultural landscapes as a resource type in *NPS-28 Cultural Resource Management Guideline*.³¹ In 1988, *NPS Management Policies* identified and defined cultural landscapes as a cultural resource within the national park system, and the policy mandated the protection of significant historical, archeological, ethnographic, and design values.³² The NPS definition of cultural landscapes specifically includes wildlife: "a geographic area, including cultural and natural resources and the *wildlife or domestic animals therein* [emphasis added], associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values."³³ The 1988 management policy document recognized the importance of considering both built and natural

²⁹ M. Jones, "The Concept of Cultural Landscape: Discourse and Narratives," in *Landscape Interfaces*, ed. G. Fry and H. Palang, vol. 1, Landscape Series (Dordrecht: Springer, 2003), https://doi.org/10.1007/978-94-017-0189-1_3.

³⁰ Sauer originally published *The Morphology of Landscape* in 1925 and it was subsequently republished in later years, see: Carl O. Sauer, "The Morphology of Landscape," in *Land and Life: A Selection from the Writings of Carl Ortwin Sauer*, ed. John Leighly (Berkeley, CA: University of California Press, 1963), 315–50, http://www8.umoncton.ca/umcm-vincent_guy/Sauer%20-%20Morphology%20of%20landscape.pdf.

³¹ Robert R. Page, Cathy A. Gilbert, and Susan A. Dolan, "A Guide to Cultural Landscape Reports: Contents, Process, and Techniques" (US Department of the Interior National Park Service, 2005), 10, <https://irma.nps.gov/DataStore/Reference/Profile/2198422>.

³² Page, Gilbert, and Dolan, 11.

³³ Charles A. Birnbaum, "Preservation Brief 36: Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes" (US Department of the Interior National Park Service, September 1994), 36, <https://home1.nps.gov/tps/how-to-preserve/briefs/36-cultural-landscapes.htm>.

features, the dynamics inherent in natural processes, and continued use.”³⁴ The NPS follows the National Register approach to documenting cultural landscapes. For example, cultural landscapes must have significance in United States’ history tied to a historic event, historic person, historic design, or be a place with potential to reveal important information (National Register criteria). In addition, cultural landscapes must have authenticity or historic integrity, meaning they “are recognizable as the places from the historically significant past.”³⁵ For cultural landscapes, the NPS measures integrity through thirteen landscape characteristics, each with their own definition laid out through guidance (Fig. 2).

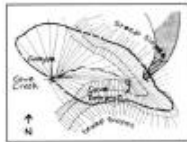
Landscape characteristics in the NPS approach to cultural landscape documentation provide the main method for understanding the parts of the landscape. The lack of inclusion of a landscape characteristic related to nonhuman animal species is pertinent to this thesis. Rather, nonhuman plant species are typically represented through the *natural systems and features* and *vegetation* categories. The NPS approach and the use of the current set of landscape characteristics to understand landscapes discourages a way of understanding how the landscape works in a dynamic, living system because it separates a landscape out, as if each aspect is non-living, similar to how one might break down parts of a building. This method of breaking up a landscape is helpful to identify each part that makes up the whole, but it limits a clear way to illustrate how these elements are connected.

³⁴ Page, Gilbert, and Dolan, “A Guide to Cultural Landscape Reports: Contents, Process, and Techniques,” 7.

³⁵ “Cultural Landscapes 101,” *National Park Service*, 101, accessed March 5, 2023, <https://www.nps.gov/articles/cultural-landscapes-101.htm>.

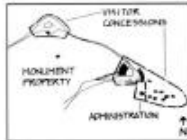
OVERVIEW OF LANDSCAPE CHARACTERISTICS

Landscape characteristics include tangible and intangible aspects of a landscape from the historic period(s); these aspects individually and collectively give a landscape its historic character and aid in the understanding of its cultural importance. Landscape characteristics range from large-scale patterns and relationships to site details and materials. The characteristics are categories under which individual associated features can be grouped. For example, the landscape characteristic, vegetation, may include such features as a specimen tree, hedgerow, woodlot, and perennial bed. Not all characteristics are always present in any one landscape. The following landscape characteristics may be documented in a CLR.



Natural Systems and Features

Natural aspects that often influence the development and resultant form of a landscape.



Spatial Organization

Arrangement of elements creating the ground, vertical, and overhead planes that define and create spaces.



Land Use

Organization, form, and shape of the landscape in response to land use.



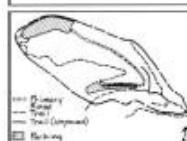
Cultural Traditions

Practices that influence land use, patterns of division, building forms, and the use of materials.



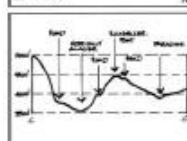
Cluster Arrangement

The location of buildings and structures in the landscape.



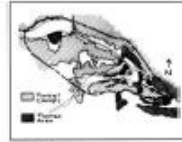
Circulation

Spaces, features, and materials that constitute systems of movement.



Topography

Three-dimensional configuration of the landscape surface characterized by features and orientation.



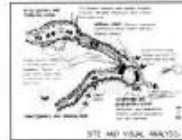
Vegetation

Indigenous or introduced trees, shrubs, vines, ground covers, and herbaceous materials.



Buildings and Structures

Three-dimensional constructs such as houses, barns, garages, stables, bridges, and memorials.



Views and Vistas

Features that create or allow a range of vision which can be natural or designed and controlled.



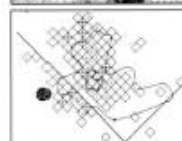
Constructed Water Features

The built features and elements that utilize water for aesthetic or utilitarian functions.



Small-Scale Features

Elements that provide detail and diversity combined with function and aesthetics.



Archeological Sites

Sites containing surface and subsurface remnants related to historic or prehistoric land use.

Figure 2: Excerpt from the NPS' *Guide to Cultural Landscape Reports* with landscape characteristic definitions.³⁶

Cultural Landscape Inventories versus Cultural Landscape Reports

The NPS' cultural landscapes program utilizes CLIs and CLRs tied to the National Register criteria. The NPS has published various documents to further guide practitioners and NPS staff on how to specifically document and treat cultural landscapes. Examples of guidance documents specific to cultural landscapes include Bulletin 18, *How to Evaluate and Nominate Designed Historic Landscapes*; Bulletin 30, *National Register Bulletin How to Evaluate and Nominate Rural Historic Landscapes*; and Preservation Brief 36, *Protecting Cultural Landscapes: Planning Treatment and Management of Historic Landscapes*. Additionally, two guides serve as the main source for preparing CLIs and CLRs: *National Park Service Cultural Landscapes Inventory Professional Procedures Guide* and *A Guide to Cultural Landscape Reports: Contents, Process, and Techniques*.

At the NPS, CLIs and CLRs act as synergistic reports. According to the *National Park Service Cultural Landscapes Inventory Professional Procedures Guide*, CLIs were initiated by the NPS in 1994 due to the identification of “material weakness in the preservation of cultural landscapes and historic structures.”³⁷ Drawing on inventory work that had been completed in years prior, the NPS spent three years developing a standardized inventory methodology for cultural landscapes in the park system and automating a database to collect and query those findings. In 1997, the NPS allocated funding to initiate CLIs in all regions. For a CLI unit to be complete or “certified,” the CLI findings require concurrence with the park superintendent and

³⁶ Page, Gilbert, and Dolan, “A Guide to Cultural Landscape Reports: Contents, Process, and Techniques,” 53.

³⁷ Robert R. Page, “National Park Service Cultural Landscapes Inventory Professional Procedures Guide” (US Department of the Interior National Park Service, January 2009), <https://irma.nps.gov/DataStore/DownloadFile/513401>.

concurrence from the State Historic Preservation Office (SHPO) (if not previously documented). In addition, CLIs are required to be cyclically updated to ensure landscapes continue to uphold their integrity and to assess threats and impacts. They are directly integrated into the NPS Cultural Resource Inventory System (CRIS) online database system, created to adhere to Section 110 of the NHPA.³⁸ The methodology of the CLI is anchored in the National Register criteria with the professional procedures guide stating that “every attempt will be made to be consistent with National Register terminology.” For example, “...the landscape is classified as a ‘site’ or ‘district,’ as it would in the National Register because *landscape* has not been codified as an official property type.”³⁹ Ultimately, the CLI selects an appropriate landscape treatment documents, including General Management Plan, Development Concept Plan, Historic Structure Report, Cultural Landscape Report, Vegetation Management Plan, Regional Neglect/Removal Memo, and/or “other.”⁴⁰ CLIs are intended to present stabilization recommendations to resource managers within the park system, whereas CLR are formal treatment documents.

The NPS originally defined and introduced CLR in 1985, which differ from CLIs because their main function is to serve as a principal treatment document and a long-term management tool.⁴¹ The NPS presents a statement of purpose for CLR which says they are intended to provide “management and treatment decisions about a landscape’s physical attributes, *biotic systems* [emphasis added], and use when that use contributes to historical

³⁸ Section 110 states that “... each Federal agency shall establish...a preservation program for the identification, evaluation, and nomination to the National Register of Historic Places...of properties [...]” See 16 USC 470h-2(a)(1).

³⁹ Page, “National Park Service Cultural Landscapes Inventory Professional Procedures Guide,” IN-5.

⁴⁰ Page, 9–2.

⁴¹ Page, Gilbert, and Dolan, “A Guide to Cultural Landscape Reports: Contents, Process, and Techniques,” 10.

significance.”⁴² While biotic systems are included within the CLR’s statement of purpose, the NPS cultural landscape approach heavily favors vegetation and tends to ignore nonhuman animal species as part of that biotic system.

A CLR contains many aspects similar to CLIs; for example, the reports follow the same thirteen landscape characteristics and associated features and associations to determine the integrity and historical significance. How to prepare a CLR is laid out in the NPS’ *Guide to Cultural Landscape Reports*.⁴³ As appendices to the guide, the NPS also publishes a series of Landscape Lines, a series of short guidance documents the NPS describes as interpretations of cultural landscape terminology and discussions of applied approaches to documentation. Examples include *Landscape Lines 4: Historic Plant Materials Sources* and *Landscape Lines 12: Treatment of Plant Features*. In 2005, the Lead of the Park Cultural Landscapes Program, Lucy Lawlis, stated the need to continually update the CLR guide and to add additional Landscape Lines to “maintain the NPS’s role as the leader in the cultural landscape arena.”⁴⁴

This short introduction to CLIs and CLR’s is pertinent to this thesis for three reasons. First, it is useful throughout these chapters to understand how the National Register, CLIs, and CLR’s interact as they are the documentation forms I focused on within this study. A broader understanding of the types of documentation helps conceptualize where and how heritages species can be incorporated. Second, guidance like Landscape Lines, which were created to expand as preservation grows to incorporate new types of resources, proves that preservation

⁴² Page, Gilbert, and Dolan, 3.

⁴³ Page, Gilbert, and Dolan, “A Guide to Cultural Landscape Reports: Contents, Process, and Techniques.”

⁴⁴ Page, Gilbert, and Dolan, iii.

practice was not meant to be stagnant and provides an opening for new ideas, such as heritage species, to be incorporated. Third, knowledge of the existing documentation types helps understand the nature-culture divide within documentation reports, as well as the omission of nonhuman animal species from the documentation process, specifically the landscape characteristics. The next section provides a historical context of said nature-culture divide within the field of historic preservation.

Primary Discussion: Nature-Culture Divide

The nature-culture divide is an ongoing discussion amongst preservation professionals related to the staunch division between the built and living environment within historic preservation. Many scholars within the preservation field have covered the nature-culture divide topic, primarily from a land management or consultation perspective. From a land management perspective, those like Bonnie Stepenoff have questioned this artificial separation by asking, “where does nature end and culture begin, and how can we preserve the beauty in the places where human contrivance meets untamed land?”⁴⁵ Preservationist Robert Melnick discusses the inherent difficulty of addressing nature and culture within dynamic landscape systems. Melnick argues that to understand and manage cultural landscapes, “we must learn to ‘read’ them and to consider the forces that caused them to develop. This process is much like learning to read a language.”⁴⁶ More recently, in 2018, Melnick argued that practitioners need to understand

⁴⁵ Bonnie Stepenoff, “Wild Lands and Wonders, Preserving Nature and Culture in National Parks,” in *Cultural Landscapes, Balancing Nature and Heritage in Preservation Practice*, ed. Richard Longstreth (Minneapolis: University of Minnesota Press, 2008), 91.

⁴⁶ Robert Z. Melnick, “Considering Nature and Culture in Historic Landscape Preservation,” in *Preserving Cultural Landscapes in America*, ed. Arnold R. Alanen and Robert Z. Melnick (Baltimore: Johns Hopkins University Press, 2000), 35.

natural and cultural resources together rather than separately to understand a landscape's true complexity and resiliency.⁴⁷ He claims the NPS needs to focus on bringing down the walls between natural and cultural resource programs and rethink tools such as cultural landscape reports to facilitate a collaborative approach to resource management (note that Melnick does not touch on nonhuman species). NPS historian Sprinkle, who recently published *Saving Spaces: Historic Land Conservation within the United States*, focuses on historic land conservation in the United States and discusses the evolution of the historic preservation and environmental land conservation field throughout American history. However, he does not discuss the intersection with living, nonhuman species.⁴⁸ From a historic preservation consultant perspective, Tom King criticizes the preservation field for being too materials-focused and often uses examples from his experience working within cultural resource management (CRM). King primarily writes about the consultative processes regarding the National Environmental Policy Act (NEPA) and Section 106 of the NHPA. He argues in layman's terms that the absence of "natural stuff" from historic preservation misses a vital connection regarding how the environment is linked to place.⁴⁹ King also questions why environmental aspects such as water quality are not considered historic preservation concerns when they are so inextricably linked to landscapes.⁵⁰

⁴⁷ Robert Z. Melnick, "Re-Envisioning the Cultural Landscape Report: Straddling the Nature/Culture Divide at Pecos National Park," in *2018 US/ICOMOS Symposium* (Forward Together: A Culture-Nature Journey Towards More Effective Conservation in a Changing World, San Francisco, California, 2018), <https://usicomos.org/wp-content/uploads/2019/11/Melnick-2019-US-ICOMOS-Proceedings.pdf>.

⁴⁸ John H. Sprinkle, *Saving Spaces: Historic Land Conservation in the United States* (New York: Routledge, 2019).

⁴⁹ Thomas F. King, *Places That Count: Traditional Cultural Properties in Cultural Resource Management* (Walnut Creek: AltaMira Press, 2003).

⁵⁰ King, 263.

Meanwhile, environmental historian Laura Watts brings nonhuman animals into the discussion and reflects that “historic preservation and protection of endangered species are rarely discussed in the same circles.”⁵¹ She provides a thorough background to the Endangered Species Act (ESA) of 1973 and the NHPA and argues that each regulation has evolved with many similarities. Watts discusses how each regulation struggles to preserve large-scale integrated landscapes of historical or ecological importance. She recognizes the need for “...a broad, systems-based understanding of natural and cultural landscapes [...]”⁵² and suggests ways to rethink this process. However, she does not address updating documentation or how to include culturally important nonhuman species. Few scholars beyond Laura Watts discuss the nature-culture divide and its specific relation to the documentation process to utilize the NHPA to protect nonhuman species. One exception is Tom King who discusses including animals in the National Register within the existing NPS framework in his published article *Animals and the National Register of Historic Places*, an important contribution that set the stage for this thesis topic by providing a discussion of how living species can fit into the National Register framework.⁵³

The use of the NHPA to preserve species has also been examined from a legal perspective. It can be found in case law literature written by Ingrid Bostrom, for example, who discusses the cultural significance of wildlife and iconic species. She states that while all species have ecological value, some deserve the extra protection for cultural significance that the NHPA

⁵¹ Laura A. Watt, Leigh Raymond, and Meryl L. Eschen, “Reflections: On Preserving Ecological and Cultural Landscapes,” *Environmental History* 9, no. 4 (October 2004): 620.

⁵² Watt, Raymond, and Eschen, 621.

⁵³ Thomas King, “Animals and the United States National Register of Historic Places,” *The Applied Anthropologist* 26, no. 2 (Fall 2006): 129–36.

can provide.⁵⁴ The landmark case for this discussion is *Okinawa Dugong v. Rumsfeld* and the protection of the dugong (a species similar to manatees) by the Okinawan people of Japan.⁵⁵ Building on the court's decision (who ruled in favor of protecting the dugong under cultural resource law), Ingrid Bostrom lays out a process to protect culturally important species under the current NHPA, similar to Tom King's approach. However, much of King's and Bostrom's examples of culturally important species seem limited to Indigenous cultures and beliefs or non-United States examples. I argue this can be expanded to other people and places as well, but there is a need for a concept to help define what a culturally significant species is in the first place.⁵⁶

Historic preservation documentation focusing solely on nonhuman species is limited but not absent (see chapter two for further discussion). For example, there are only three National Federal Wildlife Refuges (out of 568 in existence) included in the National Register, consisting of nearly 100,000 listings. There are also examples of trees in the National Register.⁵⁷ Further, CLIs and CLRs include vegetation from an ecological and cultural perspective and there are many examples of vegetation considered contributing resources within these documents;

⁵⁴ Ingrid Brostrom, "The Cultural Significance of Wildlife: Using the National Historic Preservation Act to Protect Iconic Species," *Hastings West Northwest Journal of Environmental Law & Policy* 12, no. 2 (2006): 147, https://repository.uchastings.edu/hastings_environmental_law_journal/vol12/iss2/5.

⁵⁵ While an overseas example, the NHPA Section 106 process was triggered because the US military intended to build upon the last remaining natural dugong habitat. The dugong is considered a protected monument under the Japanese Register of Cultural Properties, which is equivalent to the US NHPA. Ultimately, the courts decided in favor of the Okinawan people and protecting the dugong under the NHPA (based on the fact the dugong is protected under an equivalent foreign statutory cultural preservation law), see: *Dugong v. Rumsfeld*, 2005 WL 522106 (N.D. Cal. 2005).

⁵⁶ Brostrom, "The Cultural Significance of Wildlife: Using the National Historic Preservation Act to Protect Iconic Species," 154.

⁵⁷ For an example of trees listed in the National Register see: "Tree Rows Added to the National Register of Historic Places," Burlingame Historical Society, accessed November 12, 2022, <https://burlingamehistory.org/2012/04/08/tree-rows-added-to-national-register-of-historic-places/>.

however, there is still debate amongst NPS professionals about how to include culturally significant vegetation and what terms to use, if any, beyond “contributing resource.”⁵⁸

How can we create a term to describe culturally significant species, shift our mindset to be more living species focused, and view species as an active part of our history that deserves protection under cultural resource laws? One response to this question can be found outside historic preservation. For example, an environmental history approach helps to understand that nature has agency in landscapes and our history, which can assist practitioners view landscapes within a living-species first approach. Consider Janet Ore who has written about how an environmental history approach to documentation helped her focus on how nature impacted culture instead of how humans had used the land, in her recent cultural landscape study that focused on Rocky Mountain National Park.⁵⁹ Beyond Janet Ore, C. Ian Stevenson discusses an environmental history approach and expanding beyond viewing nature as a stage, to nature as an actor. He questions why, within historic preservation, nature is viewed solely as a natural resource or as a backdrop to human history.⁶⁰ Ore and Stevenson’s approaches are further discussed in chapter two.

⁵⁸ I was employed as a Cultural Landscape Inventory Intern at the National Park Service, National Capital Regional Office throughout the writing process of my thesis. Accepted terminology to refer to culturally significant vegetation is “contributing resource.” It was outside the scope of this thesis to conduct thorough interviews with NPS staff and other historic preservation professionals to understand the use of terms to describe culturally significant nonhuman species, such as legacy vegetation and witness trees.

⁵⁹ Janet Ore, “Viewpoint: Landscape Disputed: What Environmental History Can Show Us,” *Building & Landscapes* 27, no. 2 (Fall 2020), https://go-gale-com.goucher.idm.oclc.org/ps/i.do?id=GALE%7CA642584622&sid=googleScholar&v=2.1&it=r&linkaccess=abs&issn=19360886&p=AONE&sw=w&userGroupName=goucher_main.

⁶⁰ C. Ian Stevenson, “Viewpoint: Introducing Environmental History into Vernacular Architecture: Considerations from New England’s Historic Dams,” *Buildings & Landscapes: Journal of the Vernacular Architecture Forum* 24, no. 2 (2017): 1, <https://doi.org/10.5749/buildland.24.2.0001>.

There is a clear absence of the inclusion of culturally important species, primarily nonhuman animals, in documentation and NPS guidance. This is unsurprising given that the NHPA was passed in 1966 to protect the built environment and not living species. However, the historic preservation field in the United States has utilized cultural landscapes as a term for over 40 years. It encompasses nearly every aspect of a landscape except for nonhuman animals (and elements like soundscapes and other sensory elements). This limited approach prevents a holistic and true understanding of landscapes. It is missing a key opportunity to use the cultural landscape approach to understand landscapes as dynamic systems, where one landscape characteristic informs another. Historic preservation can no longer avoid documenting culturally significant living species, and preservationists require guidance and methodology to identify such species. Heritage species can help shift the narrative to push nonhuman species to the forefront. My thesis intends to fill the nature-culture gap and provide a clear path forward for incorporating an updated living-species-first approach into historic preservation.

Secondary Discussions

Beyond the current scholarship regarding the nature-culture divide within historic preservation, two additional secondary discussions are related. Due to the scope of this thesis, I will not discuss these secondary discussions in detail; however, they deserve to be mentioned because of their relevancy and to provide ideas for future research areas to explore. The first secondary discussion relevant to this thesis involves the concept of *sense of place*. Many scholars discuss this concept within preservation and the more general term “place.” Tim Cresswell discusses place in his book, *Place: an Introduction*, from a cultural geographers perspective; Tom Mayes has provided several reasons in support of historic preservation in *Why Old Places*

Matter: How Historic Places Affect Our Identity and Well-Being; and Ted Relph has an entire blog dedicated to Placeness, Place, and Placelessness surrounding historic preservation.⁶¹ Najafi et al. (2011) discuss the concept of sense of place specifically in their journal article *The Concept of Place and Sense of Place In Architectural Studies*.⁶² This publication defines place as the location “where dimension formed by people’s relationship with physical settings, individual and group activities, and meanings.”⁶³ They provide terms such as place attachment, place identity, and sense of place as concepts to describe people’s relationship to place. Sense of place is “an overarching impression encompassing the general ways in which people feel about places, sense it, and assign concepts and values to it.”⁶⁴ While the authors do not discuss the role of living species in sense of place, they cite work by psychologists Rachel Kaplan and Stephen Kaplan, who argue in their 1989 book, *The Experience of Nature, A Psychological Perspective*, that people’s “landscape preference is strongly related to landscape configuration and features.”⁶⁵ Kaplan and Kaplan argue that people “lack a solidly grounded theoretical framework” to gain a “deeper understanding of the role nature plays in their lives.”⁶⁶ While it is not within the scope of this work to explore the human psychological connection to nature, the sense of place concept is

⁶¹ Tim Cresswell, *Place: An Introduction*, 2nd edition (West Sussex: Wiley-Blackwell, 2015); Thompson M. Mayes, *Why Old Places Matter: How Historic Places Affect Our Identity and Well-Being* (New York: Rowman & Littlefield, 2013); Ted Relph, *Placeness, Place, Placelessness* (blog), accessed April 24, 2023, <https://www.placeness.com/>.

⁶² Mina Najafi and Mustafa Kamal Bin Mohd Shariff, “The Concept Of Place And Sense Of Place In Architectural Studies,” August 24, 2011, <https://doi.org/10.5281/ZENODO.1082223>.

⁶³ Najafi and Shariff, 1054.

⁶⁴ Najafi and Shariff, 1054.

⁶⁵ Najafi and Shariff, 1058.

⁶⁶ Rachel Kaplan and Stephen Kaplan, *The Experience of Nature: A Psychological Perspective* (Cambridge: Cambridge University Press, 1989), vii, <https://archive.org/details/experienceofnatu00kapl/page/n21/mode/1up>.

important to this thesis topic specifically because it is a concept that attempts to help understand why people become attached to places, and the fact that it is nearly never limited to solely the built environment but also incorporates all tangible and intangible elements. To use a personal anecdote, in my hometown of Madison, Connecticut, a small, coastal New England town full of colonial homes in the National Register, I would describe the sense of place as not limited to the built environment or even wetlands vegetation but the smell of salt in the air, purple sand that lines the beaches, and iconic nonhuman species such as osprey, horseshoe crabs, and seagulls.

The second discussion that deserves mention, especially due to my terminology of *living-species-first approach*, is the push to a peoples-first approach within preservation. Many scholars, academics, and communities, have discussed this topic.⁶⁷ One example is the National Trust's publication of *Preservation for People: A Vision for the Future* in 2017, which outlines three main principles for historic preservation, including honoring the full diversity of American history; nurturing more equitable, healthy, resilient, vibrant, and sustainable communities; and collaborating with new and existing partners to address social justice issues.⁶⁸ The Trust's document, intended to envision the next fifty years of preservation, presents the central focus as centered on people (as in *all* people). The push for more equitable preservation and to tell stories related to underrepresented groups of people no doubt steered and promoted this publication. To be clear, the field of historic preservation must reconcile its history of erasure of difficult

⁶⁷ Ned Kaufman, *Place, Race and Story: Essays on the Past and Future of Historic Preservation* (New York: Routledge, 2009).

⁶⁸ "Preservation for People: A Vision for the Future" (National Trust for Historic Preservation, May 2017), [chrome-extension://efaidnbmnnnibpcajpcgglefindmkaj/viewer.html?pdfurl=https%3A%2F%2Fforum.savingplaces.org%2FHigherLogic%2FSystem%2FDownloadDocumentFile.ashx%3FDocumentFileKey%3D57133684-4c32-4863-5965-96476f7b4dab%26forceDialog%3D0&clen=2562419](https://efaidnbmnnnibpcajpcgglefindmkaj/viewer.html?pdfurl=https%3A%2F%2Fforum.savingplaces.org%2FHigherLogic%2FSystem%2FDownloadDocumentFile.ashx%3FDocumentFileKey%3D57133684-4c32-4863-5965-96476f7b4dab%26forceDialog%3D0&clen=2562419).

histories, lesser-known histories, and histories associated with minority groups. The preservation field should incorporate all living things within this approach as well. How can the preservation field create “equitable, healthy, resilient, vibrant, sustainable communities” without considering the environment?⁶⁹ Yet, in searching “wildlife,” “species,” “animal,” “nature,” or “natural environment,” there are zero results within this document that even acknowledge the strong connection between species, people, and places. My thesis argues that the peoples-first approach must be pushed to a living-species-first approach to create sustainable and equitable futures.

Scope of Study

Heritage species is a large topic to create, define, and explain how it integrates into the existing preservation framework. As a result, the scope of this study is limited in several ways. First, this thesis pushes the cultural landscape approach by incorporating all living species, inclusive of nonhuman animals, specifically into the NPS’ documentation methods. Additionally, while there are many types of documentation within historic preservation and at various local, state, and federal levels, I limit my discussion to National Register nominations, CLIs, and CLR. I focus primarily on the NPS federal level of documentation as they are the leaders in cultural landscape documentation and management within the United States. The NPS shapes historic preservation practice through a top-down approach by publishing technical guides and bulletins.⁷⁰

⁶⁹ “Preservation for People: A Vision for the Future,” 3.

⁷⁰ For example, many states’ historic registers follow National Register criteria, which are followed or provide the basis for many local historic preservation commission ordinances. Therefore, the NPS’s bulletins, briefs, and guidelines are powerful tools to reshape historic preservation practice (without congressional support or the need to revise the NHPA) that also affect local and state-level preservation practices.

The scope of this thesis is additionally limited because it focuses on documentation rather than treatment or land management and proposes updates specifically to documentation practice. This is because documentation reports such as CLRs act as treatment documents and, therefore, it is necessary to update documentation theories and practices before treatment can be discussed.⁷¹ It is imperative that further research expand and specifically discuss the intersection of cultural landscape treatment, heritage species, and wildlife conservation.

Lastly, I discuss culturally significant vegetation, but this thesis is largely skewed toward nonhuman animals. This is because current cultural landscape documentation includes a methodology for including culturally significant plants but ignores culturally significant nonhuman animals. Throughout my research, I also found limited information regarding scholarship that focused on including nonhuman animals within preservation.

Thesis Plan

This thesis is structured as follows: in chapter two, I focus on the legislative and regulatory history of the nature-culture divide and provide examples of how the NPS has been mandated to protect natural resources since the enactment of the Organic Act of 1916. I reiterate the inclusion of *wildlife therein* within the NPS definition of cultural landscapes and the lack of a methodology for considering wildlife within the NPS cultural landscape approach. The second part of chapter two discusses several areas in which nonhuman species are recognized within

⁷¹ It is also important to note that because CLIs and CLRs are treatment (i.e., management) documents (which rely on the initial documentation reports such as a National Register nomination), this approach can be applied to any place which requires management of natural and cultural resources together and is not limited to the NPS. For example, Cultural Landscape Reports can be prepared by private-sector consultants to create treatment and management plans for designed park landscapes, such as a CLR created by the firm Rhodeside & Harwell for Branch Brook Park (local, municipally owned) in New Jersey “Cultural Landscape Report, Treatment, and Management Plan for Branch Brook Park, Newark, New Jersey” (Rhodeside & Harwell, Incorporated, September 9, 2002), <https://branchbrookpark.org/cultural-landscape-report.html>.

preservation documentation, such as the tendency to view species as natural resources, as associated with sacred and religious sites, or as contributing to an overall landscape (although this is generally limited to vegetation). I also touch on the fact that there are many examples of nonhuman species exclusion from documentation, such as in National Register nominations. CLIs and CLRs have provided a leap forward that facilitates the inclusion of vegetation (as a landscape characteristic), but this model for documenting and managing landscapes continues to exclude nonhuman animal species.

Chapter three proposes a new term to describe culturally important species: *heritage species*. A definition, goals, and criteria are presented, inspired by existing framework's such as ethnobiology's Cultural Keystone Species (CKS) concept and World Heritage Species. Chapter three discusses how to fit living species into the current preservation framework, focusing in the National Register framework, CLIs, and CLRs.

Chapter four provides examples of how to evaluate species against the proposed heritage species concept, as well as the National Register. I discuss two examples: first, I focus on an urban landscape example, Mexican free-tailed bats and the Congress Avenue Bridge in Austin, Texas. My second example is a park landscape, specifically old-growth trees in Glencarlyn Park in Arlington, Virginia. This chapter concludes by providing numerous additional examples of potential heritage species. Based on the scope of work required within this thesis, I provide these as potential examples that deserve additional research.

Chapter five summarizes actionable next steps that can be taken by historic preservation professionals based on the information provided in this thesis and the newly introduced heritage species concept. I also provide recommendations regarding how the NPS could update existing

cultural landscape guidelines, focusing on revising Preservation Brief 36, *Protecting Cultural Landscapes: Planning, Treatment, and Management of Historic Landscapes*, and updating CLR NPS procedure guides.⁷² Lastly, I outline the implications of including living species within our historic preservation framework for documentation, Section 106 consultation, integrated resource management, as well as outside the historic preservation field for wildlife conservation.

My thesis urges the NPS, other federal agencies, and historic preservation professionals to consider the limitations of existing guidance and work towards a worldview that considers the cultural importance of nonhuman species. This thesis is geared towards practitioners, but I believe everyone can see the value of creating a concept to identify and understand the culturally significant nonhumans relevant to United States history. For example, a standalone “Heritage Species Program” could exist at the NPS or at state and local preservation organizations, which focuses on documenting heritage species in landscapes across the United States and need not be directly linked to the NPS cultural landscape program. Therefore, while this thesis takes an NPS-forward approach, it can apply to the historic preservation field as a whole; I urge the historic preservation field to push towards a living-species-first approach to see heritage species as an important, inseparable piece of all people’s histories that deserves our attention.

⁷² Birnbaum, “Preservation Brief 36: Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes”; Page, “National Park Service Cultural Landscapes Inventory Professional Procedures Guide”; Page, Gilbert, and Dolan, “A Guide to Cultural Landscape Reports: Contents, Process, and Techniques.”

CHAPTER II: THE NATURE-CULTURE DIVIDE

There are two main purposes of this chapter. First, to trace legislative and regulatory actions to discuss significant cultural resource laws since the early twentieth century which provides historic context. I discuss the nature-culture divide in historic preservation, the historic context around this division, and the shift towards a cultural landscape approach. Specifically, I focus on the cultural resource side of the NPS and illustrate early efforts to include nonhumans in preservation practice, as well as the NPS' long-standing involvement in nonhuman species management. Second, this chapter illustrates how documentation, such as National Register nominations, CLIs, and CLRs, typically includes nonhuman species. I discuss three areas where nonhumans species are typically found or described in documentation: as a resource, related to sacred and religious sites, and as contributing parts to larger a landscape. I also describe and provide examples where documentation, especially National Register nominations, has typically excluded nonhuman species. Overall, I describe and provide examples of the tendency to utilize a Western worldview to separate humans and nonhumans within documentation which prevents a holistic view of landscapes and inhibits understanding the complex relationships between species, people, and places.

Legislative and Regulatory History: Nature-Culture Divide

Early historic preservation laws focused on landscape preservation rather than tangible heritage elements such as individual buildings. While this approach may not have explicitly

included nature, the landscape approach to preservation was inherently less focused on the built environment and more focused on preserving places such as sites, battlegrounds, and large tracts of lands important to United States' history. Through reviewing significant landmark preservation legislation in the United States, I track the focus of preservation from a landscape approach in the early 1900s, to one more focused on individual buildings and architecture in the 1960s, and then back towards a landscape approach in the 1980s with the introduction of the cultural landscape approach to the NPS. A review of the history of such laws also indicates how the cultural landscape program within the NPS has predominantly avoided nonhuman species. The current division amongst natural resource and cultural resource programs at the NPS is evidence for the impact of the nature-culture divide, which has resulted in the typical exclusion of nonhuman animal species from consideration within cultural landscape documentation.

Legislation and Regulation Overview

The Antiquities Act of 1906 includes protections for landscapes and large tracts of land. This relatively short act is laid out in sections; section two authorizes the President of the United States “to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the *lands* [emphasis added] owned or controlled by the Government of the United States to be national monuments [...].”⁷³ Originally, Congress enacted this legislation with precontact ruins of the West in mind; however, this Act had a broad interpretation by presidents such as Theodore Roosevelt who

⁷³ American Antiquities Act of 1906, 16 USC 431-433.

“used it to protect eight hundred thousand acres of the Grand Canyon and similar areas.”⁷⁴ This Act enabled landscapes to be preserved early in the development of the historic preservation field.

Congress enacted the Organic Act of 1916 to establish the NPS within the Department of the Interior. The NPS provided the United States with an agency to protect natural and cultural resources as part of its mission.⁷⁵ The purpose of the NPS as written in the Act was to “promote and regulate the use of the Federal areas known as national parks, monuments, and reservations” and to “conserve the scenery and the *natural and historic objects and the wildlife therein* [emphasis added] and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.”⁷⁶ This Act charges the NPS with conserving both historical objects and living species.⁷⁷ The NPS even marketed national parks to the American people as places to observe, protect, and preserve wildlife specifically. For example, NPS posters created in the 1930s and 1940s as part of the National Works Progress Administration Federal Art Project have several posters focused on wildlife (Fig. 3).

⁷⁴ Dorceta E. Taylor, *The Rise of the American Conservation Movement: Power, Privilege and Environmental Protection* (Durham: Duke University Press, 2016), 310.

⁷⁵ The protection of historic battlefields was transferred from the War Department to the NPS in 1916 according to King, *Cultural Resource Laws & Practices*, 17.

⁷⁶ Organic Act of 1916, 16 USC 1.

⁷⁷ Other federal agencies are also charged with species protection, such as the USFWS.

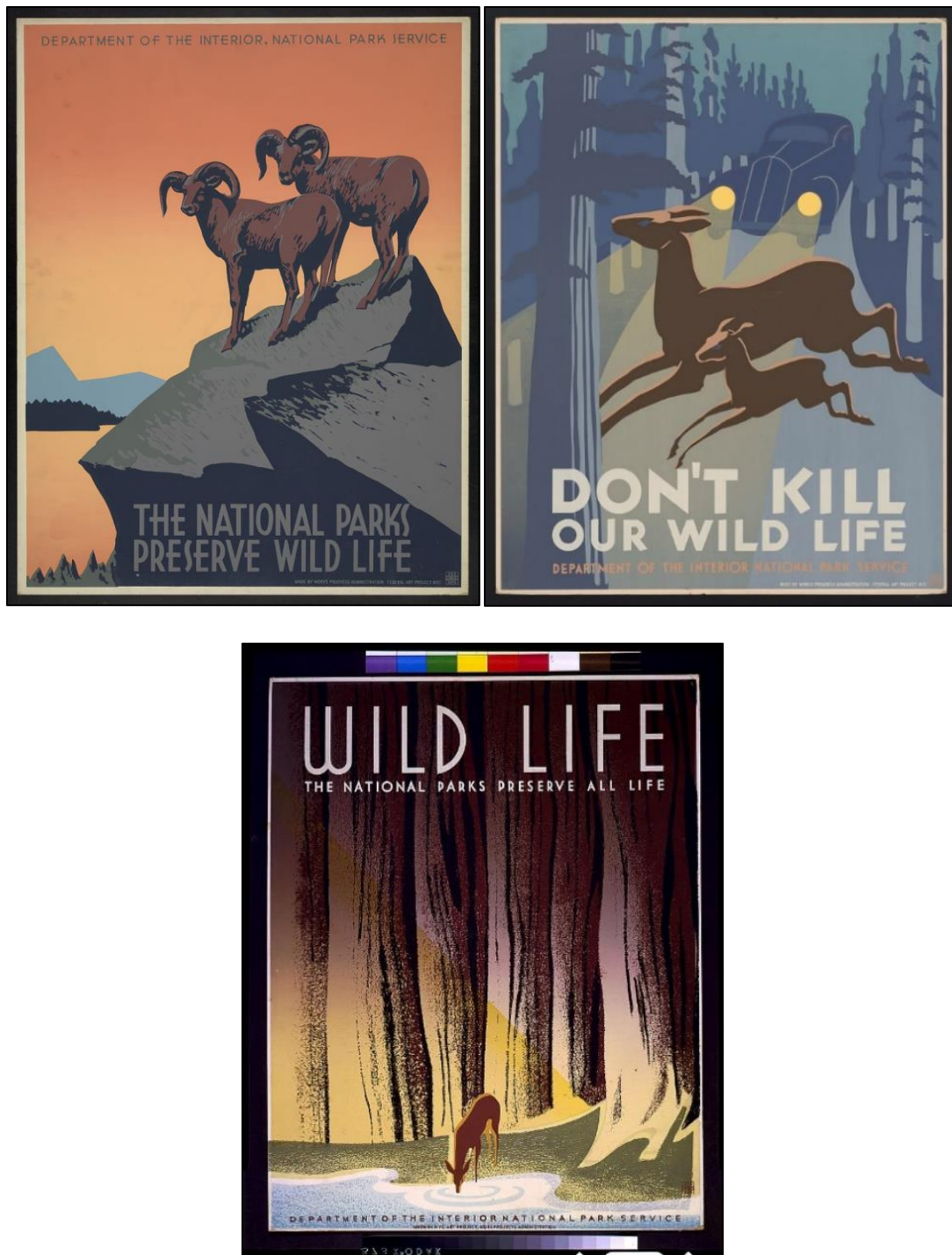


Figure 3: NPS posters created from 1939 to 1940 for the Works Progress Administration Federal Art Project.⁷⁸

The Historic Sites Act (HSA) of 1935 is another landmark regulation enacted by Congress. The HSA authorized a curatorial program for identifying, recording, documenting, and managing places of historical significance. In addition, the HSA authorized the Secretary of Interior to survey the United States for nationally historically significant sites, buildings, and objects, known as the Historic Sites Survey, which is currently the National Historic Landmarks (NHL) Program.⁷⁹ The criteria required to identify a resource as “historically significant” were criticized early on because some believed the spirit of the HSA conflicted with the criteria used to list historically significant places. Chief Historian Robert M. Utley sought to expand criteria under the HSA in the 1960s because, as NPS historian Barry Mackintosh wrote in 1984, Utley was “concerned that the program had been overly strict about integrity, or the degree to which a property retained its historic fabric and aspect. Whereas the Historic Sites Act spoke of places commemorating or illustrating American history, the criteria had specified that landmarks should commemorate and illustrate.”⁸⁰ Thus, the criteria used to identify places through the HSA pushed preservation’s focus towards the integrity of the tangible, material fabric of places, which edged

⁷⁸ *The National Parks Preserve Wild Life, Works Progress Administration Federal Art Project*, 1939 1936, 1939 1936, Library of Congress Prints and Photographs Division Washington, D.C. 20540 USA <http://hdl.loc.gov/loc.pnp/pp.print>, <https://www.loc.gov/item/98518597/>; *Wild Life The National Parks Preserve All Life, Works Progress Administration Federal Art Project*, 1939 1936, 1939 1936, Library of Congress Prints and Photographs Division Washington, D.C. 20540 USA <http://hdl.loc.gov/loc.pnp/pp.print>, <https://www.loc.gov/item/92522682/>; *Don’t Kill Our Wild Life, Works Progress Administration Federal Art Project*, 1939 1936, 1939 1936, Library of Congress Prints and Photographs Division Washington, D.C. 20540 USA <http://hdl.loc.gov/loc.pnp/pp.print>, <https://www.loc.gov/item/92509203/>.

⁷⁹ Barry Mackintosh, “The Historic Sites Survey and National Historic Landmarks Program: A History” (National Park Service, 1985), https://www.nps.gov/subjects/nationalhistoriclandmarks/upload/NHLHistoricSitesSurvey_508.pdf.

⁸⁰ Mackintosh, 70.

the field of preservation away from places and intangible heritage and towards individual buildings and structures.⁸¹

The NHPA created the historic preservation framework used today in 1966, which exacerbated the issue of a hyperfocus on architecture and integrity rather than people and place.⁸² The NHPA charged the NPS with creating, maintaining, and expanding the National Register. Like the NHL program, a building, site, object, structure, or historic district can be listed and must meet one or more significance criterion. The National Register has four criteria, including criterion A, as a property associated with important events or patterns of events important to the past; criterion B as a property associated with a significant person relevant to a peoples history; criterion C as a property that displays character-defining features related to a particular architectural style or period of construction; and criterion D as a place that contains archaeological information significant in history or prehistory. A place must also exhibit integrity, and the regulations also refer to seven aspects of integrity, including location, design, setting, materials, workmanship, feeling, and association.⁸³ A significant positive aspect of the NHPA is that resources can be significant at the local, state, or national level. Thus, the National Register broadened the responsibilities of the NPS to include state and local resources of historical significance rather than just those of national significance like the NHL program.

⁸¹ To be clear, the HSA also lacked the ability to identify sites of national significance for all people based on the racist approach to omit sites associated with minority groups and people of color. A History of the Historic Sites Act compiled in 1985 notes that in the early 1970s “virtually no landmarks honoring black Americans then existed [...]”. See Mackintosh, 72.

⁸² National Historic Preservation Act, 16 USC. 470-470b, 470c-470n.

⁸³ The NPS published a bulletin in 1995 to instruct practitioners on how to apply the National Register criteria for evaluation that explains these requirements, see “National Register Bulletin: How to Apply the National Register Criteria for Evaluation” (National Park Service, 1995), https://www.nps.gov/subjects/nationalregister/upload/NRB-15_web508.pdf.

Preservationists have criticized the NHPA and predecessor regulations for creating a cultural resource program too focused on tangible resources of high architectural style, mostly related to white, wealthy men throughout history.⁸⁴ Additionally, the preservation field and cultural resource programs at the NPS have stayed separate from the regulations like the Endangered Species Act of 1973 which aims to conserve living species. Conversations and regulations related to natural and cultural resource protections have run parallel but largely separate since their inception.⁸⁵ As historians Laura Watt, Leigh Raymond, and Meryl Eschen note: “historic preservation and protection of endangered species are rarely discussed in the same circles” and “preventing the extinction of the California condor, in other words, seems quite different from creating a historic district of old Victorian houses.”⁸⁶ The historic separation of nature from culture by the United States has led to separate natural and cultural resource management groups in practice that exists today across the private sector, non-profit organizations, and municipal to federal government agencies. Despite the natural world holding cultural value, historic preservation remains largely separate from considering nonhuman species as cultural entities.

⁸⁴ While there are numerous examples to support this statement, Jeremy Wells is a vocal proponent for equity and inclusion in the preservation field which he frequently discusses how they stem from preservation policies. For example, see: Jeremy Wells, “Uncovering Structural Racism in Federal Preservation Policy: Racial/Gender/Professional Purity,” *LinkedIn* (blog), September 8, 2022, <https://www.linkedin.com/pulse/uncovering-structural-racism-federal-preservation-policy-jeremy-wells/>.

⁸⁵ Watt et al. discuss the parallel regulations, National Historic Preservation and Endangered Species Act, in their paper: Watt, Raymond, and Eschen, “Reflections: On Preserving Ecological and Cultural Landscapes.”

⁸⁶ Watt, Raymond, and Eschen, 620.

Natural Resources at the National Park Service

Many federal agencies have responsibility for the protection of nonhuman species beyond the NPS and US Fish & Wildlife Service (USFWS). For example, the Bureau of Land Management (BLM), United States Forest Service (USFS), and United States Army Corp of Engineers (USACE) all play a role. These federal agencies consistently designate their protection is as a natural resource, not a cultural resource—with a large exception including cultural resources as related to many Indigenous communities.

Natural resource programs within the NPS have long been involved with nonhuman species conservation and management (especially as pests or invasive species). In fact, the NPS has an extensive history of maintaining wildlife populations in the natural park system. For example, in the early years of the NPS in the 1910s and 1920s, the NPS’ “treatment of large-mammal populations did not follow a policy of letting nature take its course; rather, it involved frequent and sometimes intensive manipulation, such as killing predators or nurturing favored species.”⁸⁷ Richard West Sellars, author of *Preserving Nature in the National Parks*, lays out the NPS’ historic involvement in ungulate, bear, and fish populations within the early park system. Sellars also discusses the main difference between late-nineteenth-century and late twentieth-century natural resource management at the NPS: the infusion of an ecological and scientific perspective within natural resource programs, which built up primarily as a result of the environmental era in the 1960s and 1970s.⁸⁸ In particular, the NPS became a federal leader in

⁸⁷ Richard West Sellars, *Preserving Nature in the National Parks, A History* (New Haven: Yale University Press, 1997), chap. 3, https://www.nps.gov/parkhistory/online_books/sellars/contents.htm.

⁸⁸ Sellars, chap. 7.

natural resource management through the Leopold Report in 1963, which included a series of ecosystem management recommendations presented by the Special Advisory Board on Wildlife Management to the Secretary of Interior.⁸⁹

Within the NPS today, the Natural Resource Stewardship and Science Directorate (NRSS) “provides scientific, technical, and administrative support to national parks for the management of natural resources. NRSS develops, utilizes, and distributes the tools of natural and social science to help the NPS fulfill its core mission: the protection of park resources and values.”⁹⁰ This directorate includes programs such as the Biological Resources Division, Inventory & Monitoring Division, and National Natural Landmarks Program. This arm is separate from the Cultural Resources, Partnerships, and Science Directorate that “provides leadership for the protection and interpretation of the nation's heritage, guides a national historic preservation program that embraces national parks and heritage resources, engages all American peoples with the places and stories that make up their national identity, and serves as a model for the stewardship of cultural resources throughout the world.”⁹¹ The NPS Cultural Landscapes Program is part of this directorate and is discussed in more detail in the following section.

⁸⁹ Sellars, 7.

⁹⁰ “Natural Resource Stewardship and Science Directorate,” National Park Service, accessed March 19, 2024, <https://www.nps.gov/orgs/1778/index.htm>.

⁹¹ “Cultural Resources, Partnerships, and Science Directorate,” National Park Service, accessed March 19, 2023, <https://www.nps.gov/orgs/1345/index.htm>.

Cultural Landscapes at the National Park Service

Chapter one of this thesis introduced cultural landscapes to understand basic terminology and documentation reports. This section seeks to provide the historic context to the cultural landscape program at the NPS to illustrate the separation from the natural resource branches.

The NPS is a leader in cultural landscape preservation through this program and has taken steps to bridge the nature-culture divide by adopting cultural landscapes as a resource type since the 1980s. This adoption added to the previously limited resource types, including building, structure, object, site, and historic district. To be clear, cultural landscapes were adopted in preservation practice, but the NHPA was not updated nor was cultural landscape codified as an official resource type. The official definition for cultural landscapes (as stated in chapter one) is “a geographic area, including both cultural and natural resources *and the wildlife or domestic animals therein* [emphasis added], associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values.”⁹² The NPS uses cultural landscapes as an umbrella term for four types: historic designed, vernacular, historic sites, and ethnographic cultural landscapes. However, cultural landscapes play a more significant role in preservation than solely a resource type definition. As Richard Longstreth states, the cultural landscape concept is “a method of considering, analyzing, and evaluating places.”⁹³ Identifying the type of landscape and all the man-made and nonhuman elements provides a method of studying landscapes and aids the NPS in documentation, park management, and interpretation.

⁹² Birnbaum, “Preservation Brief 36: Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes,” 1.

⁹³ Richard Longstreth, *Balancing Nature and Heritage in Preservation Practice: Cultural Landscapes* (Minneapolis: University of Minnesota Press, 2008), 1.

Since the 1980s, the NPS has put forth great effort to interpret and apply two specific documents to cultural landscapes: Bulletin 15, *How to Apply the National Register Criteria for Evaluation* and the *Secretary of Interior Standards for Treatment of Historic Properties*.⁹⁴ Because the NHPA regulation itself has remained unchanged (i.e., cultural landscapes have not been codified as a resource type), the NPS has provided guidance for how to document living landscapes in the form of technical guidelines, bulletins, and preservation briefs as a way to update preservation practice without requiring acts of Congress. Examples of bulletins are: *How to Evaluate and Nominate Designed Historic Landscapes*, *How to Evaluate and Nominate Rural Historic Landscapes*, and *Protecting Cultural Landscapes: Planning, Treatment, and Management of Historic Landscapes* and *Guidelines to Evaluating and Documenting Traditional Cultural Properties*.⁹⁵ The NPS has paved the way for cultural landscape preservation in the United States. Importantly, according to the *Guide to Cultural Landscapes Reports*, NPS recognizes the cultural importance of landscapes “as significant cultural resources in their own right, and not simply for their associative qualities as the setting for a structure or a scene of an

⁹⁴ The two documents referenced can be found here: Anne E. Grimmer, “The Secretary of the Interior’s Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings” (Washington, D.C.: US Department of the Interior National Park Service Technical Preservation Services, 2017), <https://www.nps.gov/tps/standards/treatment-guidelines-2017.pdf>; “National Register Bulletin: How to Apply the National Register Criteria for Evaluation.”

⁹⁵ Patricia L. Parker and Thomas F. King, “National Register Bulletin Guidelines to Evaluating and Documenting Traditional Cultural Properties” (US Department of the Interior National Park Service, 1990), <https://www.nps.gov/subjects/nationalregister/upload/NRB38-Completenessweb.pdf>; Birnbaum, “Preservation Brief 36: Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes”; Timothy J. Keller and Genevieve P. Keller, “National Register Bulletin How to Evaluate and Nominate Designed Historic Landscapes” (US Department of the Interior National Park Service, 1997), https://www.nps.gov/subjects/nationalregister/upload/NRB-15_web508.pdf; Timothy J. Keller and Genevieve P. Keller, “National Register Bulletin How to Evaluate and Nominate Rural Historic Landscapes” (US Department of the Interior National Park Service, 1999), <https://www.nps.gov/subjects/nationalregister/upload/NRB30-Complete.pdf>.

event” and this has “resulted in a greater degree of rigor by which landscape resources are managed.”⁹⁶

Out of all the pages of technical guidelines, bulletins, and preservation briefs, the NPS provides insufficient guidance in one key area: nonhuman species (especially nonhuman animals).⁹⁷ This absence seems especially apparent if we remind ourselves of the original NPS definition of cultural landscapes, which specifically includes “cultural and natural resources, and wildlife and domesticated species therein [...]”⁹⁸ Additionally, if we return to the Organic Act of 1916, Congress mandated the NPS protect wildlife for the American people and does not indicate they should only be seen as natural resources. While some agencies like the USFWS protects nonhuman species, it is not necessarily charged with protecting them because they are culturally important, and they do not document and manage places that require a unique understanding of species, people, and places, and these interrelationships. After all, the Endangered Species List, administered by the USFWS, lists only threatened and endangered species. The Endangered Species List is not a list of culturally important species (it would be interesting to see how many species on the Endangered Species List are well-known to the public), and the purpose of this list is to *de-list* species. The Endangered Species List is quite a different animal compared to the National Register, which is a collection of culturally important places. A cultural landscape approach makes sense to study living species and their relationship

⁹⁶ Page, Gilbert, and Dolan, “A Guide to Cultural Landscape Reports: Contents, Process, and Techniques,” 19.

⁹⁷ There is robust guidance on how to include vegetation and historic plant species into documentation, such as within cultural landscape reports.

⁹⁸ Birnbaum, “Preservation Brief 36: Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes,” 1.

to humans and the built environment because cultural landscapes act not just as a resource type but a methodology for understanding people and places in a historical context.

Cultural resource programs at the NPS have made headway in incorporating living species into the federal preservation framework in terms of specific language. In 1985, Ian Firth introduced the term *biotic cultural resources* within a resource management report titled *Biotic Cultural Resources: Management Considerations for Historic Districts in the National Park System, Southeast Region*.⁹⁹ Firth defines biotic cultural resources as the following:

Biotic cultural resources are communities of plants and animals associated with human settlement and land use in historic districts. Such landscape features such as gardens, orchards, woodlots, fields, ponds, and pastures are biotic resources as distinct from the buildings, structures, and objects of a historic district which are abiotic resources.

*Because these biotic features are products of land use and management, they are cultural resources; they are distinct from the native vegetation and wildlife of a historic district, which are natural resources [emphasis added].*¹⁰⁰

While Firth's document provided guidelines for managing living aspects of the landscape, it only acknowledges that "biotic resources" are cultural resources when they are products of human involvement, while native vegetation and wildlife are limited to being considered natural resources. This document also evaluated living resources against integrity standards and within

⁹⁹ Ian J. W. Firth, "Biotic Cultural Resources: Considerations for Historic Districts in the National Park System, Southeast Region," Research/Resource Management Report (US Department of the Interior National Park Service, November 1985), Internet Archive, <https://archive.org/details/bioticculturalre00firt/mode/2up>.

¹⁰⁰ Firth, 1.

agricultural landscapes. Therefore, it did not provide much insight into the treatment of living cultural resources or other types of landscapes.¹⁰¹

“Biotic cultural resources” is a term included in the NPS *Guide to Cultural Landscape Reports*.¹⁰² Biotic cultural resources in this updated guidance are defined as “plant and animal communities associated with human settlement and use, which may reflect social, functional, economic, ornamental, or traditional land uses. Within a cultural landscape, biotic cultural resources are recognized either as a system or as individual features that contribute to the significance of a landscape.”¹⁰³ This definition limits the biotic cultural resources to species related to human settlement and use and is peoples-focused. I argue the biotic cultural resources concept should be reworked and expanded to include other species, landscapes, and relationships between humans and nonhumans.¹⁰⁴

Nonhuman Species in Historic Preservation

The following sections highlight, with examples, ways in which nonhuman species are already documented within the field of historic preservation. This section seeks to identify major gaps in documentation that are currently excluding nonhuman species or inadequately including them due to a lack of a term to identify such culturally significant species.

¹⁰¹ Such sentiments are also highlighted by Heidi Hohmann, “Mediating Ecology and History: Rehabilitation of Vegetation in Oklahoma’s Platt Historic District,” in *Cultural Landscapes: Balancing Nature and Heritage in Preservation Practice*, ed. Richard Longstreth, n.d., 110.

¹⁰² Page, Gilbert, and Dolan, “A Guide to Cultural Landscape Reports: Contents, Process, and Techniques.”

¹⁰³ Page, Gilbert, and Dolan, 127.

¹⁰⁴ The NPS uses other terminology within CLIs and CLRs to describe culturally significant species, such as legacy vegetation, witness trees, and Culturally Modified Trees (CMTs). Legacy vegetation is discussed in greater detail in Chapter III, *Fitting Living Species into the Cultural Preservation Framework*, as a way to support the idea that terms already exist to elevate vegetation to cultural importance.

Below, I discuss three areas where nonhumans species are typically found or described in documentation, including: 1) nonhumans as a resource, 2) nonhuman species related to sacred and religious sites, and 3) nonhuman species as contributing to landscapes. Lastly, I describe and provide examples where documentation has excluded nonhuman species, primarily National Register nominations. Examples and conclusions discussed below are a result of my experience as an environmental consultant for several years and involvement in Section 106 evaluations for telecommunications facilities through which I reviewed hundreds of National Register nominations to determine if a resource was eligible or listed in the National Register. Examples and conclusions within this chapter also stem from conversations with existing architectural historian professionals within the consulting industry as well as practitioners at Goucher College, and my interpretation of discussions with staff at the NPS National Capital Regional Office (NCRO) Cultural Landscapes Program. The information below is additionally largely informed through reviewing CLIs and CLRs within the National Capital Region but is not all inclusive. Lastly, conclusions below are largely supported by scholars within the field such as Laura Watts, Tom King, Janet Ore, and Ian C. Stevenson, who have already identified the gap in considering nature as culture and discuss the need to consider environmental factors outside the built environment.

The categories of typical species representation in documentation presented below should not be considered complete; additional research is needed to fully understand how historic preservation has documented nonhuman species and if that has changed throughout time. This could be completed through a selective review of documentation (National Register nominations, CLIs, or CLRs), potentially focusing on several different places, to assess how nonhuman

species have historically been captured at the local, state, and federal level. Interviews with preservation professionals in the private sector, government agencies, and non-profits should be completed to understand how most practitioners view or think about living species when carrying out documentation. Lastly, oral histories and surveys with local communities should be completed to understand how they feel, value, and love their living species and landscapes.

Nonhuman Species as a Resource

Within CLIs and CLRs, nonhumans as resources are commonly identified as specimens, pests, or invasive species. Consider *NPS-28 Cultural Resource Management Guideline*, which includes a section on threatened and endangered species. Section 2 titled *Biotic Systems Treatment* indicates biotic systems, such as existing vegetation “that contributes to the historic character of a cultural landscape or is important to a traditional user group” should be identified and maintained.¹⁰⁵ Section 2D titled *Endangered Species* states: “Federally or state-listed threatened or endangered species must receive utmost protection. They may be considered “specimens” within the cultural landscape system.”¹⁰⁶ The use of the term “specimen” to discuss trees and wildlife promotes a sense that they are objects to be treated as resources, rather than living species with potential cultural significance.

Beyond specimens, nonhumans are frequently considered pests and invasive species. Animal welfare organizations have accused the NPS of viewing living species as a resource, ignoring the fact that they are sentient species and should not be so easily discarded as part of

¹⁰⁵ “NPS-28: Cultural Resource Management Guidelines” (National Park Service, June 11, 1998), chap. 7, https://www.nps.gov/parkhistory/online_books/nps28/28contents.htm.

¹⁰⁶ “NPS-28: Cultural Resource Management Guidelines,” chap. 7.

culling programs. This management style also disregards cultural landscapes as fluctuating systems that change throughout time. For example, in 2007 the Animal Welfare Institute (AWI) submitted comments on the Draft White-Tailed Deer Management Plan and Environmental Impact Statement (PEIS) for Catoctin Mountain Park to stand against culling practices. The overpopulation of white-tailed deer resulted in the degradation of the forested landscape which impacted cultural landscapes, such as the Camp Greentop Cultural Landscape (which is within the larger Catoctin Mountain National Park [CATO]). The AWI stated in their comment that the data to support this argument is insufficient and that parks need to be managed as fluctuating ecosystems. Ultimately, the AWI pointed out “though the Organic Act explicitly limits when the NPS can lethally remove animals from a park, the Draft EIS completely ignores this issue.”¹⁰⁷ The Humane Society of the United States (HSUS) also disagreed with lethal control of nonhuman species populations. They argued the NPS is managing the deer population as if they are “unnatural” which is illogical, as is the lethal control of their population which the HSUS argued is against the central mission of the NPS.¹⁰⁸

While the above example is merely one example within a much larger National Park system, it speaks to a management style and Western worldview that tends to view nonhuman species as dispensable resources and pests, despite objections from animal rights groups. This

¹⁰⁷ “Index C: Original Substantive Comments Letters Submitted by Businesses, Organizations, and Government Agencies,” in *FINAL White-Tailed Deer Management Plan and Environmental Impact Statement* (National Park Service, 2007), <https://parkplanning.nps.gov/showFile.cfm?projectID=10003&MIMETType=application%252Fpdf&filename=7%20%2D%20CATO%20FEIS%20Comment%20Letters%2Epdf&sfid=53489>.

¹⁰⁸ “Index C: Original Substantive Comments Letters Submitted by Businesses, Organizations, and Government Agencies.”

worldview is reflected in documentation where nonhuman species are presented as natural resources or a backdrop to the larger cultural story.

Living species used by or impacted by humans are commonly documented and range from various types of human-dominated activities such as farming to recreation. While it was outside the scope of this thesis project to conduct a comprehensive review of all existing documentation (for example, a review of all approximately 100,000 places listed in the National Register), it is easy to find numerous examples of living species as resources in documentation work. For example, places that have been documented because of their historical significance related to agricultural practices tend to identify nonhuman species as secondary resources instead of essential contributing resources. One example is the CLI for Keys Ranch Historic District within Joshua Tree National Park, documented by park employees in 2004.¹⁰⁹ The historic district contains three National Register properties: Desert Queen Ranch, Cow Camp, and Barker Dam and the period of significance is from 1894 to 1969. The district is locally significant under criteria A and C for its association with the William Keys family and agriculture and mining practices in the Mojave Desert. According to the documentation report, the integrity of certain ranch features has been compromised, including most of the ranch orchards and gardens. This section could elaborate on the loss of integrity to include the loss of cattle ownership as well; the report notes all cattle were sold by Mrs. Keys in 1943.¹¹⁰ The CLI report includes three sentences about the type of animals on the farm, which “included horses, burrows, cows, goats, chickens,

¹⁰⁹ “Keys Ranch Historic District, Joshua Tree National Park, Cultural Landscapes Inventory” (National Park Service, 2004), <https://irma.nps.gov/DataStore/DownloadFile/453586>.

¹¹⁰ “Keys Ranch Historic District, Joshua Tree National Park, Cultural Landscapes Inventory,” 6.

and bees.”¹¹¹ As discussed in chapter one, the landscape characteristic features documented in the CLI follow the thirteen characteristics per NPS guidelines, characteristics which do not include nonhuman species.¹¹² While the cattle historically present cannot be considered contributing resources (since the cattle are no longer present), greater detail about the cattle and the human-nonhuman relationship would be helpful to provide a more holistic view of the landscape and understand the people at that time and how the land and living species impacted their livelihoods and shaped the cultural landscape. For example, a living-species-first approach could help answer questions such as, how did the presence of these nonhuman species inform the built environment, the social history of people, and shape the landscape? In this example, the CLI report is focused on the buildings and people of the land; secondary are the animals used as agricultural resources within this landscape. Nonhuman species deserve greater recognition simply because without these horses, cows, burros, and bees, this landscape and people’s livelihood would not have existed, but also because we miss an important opportunity to document and understand the human and nonhuman relationship.¹¹³ This common peoples-first approach to documentation fails to recognize how the presence of certain nonhuman species impact the evolution of landscape and human culture.

¹¹¹ “Keys Ranch Historic District, Joshua Tree National Park, Cultural Landscapes Inventory,” 27.

¹¹² A list of characteristics can be found within the following document: Page, Gilbert, and Dolan, “A Guide to Cultural Landscape Reports: Contents, Process, and Techniques,” 53.

¹¹³ This line of reasoning, that nonhuman species deserve recognition within documentation because they played a large role in the evolution of people and places, is more in line with an environmental ethicist’s way of thinking about nonhuman species: that they are important simply because they are alive and salient species. A more in-depth and critical view of people’s relationship to animals can be found in Emma Marris, *Wild Souls: Freedom and Flourishing in the Nonhuman World* (New York: Bloomsbury Publishing, 2021).

To move towards a living-species-first approach away from viewing nature as a resource, historic preservation should consider lessons learned from the environmental history field. There are scholarly discussions specifically surrounding how an environmental history approach to documentation has changed the way a documentation report is written. For example, public historian Janet Ore has explicitly recognized the impact of an environmental history approach on how she reads and documents landscapes and how a traditional approach tends to view nonhuman species as resources. She compares a traditional historic preservation approach to documenting landscapes (peoples-first) versus an environmental history approach (living-species-first). Ore believes “nature plays a crucial role in all historical developments.”¹¹⁴ She discusses an environmental historian view of this approach, which criticizes the NPS for viewing the land as an artifact that only seeks “to understand the human mind through the impress of culture on the physical world” but ignores the fact that “nonhuman and natural processes are powerful agents in history...not simply backgrounds or settings for cultural inscription.”¹¹⁵ Ore explored how an environmental history perspective changed her understanding of cultural landscapes by revisiting a cultural landscape study she recently completed for Rocky Mountain National Park. Specifically, she focused on the Wild Basin Corridor within the larger landscape. She asked, “was nature the background, the setting for cultural modifications, or was it an actor – maybe the most influential actor – in shaping the corridor’s history, its built environment, and indeed the very human bodies that labored within it?”¹¹⁶ She reconsiders many assumptions about a peoples-first approach to documenting landscapes. For example, she reconsiders the

¹¹⁴ Ore, “Viewpoint: Landscape Disputed: What Environmental History Can Show Us,” 5.

¹¹⁵ Ore, 7.

¹¹⁶ Ore, 7.

buildings within the Wild Basin Corridor and states traditional historic preservation “views the built environment as cultural constructions that reflect human manipulations of nature.”¹¹⁷ She states that an environmental history approach to understanding the built environment aspect forces her to reconsider this assumption. She finds that these buildings “sprang from the surrounding nature and were subject to natural processes beyond human domination.”¹¹⁸ She provides specific examples of two structures built within the park to serve as the Wild Basin Ranger Station in the 1930s. She noted that the natural living landscape imposed restrictions onto manifestations of the built environment; “for instance, from the nearby forest, they needed logs of certain species, size, and taper; rocks of manageable dimensions and suitable minerals [...]” and these structures were then vulnerable to weather once constructed such as sunlight, snowfall, and extreme cold.¹¹⁹ While Ore does not specifically discuss or consider nonhuman species within her study, she provides invaluable insight into the traditional view of historic preservation, which tends to view nature as a resource, and what is missed through this peoples-first approach.

In a similar vein, historian C. Ian Stevenson notes the same tendency for the traditional historic preservation approach to document nature as a resource, which is limited to how humans have impacted landscapes rather than how the environmental and natural elements may have altered human culture.¹²⁰ He provides a case study involving the complex history of historic dams, the natural environment (including fish populations) and people. Stevenson makes an

¹¹⁷ Ore, 11.

¹¹⁸ Ore, 11.

¹¹⁹ Ore, 12.

¹²⁰ Stevenson, “Viewpoint.”

important observation that “scholars of the built environment are already robustly equipped to address questions of class, ethnicity, gender, and race embodied in places ranging from intimate spaces to individual buildings to entire landscapes. But these spaces also involve environmental factors, such as providing shelter from the elements, encouraging human interaction with nature, or actively shaping the surroundings to affect behavioral change.”¹²¹ He argues that nature must be added as a category of analysis for scholars to fully understand the built environment.

Stevenson supports the theory of hybridity, theorized by Paul Sutter, which “rejects the moralized, bifurcated notion that an untouched nature once existed before humans sullied it, instead of viewing environments as places of interwoven natural and cultural elements [...]”¹²²

This idea that wilderness is a construct is echoed by many environmental historians, most notably by William Cronon and his publication *The Trouble With Wilderness; or, Getting Back to the Wrong Nature*.¹²³

Specifically, Stevenson provides an explanation for how an environmental historian versus a historic preservationist might interpret a historic dam, stating that “a declensionist environmental history analysis...might focus on the dam’s destructive capacity [...]” while a preservationist “might investigate the dam’s social, economic, and architectural implications in creating a new urban form [...]”; both forms of analysis tend to view the natural environment as a resource (i.e., used or exploited by humans). However, as Stevenson suggests, without considering nature as an analysis category, important implications and revelations would be

¹²¹ Stevenson, 1–2.

¹²² Stevenson, 2.

¹²³ William Cronon, ed., “The Trouble With Wilderness; or, Getting Back to the Wrong Nature,” in *Uncommon Ground: Rethinking the Human Place in Nature* (New York: W.W. Norton & Company, 1995), 69–90.

overlooked.¹²⁴ Such important aspects that would be overlooked include the new ecologies created to support freshwater mussels and eels, the trade-offs between fisherman and jobs at the cotton mill created by the dam, and the fact that the dam physically represents cultural perceptions of nature (i.e., those in the nineteenth century sought to dominate the natural landscape). Overall, his paper indicates that the current business-as-usual approach is to view the landscape as a stage where human culture has taken place and to focus on how people have manipulated that landscape and used it as a resource.

As Janet Ore and C. Ian Stevenson discuss, nature informs culture, and the natural environment has determined how people have used and interacted with landscapes throughout history. Consider ungulates grazing in open fields, bees pollinating and supporting vegetation growth, and the presence of hay in fields because of the need to feed horses.¹²⁵ Historic preservationists will benefit from adding “environment” to one of their many hats to understand and document places.

Nonhuman Species Related to Sacred and Religious Sites

Nonhuman species are also commonly documented in places related to sacred and religious sites; many times, associated with Indigenous places of cultural significance. For example, a 2004 report by Tom King documents studies completed on behalf of the Yurok, Karuk, Shasta, and Hupa Tribes, regarding the historical significance of the Klamath Riverscape

¹²⁴ Stevenson, “Viewpoint,” 9.

¹²⁵ Domestic livestock are so adept at managing landscapes, they are even used as a land management technique to inhibit secondary growth. The USFS has worked with farmers and ranchers to manage grasslands with domestic livestock since the early twentieth century. See: “Honoring the History and Value of Grazing on the National Forests and Grasslands,” US Department of Agriculture (USDA), accessed March 19, 2023, <https://www.usda.gov/media/blog/2020/08/07/honoring-history-and-value-grazing-national-forests-and-grasslands>.

to fulfill the Federal Energy Regulatory Commission's (FERC's) responsibilities under Section 106 of the NHPA to relicense a hydroelectric project along the river. The report questions what elements of the river are eligible for inclusion in the National Register and asks, "what are the character defining characteristics that contribute to the overall riverscape?"¹²⁶ King focused on the river, fish, wildlife, and plants, and cultural uses and perceptions of their value by the Yurok, Karuk, Shasta, and Hupa Tribes. King cites various ethnographic studies regarding the cultural qualities of the Klamath River. He states, "...the living population of the river – its fish, the plants that grow on its banks and its wetlands, and the terrestrial animals and birds that live along, drink from, hunt in, and land on it are obviously character-defining elements of the landscape."¹²⁷ He states previous studies had identified vegetation as culturally important to the Hupa people, including willow, cottonwood, wild grape, bulrush, hazel, tules, spearmint, and blackberries.¹²⁸ King states that salmon are "among the most important of the riverscape's contributing elements" due to their association with traditional beliefs and practices and that they were not only sources for food but "important parts of the spiritual environment."¹²⁹

¹²⁶ King states that the term "riverscape" was adapted from the more well-used term "landscape" because it better described this particular place that was made up of land and water in aggregate. See Thomas F. King, "First Salmon: The Klamath Cultural Riverscape and the Klamath River Hydroelectric Project," For the Klamath River Intertribal Fisher and Water Commission, March 25, 2004, 3, https://sipnuuk.karuk.us/system/files/atoms/file/AFRIFoodSecurity_Sipnuuk_Miscellaneous_001_002.pdf.

¹²⁷ King, 8–9.

¹²⁸ The Pacific giant salamander is also identified by Tom King as a cultural significant nonhuman species in Karuk mythology. Additionally, he further explains the specific importance of salmon, steelhead, Pacific lamprey, and other fish species (as a resource – to be used as a food resource, for example – but also related to cultural importance as well).

¹²⁹ King, "First Salmon: The Klamath Cultural Riverscape and the Klamath River Hydroelectric Project," 25, 38.

The Klamath Riverscape example is one of many examples that identify living species as culturally important related to Indigenous peoples and places. The tendency to include living species as culturally important when documenting places related to Indigenous places within preservation practice seems to be a common one that scholars have also recognized. In support of this claim, consider the history and use of Traditional Cultural Properties (TCPs). In 1990 with the publication of Bulletin 38, *Guidelines for Evaluating and Documenting Traditional Cultural Properties* by Patricia Parker and Tom King, traditional cultural properties (TCPs) were defined as a property type that “is eligible for inclusion in the National Register because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community’s history, and (b) are important in maintaining the continuing cultural identity of the community.”¹³⁰ King discusses the inception of this Bulletin 38 in his 2003 book, *Places that Count*, and stated that the motivation behind coining such a term was “to use the persuasive powers of Section 106 to motivate agencies to pay attention to such places and the communities that value that,” meaning TCPs would expand places eligible for inclusion in the National Register, thus, triggering consideration for such places under the Section 106 process.¹³¹

King goes on to explain the backlash against such a bulletin by federal agencies, such as the BLM, USFS, and BIA, who all responded that the bulletin did not apply to them since it was an NPS bulletin.¹³² King states this interpretation of the bulletin was “ridiculous” because the National Register is not just for use by the NPS but for the whole government (as well as

¹³⁰ Parker and King, “National Register Bulletin Guidelines to Evaluating and Documenting Traditional Cultural Properties,” 1.

¹³¹ King, *Places That Count: Traditional Cultural Properties in Cultural Resource Management*, 33.

¹³² King, 35.

everyone else). Nevertheless, the three agencies dug their heels in and insisted they need not listen to Bulletin 38 and TCPs. This angered several Indigenous groups whose anger was so powerful it resulted in additional amendments to the NHPA (which happened to be going through amendments at this exact time), which clarified Section 101(d)(6):

Properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization may be determined to be eligible for inclusion in the National Register.¹³³

The amendments stated that federal agencies needed to consider such properties when carrying out their responsibilities under Section 106. But unfortunately, Congress did not explicitly include language for all types of TCPs, including non-indigenous places or species; King reasons this is because communities that may hold value in other TCPs simply were not part of the conversations. Unfortunately, as King points out, “most of the [TCP] discussion is about places important to tribes and other Native Americans and the issues they raise because these places and these issues have been the main subjects of discussion about TCPs in the years since Bulletin 38. Without in any way denigrating the importance of indigenous places, I wish it were otherwise, but the fact is that at this writing, no one has spent much time dealing with nonindigenous TCPs under NHPA [...]”¹³⁴ Nevertheless, King states that beyond Indigenous landscapes, “...there are all kinds of other places – notably including many non-indigenous places- that have not typically been identified explicating as TCPs though they easily could be [...]”¹³⁵ He cites examples such

¹³³ National Historic Preservation Act, Section 101(d)(6)(A).

¹³⁴ King, *Places That Count: Traditional Cultural Properties in Cultural Resource Management*, 122–23.

¹³⁵ King, 121.

as Smith Island in Maryland, a traditional watermen's community on the Chesapeake Bay, and the Amish countryside of Lancaster County, Pennsylvania. TCPs and cultural landscapes are for everyone, and the nonhuman species that take part in these important species deserve recognition by humans in preservation practice.

Nonhuman Species as Contributing

The preservation field has several terms to describe certain elements of a landscape or building that make it historically significant. There are two terms used that have distinct definitions: contributing resources and character-defining features. The NPS *Cultural Resource Management Guideline* and *Secretary of Interior's Guidelines for the Treatment of Cultural Landscapes* defines character-defining features as "a prominent or distinctive aspect, quality, or characteristic of a historic property that contributes significantly to its physical character. Structures, objects, vegetation, spatial relationships, views, furnishings, decorative details, and materials may be such features."¹³⁶ Bulletin 15, *How to Apply the National Register Criteria for Evaluation*, does not include a specific definition for contributing resource but states as part of the definition for the "district" property type, that districts are composed of a wide variety of resources including buildings, sites, structures, or objects. It also indicates districts contain noncontributing properties which are described as "buildings, structures, sites, objects, or open spaces that do not contribute to the significance of the district."¹³⁷ Thus, a contributing resource must be categorized as a building, site, structure, object, or district.

¹³⁶ "NPS-28: Cultural Resource Management Guidelines," app. Glossary.

¹³⁷ "National Register Bulletin: How to Apply the National Register Criteria for Evaluation," 5.

Tom King provides a useful discussion to break down various “contributing” terminology. He concludes that whatever terminology is used, “it is widely recognized that some elements of a property help to define its significance, character, and integrity while others do not.” Bulletin 30, *Guidelines for Evaluating and Documenting Rural Historic Landscapes*, does not include the term “character-defining feature” but refers to contributing resource as part of a larger site or district which must be categorized into one of five resource types (building, structure, site, object, district); whereas a character-defining feature is not necessarily one of these resource types but contributes to an overall place.¹³⁸ For example, a character-defining feature of a 1920s Neoclassical Revival Style train station might be terrazzo flooring, marble wainscoting, and octagonal coffered ceilings with recessed panels; these are not contributing resources because they cannot be categorized as a building, site, structure, object, or district, but are considered character-defining features. This thesis distinguishes between the two technical terms, character-defining features and contributing resources, intentionally.

The NPS has made strides to push in their guidelines to link culturally significant plant species to people and places and frequently identifies vegetation, such as trees, as contributing resources to cultural landscapes when they date to the period of significance, retain integrity, and are linked to the historic context of the site. This inclusion is facilitated by guidance documents which specify how to include plants, such as the *Historic Plant Inventory* section in Preservation Brief 36 which provides guidance for writing CLRs. The brief states, “...plants may have historical or botanical significance” and that “if such plants are lost, there would be a loss of

¹³⁸ Keller and Keller, “National Register Bulletin How to Evaluate and Nominate Rural Historic Landscapes,” 24.

historical integrity and landscape.”¹³⁹ The brief directs the creation of a plant inventory and gathering documentation and oral histories to identify such culturally important plant species.¹⁴⁰ Preservation Brief 36 coincided with the publication of the NPS *Guide to Cultural Landscapes Reports*.¹⁴¹ Per this NPS guidance, vegetation is one of thirteen landscape characteristics that can be documented within a CLR.¹⁴² Appendices titled *Landscape Lines* include two sections which are related to vegetation: *Historic Plant Material Sources* and *Treatment of Plant Features*. The *Treatment of Plant Features* specifically states that “vegetation is considered a biotic cultural resource when it can be linked to an established period of significance and adds to the overall significance of the landscape.”¹⁴³ The Landscape Lines series provide useful information in terms of how to research historical plant species, how to analyze and evaluate these features, and treatment options for such resources.

A specific example of vegetation included within a CLR is the Popular Grove National Cemetery Cultural Landscape Report, located at Petersburg National Battlefield, prepared by the Olmsted Center for Landscape Preservation (the NPS) in 2010. This report follows guidance from the NPS regarding a CLR report and documenting historic plant materials that are culturally significant. Trees such as the initial establishment of Popular Grove and second-growth loblolly

¹³⁹ Birnbaum, “Preservation Brief 36: Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes.”

¹⁴⁰ The NPS uses other terminology within CLIs and CLRs to describe culturally significant species, such as legacy vegetation, witness trees, and Culturally Modified Trees (CMTs). Legacy vegetation is discussed in greater detail in Chapter III, *Fitting Living Species into the Cultural Preservation Framework*, as a way to support the idea that terms already exist to elevate vegetation to cultural importance.

¹⁴¹ Page, Gilbert, and Dolan, “A Guide to Cultural Landscape Reports: Contents, Process, and Techniques.”

¹⁴² Page, Gilbert, and Dolan, 53.

¹⁴³ See Landscape Lines 12 titled “Treatment of Plant Features” within Page, Gilbert, and Dolan, “A Guide to Cultural Landscape Reports: Contents, Process, and Techniques.”

pinus were evaluated by NPS staff and found to be contributing to the overall historic character of the battlefield landscape.¹⁴⁴ Another example is the Frederick Law Olmsted National Historic Site in Massachusetts. Olmsted is known as the father of American landscape design, and his residential home in suburban Boston is a testament to that title. His home is an NHL and is listed in the National Register as a designed and historic site landscape under criteria A and B with a period of national significance from 1883 to 1979. Plant species within this landscape contribute to the overall historical significance of the site. The *Cultural Landscape Report for Frederick Law Olmsted National Historic Site (Volume II: Existing Conditions, Analysis, and Treatment)* recognizes vine species on the exterior of the home as a contributing resource; in fact, the report states “the use of plant material is one of the most significant characteristics of an Olmsted-designed landscape.”¹⁴⁵ Additionally, the report identifies the “Olmsted Elm” (*Ulmus americana*) as “the single most important feature of the landscape.”¹⁴⁶ The 1997 *Cultural Landscape Report, Volume I: Site History*, and the 2015 *Cultural Landscape Inventory* documents the Olmsted Elm’s history and states the tree first appeared on an 1883 survey.¹⁴⁷ While these reports do not indicate *why* this tree was so particularly important to the Olmsted family (besides ties to

¹⁴⁴ John Auwaerter, “Cultural Landscape Report for Poplar Grove National Cemetery, Petersburg National Battlefield” (Olmsted Center for Landscape Preservation, National Park Service, March 14, 2010), 197, <https://ia902707.us.archive.org/8/items/culturallandscap00auwa/culturallandscap00auwa.pdf>.

¹⁴⁵ Lauren G. Meier, “Cultural Landscape Report for the Frederick Law Olmsted National Historic Site, Volume II: Existing Conditions, Analysis and Treatment” (Olmsted Center for Landscape Preservation, National Park Service, 1994), 35, <https://irma.nps.gov/DataStore/DownloadFile/584191>.

¹⁴⁶ Unfortunately, this historic tree was removed in 2011 due to poor health and hazard concerns, and NPS staff have attempted to replace the tree with multiple disease-resistant trees throughout the 2010s. See Meier, 100.

¹⁴⁷ Cynthia Zaitzevsky, “Fairsted, A Cultural Landscape Report for the Frederick Law Olmsted National Historic Site, Volume I: Site History” (Olmsted Center for Landscape Preservation, National Park Service, 1997), 28, https://www.nps.gov/parkhistory/online_books/frla/fairsted.pdf; “Cultural Landscapes Inventory, Fairsted, Frederick Law Olmsted National Historic Site” (National Park Service, 2015), <https://irma.nps.gov/DataStore/DownloadFile/546206>.

Olmsted's residential landscape work), it was an important step forward to explicitly include vegetation as contributing resources.

Beyond cultural landscape-type reports, there are tree species listed in the National Register. The listing of these trees to the National Register signals an important shift in the preservation field which has come a long way from focusing on individual buildings. For example, in March 2012, the Howard-Ralston Eucalyptus Tree Rows in Burlingame and Hillsborough, California, were placed in the National Register and the California Register of Historic Places. The Statement of Significance Summary indicates the trees are eligible under criterion A for their association with the founding of these cities and because “for over a century, citizens and elected officials have recognized the importance of the Tree Rows to local identity and history.”¹⁴⁸ The statement of significance and historic context focuses largely on the landscape architecture history and does not seem to include the *why* behind the continued conservation and stewardship of this tree row.

The above discussion has focused on documentation that includes culturally important plants. What about culturally important nonhuman *animal* species in documentation? This is harder to find, and guidance from the NPS on this topic is absent. There are early examples of the recognition of nonhuman animal species as culturally important to people and places, evidenced by the inclusion of three National Wildlife Refuges in the National Register—listed during the 1960s. However, including three refuges seems inadequate when considering there are approximately 100,000 listings in the National Register and more than 560 National Wildlife

¹⁴⁸ “Howard-Ralston Eucalyptus Tree Rows (National Register #12000127),” National Register of Historic Places Registration Form, July 31, 2011, <https://burlingamehistory.files.wordpress.com/2012/04/final-ralston-howard-ohp-spring-2012.pdf>.

Refuges in the United States.¹⁴⁹ One such refuge included in the National Register is Pelican Island National Wildlife Refuge in Sebastian, Florida, which is the United States' first National Wildlife Refuge and was listed as a NHL and in the National Register in the 1960s.¹⁵⁰ President Theodore Roosevelt established the refuge by Executive Order to protect brown pelicans in 1903. The refuge is listed as a site, and the area of significance is listed as conservation.¹⁵¹ While the documentation does not shed light on why brown pelicans were so especially important to conserve at the time and of national recognition, such documentation of a National Wildlife Refuge is an example of the inclusion of nonhuman species.

Exclusion of Nonhumans

The inclusion of culturally important species appears to be the exception rather than the rule. While nonhuman species are included within documentation as discussed above, National Register nominations often do not include living species compared to CLIs and CLRs (primarily because vegetation is incorporated into the CLI and CLR methodology). Another reason is that many National Register nominations, especially early nominations, are insufficient and lack even basic details ranging from a specific period of period of significance, a clear historic property boundary, or oral histories to support historic contexts and statements of significance. Wholly “natural” areas are sometimes thought of as void of cultural resources. One example is Squirrel

¹⁴⁹ The listing of places associated with the conservation of bird species during the 1960s is not a coincidence; this coincided with the environmental movement during this time period which is commonly associated with the publication of Rachel Carson's *Silent Spring*, which focused on the detrimental effects of pesticides on many migratory bird species.

¹⁵⁰ “Pelican Island National Wildlife Refuge (National Register #66000265),” National Register of Historic Places Inventory - Nomination Form, 1984, <https://catalog.archives.gov/id/77841890>.

¹⁵¹ Of note, the nomination form does not include an explanation of why the survival of the brown pelican species mattered or why they are of cultural importance.

Hollow County Park Historic District which consists of approximately sixty acres of land in Jefferson, Iowa, listed in the National Register in 1991 for the period of significance of 1934 through 1942, in the areas of significance of architecture, conservation, entertainment/recreation, and landscape architecture. The statement of significance states the district is “one of the earliest county parks to be established in Iowa and the first to be developed for recreational purposes under the auspices of federal New Deal programs.”¹⁵² The National Register nomination states that the park is located adjacent to a wildlife refuge and that “the refuge enhances the park’s natural setting, but is excluded from the nomination because this area was acquired after 1958 *and there are no cultural features within its bounds* [emphasis added].”¹⁵³ This seems unlikely given the wildlife refuge boundary was created by humans and the refuge surely has been directly managed and designed by humans, and in fact is not “a natural area”; the concept of wildlife refuges and the creation of them across the country represents a cultural phenomenon on its own. While this one example does not provide evidence to how every National Register nomination is approached, it does provide a glimpse into the entrenched nature-culture divide into preservation professionals who are traditionally thought to view the built environment as cultural resources and living elements as non-cultural resources.

Another common exclusion of nonhuman species are trees in historic districts. In the past few decades, mature shade trees in suburban and urban areas have become a particular focus as

¹⁵² “Squirrel Hollow County Park Historic District,” National Register 75336449, National Register of Historic Places Nomination Form (State Historical Society of Iowa, n.d.), secs. 8, Page 1, <https://catalog.archives.gov/id/75336449>.

¹⁵³ Note that I am interpreting this quote to mean that even if the parcel was acquired within the period of significance, the wildlife refuge would still not be included because of the lack of built environmental features and as they state, “cultural features.” See: “Squirrel Hollow County Park Historic District,” secs. 7, Page 2.

people realize the impact of increased development on the tree canopy and the importance of a healthy tree canopy to provide ecosystem benefits such as reducing urban heat islands influenced by climate change. Historically, people have also cited mature shade trees within a neighborhood as a reason to want to live there. Local resident, Nancy Davis, stated in a *Washington Post* article that she moved to Glencarlyn neighborhood (Arlington, Virginia) in 1978 which was lined with silver maples.¹⁵⁴ She states the silver maples “were the major thing that attracted us to this neighborhood.”¹⁵⁵ While CLRs typically include information about such vegetation based on NPS guidance to include vegetation as the landscape’s one of thirteen characteristics, not all types of documentation are likely to include vegetation. National Register nominations are historically focused on the built environment. Lyon Park Historic District in Arlington, Virginia, is an example of the lack of acknowledgment of the importance of shade trees to the overall landscape in a National Register nomination.¹⁵⁶ This absence might not seem like much of an issue while reading the report until one visits the historic district. Through physically visiting this landscape, the observer can understand how the presence of these trees may have contributed to the overall significance of the residential landscape (Fig. 4).

¹⁵⁴ Justin Moyer, “Neighbors Mount Effort to Defend Arlington’s Trees from Development,” *The Washington Post*, n.d., https://www.washingtonpost.com/local/arlington-tree-canopy/2021/02/18/eee44080-713f-11eb-a4eb-44012a612cf9_story.html.

¹⁵⁵ Moyer.

¹⁵⁶ “Lyon Village Historic District (National Register #02000512),” National Register of Historic Places Nomination Form, March 29, 2002, <https://catalog.archives.gov/id/41679590>.



Figure 4: Photo of Lyon Park Historic District in Arlington, Virginia depicting residential buildings and mature shade trees (photo by author, April 2021).

Concluding Thoughts

Cultural landscapes are currently documented with a peoples-first approach. This not only misses culturally important nonhuman species but ignores historically significant human and nonhuman relationships. The absence of culturally important species, particularly nonhuman animals, is partly because NPS guidance regarding identifying and including culturally important nonhuman animal species is absent and nonhuman species have been seen as natural resources. If the definition of cultural landscape includes the term *wildlife and domesticated species*, practitioners need a method, concept, and updated guidance to include such important living species when documenting cultural landscapes. How can we expand our thinking to view

nonhuman species as just as important as human-made objects or as part of the large human story within a landscape? The next chapter explores how to expand this thinking by considering other environmental fields and envisioning a new concept to help identify, understand, and document culturally important nonhuman species, which I have coined as *heritage species*.

CHAPTER III: HERITAGE SPECIES FOR HISTORIC PRESERVATION

The field of historic preservation has a gap in practice and theory which tends to ignore culturally important species (primarily nonhuman animal species) within the documentation process laid out in NPS-issued guidance and bulletins. This chapter seeks to address this gap and is laid out in three main sections: first, I discuss the ethnobiological concept of Cultural Keystone Species and the term “World Heritage Species” proposed on the world heritage stage, which can both be used to rethink the inclusion of culturally important species within historic preservation. Second, to facilitate species integration into preservation, I propose a new term: *heritage species*. I provide a definition, goal, and working criteria for the proposed heritage species concept. Lastly, I provide a discussion and an explanation how to include heritage species within the existing preservation framework, focusing on property type, geographic boundaries, National Register criteria, integrity aspects, the 50-year age guideline, and CLIs and CLRs.

Expanded Thinking: Ethnobiology and Cultural Keystone Species

Ethnobiologists study the past and present relationships between communities and the natural environment. According to the Society of Ethnobiology, the field is “the scientific study of dynamic relationships among people, biota, and the environments.”¹⁵⁷ Like historic preservation, this field tends to be comprised of various individuals of different backgrounds,

¹⁵⁷ “Society of Ethnobiology,” Society of Ethnobiology, accessed January 3, 2023, <https://ethnobiology.org/>.

disciplines, and geographic regions. While the field has a vast array of valuable information and academic studies, my thesis focuses on one ethnobiological concept coined in 2004, cultural keystone species (CKS).

The CKS concept derives from the term keystone species, which scientists have long used to describe certain species that play key roles in ecosystems and are essential to their integrity, structure, functioning, and continued existence.¹⁵⁸ Ethnobiologists Ann Garibaldi and Nancy Turner coined the term CKS in 2004, stating “...in human cultures everywhere, there are plants and animals that form the contextual underpinnings of a culture...and can be considered cultural icons.”¹⁵⁹ They further explain that they created the term CKS to describe such “culturally salient species” to better understand the relationship between species, people, and place and consider humans as crucial components to the ecological conservation of many nonhuman species. They distinguish a CKS by how it defines a cultural identity and clarify that a species need not be ecologically dominant. Garibaldi and Turner provide six elements to consider when identifying a cultural keystone including: 1) intensity, type, and multiplicity of use; 2) naming and terminology in a language, including the use of seasonal or phenological indicators; 3) role in narratives, ceremonies, or symbolism; 4) persistence and memory of use in relation to cultural change; 5) level of a unique position in culture, e.g., it is difficult to replace with other available native species; and, 6) extent to which it provides opportunities for resource

¹⁵⁸ Other names for ecologically important species do not relate to their cultural importance (a few examples are keystone species, flagship species, and umbrella species). These are not synonyms but distinct ecological concepts which are not individually defined within this thesis as they are outside the scope of this study.

¹⁵⁹ Ann Garibaldi and Nancy Turner, “Cultural Keystone Species: Implications for Ecological Conservation and Restoration,” *Ecology and Society* 9, no. 3 (2004), <https://www.jstor.org/stable/26267680>.

acquisition from beyond the territory.”¹⁶⁰ They proposed a rating system on a scale of one to five, a rating of five represents the answer “yes, very high”; four, “yes, high”; three, “yes, moderate”; 2 “yes, low”; 1, “yes although low or infrequent”; and zero “no, not used.” The higher the number for each element listed above increases the likelihood the species is a cultural keystone.¹⁶¹

Ethnobiologists Sergio Cristancho and Joanne Vining also introduced a similar concept to CKS in 2004. They defined their term as culturally defined keystone species, derived from acknowledging humans’ crucial role in shaping their environment. Note that Cristancho and Vining use the same acronym for culturally defined keystone species as Garibaldi and Turner’s cultural keystone species: both terms describe the same concept with variations in definition and criteria and they were also published within the same year (2004).¹⁶² Cristancho and Vining define CKS as “those plants and animal species whose existence and symbolic value are essential to the stability of a cultural group over time.”¹⁶³ The authors provide seven indicator conditions

¹⁶⁰ Garibaldi and Turner.

¹⁶¹ Garibaldi and Turner, tbl. 1.

¹⁶² The general cultural keystone species concept appears to have been first proposed Gary Nabhan and John Carr in 1994 and later described by Sergio Cristancho in 2000. However, it does not appear criteria or the CKS term was proposed until Garibaldi and Turner and Cristancho and Vining published separate articles introducing the concept in 2004 with differing definitions and criteria. It is useful to consider both their definitions and criteria as they slightly differ while the larger concept remains the same. See: Gary Paul Nabhan and John L. Carr, eds., *Ironwood: An Ecological and Cultural Keystone of the Sonoran Desert*, Distributed for Conservation International (University of Chicago Press, 1994), <https://press.uchicago.edu/ucp/books/book/distributed/I/bo3634046.html>; Sergio Cristancho, “The Cross-Cultural Issue in Policy-Making and Management Strategies Involving Symbolic Plant Species in the Amazon Natives’ Territories” (8th International Symposium on Society and Resource Management, Portland, Oregon, June 2000), <https://babel.hathitrust.org/cgi/pt?id=umn.31951d02977208j&view=1up&seq=72&q1=cristancho>; Sergio Cristancho and Joanne Vining, “Culturally Defined Keystone Species,” *Human Ecology* 11, no. 2 (2004): 153–64; Garibaldi and Turner, “Cultural Keystone Species: Implications for Ecological Conservation and Restoration”; Ann Garibaldi and Nancy Turner, “The Nature of Culture and keystones,” *Ecology and Society* 9, no. 3 (2004), <http://www.jstor.org/stable/26267688>.

¹⁶³ Cristancho and Vining, “Culturally Defined Keystone Species,” 155.

to identify a CKS including: 1) the story of the species' origin is tied to the myths, the ancestors, or the origin of the culture; 2) the species is central to the transmission of cultural knowledge; 3) the species is indispensable in the major rituals on which the community's stability depends; 4) the species is either related to or used in activities intended to supply the community's basic needs such as getting food, constructing shelters, curing illnesses, etc.; 5) the species has significant spiritual or religious value for the culture in which it is embedded; 6) the species exists physically within the territory that the cultural group inhabits or has access to; 7) the cultural group refers to the species as one of the most important species.”¹⁶⁴

Unlike Garibaldi and Turner's CKS and proposed rating system methodology, Cristancho and Vining do not propose a specific methodology to identify a CKS beyond the indicators listed above but suggest a “cultural consensus” should be obtained. They state cultural consensus can be assessed qualitatively or quantitatively with various methods and that “one option, for example, is to qualitatively analyze people's expressions about the importance of a certain species for their group, highlighting those that seem to be crucial culturally.”¹⁶⁵ Cristancho and Vining stress that the process to identify a CKS should include a grounded approach that focuses on the community identifying species, rather than a top-down approach. They suggest “...an external observer might identify a CKS...by conducting participant observation or interviews with members of the culture in question or by developing and applying culturally tailored instruments to assess each species' potential as a CKS.”¹⁶⁶ Ultimately, Cristancho and Vining

¹⁶⁴ Cristancho and Vining chose to use the term “indicator” in lieu of “criteria.” See Cristancho and Vining, 158–59.

¹⁶⁵ Cristancho and Vining, 160.

¹⁶⁶ Cristancho and Vining, 160.

suggest the use of cultural consensus theory but do not provide a set methodology to use in conjunction with their CKS concept.

Challenges of Adopting Cultural Keystone Species (CKS)

As Garibaldi and Turner note, CKS help “to begin to reinforce and study the relationship of local communities to place” and are an important tool because “despite a rising awareness of culture in these efforts, available methods and approaches that actively address both ecological and cultural concerns are still sparse.”¹⁶⁷ Historic preservation can play a role in addressing these concerns as a field that deals with people and places.

However, historic preservationists cannot simply adopt and directly apply the CKS concept to our field. There are several reasons to create a new and expanded concept, dedicated to the historic preservation field. First, since 2004, ethnobiologists have discussed difficulty in creating a method to identify CKS in the ethnobiology field. Critiques such as ethnobiologists Michael Coe and Orou Gaoe’s 2020 paper call for “action to develop a novel approach for keystone designation” based on the absence of a clear methodology to measure cultural keystone status.¹⁶⁸ Coe and Gaoe discuss the pros and cons of qualitative methodologies utilized by anthropologists versus standardized quantification generally used by natural scientists. Ultimately, the CKS concept does not provide an agreed upon and standardized methodology preservationists could use and adopt in their practice.

¹⁶⁷ Garibaldi and Turner, “Cultural Keystone Species: Implications for Ecological Conservation and Restoration.”

¹⁶⁸ Michael A. Coe and Orou G. Gaoe, “Cultural Keystone Species: Are We Asking the Right Questions?,” *Journal of Ethnobiology and Ethnomedicine* 16, no. 70 (2020), <https://doi.org/10.1186/s13002-020-00422-z>.

Second, ethnobiologists tend to focus on plant species when identifying CKS. For example, the three examples Garibaldi and Turner used when coining the term included the western red-cedar tree (*Thuja plicata*), red laver seaweed (*Phorphyra abbottiae*), and wapato (*Sagittaria latifolia*) (also known as Indian swamp potato by the Katzie and other Sto:lo peoples of British Columbia).¹⁶⁹ This suggests the criteria may need to be updated to reach a wider range of species. Practitioners should not limit culturally important species to vegetation within the preservation field. A new concept with a broader definition could help capture a wider range of nonhuman species such as animals, plants, or even fungi.

Third, in reviewing papers relevant to CKS studies, many focus on Indigenous communities (e.g., Garibaldi and Turner used only examples from First Nations cultures of British Columbia). The criteria for CKS seem to be written with Indigenous cultures in mind. To be clear, this critique is not intended to undermine the importance of nonhuman species within Indigenous cultures; instead, the intention is to highlight that by focusing solely on Indigenous cultures' relationships to nonhuman species, important relationships between non-Indigenous peoples and nonhuman species are left out. More importantly, this approach ends up perpetuating the Western idea that places Indigenous people in an "other" category combined with nonhuman species.

Fourth, CKS and its criteria are primarily applicable within communities and places where nonhuman species are essential to the continued existence of those peoples. However, this fact is not always the case (i.e., the idea that culturally important species are essential to

¹⁶⁹ Garibaldi and Turner, "Cultural Keystone Species: Implications for Ecological Conservation and Restoration."

survival), even in places where nonhuman species are important to human culture. The existing CKS criteria are focused on the idea that the nonhuman species must have great significance within a community and "...its removal alters the structure of a community just as the removal of a keystone species would modify its associated habitat."¹⁷⁰ These criteria are limiting; not all culturally important species may be essential to a community's functioning or continued existence. Yet, its removal, extinction, or displacement from society may still create change or be mourned. Consider songbirds, squirrels, geese, ducks, and rabbits in an urban park: these may not be endangered or threatened species and their removal may not necessarily affect a community's functioning (although, certainly they are tied to the ecological system); however, the absence of these common species would likely be noticed by park visitors.

Perhaps most importantly and pertinent to the field of historic preservation, the CKS concept is situated to reflect existing species but not document past and present species, and it focuses on a one-way relationship. The definition and criteria, written in the present tense, do not capture the purpose of a new concept housed in historic preservation studies which is geared towards documenting species of the past even if they no longer exist in a particular place at present. Further, the definition and criteria are written to capture species that are culturally significant to humans but not necessarily ones that have shaped human culture or landscapes.

Expanded Thinking: World Heritage Species

The term and overall concept of heritage species is not new. On the World Heritage stage, the concept of World Heritage Species was first put forward to United Nations Economic,

¹⁷⁰ Garibaldi and Turner, "The Nature of Culture and Keystones."

Social, and Cultural Organization (UNESCO) by environmental conservationists in 2001.¹⁷¹ Originally proposed to protect great apes, the purpose for this special protective status was to investigate stronger international legal strategies to protect species like gorillas, orangutans, chimpanzees, and bonobos. This concept was envisioned as an accompaniment to the World Heritage Convention “which protects cultural and natural *sites* of ‘outstanding universal value’ [OUV] to humankind.”¹⁷² In contrast, “the World Heritage Species Protocol would protect *species* of outstanding universal value to humankind.” Conservationists felt current protections were not sufficient because many international protections focus on trade or only apply to specific species.

Today, the World Heritage Species concept has not taken official shape, although it still has loyal followers such as conservationist Brent Stapelkamp who is a large part of a grassroots initiative to push UNESCO to create a World Heritage Species Program.¹⁷³ Unfortunately, UNESCO has not shown interest in adopting the World Heritage Species concept. In 2016, *the Guardian* reported that Mechtild Rossler, director of the World Heritage Centre, said “she didn’t see the need for a World Heritage Species programme, arguing that UNESCO already plays a major role in protecting species by safeguarding habitat under its World Heritage Sites.”¹⁷⁴

¹⁷¹ Chris Wold, “World Heritage Species: A New Legal Approach to Conservation,” *Georgetown International Environmental Law Review* 20, no. 3 (2008): 337.

¹⁷² Wold, 339.

¹⁷³ “World Heritage Species,” accessed March 20, 2024, <http://worldheritagespecies.org/index.html>.

¹⁷⁴ Jeremy Hance, “Cecil’s Legacy: Could the Death of One Lion Start a Conservation Movement?,” *The Guardian*, April 27, 2016, <https://www.theguardian.com/environment/radical-conservation/2016/apr/27/cecils-legacy-could-the-death-of-one-lion-start-a-conservation-movement>.

Chris Wold, law professor at the Lewis & Clark Law School, published an article in 2008 and proposed World Heritage Species as a new legal approach to conservation. Wold discussed that World Heritage Species focuses on large, emblematic species, like tigers, lions, and whales, like World Heritage Site's focus on large, globally significant places. Wold agreed with activists, stating the World Heritage Sites concept "recognizes that certain species play an especially significant role in our cultural and natural heritage and that these species warrant a newly defined global conservation effort. Thus, certain species may be considered 'World Heritage Species' because they embody 'outstanding universal value' [OUV] and reflect valuable aspects of our cultural and natural heritage."¹⁷⁵ Wold proposed that to nominate a World Heritage Species, a proponent would be required to show that the species embodied OUV based on at least one criterion and that they must describe how existing international agreements would enhance conservation efforts. The criteria and process are laid out into separate sections; criteria focus on significant human-nonhuman relationships and requires a species has at least one of the following values: cultural, religious, medicinal, social, evolutionary, traditional or survival. The criteria also include that the loss of the species would "constitute an impoverishment of the heritage of humankind."¹⁷⁶ Criteria also include an option to qualify as a significant connection to global biodiversity as opposed to culture, creating a dichotomy between "cultural" and "natural" World Heritage Species that is also embodied within the World Heritage Sites Program (natural versus cultural sites).¹⁷⁷ These ecological species must have at least one of the following

¹⁷⁵ Wold, "World Heritage Species: A New Legal Approach to Conservation," 368.

¹⁷⁶ Wold, 395.

¹⁷⁷ "The Criteria for Selection," UNESCO World Heritage Center, accessed August 15, 2021, <https://whc.unesco.org/en/criteria/>.

values: ecological, biological, genetic value, other value that warrants special protection, and the loss of the species would “constitute an impoverishment of the world’s biological heritage.”¹⁷⁸ Refer to Appendix III for an excerpt on World Heritage Species criteria and process as put forth by Wold.

The World Heritage Species concept most closely aligns with my proposed heritage concept; however, it also carries the downfalls of the World Heritage Sites nominations as well, primarily that these are species meant to convey “outstanding universal value” to the entire world which is a lofty goal. Does someone living in Alaska really hold cultural value to manatees in Florida? Second, the World Heritage Species concept indicates ownership over nonhuman species and that somehow, because lions, tigers, and bears are designated as World Heritage Species, they are now “owned” by members of the world. This is not and should not be the case: historians and biologists alike should strive for a concept that embodies the human-nonhuman relationship to try and understand complex landscapes rather than own or dominate living species.

To conclude, while terms like CKS and World Heritage Species exist to ascribe value to species, there is still no overall term to describe culturally significant species within historic preservation and no methodology to identify such species in the local, or state level (which the National Register, CLIs, and CLRs have the power to do so).¹⁷⁹ Further, while the general

¹⁷⁸ Wold, “World Heritage Species: A New Legal Approach to Conservation,” 395.

¹⁷⁹ Beyond CKS and World Heritage Species, there are other terms to describe culturally significant species such as heritage trees, heritage seeds, and heritage cattle. Still, there is no one, standardized term to describe these species.

concept of heritage species is not new, it is new to the historic preservation framework within the United States.

Heritage Species for Historic Preservation

This thesis expands upon the CKS and World Heritage Species and proposes *heritage species* as a new concept to assist preservationists in studying the relationship of communities, places, and their culturally important species at the local, state, and national levels. I define heritage species as a nonhuman species of cultural importance to a community that historically or currently contributes to a cultural landscape or community's sense of place, culture, identity, or ecology.¹⁸⁰ The goal is to use this concept as a tool to document, acknowledge and conserve species of historical significance to the United States. I propose that species be identified through a set of eight criteria (Fig. 5). Species in this concept are defined like World Heritage Species, which Wold defines as "any species, subspecies, geographically separate population of a species, or other relevant taxonomic group."¹⁸¹ Thus, "species" not only could include a specific type of species but encompasses larger groupings of species like butterflies or old-growth trees. The criteria for designating heritage species, along with the goal and definition, are presented in figure 5 below:

¹⁸⁰ The definition and criteria provided here should be considered working versions of both. To be used in practice, these should be developed by a team of interdisciplinary individuals as well as Indigenous communities to ensure completeness, applicability, and usefulness.

¹⁸¹ Wold, "World Heritage Species: A New Legal Approach to Conservation," 375.

Criteria for designating “Heritage Species”

Definition:

A nonhuman species of cultural importance to a community that historically or currently contributes to a cultural landscape or community’s sense of place, culture, identity, or ecology.

Goals:

To provide a concept and tool to facilitate the 1) documentation of historically significant nonhuman species throughout the United States and 2) holistic management of cultural landscapes as living systems.

Criteria:

Heritage species historically or currently meets at least one of the following criteria:

- 1) The species is/was a contributing element to landscape’s historic character, feeling, and/or sense of place;
- 2) The species is/was important to a culture or community’s shared identity;
- 3) The species is/was directly or indirectly linked to the cultural or ecological sustainability of a landscape;
- 4) The species is/was central to a community’s spiritual, sacred, or religious practices;
- 5) The species is/was important to a culture’s survival or way of life through its use as a resource for subsistence or agriculture;
- 6) The species significantly impacts/ed a culture or community’s lifestyle;
- 7) The species plays/ed a large role in shaping a cultural landscape and/or informed a community’s use or development of a place; and,
- 8) The species is associated with a significant historical event.

Figure 5: Summary of the proposed heritage species concept.

The main purpose of establishing the heritage species concept for historic preservation is to have a tool to promote the documentation of important nonhuman species as part of American history and to identify and incorporate culturally significant species into landscape management strategies as part of creating sustainable landscape systems. In this thesis, heritage species and a living-species-first approach are both discussed; heritage species is a tool for preservation and is thus a component of the living-species-first approach. I crafted the current criteria with

documentation in mind, and they are intended to cast a wide net to stimulate thinking about different types of human-nonhuman relationships and identify a wide variety of species of cultural importance. For example, criteria 7 is listed as “the species plays/ed a large role in shaping a cultural landscape and/or informed a community’s use or development of a place.” The purpose of this criterion is to capture species which have shaped a landscape and its people, rather than how people may have used or impacted a place. Such species could be Eastern gray squirrels, a common and omnipresent species in many areas which is integral to seed dispersal and, therefore, directly connected to healthy ecosystems.

I acknowledge that to strengthen the heritage species concept, its definition, including the criteria listed above, should be created by multiple parties of varying backgrounds, communities, geographic regions, etc., and include Indigenous and non-Indigenous peoples. The above definition and criterion are not intended to be final; rather they are a starting point to help the preservation field move towards a living-species-first approach. Critiques of the above definition and criteria will only strengthen this concept and make it more applicable and inclusive of all communities, nonhuman species, and histories.

Fitting Living Species into the Current Preservation Framework

How *do* living species and heritage species fit within the preservation framework, created for tangible, immobile built resources? Below I discuss fitting living species (and by extension, heritage species) in the existing National Register and cultural landscape frameworks. While a living species in and of itself may not be eligible to be listed in the National Register as a standalone cultural icon as I discuss below, the species, people, and place (cultural landscape) can be documented and protected under current preservation guidelines. This discussion is an

expansion of questions raised by scholars like Thomas King and Ingrid Brostrom, who write about protecting nonhuman animals and their habitats under the NHPA and National Register framework.

National Register Framework

Practitioners and nominators must consider multiple aspects throughout a National Register evaluation process (e.g., property type, criteria, historical context, themes, etc.). Below, I review some of the main procedural elements to explain how a preservationist might document a living species within the existing National Register framework.

Property Type

The first obstacle encountered when considering living species in the National Register is designating the species as a building, site, structure, object, district, or landscape. Below I discuss the object, site, and district property types, and how heritage species might or might not fit within these categories.¹⁸²

The NPS defines an object as “those constructions that are primarily artistic in nature or are relatively small in scale and simply constructed. Although it may be, by nature or design, movable, an object is associated with a specific setting or environment.”¹⁸³ Although it seems unlikely a nonhuman animal could fit into this definition, one judicial court case (previously introduced in chapter one of this thesis) has already indicated animals could be considered objects, as defined by the NPS: “the court in *[Okinawa] Dugong v. Rumsfeld* concluded that in

¹⁸² Building and structure property types are strongly associated with tangible objects and therefore, are not of much use in this discussion and I do not discuss them here.

¹⁸³ “National Register Bulletin 15: How To Apply the National Register Criteria for Evaluation” (National Park Service, 1995), https://www.nps.gov/subjects/nationalregister/upload/NRB-15_web508.pdf.

its view, an animal could meet the National Register definition of an object. Furthermore, the court pointed out that at least one tree had been regarded as eligible for the National Register and suggested that what goes for a plant could go for an animal.”¹⁸⁴ Thus, one could argue that a heritage species could be considered an object and be listed in the National Register.

A site is defined as “the location of a significant event, a prehistoric or historic occupation or activity, or a building or structure, whether standing, ruined, or vanished, where the location itself possesses historical, cultural, or archeological value regardless of the value of any existing structure.”¹⁸⁵ Heritage species as associated with their habitat could therefore be considered a site similar to places already listed in the National Register as such. For example, see chapter one for a discussion of the three wildlife refuges listed in the National Register.

Lastly, a district and landscape are geographical areas with various natural and cultural resources. Considering heritage species as a contributing resource or character-defining feature to a larger district or landscape is likely the best path forward. As historic preservation professional Tom King recognizes, the Keeper of the National Register would almost certainly not accept a nomination of a cow, for example. Still, he believes that we can “regard animals as elements that contribute to those historic properties with which they’re associated, and hence as aspects of such properties that should be considered in planning.”¹⁸⁶ King concludes that in the case of landscapes, living components can clearly contribute to a place’s character and therefore

¹⁸⁴ Tom King, “Animals and the United States National Register of Historic Places,” *The Applied Anthropologist* 26, no. 2 (Fall 2006): 130.

¹⁸⁵ “National Register Bulletin 15: How To Apply the National Register Criteria for Evaluation.”

¹⁸⁶ King, “Animals and the United States National Register of Historic Places,” Fall 2006, 3.

can contribute to the eligibility of a property. He cites a theoretical example of animals within a zoo and argues:

Certainly, the animals are an important –indeed, central – feature defining the zoo’s character. The same is obviously true of a landscape in which buffalo roam or deer and antelope play. This is why the *Secretary of the Interior’s Guidelines for Treatment of Cultural Landscapes* defines the term “cultural landscape” to include “wildlife or domestic animals.”¹⁸⁷

Brostrom builds on these ideas by acknowledging that the cultural significance of a place is linked to a community’s beliefs, customs, and practices. She states the “land on which specific animal species are found may be valued by traditional societies because of the presence of culturally significant wildlife. Therefore, a species’ habitat, though not the animal itself, can be protected under the NHPA.”¹⁸⁸ Brostrom explains protecting species through the NHPA is something that already fits within the regulatory framework. She sites examples where this has already occurred (i.e., National Wildlife Refuges, animal habitats important to Indigenous histories, and other sites such as Massacre Canyon in Nebraska which is historically significant based on animals living on the site).¹⁸⁹ As Brostrom argues and King concludes: “animal populations may be culturally important elements or features of a historic property, and their presence may—by itself or in combination with other features—make a property eligible for the National Register.”¹⁹⁰

¹⁸⁷ King, 6.

¹⁸⁸ Brostrom, “The Cultural Significance of Wildlife: Using the National Historic Preservation Act to Protect Iconic Species,” 155.

¹⁸⁹ Brostrom, 156.

¹⁹⁰ King, “Animals and the United States National Register of Historic Places,” Fall 2006, 8.

Considering nonhuman species as contributing resources or character-defining features to overall landscapes seems like an easy solution. But how do we address other aspects of the National Register framework that living species need to conform to, and that King and Brostrom do not focus on, such as geographic boundaries, National Register criteria, integrity standards, and the 50-year age guideline? As I discuss below, these elements of the evaluation process are harder (but not impossible) to adapt to a living-species-first approach.

Geographic Boundaries

The NHPA states that a district must be a “geographically definable area.”¹⁹¹ But how should a preservationist delineate a boundary for a living nonhuman species? Bulletin 21, *Defining Boundaries for National Register Properties* is limited to buildings, structures, sites, and objects and discuss the use of natural features, but not living ones.¹⁹² And what about nonhuman species with large home ranges, such as mammal species like the gray wolf (*Canis lupus*), bobcat (*Lynx rufus*), or migratory bird species like osprey (*Pandion haliaetus*)? One answer is establishing geographic boundaries for living species by using tools used by conservation biologists. For example, according to the USFWS website, “when a species is proposed for listing as endangered or threatened under the Endangered Species Act (ESA), we identify specific areas that are essential to its conservation. These are the species’ *critical habitat* [emphasis added].”¹⁹³ Critical habitats, therefore, could be useful when attempting to establish boundaries for a heritage species and associated landscape, although it is important to keep in

¹⁹¹ See NHPA Title 36, Chapter 1, Part 60.4.

¹⁹² Donna Seifert, “Bulletin 21, Defining Boundaries for National Register Properties” (National Park Service, 1997), <https://www.nps.gov/subjects/nationalregister/upload/Boundaries-Completed.pdf>.

¹⁹³ “Critical Habitat,” U.S. Fish & Wildlife Service, n.d., <https://www.fws.gov/project/critical-habitat>.

mind that these are ecological boundaries and not ones established by ties to historical significance. The USFWS has a publicly accessible Critical Habitat for Threatened & Endangered Species web-based mapping tool that is useful in determining these habitat areas.¹⁹⁴ This approach has some obvious limitations, primarily that it only applies to threatened or endangered species, whereas a heritage species need not be either. Additionally, this still does not solve the question of the heritage species with large home ranges, which may be problematic when attempting to nominate a landscape as a site or district to the National Register if most of the resources within a large home range area are non-contributing. Nonetheless, Critical Habitats are an easily accessible, web-based tool which could be used by preservationists.

Heritage species that nest or roost in the same places every year, like migratory birds, sea turtles, and bats, would likely be easier to fit into the existing preservation framework since they are more or less rooted to a particular place. For example, ospreys utilize the same nesting grounds year after year (unless they are destroyed by humans or weather events). Nesting animals would likely be easier to document because they are typically tied to a specific place where humans also may be likely to consistently view them (ospreys at nesting platforms within a wetlands nature preserve, for example). Plant species are even easier than nonhuman animals as they are grounded in the same spot, which makes it the very likely reason the NPS has largely avoided nonhuman animals in the first place. However, if preservationists can adhere to a place-based method of thinking about nonhuman species and historical significance, there is a path

¹⁹⁴ “Critical Habitats for Threatened & Endangered Species,” US Fish & Wildlife Service, accessed January 22, 2023, <https://fws.maps.arcgis.com/home/item.html?id=9d8de5e265ad4fe09893cf75b8dbfb77#!>

forward within the existing National Register framework by considering these species contributing resources to a larger landscape.

National Register Criteria for Evaluation

The National Register criteria are codified in the NHPA and intended to capture a large diversity of resources.¹⁹⁵ These criteria are further discussed in the NPS published guidelines and bulletins mentioned throughout this thesis. Some criteria are difficult to tie to a living species approach (for example, criterion C focuses on design). However, criteria A and B could easily be utilized. Criterion A focuses on significant events that have contributed to our history. The creation and existence of National Wildlife Refuges across the United States is a significant historical event that has contributed to our history, and humans' attachment to and need for nonhumans and "natural" landscapes.¹⁹⁶ Take the Elizabeth Hartwell Mason Neck National Wildlife Refuge, for example. This refuge was created by the USFWS in 1969 specifically to protect the American bald eagle (*Haliaeetus leucocephalus*), the national bird of the United States, and happens to contain the largest freshwater marsh in Northern Virginia. The refuge is named after a dedicated local resident, Elizabeth Hartwell, who fought hard to protect the land from a planned community in the 1960s. Based on her association with the landscape, criterion B could also be applicable, as this criterion focuses on the lives of significant persons.¹⁹⁷

¹⁹⁵ National Register criteria are discussed in chapter one of this thesis and are laid out in Appendix B. Also, see NHPA Title 36, Chapter 1, Part 60.4 Criteria for Evaluation.

¹⁹⁶ Natural is in quotations because the aspect of "naturalness" within National Wildlife Refuges could be debated; after all, these are areas that have been delineated and maintained through human actions.

¹⁹⁷ I obtained this information from the historical signage located within the refuge during a visit in February 2022.

Seven Aspects of Integrity

Tied in with the National Register criteria for evaluation, the NHPA states that a resource listed to the National Register must possess integrity of location, design, setting, materials, workmanship, feeling, and association along with one or multiple criteria discussed above. To be eligible for the National Register, a place must meet at least one of the criteria for significance as described above and retain integrity. According to the NPS, integrity is essential for a place to convey its historical significance. However, the NHPA did not codify definitions of these integrity standards.¹⁹⁸ Rather, a detailed discussion of integrity is found in the NPS publication, National Register Bulletin 15, *How to Apply the National Register Criteria for Evaluation*. The bulletin provides a detailed definition for each aspect of integrity.¹⁹⁹ The bulletin also provides a methodology for assessing integrity in properties which includes 1) defining the essential physical features that represent a property's significance, 2) determining if the physical features are visible to convey their significance, 3) determining if the property needs to be compared to similar properties, and 4) determining which aspects of integrity are particularly vital to the property's National Register nomination.

The integrity aspects assessment is problematic for living species for several reasons. First, the aspects of integrity are set up with individual buildings and structures in mind. Aspects

¹⁹⁸ See NHPA Title 36, Chapter 1, Part 60.4.

¹⁹⁹ The seven aspects of integrity are defined within Bulletin 15 as follows: "location is the place where the historic property was constructed or the place where the historic event occurred", design is the combination of elements that create the form, plan, space, structure, and style of a property", "setting is the physical environment of a historic property", "materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property", "workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory", "feeling is a property's expression of the aesthetic or historic sense of a particular period of time", "association is the direct link between an important historic event or a person and a historic property." These can be found within: "National Register Bulletin 15: How To Apply the National Register Criteria for Evaluation."

like materials would be hard to relate to a living species element. However, one could argue nonhuman species are physical material elements. Design is applicable because nonhuman species like trees within designed landscapes can form patterns or configuration that forms an overall historic landscape. Location could also be hard to finagle into a living-species-first approach, but not if a practitioner took a landscape approach where living species were contributing resources to a landscape. Finally, if a practitioner included living species as a contributing resource, such as the elusive red fox (*Vulpes vulpes*), it would be difficult to determine if the fox currently or historically existed within that landscape. Red foxes, similar to other mammals such as bobcats, typically avoid humans and are unlikely to be observed within a typical cultural landscape field survey. It might be difficult to determine if the fox contributes to the historical significance of a place, unless the fox population warranted documentation likely to be found via archival research (newspaper articles, photographs, etc.) or if multiple field surveys took place specifically to identify living species (or perhaps more ecological methods were employed like the use of camera-traps).

Several historic preservation scholars discuss issues with evaluating integrity within landscapes related to the fact that landscapes are dynamic, changing systems, an idea that directly conflicts with the concept of historic preservation to begin with. Landscape architect Nancy Rottle argues for an alternate framework that is based on a continuum and process, which is more in line with the environmental conservation community. She vouches for allowing places to retain significance and integrity but also allows landscapes to change throughout time, citing agricultural landscapes as a specific example (such as Ebey's Landing National Historical

Reserve on Whidbey Island, Washington).²⁰⁰ Richard Longstreth and Robert Melnick are also a vocal proponents of viewing landscapes as systems.²⁰¹ Brenda Barrett proposes the term “living landscape” in her blog, *Living Landscape Observer*, and defines this term as: “landscapes that are inhabited, claimed, complex, changing, and in short alive.”²⁰² The concept of protecting living landscapes is an expansion of the inherent definition of “preservation” within historic preservation. Consider the Merriam-Webster definition of preservation versus conservation; preservation is defined as “the activity or process of keeping something valued alive, intact, or free from damage or decay” while conservation is defined as “a careful preservation and protection of something, especially planned management of a natural resource to prevent exploitation, destruction, or neglect.”²⁰³

It is important to remember that while the list of integrity aspects is codified within the NHPA, their definitions are not. Given the deep integration of the concept of integrity in the National Register framework, it is unlikely that the NPS would exempt a heritage species and its habitat from conforming to one or more of the aspects of integrity in order to be listed in the National Register.²⁰⁴ However, the NPS could issue an updated bulletin to alter, clarify, or

²⁰⁰ Nancy D. Rottle, “A Continuum and Process Framework for Rural Historic Landscape Preservation: Revisiting Ebey’s Landing on Whidby Island, Washington,” in *Balancing Nature and Heritage in Preservation Practice: Cultural Landscapes*, ed. Richard Longstreth (Minneapolis: University of Minnesota Press, n.d.), 129–49.

²⁰¹ Longstreth, *Balancing Nature and Heritage in Preservation Practice: Cultural Landscapes*; Melnick, “Considering Nature and Culture in Historic Landscape Preservation.”

²⁰² Brenda Barrett, “What Is a Living Landscape?,” accessed March 20, 2023, <https://livinglandscapeobserver.net/living-landscapes/>.

²⁰³ “Conservation,” in *Merriam-Webster*, accessed April 24, 2023, <https://www.merriam-webster.com/dictionary/conservation>; “Preservation,” in *Merriam-Webster*, accessed April 24, 2023, <https://www.merriam-webster.com/dictionary/preservation>.

²⁰⁴ Many have criticized the integrity standards and have called for updates for other equally if not more important reasons as well, such as the fact they cater to a racist, white-washed process within the documentation that documents and lists places of high-integrity to the National Register, and ignore places associated with marginalized groups that have been disinvested and therefore, cannot hold up to the integrity standards. For further discussion of

expand the definitions or provide an evaluative process to alleviate some of the hurdles discussed above.²⁰⁵

The issue of living species brings up a large question of what to do when a species roost site, nest, or home range moves and loses integrity of location. The movement, extinction, or death of a species can be thought of as no different to the demolition of a building, or a historic tree cut down due to health and safety reasons. For example, if Mexican-free tailed bats (discussed in chapter four) were to leave their roost site under the Congress Avenue Bridge, it is true they would no longer be able to be considered a contributing resource or a character-defining feature due to the loss of integrity (i.e., location). However, they could still be included as part of the historic context discussion, nonetheless. Further, if the bats were determined to be a contributing resource or character-defining feature after a nomination and then they left, an updated National Register nomination, CLI, or CLR would simply note this as a loss of integrity and that they are no longer eligible for the National Register. It is still important that their presence under the bridge and cultural value were documented in some way, and the fact that they can move (similar to the razing or moving of a building) should not hinder their ability to be considered under the National Register framework.

how places of marginalized groups fit into the regulatory framework within historic preservation see Andrea R. Roberts, “‘Until the Lord Come Get Me, It Burn Down, Or the Next Storm Blow It Away’: The Aesthetics of Freedom in African American Vernacular Homestead Preservation,” *Buildings & Landscapes: Journal of the Vernacular Architecture Forum* 26, no. 2 (2019): 73, <https://doi.org/10.5749/buildland.26.2.0073>.

²⁰⁵ National Park Service, “National Register Traditional Cultural Places Bulletin Update,” accessed March 20, 2023, <https://parkplanning.nps.gov/projectHome.cfm?projectId=107663>.

Places With Significance Less Than Fifty Years Old

There are several criteria considerations contained within the National Register guidelines that could come into play with heritage species.²⁰⁶ One such criteria consideration is stated in the NHPA as criterion consideration E: “properties that have achieved significance within the past 50 years shall not be considered eligible for the National Register.”²⁰⁷ This is commonly interpreted as the idea that a building less than fifty years old is not eligible for the National Register unless it is of exceptional significance. Fifty years is an arbitrary number with the intention of allowing enough time to provide us with the historical context to events and places before they are considered historically significant. Some within the preservation community question if it should be abolished because it begs the important question – exceptionally important to whom? And: who gets to decide what is exceptionally important? Often, it is historic preservation professionals and staff at the State Historic Preservation Offices making these decisions. This is problematic because it leaves the people who might value that place out of the decision-making and research process. Many practitioners have discussed this topic: consider Ned Kaufman’s book *Place, Race and Story*, the National Trust’s 2017 people-centered report, and Tom King within *Places That Count*, to name a few.²⁰⁸

When thinking of living species, this discussion becomes even more difficult. In a National Register context, to argue that a living species (historically present in a landscape) is a contributing resource to a district or landscape at the present day, would that specific living

²⁰⁶ Criteria considerations are separate and distinct from the four main criteria.

²⁰⁷ See NHPA Title 36, Chapter 1, Part 60.4.

²⁰⁸ Kaufman, *Place, Race and Story: Essays on the Past and Future of Historic Preservation*; “Preservation for People: A Vision for the Future”; King, *Places That Count: Traditional Cultural Properties in Cultural Resource Management*.

species need to be older than fifty years of age as well? Or would it be sufficient that a specific population of species has existed since a specific time? For these answers I turn to a hypothetical: consider green sea turtles which have historically nested in a particular protected coastal landscape (established in 1970 during the environmental movement). The turtles return to the same nest year after year, drawing visitors such as nature-lovers, biologists, and wildlife photographers and creating a cultural landscape. Green sea turtles can live longer than fifty years although the nest is re-made every year. With this example, there may be some that argue the turtles themselves could be considered a contributing resource (older than 50 years of age); one could also argue their continued nesting presence in the same location for over fifty years would qualify.

Consider the argument of in-kind replacements used by preservation professionals. In-kind placements are thought to not detract from the integrity and historical significance of a place when elements have been replaced due to degradation, personal preference, or function but remain relatively like the original intent or design of the historic property. While normally applied to aspects like fenestration, roofing materials, or pavement, we can apply this line of thinking to living species as well. For example, the Frederick Law Olmsted National Historic Site in Massachusetts replaced a historic American elm tree which was on the landscape when the Olmsted Family originally purchased the property in 1883 and was planted circa 1810. The NPS replaced the deteriorating tree in 2011 with a disease-resistant Jefferson elm (variety of American elm), which they argued conveyed the same feeling and association of the original;

hence, it was in-kind.²⁰⁹ This same line of thinking could be used for other nonhuman species; for example, new turtle nests could be considered in-kind replacements if the same nesting location has been historically used.

Cultural Landscape Inventories and Reports

As described in chapter one of this thesis, the framework for NPS CLIs and CLR is rooted in the National Register framework.²¹⁰ As discussed in chapter one, CLIs are reports that provide baseline documentation and evaluate significant landscapes that the NPS has a legal interest in or plans to acquire.²¹¹ A CLR works in tandem with a CLI but is grounded in the treatment decisions for landscape and long-term management.²¹² The CLI and CLR both help to guide resource managers with management decisions based on the historical significance of the landscape.

CLIs and CLR include a method to document vegetation within the documentation process. NPS historian Heidi Hohman criticizes the inclusion of vegetation within CLIs and CLR because she argues there is a lack of ecological, systems-based approach. However, the inclusion of vegetation within CLIs and CLR takes a giant step away from primarily built objects towards a more holistic view of place that includes vegetation and natural systems, which

²⁰⁹ National Park Service, “The Olmsted Elm,” accessed March 20, 2023, <https://www.nps.gov/firla/learn/historyculture/olmsted-elm.htm>.

²¹⁰ Not all CLR are tied to the NPS; they are also created and used by non-profits, businesses, etc.; but they are also typically rooted in the National Register framework.

²¹¹ See chapter one and Page, “National Park Service Cultural Landscapes Inventory Professional Procedures Guide.”

²¹² See chapter one and Page, Gilbert, and Dolan, “A Guide to Cultural Landscape Reports: Contents, Process, and Techniques.”

are excluded from National Register nomination process.²¹³ In addition, it immerses the preservation services divisions within the NPS into the natural resource world. The use of landscape characteristics to define the integrity of cultural landscapes, which includes natural systems and features and vegetation, is a driving force to the inclusion of nonhuman species (slanted towards vegetation).²¹⁴

The thirteen landscape characteristics as introduced in chapter one include: natural systems and features, spatial organization, land use, cultural traditions, topography, vegetation, circulation, buildings and structures, cluster arrangement, views and vistas, constructed water features, small-scale features and archaeological sites.²¹⁵ None of the thirteen landscape characteristics mention “wildlife or domestic animals therein” despite this quote being part of the NPS cultural landscape definition. The NPS has sought to include a holistic methodology and lens to view, document, and ultimately manage their cultural landscapes using CLIs and CLRs; however, how can this truly be complete without consideration for heritage species and other nonhuman animal species that are also a large part of these areas? The thirteen landscape characteristics (in particular, vegetation) are important to the discussion at hand because they allow for the incorporation of nonhuman species into CLIs and CLRs in a way that the National

²¹³ One such criticizer is Heidi Hohmann and her book section: Hohmann, “Mediating Ecology and History: Rehabilitation of Vegetation in Oklahoma’s Platt Historic District.”

²¹⁴ There are also noncontributing but compatible features. For example, new mature trees planted to continue a forested landscape may not be historically original to the landscape but are compatible to the overall feeling and association of a place. Noncompatible and noncontributing features retract from the historic character of a place and would likely be recommended to be updated via a treatment option.

²¹⁵ Page, “National Park Service Cultural Landscapes Inventory Professional Procedures Guide.”

Register nominations do not. Below, I discuss how the vegetation landscape characteristic has already been utilized to identify culturally significant trees.²¹⁶

Landscape Characteristic: Vegetation

Terms to describe culturally significant trees, such as legacy vegetation, can be found within existing documentation. While these terms may not be defined within official NPS guidance, their existence and use support the idea that there is some flexibility in creating new terms to describe living species. In a similar vein, the NHPA and National Register guidelines do not currently utilize heritage species or a similar terminology to describe culturally important living species; however, the heritage species term could be used within documentation to highlight culturally important species tied to the historical significance or ongoing conservation of a place.

For example, the term legacy trees or legacy vegetation can be found in CLR documentation, such as within the Chinn Ridge CLR published in 2018 by Quinn Evans. In this example, legacy vegetation is used to denote individual black walnut trees located around the historic Chinn House within the Chinn Ridge cultural landscape located at Manassas National Battlefield Park (MANA), in Manassas, Virginia. According to the 2018 CLR, the consultants concluded the black walnut trees may date to the historical period of significance and therefore, they are considered contributing resources to the cultural landscape. According to the Chinn Ridge CLR, "...the walnut and fruit trees within the vicinity may be considered legacy

²¹⁶ Natural systems and features are another important landscape characteristic. While this landscape characteristic does not specifically require the inclusion of nonhuman animal or plant species, information related to the existing ecosystem of a landscape can be included within this characteristic discussion. However, in practice this is typically limited to aspects like topography or water features like stream systems. Chapter five includes further discussion of the natural systems and features landscape characteristics and use to include species habitats within a CLI.

vegetation.” The term legacy tree or legacy vegetation is not an official term for cultural landscape work and creates vagueness because of the lack of consistency and lack of guidelines related to what to call nonhuman species of cultural importance beyond “contributing resource.” There is a need to clarify across the NPS how to identify, describe, and evaluate species of culturally significance. Further research is needed within the NPS to understand the need of new terminology and how it would be best implemented.²¹⁷ Heritage species could fill this role; however, in reality there should be specific guidance for trees in particular because of the frequency of their inclusion within CLIs and CLRs.

Archival Research Methodology for Living Species

A large portion of the documentation process, whether a National Register nomination, CLI, or CLR, includes conducting historical research (which should also include efforts to interview people of interest and local community members). The NPS’ *Guide to Cultural Landscape Reports* includes a section on researching historical landscapes, titled “Documentation Sources for Landscape Research.”²¹⁸ This section provides useful suggestions for research sources, which are similar but slightly expanded from sources suggested in other bulletins for researching buildings or historic districts. In addition, the guide discusses how to research vegetation in a landscape, much like someone would do for a building or historic

²¹⁷ The NPS has other terminology, programs, and definitions specifically related to trees. For example, see their Witness Tree Program website and information related to Culturally Modified Trees (CMTs): Mike Townsend, “Silent Sentinels of Storied Landscapes,” National Park Service, October 24, 2017, <https://www.nps.gov/articles/silent-sentinels-of-storied-landscapes.htm>; “Culturally Modified Tree Study,” National Park Service, September 26, 2017, <https://www.nps.gov/glac/learn/historyculture/culturally-modified-trees.htm>.

²¹⁸ Page, Gilbert, and Dolan, “A Guide to Cultural Landscape Reports: Contents, Process, and Techniques.”

district. For example, to identify historically important vegetation the NPS suggests referencing “plant lists prepared in conjunction with planting plans by professional landscape firms.”²¹⁹

To learn about living species and potentially identify a heritage species, I envision the research process to be like the research process for any other place, and from similar sources. The exception is that considering living species changes *how* and *what* the researcher may consider worth reviewing. For example, if researching a park landscape at the National Archives and Records Administration (NARA) or perhaps at a local history center, researchers will need to be mindful to read finding aids and open those folders titled “animals” or “wildlife” (should they exist), rather than perhaps overlooking them since they would likely not be of central interest to a traditional approach to researching landscapes based on current NPS guidance.²²⁰

A large emphasis should be placed on local communities identifying species (bottom-up approach) through conducting interviews and collecting oral histories. This is like Cristancho and Vining’s approach when they state the identification of a CKS relies on a “grounded approach that relies on the members of the community speaking for themselves.”²²¹ As a model for this approach, we could look to ethnobiologist studies that identified CKS to gain some insights. For example, in 2006, the Snow Leopard Conservancy (in partnership with several other entities) published a report titled, *Mountain Cultures, Keystone Species: Exploring the Role of*

²¹⁹ Page, Gilbert, and Dolan.

²²⁰ Finding aids are created by archivists and provide a roadmap to boxed archival records. They assist researchers because they provide a summary or key words as to what specific records hold, rather than requiring researchers to blindly open numerous boxes.

²²¹ Cristancho and Vining, “Culturally Defined Keystone Species,” 160.

Cultural Keystone Species in Central Asia.²²² The report is a socio-ecological study which aimed to “explore and document the role of charismatic, keystone species like snow leopards, Marco Polo sheep, ibex, and brown bear as cultural icons to selected mountain communities and cultures” among other project objectives.²²³ Researchers intended to identify culturally important living species to “strengthen cultural identities and community development.”²²⁴ Admittedly, this research project took place in Tajikistan and was not grounded in a historical approach; however, it provides an example approach and documents their main methodology for identifying a CKS, which was rooted in a participatory process. Their process focused on understanding the important cultural and ecological role species played in the community and then creating a ranking system through which indicators such as persistence and type of use were identified based on community interviews. While I do not believe the historic preservation field needs to follow an ethnobiological study in this manner (and realistically, does not always have the time, resources, or money to do so), these studies may be helpful to understand culturally important living species from a social science perspective.

Beyond ethnobiological studies, perhaps more relevant to historic preservationists are existing biological databases maintained by the NPS. For example, NPSpecies is a database that “documents our knowledge about the occurrence and status of species on National Park Service Lands.”²²⁵ Cape Cod National Seashore lists fifteen mammals, such as whitetail deer (*Odocoileus*

²²² Rodney Jackson and Nandita Jain, “Mountain Cultures, Keystone Species: Exploring the Role of Cultural Keystone Species in Central Asia” (Snow Leopard Conservancy, Cat Action Treasury, January 18, 2006), <http://www.snowleopardconservancy.org/pdf/grant2019.pdf>.

²²³ Jackson and Jain.

²²⁴ Jackson and Jain, 2.

²²⁵ “NPSpecies,” National Park Service, US Department of the Interior, accessed January 28, 2023, <https://irma.nps.gov/NPSpecies/>.

virginianus borealis), river otter (*Lutra canadensis*), and the northern right whale (*Eubalaena glacialis*). Yellowstone National Park has iconic species such as bison (*Bison bison*) and Yellowstone moose (*Alces alces shirasi*). The database provides limited information (such as “nativeness” and “observations”). It takes a purely ecological perspective like the Endangered Species List and does not necessarily provide a list of culturally important species. It is also limited to NPS-owned land; nevertheless, it is a starting point and a great resource that is easily accessible and helps to understand which living species occupy cultural landscapes within the park system.²²⁶ Similar biological databases exist elsewhere, such as the *NatureServe Explorer* online database, which according to NatureServe’s website “is the definitive source for information on at-risk species and ecosystems in the Americas” and includes information on over 100,000 species and ecosystems.²²⁷

Concluding Thoughts

An updated research methodology to include living species in the documentation process and identify heritage species is not out of reach for historic preservation professionals. Integrating living species into preservation is not impossible. The expansion of considering living species and human-nature relationships while reading and researching landscapes will add to preservationist’s already interdisciplinary skill sets. As historian C. Ian Stevenson states, preservationists are “...already equipped to read buildings and landscapes as contested spaces along class, race, gender, or ethnic lines might bolster their analytical arsenal by interpreting

²²⁶ This database also provides information about other species beyond mammals such as birds, vascular plants, insects, bacteria, and more.

²²⁷ “NatureServe Explorer,” NatureServe, accessed April 23, 2023, <https://explorer.natureserve.org/>.

human perceptions of nature into their work.”²²⁸ While this chapter focused on introducing the heritage species concept and discussing the inclusion of living species into the regulatory framework, the next chapter provides an in-depth look at heritage species and applies the concept to a variety of landscapes with the United States.

²²⁸ Stevenson, “Viewpoint,” 14.

CHAPTER IV: APPLYING THE HERITAGE SPECIES CONCEPT

In chapter three, I introduced the term World Heritage Species and ethnobiology's CKS concept and discussed my definition and criteria for heritage species. This chapter provides examples explaining how preservationists can integrate heritage species into documentation work. I also describe the approach practitioners could use to identify species as heritage species and evaluate living species using the National Register framework. The focus of this chapter is to apply the heritage species concept to two examples. The first example is of Mexican free-tailed bats at the Congress Avenue Bridge in Austin, Texas, while the second example is old-growth trees in Glencarlyn Park, located in Arlington, Virginia. Each example includes 1) a brief discussion of the history of the species, people, and place, 2) a discussion of historical designations (if any), 3) a discussion of the omission of living species from current documentation, 4) evaluation of the nonhuman species per the heritage species definition and criteria, and lastly 5) an evaluation of the species through the National Register lens. The analyses are focused on integrating the heritage species concept into the National Register, CLIs, and CLRs. The final section of this chapter provides a list of additional candidates for heritage species recognition.²²⁹

²²⁹ A comprehensive review of additional places and species is beyond the scope of this thesis. Additional research is needed to explore the important heritage species omitted from this thesis that may be culturally significant at local, state, and federal levels. Additionally, I recognize that many additional forms of documentation are used within preservation, such as Historic Structure Reports or local and state-level nominations. Based on the scope of this master's thesis, I do not address these here, but they could be discussed in future studies.

Urban Landscape: Mexican Free-Tailed Bats

Bats are one of the most abundant mammals in North America. The focus of this example is the Mexican free-tailed bat (*Tadarida brasiliensis*), identified as a medium-sized bat with broad ears, large feet, and short, velvety, reddish- to black-colored fur.²³⁰ As a result of their abundance, this bat species is classified as least concern (LC) by the International Union for Conservation of Nature (IUCN) and is not in any USFWS Federally threatened or endangered species lists.²³¹ In Texas, free-tailed bats are so common and well-known that they were designated as the state’s official flying mammal. While a common species, they are also considered a Species of Special Concern in Texas due to their “proclivity towards roosting in large numbers in relatively few roots” which makes them “especially vulnerable to human disturbance and habitat destruction.”²³² These bats roost in maternity colonies in old trees or caves, such as Bracken Cave in San Antonio, Texas. They also utilize mine tunnels, old wells, roof spaces, attics, bridges, buildings, and other narrow, manmade areas.²³³ Free-tailed bats fill the evening skies swiftly and forcefully at dusk as they leave their roost to feed on various insects, such as mosquitos. According to the Texas Parks and Wildlife Department (TPWD)

²³⁰ “Brazilian Free-Tailed Bat (*Tadarida brasiliensis*),” Texas Parks and Wildlife, accessed February 4, 2023, <https://tpwd.texas.gov/huntwild/wild/species/brazilfreetailbat/>.

²³¹ “*Tadarida Brasiliensis*,” International Union for Conservation of Nature (IUCN) Red List, July 20, 2015, <https://www.iucnredlist.org/species/21314/22121621>; “Brazilian Free-Tailed Bat (*Tadarida Brasiliensis*).”

²³² “Brazilian Free-Tailed Bat (*Tadarida Brasiliensis*).”

²³³ David J. Schmidly and Albert D. Bradley, “BRAZILIAN FREE-TAILED BAT *Tadarida Brasiliensis* (I. Geof. St.-Hilaire 1824),” in *The Mammals of Texas, Seventh Edition* (University of Texas Press, 2016), https://www.depts.ttu.edu/nsrl/mammals-of-texas-online-edition/Accounts_Chiroptera/Tadarida_brasiliensis.php.

website, free-tailed bats eat 6,000 to 18,000 metric tons of insects annually in Texas, making them a crucial component of insect control.²³⁴

In Austin, Texas, an early twentieth-century concrete arch bridge named the Congress Avenue Bridge claims home to the largest urban bat colony in North America, with about 1.5 million free-tailed bats.²³⁵ The free-tailed bats have resided along Congress Avenue for over sixty years; a 1960 edition of *The Mammals of Texas* by the Texas Game and Fish Commission (predecessor to the TPWD), states, “on Congress Avenue in Austin, Texas, the evening flight of free-tails from the attic of a large building is spectacular.”²³⁶ However, the bats did not move to their current location under the bridge until the 1980s when renovations created new crevices beneath the bridge.²³⁷ After the bats moved in, health officials warned they were rapid and dangerous, sparking fear in the local community.²³⁸

Newspaper articles from the early 1980s linked the free-tailed bats specifically to the Congress Avenue Bridge (Fig. 6). Other articles from the 1980s villainize the free-tailed bats, such as a 1984 article from *The Fresno Bee* titled “Thousands of rapid bats invade Texas capital; 4 people bitten.” Concerns about the bats continued throughout the late 1980s. In 1989, the city actively tried to oust them, and city officials contemplated putting “lights on the Congress

²³⁴ “Brazilian Free-Tailed Bat (*Tadarida Brasiliensis*).”

²³⁵ “Merlin’s History,” Merlin Tuttle’s Bat Conservation, accessed February 4, 2023, <https://www.merlintuttle.org/about-us/merlins-history/>.

²³⁶ William B. Davis, *The Mammals of Texas*, Bulletin No. 41 (Texas Game and Fish Commission), 65, accessed February 3, 2023, <https://babel.hathitrust.org/cgi/pt?id=uiug.30112010106885&view=1up&seq=7&q1=congress>.

²³⁷ “Merlin’s History.”

²³⁸ “Merlin’s History.”

Avenue Bridge to make it more visible and defined as an Austin landmark.”²³⁹ Meanwhile, other Austin residents and reporters defended the bats, such as an October 27, 1987, article in *the Austin American-Statesman* which acknowledged the “bad bat rap,” but extolled the benefits of bats underneath the Congress Avenue Bridge, primarily related to their contributions to insect control in the county.²⁴⁰



Figure 6: Photograph of free-tailed bats flying out from the Congress Avenue bridge, highlighted in a September 7, 1982 article in *the Austin American-Statesman*.²⁴¹

²³⁹ Tuttle is quoted saying that even he was unsure how the bats would respond to the addition of lights along the bridge but these unknowns would remain unclarified without testing the bats response first, as he states in Michael McCullar, “Designers Hoping to Bridge Bat Gap,” *Austin American-Statesman*, January 29, 1989.

²⁴⁰ Becky Knapp, “Beating the Bad Bat Rap,” *Austin American-Statesman*, October 27, 1987.

²⁴¹ “On the Wing, When the Sun Sets, Hungry Bats Take to the Sky,” *Austin American-Statesman*, September 7, 1982.

I visited Austin, Texas, in July 2022 and witnessed the spectacular event of the free-tailed bats emerging for their evening meal while I was on a guided bat-kayak tour of the Colorado River (Fig. 7). Our tour guide reflected on the history of the free-tailed bats and mentioned bat conservationists shifted the story and shed light on how humans, specifically the community within the City of Austin, rely on their continued existence for insect control (not to mention the benefits of tourism). The tour guide cited one conservationist, Merlin Tuttle, who was a strong proponent of bat conservation along the Congress Avenue Bridge. Austin has now embraced the free-tailed bats as an iconic, cultural species. The city even holds a yearly bat festival called Austin Bat Fest, and the TPWD has published children's literature, like a book called *Frankie, the Free-Tailed Bat*, to repair the bat's image.²⁴²

²⁴² The existence and information related to the Austin Bat Fest were provided by my tour guide, who also told me that this festival had been criticized by bat conservationists, as the loud sounds and lights at night are perceived as harmful to the bats. The TPWD book is Nyta Hensley and Patricia Morton, *Frankie The Free-Tailed Bat* (Texas Parks and Wildlife Department, 2007).

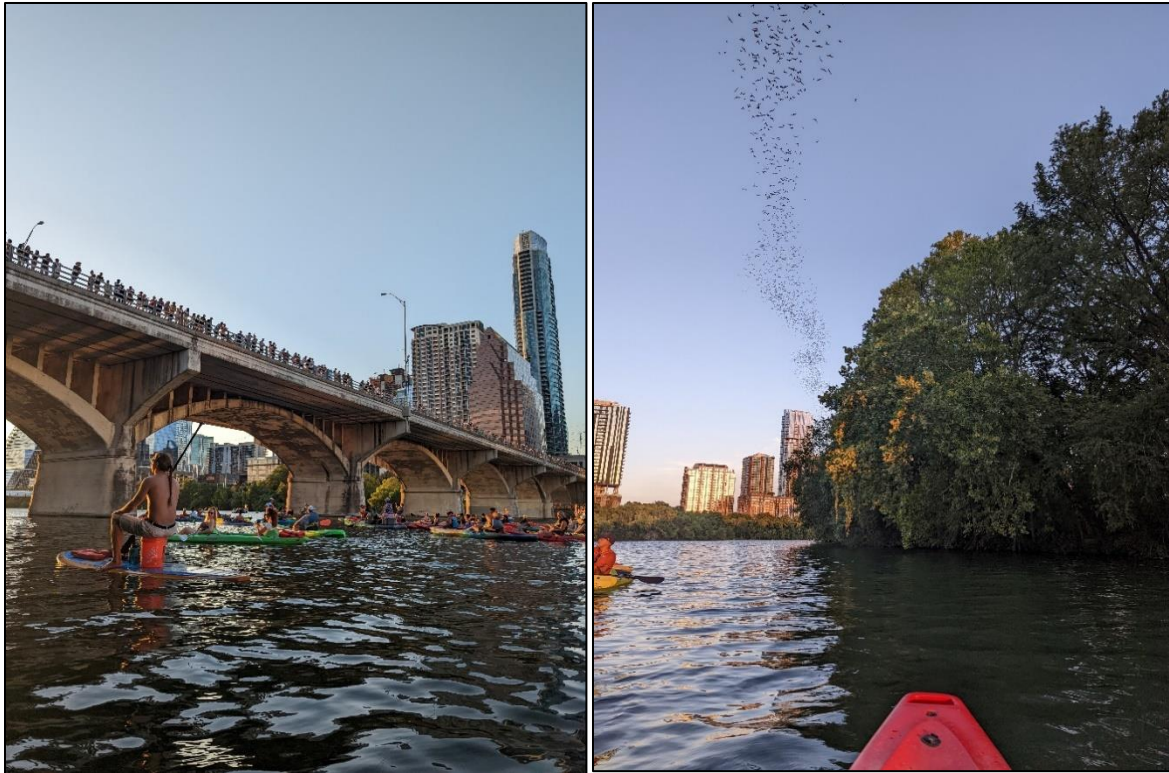


Figure 7: Free-tailed bats (right) emerging from the Congress Avenue Bridge (left) in Austin, Texas (photos taken by author, July 2022).

As I witnessed the tourist-fueled bat event firsthand in July 2022, I wondered how a historic preservationist would approach documenting the Congress Avenue Bridge and the surrounding landscape. Surely the bridge's association with the free-tailed bats would be quickly realized through preliminary historical newspaper searches; however, I am unsure to what extent the bats themselves would be considered the cultural element and an essential character-defining feature of the bridge and surrounding landscape.

To provide insight into this question, I conducted research as an architectural historian might. I found that historical newspaper articles indicate the city constructed the bridge in 1909

(as a replacement for a former Congress Avenue bridge).²⁴³ It was expanded in 1956 and rehabilitated in 1980 to accommodate increased traffic.²⁴⁴ The 1989 newspaper quote above references the bridge as an “Austin landmark”; however, a review of the City of Austin’s Historic Property Viewer, the Texas Historical Commission’s Texas Historic Sites Atlas, and the National Register of Historic Places online map viewer confirmed Congress Avenue Bridge currently is not listed on local or state registers or the National Register. Documentation provided by the Texas Historical Commission (THC) indicates the bridge has been determined eligible for the National Register through prior Section 106 Determination of Eligibility (DOE) related to transportation projects in 2007 and 2022. These DOEs determined the bridge is eligible for the National Register at the local level under Criterion A in the areas of transportation and community planning and development. The bats are mentioned in THC concurrence letters and survey documentation, but the full extent of their history is not documented and an area of significance for conservation is not included. A 2021 architectural survey specifically mentions “the gaps between the new box beams proved the perfect habitat for the Mexican Free Tailed Bat, and ‘bat viewing’ is a major tourist attraction at the bridge,” but this survey does not connect this to an area of significance, such as conservation.²⁴⁵ These DOEs, while limited to only one example, support the line of thinking that if a preservationist were to document the

²⁴³ Information related to dates of construction and alteration dates can be found within documentation provided by the THC related to historical Section 106 reviews. Also, a 1909 newspaper article mentions its construction: “Colorado’s High Water,” *Nocona News*, July 30, 1909.

²⁴⁴ Information related to dates of construction and alteration dates can be found within documentation provided by the THC related to historical Section 106 reviews. It is also mentioned in several additional, publicly accessible resources: “Colorado’s High Water”; McCullar, “Designers Hoping to Bridge Bat Gap”; McGraw Marburger & Associates, “South Congress Avenue Preservation Plan,” May 30, 2003.

²⁴⁵ THC provided the following report: “Draft Non-Archeological Historic Resources Survey Report,” Capital Metro Blue Line Project (Cox McLain Environmental Consulting, Inc., August 2021).

Congress Avenue Bridge and surrounding landscape through a National Register nomination or CLR, it is probably that while the free-tailed bats would likely be mentioned within historic context sections, they would not be identified as a species of cultural significance. Nonhuman species are not the typical focus of architectural survey and further, there is no existing method to identify culturally significant, nonhuman animal species.

How can we evaluate the Congress Avenue free-tailed bats using the heritage species concept? Table 1 below examines how the free-tailed bats at the Congress Avenue Bridge could be evaluated using the heritage species criteria. Table 2 evaluates the free-tailed bats and surrounding landscape through a National Register lens.

Heritage Species Definition:	
A nonhuman species of cultural importance to a community that historically or currently contributes to a cultural landscape or community's sense of place, culture, identity, or ecology.	
Heritage Species Criteria	Evaluation
1. The species is/was a contributing element to landscape's historic character, feeling, and/or sense of place.	Criterion (1) could be met because the free-tailed bats at Congress Avenue Bridge and their nightly emergence contribute to the sense of place along the Colorado River (albeit temporarily in the evenings).
2. The species is/was important to a culture or community's shared identity.	Criterion (2) may be appropriate because the free-tailed bats are an icon for the City of Austin, a species that underwent a drastic change in the public view because of conservation efforts throughout the 1980s and 1990s.

3. The species is/was directly or indirectly linked to the cultural or ecological sustainability of a landscape.	Criterion (3) could apply because the free-tailed bats are essential for the health of the urban and river landscape surrounding the bridge (primarily for insect control).
4. The species is/was central to a community's spiritual, sacred, or religious practices.	Does not apply (pending additional research)
5. The species is/was important to a culture's survival or way of life through its use as a resource for subsistence or agriculture.	Does not apply (pending additional research)
6. The species significantly impacts/ed a culture or community's lifestyle.	Criterion (6) may be appropriate because the bats support a tourism economy for Austin, which directly impacts people's lifestyles and lines of work.
7. The species plays/ed a large role in shaping a cultural landscape and/or informed a community's use or development of a place	Criterion (7) could fit because the free-tailed bats are strongly associated with the conservation of bats and the story of people fighting to preserve their existence along the Congress Ave Bridge. The existence of the bats is a direct result of the historical events tied to the bridge (i.e., the conservation efforts by local community members). Therefore, the past and current existence of free-tailed bats are crucial to understanding a piece of local history.
8. The species is associated with a significant historical event.	Similar to criterion 7 above

Table 1: Heritage species evaluation and supporting explanation related to the free-tailed bat and Congress Avenue bridge example.

National Register	Evaluation
Property Type	While the free-tailed bats cannot technically be identified as a building, structure, site, or district,

	<p>the Congress Avenue Bridge and Colorado River area could be considered a historic district (or cultural landscape). Additionally, this example and the Congress Avenue Bridge could be categorized as a site since it is the location of a significant event (i.e., the nightly emergence of the bats and people gathering to view them). Lastly, the bridge could be classified as a structure, emphasizing the free-tailed bats as a character-defining feature. An argument could be made that a bat could be considered an “object”, although this has not been the general use of the term as it normally applies to inert, non-living objects.</p>
Geographic Boundaries	<p>Since the free-tailed bats are limited to the Congress Avenue Bridge area, the geographically definable area could be considered the bridge itself and the surrounding area used to view the bats (water, bridge, land).</p>
National Register Criteria	<p>Criterion A is appropriate in this scenario as the free-tailed bats are associated with a significant historical event, the bats roosting, and subsequent conservation efforts. Criterion B may also be appropriate, as the bats under this specific bridge are associated with renowned conservationist Merlin Tuttle.</p>
Integrity	<p>The bats possess several aspects of integrity, including location, as they have consistently roosted underneath the Congress Avenue Bridge since at least 1980. While perhaps not the same bats themselves exist, the same bat species population continues to prosper at this location, which can be considered an <i>in-kind</i> replacement. The setting, or physical features of the area, have also remained relatively unchanged (Congress Ave Bridge, free-tailed bats, Colorado River, and vegetation along the river). Lastly, association, which is the link between the historical event and historic site, is appropriate as the area and the continued existence of the bats at night convey the historical significance. Several areas of significance also fit within this historical context,</p>

	such as conservation, science, social history (conservation movement), and entertainment/recreation.
Places With a Significance of Less than 50 Years	It appears that the period of significance for the Congress Avenue Bridge free-tailed bats would date to 1980 at the earliest, which is the date they appear to have first roosted under the bridge. Therefore, their existence at the bridge is only approximately 43 years old. It is possible to argue that their presence at this location rises to the level of exceptional significance (criteria consideration G); however, it is more likely that documenting the free-tailed bats at this location would require waiting until the fifty-year age is reached.

Table 2: Free-tailed bats as heritage species within the National Register framework.

Additional research and in-depth interviews with local community members are required to fully document the free-tailed bats at the Congress Avenue Bridge and designate them as heritage species. However, this example illustrates how important histories about the human-nonhuman relationship could be overlooked and potentially lost under current documentation practices. It is also an example of why the conservation of living species moves beyond their ecological benefits but is intertwined with our cultural landscapes. Urban bats are also a useful reminder that nonhuman species occupy built landscapes; culturally important species are not always found in “natural” places. The next section focuses on a park landscape to juxtapose the urban landscape example of Austin’s free-tailed bats.

Park Landscape: Old Growth Trees

Old-growth forest is a term that has many different definitions depending on geographic location or the person providing a definition. All definitions agree to some extent that old-growth forests hold significant ecological and cultural connections to the landscapes they grow in. Jerry Franklin, a renowned ecologist, was among the first to dispute the outdated idea that old-growth forests were ecological deserts in the Pacific Northwest in the 1980s and 1990s. Franklin's 1981 book, *Ecological Characteristics of Old-growth Douglas-fir Forests*, states, "it is difficult to define a lower age limit for old growth. The transition from mature to old-growth forest is gradual and the age limit varies with site conditions...that develops after the last disturbance."²⁴⁶ Ultimately, Franklin states that on average, "forests typically begin exhibiting old-growth characteristics at about 175 to 250 years," while they are considered "mature forests" at 75 to 100 years.²⁴⁷ Additionally, Kaufmann et al. (2007) provide a list of definitions for old-growth forests; all definitions hold a central idea that they "mainly pertain to forests having no severe recent disturbance, and through time, succession produces large, old trees with multiple canopy layers."²⁴⁸ Beyond biological definitions, old-growth forests like those in the Pacific Northwest have also been described as "cathedral forests."²⁴⁹ Ultimately, old-growth forests are special

²⁴⁶ Jerry Franklin, *Ecological Characteristics of Old-Growth Douglas-Fir Forests* (US Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station, 1981), 2.

²⁴⁷ Franklin, 2.

²⁴⁸ Merrill R. Kaufmann et al., "Defining Old Growth for Fire-Adapted Forests in the Western United States," *Ecology and Society* 12, no. 2 (2007): 15, <http://www.jstor.org/stable/26267894>.

²⁴⁹ Aaron Scott, "Timber Wars," Timber Wars, accessed October 2, 2022, <https://www.opb.org/show/timberwars/>.

because they provide specialized habitats for flora and fauna and hold cultural value for those who revere them as “cathedral forests” or for other reasons.

This section focuses on one old-growth forest in Glencarlyn Park, Arlington, Virginia (Fig. 8).²⁵⁰ The Old Growth Network provides the following information regarding the old-growth forest in Glencarlyn Park:

Glencarlyn Park is in a highly urbanized area, yet it includes examples of mature native forests, unique water resources, and a great diversity of native flora. In addition to high native plant diversity, the park includes a number of Champion and Significant Tree specimens. The active floodplain and lower slopes are documented as Mesic Mixed Hardwood Forest, with Oak Hickory and Oak Heath forests occupying the drier slopes. The estimated age of the community is over 100 years. It is most likely the second-oldest extant growth of natural forest remaining in Arlington, and appears to pre-date the large-scale forest removal associated with the Civil War (the oldest forest remnant is most likely Arlington Woods within Arlington Cemetery). Invasive plant species are a concern, but there are management plans in place to deal with them.²⁵¹

²⁵⁰ I identified old-growth trees within Glencarlyn Park through the Old Growth Network, a database that identifies locations of old-growth forests: “Glencarlyn Park,” Old-Growth Forest Network, accessed February 5, 2023, <https://www.oldgrowthforest.net/va-glencarlyn-park>.

²⁵¹ While the Old Growth Network states the age of the community is over 100 years, the actual age of the community is unknown. “Glencarlyn Park.”



Figure 8: View within Glencarlyn Park (photo taken by the author in April 2022).

My own archival research uncovered additional historical information regarding the park, the value the community historically has placed upon this local park, and potential areas of significance.²⁵² For example, the story most documented regarding the trees within the park is that the old-growth trees are reportedly associated with George Washington, who surveyed a portion of the land along Four Mile Run (which intersects the park) in 1774 to utilize the mature

²⁵² The author previously conducted archival research in spring 2022 and utilized this information to inform this section of the thesis. See Liz Cohan, “Landscape Characterization Research Plan & Conservation Plan: Glencarlyn Park, Arlington, Virginia,” Student Paper, HP633 Cultural Landscapes (Goucher College, Spring 2022).

hardwood trees but ultimately failed to deforest the landscape entirely due to the steep topography along the stream through the park.²⁵³ A former white oak tree stood at the location of an existing, unmarked, and weathered marble Corinthian column, indicating the location George Washington used as a survey marking point.²⁵⁴ The Daughters of the American Revolution (DAR) reportedly installed the marble marker in 1914.²⁵⁵

It is not surprising that existing local histories are white-washed and focused on the connection to George Washington. But other stories are equally, or more so, important in regard to the historical context of the development of Arlington. There are other, uncovered histories related to Glencarlyn Park not typically discussed related to the history of racial segregation and recreation within Arlington. For example, past local histories have inadequately documented the history of racial segregation in Glencarlyn Park. An outdated 1978 newsletter claimed that little was known about the recreation of Black Americans and that “there seems to be little difference in the recreational patterns of Blacks and whites except that whatever they did they did not do it together.”²⁵⁶

Additionally, Glencarlyn Park and the old-growth trees are representative of the 1930s push for Arlingtonians to establish parklands adjacent to their neighborhoods, who noticed a

²⁵³ Cohan, 11; Blanche McKnight, “Glencarlyn Park Planners’ Dream Comes True,” *Evening Star*, December 3, 1944.

²⁵⁴ Cohan, “Landscape Characterization Research Plan & Conservation Plan: Glencarlyn Park, Arlington, Virginia,” 11.

²⁵⁵ “Glencarlyn Historic District (VDHR File Number 000-9704),” National Register of Historic Places Nomination Form (National Park Service, August 1, 2008), 8.

²⁵⁶ Mary Louise Shafer, “Recreation in Arlington County 1870-1920,” *Arlington Historical Magazine*, October 1985, Vol. 6, No. 2 edition, <http://arlingtonhistoricalsociety.org/wp-content/uploads/2020/02/1978-6-Recreation.pdf>.

dwindling supply of open land to be utilized for recreation as had been the custom.²⁵⁷ Glencarlyn Park was finally established in 1944; *the Columbia News* described it as a natural park with “wooded valleys and slopes which are covered with an endless variety of flowers, trees, and shrubs.”²⁵⁸ During the 1970s environmental movement, Arlington County constructed the Long Branch Nature Center in the park.²⁵⁹ The new nature center relied on the old-growth forest and surrounding parklands to provide interpretive trail walks, habitats for wildlife for bird watchers, and educational activities such as learning trail maintenance and stewardship activities.²⁶⁰ In the 1980s, a local community member compiled a history of Glencarlyn Park for the Arlington Historical Society detailing its history and significant features, noting that “tulip poplars and oak trees have soared over the run for 500 years or more.”²⁶¹

Despite the historical significance of Glencarlyn Park touched upon above, the existing old-growth forest has no formal local, state, or Federal historical preservation-related designations documenting these histories associated with the landscape.²⁶² To be clear, a portion of Glencarlyn Park is included in the Glencarlyn Historic District, which was listed in the National Register and the Virginia Landmarks Register in 2018 (National Register #08000910;

²⁵⁷ Cohan, “Landscape Characterization Research Plan & Conservation Plan: Glencarlyn Park, Arlington, Virginia,” 13.

²⁵⁸ “Glencarlyn Park Opened by Spring,” *Columbia News*, December 15, 1944.

²⁵⁹ Cohan, “Landscape Characterization Research Plan & Conservation Plan: Glencarlyn Park, Arlington, Virginia,” 14.

²⁶⁰ Susan Gilpin, “History of Glencarlyn Park and Long Branch Nature Center,” *Arlington Historical Magazine*, October 1985, Vol. 8, No. 1 edition, <http://arlingtonhistoricalsociety.org/wp-content/uploads/2020/02/1985-7-Glencarlyn.pdf>.

²⁶¹ Gilpin.

²⁶² The historical information provided above was completed as part of my prior research efforts; additional historical information and sources can be found in: Cohan, “Landscape Characterization Research Plan & Conservation Plan: Glencarlyn Park, Arlington, Virginia.”

Virginia Landmarks Register #000-9704). The historic district is listed under criteria A and C in the areas of community planning and development and architecture with a period of significance from 1742 until 1958. The National Register nomination inadequately reflects the historical significance of Glencarlyn Park because the historic district boundaries only partially include the park, does not recognize any landscape features or living species (typical of most National Register nomination forms), and ignores areas of significance such as the park’s conservation tied to the preservation of the old-growth tree network that has reportedly persisted for hundreds of years.²⁶³

The heritage species concept could be utilized to update the existing National Register nomination or create an entirely new historic district for Glencarlyn Park. A preservation professional could identify species within the park that played an important aspect of the story of the park’s development and are also essential to its continued existence (culturally and ecologically). Tables 3 and 4 evaluate the old-growth forest within Glencarlyn Park against the heritage species concept and National Register framework.

Heritage Species Definition:	
A nonhuman species of cultural importance to a community that historically or currently contributes to a cultural landscape or community’s sense of place, culture, identity, or ecology.	
Heritage Species Criteria	Evaluation
1. The species is/was a contributing element to landscape’s historic character, feeling, and/or sense of place.	Criterion (1) is likely met because the old-growth trees are essential to the park landscape’s sense of place as these mature

²⁶³ The National Register nomination is also deficient in other areas, such as documenting racial segregation and the historical use of racial covenants. It also does not provide adequate information regarding the original inhabitants of the landscape before the colonization by white Europeans.

	trees provide a dense covering that lines trails, pathways, and roadways and create a sense of natural escape from the outside urban areas. While the park may continue to exist without old-growth trees, these trees are essential to provide the dense and large tree coverage and act as character-defining features to the landscape.
2. The species is/was important to a culture or community's shared identity.	Does not apply (pending further research)
3. The species is/was directly or indirectly linked to the cultural or ecological sustainability of a landscape.	Criterion (3) may be appropriate because the old-growth trees are intertwined into the overall park's ecological functioning, contributing to the sense of place for humans and habitats for nonhumans.
4. The species is/was central to a community's spiritual, sacred, or religious practices.	Does not apply (pending further research)
5. The species is/was important to a culture's survival or way of life through its use as a resource for subsistence or agriculture.	Does not apply (pending further research)
6. The species significantly impacts/ed a culture or community's lifestyle.	Does not apply (pending further research)
7. The species plays/ed a large role in shaping a cultural landscape and/or informed a community's use or development of a place.	Criterion (7) could fit because the old-growth trees are connected to racial segregation and recreation within Arlington as well as the 1930s push to preserve parkland by Arlingtonians. Lastly, the connection to George Washington only exists because the land's topography created an area too difficult to convert to agricultural farmland during Washington's time. With updated interpretative tools such as signage, old-growth trees could help convey the story of the landscape and local community.

8. The species is associated with a significant historical event.	Does not apply (pending further research)
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Table 3: Heritage species evaluation and supporting explanation related to the old-growth trees and Glencarlyn Park example.

National Register	Approach to Evaluation
Property Type	Old-growth trees can be listed as objects (individual trees) or a historic district (as a grouping of trees). ²⁶⁴
Geographic Boundaries	The old-growth trees are limited to a geographically definable area within Glencarlyn Park. Additional research outside the scope of a traditional National Register nomination may be required, such as obtaining data regarding the location of old-growth trees or the completion of a tree survey.
National Register Criteria	Criterion A is appropriate in this scenario as the old-growth trees are associated with significant historical events, such as the link to George Washington and push to preserve parkland in the 1930s by local community members, as described above.
Integrity	The trees retain several relevant aspects of integrity, including location. The area's setting, or physical features, have also remained relatively unchanged (established in 1944). Lastly, association, which is the link between the historic event and historic site, is appropriate because the continued existence of the trees, convey the historical significance of the existing parkland.

²⁶⁴ According to National Register Bulletin, *Guidelines for Evaluating and Documenting Traditional Cultural Properties*, "a natural object such as a tree or rock outcrop may be an eligible object if associated with a significant tradition or use. A concentration, linkage, or continuity of such sites or objects...comprising a culturally significant entity, may be classified as a district." See: Parker and King, "National Register Bulletin Guidelines to Evaluating and Documenting Traditional Cultural Properties," 9.

	Several areas of significance also fit within this historical context, such as conservation, science, and social history (conservation movement).
Places With Significance Less than 50 Years	The period of significance for Glencarlyn Park and the old-growth trees is older than 50 years of age.

Table 4: Evaluation of old-growth trees at Glencarlyn Park, Arlington, Virginia, within the National Register framework.

Additional research and in-depth interviews with local community members are required to fully document old-growth trees at Glencarlyn Park and designate them as heritage species. However, this landscape is an example of why preservation must expand its thinking beyond the built environment and consider living species such as trees as important cultural pillars within our living landscapes and communities. They deserve and need to be documented to have a fuller understanding of our past.

Heritage Species Candidates

When we consider the living world around us as part of our cultural resources, the opportunities to include living species within the documentation seem endless. Yet, numerous examples of species, people, and places have yet to be documented. Table 5 below provides a broad list of additional examples which act as starting points to explore such potentially culturally important species throughout the United States. The groupings of species below were created through thinking in a thematic approach, using six general classes of species types related to the human-nonhuman relationship. These groupings include protected species, common species, iconic species, extinct species, contentious species, and nuisance species. This

is not a comprehensive list of “important” species, rather a list to show the diverse types of potential heritage species candidates across the United States. This list, including the types of categories, is heavily influenced by my own personal worldview and professional and educational experiences. Additional research is needed to identify heritage species important to communities across the United States.

Heritage Species Candidate	Evidence
Protected Species	
Monarch Butterflies (<i>Danaus plexippus</i>)	These insects are iconic black and gold species. Throughout the spring until the fall, they can be found throughout North and Central America until they migrate to Mexico for the winter. Their arrival coincides with the start of Día de los Muertos, a holiday with origins in Mexico but is now found worldwide. ²⁶⁵ Monarchs have been a symbol for this holiday season. As of 2022, they are officially listed as a federally endangered species within the United States due to their sensitivity to the influences of climate change, such as extreme weather events and habitat loss. ²⁶⁶
Wild horses (<i>Equus caballus</i>)	Assateague Island National Seashore in southeastern Maryland is known for its iconic wild horses, considered feral horses as they are descendants of domesticated animals. According to the NPS website, the horses are “descendants of horses that were brought to the barrier islands...in the late 17 th century [...]”. ²⁶⁷ These

²⁶⁵ Marisa Baldine, “The Monarch Butterfly Is Celebrated from the Bay to Mexico,” Chesapeake Bay Program, October 15, 2021, <https://www.chesapeakebay.net/news/blog/the-monarch-butterfly-is-celebrated-from-the-bay-to-mexico#:~:text=During%20Día%20de%20los%20Muertos,people%20for%20thousands%20of%20years.>

²⁶⁶ Maria Louise Rossel, “Latest Count of Western Monarch Butterfly Highlights Steep Toll of Climate-Fueled Disasters,” National Wildlife Federation, January 31, 2023, <https://www.nwf.org/Latest-News/Press-Releases/2023/1-31-23-Western-Monarch-Count>.

²⁶⁷ “Wild Horses,” National Park Service Assateague Island National Seashore, accessed February 7, 2023, <https://www.nps.gov/asis/learn/nature/horses.htm>.

	populations of wild horses have existed for over 300 years and represent one of the few places people can view feral horses. The NPS implements a long-term fertility control program, initiated in 1994, to monitor and control the horses' population dynamics. ²⁶⁸ The management of the population is close to the goal range of 80 to 100 individual horses. ²⁶⁹
Osprey (<i>Pandion haliaetus</i>)	<p>Osprey are medium-sized raptors that have adapted incredibly unique features, such as the fact they will orient the fish headfirst after diving upwards of 100 feet into the water, to reduce wind resistance. They are protected under the Migratory Bird Treaty Act of 1918 and are part of one of the greatest conservation success stories within the United States. The conservation of osprey and other migratory birds is largely connected to Rachel Carson and her push to limit the use of DDT in the 1960s and 1970s.²⁷⁰</p> <p>There are many organizations involved in their continued conservation. The Wetlands Institute located in Middle Township, New Jersey is one such organization (although they are not limited to strictly osprey conservation). Founded by Herbert Mills in the 1960s, 6,000 acres of wetlands were purchased in 1969 under his leadership, and 34 of those acres created the Wetlands Institute's facility which exists today. The building was officially dedicated in 1972 and continues to operate today.²⁷¹</p>
Greater sage-grouse (<i>Centrocercus urophasianus</i>)	Sage grouse are generally described as chicken-like birds and are an iconic species associated

²⁶⁸ "2023 Annual Horse Population Update for Assateague Island National Seashore," National Park Service Assateague Island National Seashore, March 2023, <https://home.nps.gov/articles/000/2023-annual-horse-population-update-for-assateague-island-national-seashore.htm>.

²⁶⁹ "2023 Annual Horse Population Update for Assateague Island National Seashore."

²⁷⁰ Philip Shabecoff, *A Fierce Green Fire: The American Environmental Movement* (New York: Hill and Wang, 1993), 107–10; Nijhuis, *Beloved Beasts: Fighting for Life in an Age of Extinction*, chap. 6.

²⁷¹ "History of The Wetlands Institute," Wetlands Institute, accessed April 2, 2023, <https://wetlandsinstitute.org/about-us/overview/history/>.

	with the sagebrush country. This species is a nationally identified target species of the USDA Natural Resource and Conservation Service (NRCS) Working Lands for Wildlife (WLFW) program. This program utilizes a collaborative approach to conserve sagebrush habitat along with ranchers to improve ranching operations. The NRCS published a helpful graphic which visually represents the connection between sagebrush, sage grouse, other nonhuman species, and humans (Appendix IV). ²⁷²
Common Species	
American oyster (<i>Crassostrea virginica</i>)	<p>Oysters have been a key resource for many people who have historically relied on them for a food source and as income. Oysters have been a key component to social, natural, and economic history since for thousands of years in places like the Chesapeake Bay and Cape Cod.²⁷³</p> <p>The American oyster is ingrained in the history of shell fishing in areas of New England, such as Cape Cod. This oyster has many names including Eastern, Atlantic, Wellfleet, and American. Consultants from the University of Massachusetts Amherst wrote a Landscape Character Study about the people and places of Cape Cod and stated, “the tradition of commercial shell-fishing continues to provide a link between people, the landscape, and the sea.”²⁷⁴ Without oysters, the people and landscape of Cape Cod would be drastically different.</p>
Eastern gray squirrel (<i>Sciurus carolinensis</i>)	Historian Peter Alagona writes in his book, <i>the Accidental Ecosystem</i> , “eastern gray squirrels are

²⁷² The graphic within Appendix IV was created by the USDA and can be found at the following website: “Honoring the History and Value of Grazing on the National Forests and Grasslands.”

²⁷³ John R. Wennersten, “The Chesapeake: An Environmental Biography” (Baltimore: Maryland Historical Society, 2001), 110.

²⁷⁴ Jack Ahern, “People and Places on the Outer Cape: A Landscape Character Study” (University of Massachusetts Amherst and National Park Service, June 2004), 51–52, <https://irma.nps.gov/DataStore/Reference/Profile/2191055>.

	<p>so common in so many places today that it is difficult to imagine most American cities without them.”²⁷⁵ He also points out that they are ecological keystone species, essential to the ecosystem of whatever forest or urban place they call home.²⁷⁶</p> <p>Because of their omnipresence in our landscapes, squirrels hold large parts of the American story, even if they do not usually get much recognition. For example, in Lafayette Square, Washington, D.C., squirrel feeders were once installed until they completely overrun the square by the 1970s. The abundance of nearly 100 squirrels, caused by human interference, led to their catch and release into Anacostia.²⁷⁷</p>
Synchronous fireflies (<i>Photinus carolinus</i>)	<p>Every spring fireflies light up the forests within Great Smoky Mountains National Park. They are one of nineteen species of fireflies within the park but synchronous fireflies are a specific draw for tourists because they light up in unison. The NPS typically holds an eight-day festival to celebrate these insects, which became popular beginning in the 1990s when entomologist Becky Nichols began studying them.²⁷⁸</p>
Iconic Species	
American bison (<i>Bison bison</i>)	<p>Our national mammal as of 2016, the history of bison within the United States is linked to European colonization and decimation of Indigenous communities. In the early 1700s, the United States was home to twenty to thirty million bison and ranged throughout the North American continent. Ancestors of Indigenous</p>

²⁷⁵ Alagona, *The Accidental Ecosystem: People and Wildlife in American Cities*, chap. 3.

²⁷⁶ Alagona, chap. 3.

²⁷⁷ John Kelly, “Remembering the Great Squirrel Purge of Lafayette Square,” *The Washington Post*, April 10, 2016, https://www.washingtonpost.com/local/remembering-the-great-squirrel-purge-of-lafayette-square/2016/04/10/341217ca-fdb6-11e5-886f-a037dba38301_story.html.

²⁷⁸ Amy McKeever, “See Fireflies Magically Light up This National Park,” *National Geographic*, April 21, 2021, <https://www.nationalgeographic.com/travel/article/synchronous-fireflies-light-up-smoky-mountains-national-park>.

	peoples like the Blackfeet Confederacy, relied on the bison herds for survival. Michelle Nijhuis provides a history of bison within the United States and states in her book <i>Beloved Beasts</i> : “...the ongoing decimation of the bison began to look like a convenient way to control the enemy.” ²⁷⁹
Saguaro cactus (<i>Carnegiea gigantea</i>)	Saguaro cactus are the largest in the United States and can reach up to forty feet in height. According to the NPS Sonoran Desert Inventory and Monitoring Network, “the saguaro provides both food and shelter for a variety of desert species and plays an integral role in the culture of the Tohono O’odham people.” ²⁸⁰ While not an endangered species, current threats include loss of habitat and invasive species introduction.
Extinct Species	
Passenger Pigeon (<i>Ectopistes migratorius</i>)	With the death of Martha, a captive Passenger Pigeon in the Cincinnati Zoo, in September 1914, the entire species went extinct. A 1914 publication of a report on Martha’s death was prepared by the Department of the Interior. The report marked Martha’s death stated, “Martha’s passing was a deep ornithological tragedy in the truest, most poignant sense of the word, because her death brought to an untimely end one of the largest social organizations ever seen on earth.” ²⁸¹ Passenger Pigeons had once thrived throughout North America, but by 1914 were reduced to a single captive bird until Martha passed away.

²⁷⁹ Nijhuis, *Beloved Beasts: Fighting for Life in an Age of Extinction*, chap. 2.

²⁸⁰ “Saguaro Cactus: Sentinel of the Southwest,” National Park Service, 2009, <https://www.nps.gov/articles/saguaro-cactus-facts.htm>.

²⁸¹ “A Passing in Cincinnati” (Department of Interior, Office of Communications, September 1, 1914), 1, <https://babel.hathitrust.org/cgi/pt?id=pur1.32754076103658&view=1up&seq=1>.

Contentious Histories	
Red wolves (<i>Canis rufus</i>)	According to the National Wildlife Federation, the red wolves are between the size of the gray wolf and coyote and historically ranged from southeastern Texas to central Pennsylvania. Today, due to reintroduction efforts, the only place they can be found in the wild is in eastern North Carolina's Albemarle Peninsula. The NWF states that one threat to these species is human-wildlife conflict due to development and habitat fragmentation. The conflict between the community and red wolves has led to deaths through auto collisions and sometimes intentional red wolf killings. ²⁸²
Northern spotted owls (<i>Strix occidentalis caurina</i>) and old-growth forest	The podcast <i>Timberwars</i> refers to old-growth trees as cultural icons describing them as "cathedral forests." ²⁸³ <i>Timberwars</i> documented the history of cathedral forests in the Pacific Northwest and the dispute between environmentalists supporting the forests and endangered northern spotted owls, and loggers that relied upon cutting down the trees to sustain their livelihoods. This conflict triggered public and national interest in the United States and its old-growth forests in the 1980s and 1990s.
Nuisance Species	
Coyote (<i>Canis latrans</i>)	Historian Dan Flores discusses the environmental history of coyotes in his book, <i>Coyote America</i> . Coyotes have a history of living alongside humans "for the 15,000 years since we humans have been in North America [...]." ²⁸⁴ They are one of the most common large predators that most people within the United States' encounter and are often viewed as nuisance species through a Western worldview.

²⁸² "Red Wolf," National Wildlife Federation, accessed April 2, 2023, <https://www.nwf.org/Educational-Resources/Wildlife-Guide/Mammals/Red-Wolf>.

²⁸³ Scott, "Timber Wars."

²⁸⁴ Dan Flores, *Coyote America, A Natural & Supernatural History* (New York: Basic Books, 2016).

	Coyotes are also connected to Indigenous peoples and are associated with ceremonies, such as the Navajo Coyote Way ceremony. ²⁸⁵
White-tailed deer (<i>Odocoileus virginianus</i>):	White tailed deer are common in the United States and are often thought of as a nuisance species related to traffic incidents but also are part of a long cultural legacy. They are often considered a natural resource to be hunted for game or culled due to impacts to historic vegetation, such as with deer populations within Camp Greentop Cultural Landscape managed by the NPS at Catoclin Mountain National Park. ²⁸⁶ But these species can also be a peaceful presence that contributes to a landscape’s sense of place, such as within rural cemeteries. For example, the Forest Lawn Cemetery National Register Historic District (National Register Number 90000688) in Buffalo, New York, has frequent deer visitors. Living species such as white-tailed deer (and perhaps other common nonhuman species generally taken for granted, such as squirrels, rabbits, songbirds, and trees) appeal to those who want to be buried in such a beautiful, peaceful place. Without the living nonhuman species, including animals and mature vegetation, Forest Lawn Cemetery would not be the same.

Table 5: List and discussion of potential heritage species candidates.

Concluding Thoughts

This chapter is not inclusive of every type of living species that could be a heritage species, nor is it a complete list of every community or culture that might place significance on living species. Other species could include various types of mushrooms, plants used by

²⁸⁵ Flores, 51.

²⁸⁶ “Catoclin Mountain Park: Deer Management,” National Park Service, accessed February 11, 2023, <https://www.nps.gov/cato/learn/nature/deer-management.htm>.

herbalists, salmon important to Indigenous communities, domesticated species like cats and dogs, or seals and sea lions that are iconic to La Jolla Beach in San Diego, California. The list will continue to expand the more that preservationists pursue documenting heritage species and peoples' histories within landscapes across the United States. This chapter highlights how nonhuman species can be found in various locations and guides preservationists to expand the list and discussions I have started.

Ultimately, the identification of a heritage species is in the hands of the preservationists documenting the landscape, their interpretation of archival documents, and the discussions they have with local community members. The way in which a preservationist views and considers landscapes and the guidance they are given by the NPS greatly shapes the historic contexts created. In turn, this impacts which elements of landscapes are identified as contributing resources and character-defining features that are then considered during stabilization and treatment actions. Additional guidance is needed to facilitate incorporating living species into documentation. Therefore, the next and final chapter provides actionable options for preservation professionals to integrate heritage species into documentation work, recommendations for updating NPS guidance and practice, and the implications of protecting living species through the NHPA.

CHAPTER V: NEXT STEPS AND IMPLICATIONS

This final chapter first summarizes actionable options available to professionals practicing in the historic preservation field based on the proposed heritage species concept. This section then provides recommendations regarding how the NPS could update existing cultural landscape guidelines to implement proposed options. I focus on how to revise Preservation Brief 36, *Protecting Cultural Landscapes: Planning, Treatment, and Management of Historic Landscapes* and how to update CLI and CLR NPS procedure guides.²⁸⁷ The last section of this chapter presents a series of implications in integrating living species within the historic preservation framework for Section 106 consultation, integrated resource management, and wildlife conservation.

Actionable Options

Table 6 provides a list of actionable options professionals within the preservation field could consider for working towards a living-species-first approach. These steps are aimed at practitioners employed at institutions like the NPS, nonprofit historic preservation organizations, and cultural resource management firms, including (but not limited to), historians, landscape architects, architectural historians, and cultural landscape historians.

²⁸⁷ Birnbaum, “Preservation Brief 36: Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes”; Page, “National Park Service Cultural Landscapes Inventory Professional Procedures Guide”; Page, Gilbert, and Dolan, “A Guide to Cultural Landscape Reports: Contents, Process, and Techniques.”

Option 1: No action: business as usual	In Option One, the historic preservation field can choose to continue to operate "business as usual" and document places based on current guidelines and terminology. I argue this option will result in 1) inaccurate documentation of species, people, and places and exclusion of significant stories relevant to American history and 2) a continued divide within natural and cultural resource management, inhibiting practitioners from documenting and managing landscapes as dynamic resilient systems.
Option 2: Integrate the heritage species concept within documentation	Option Two is to integrate the proposed heritage species concept in documentation, such as National Register nominations, CLIs, and CLRs. This would not necessarily require updated guidance and would not require congressional action (i.e., revising the NHPA). This would, however, require a shift in mindset by the person documenting a landscape to include the terminology <i>heritage species</i> and intention to include nonhuman species within documentation, specifically within sections like the chronology, physical history, or historic context sections.
Option 3: Evaluate heritage species as a character-defining feature	Option Three proposes to evaluate heritage species as character-defining features. This means they do not need to be categorized as a specific resource type, but are identified as important elements that contribute to a place's overall significance and integrity. This does not require congressional action but may require NPS to issue new guidelines.
Option 4: Evaluate heritage species as a contributing resource	Option Four proposes to include heritage species and evaluate them as contributing resources. As discussed throughout this thesis, it is difficult to fit living species into the preservation framework, particularly as it relates to one of the recognized resource types; however, trees are already considered objects and treated as contributing resources. Therefore, this option may be best for nonhuman plant species. Options to facilitate this could include congressional action to add a resource type "species," as well as newly published guidelines by the NPS or other leading preservation organizations. The likelihood of this outcome seems low, considering the NHPA has yet to be updated to include cultural landscapes as a resource type (a term that the field and NPS have widely accepted for over 40 years).
Option 5: Evaluate heritage species' <i>habitat</i> as a contributing resource	Option Five focuses on the habitat associated with the heritage species rather than the living species itself. This option is best for nonhuman animal species, and promotes a holistic view of landscapes, rather than focusing on individual species like a tree. This fits in with the existing framework because it is land and place-based. A habitat already fits the existing description of resource types like sites, districts, and cultural landscapes. The NHPA would not need to be revised to carry this option out. To facilitate this option, I recommend the NPS update cultural landscape guidance as I describe in the next section titled <i>Recommendations</i> .

Table 6: List of actionable options to incorporate heritage species into documentation practices.

I recommend Option Five as the best path to incorporate heritage species, especially nonhuman animals, into documentation work. Compared to other options within Table 6, Option Five provides the path with the least resistance because it is rooted in preserving the habitat (i.e., landscape), a concept already familiar to many practitioners working in the field. Additionally, there are existing examples of nonhuman species and their habitats currently included in documentation work, such as pollinator meadows included in CLIs like Anacostia Park (see *Adding a New Landscape Characteristic* section below).²⁸⁸ By considering the habitats of heritage species, the field of historic preservation can expand its view to be truly living-species-first by having a pathway to consider nonhuman animal species in addition to the built environment and vegetation.

Heritage species is a concept that could act as a stand-alone idea to help connect people to species and place around them and bridge these commonly divided disciplines to strengthen community identity and development. For example, a new “Heritage Species Program” could be implemented at the NPS or another federal agencies like the USFWS. However, simply listing out species without connection to place would be similar to lists we already have like state trees and birds or the national mammal concept. For this reason, Option 5 enables a species to be documented in tandem with place (habitat) which provides a much more useful form of documentation and a nuanced understanding of that species interaction with the landscape and social history.

²⁸⁸ Jacob Torkelson and Molly Lester, “Anacostia Park Cultural Landscape Inventory” (National Park Service, 2021), <https://irma.nps.gov/DataStore/Reference/Profile/2288081>.

However, preservationists keen to include heritage species could implement Option 2 or 3 *today* within documentation reports, such as National Register nominations, CLIs, or CLR, regardless of any new guidelines, updates to procedure guides, or drastic updates to preservation norms. In the case of CLIs and CLR, nonhuman species can be incorporated as part of the larger story of the landscape, within the chronology and physical history sections. But they can also be included in the analysis and evaluation sections because of the existence of the *Natural Systems and Features* as one of thirteen landscape characteristics, which includes ecosystems in its definition. This landscape characteristic has already resulted in the inclusion of nonhuman species habitats within at least one CLI, as discussed within this chapter under the *Integrated Resource Management* heading.

These landscape characteristics do not *necessitate* the inclusion of nonhuman animal species.²⁸⁹ Without a push towards a living-species-first approach, it is likely preservationists, without further guidance, will continue to exclude heritage species and other important nonhuman animal species within documentation focused on the built environment and inert landscape characteristics. Further, adopting heritage species and updating existing procedures and guidelines will ensure that this concept is more widely understood and consistently used across the country, such as throughout NPS regions.

²⁸⁹ Per NPS guidance, not every landscape characteristic will be present in a landscape. Therefore, technically, adding a new landscape characteristic would not require professionals to document the new type within a landscape. However, including a specific landscape characteristic would likely facilitate the inclusion of nonhuman species and provide characteristic that allows a more specific discussion of those species. See Page, Gilbert, and Dolan, “A Guide to Cultural Landscape Reports: Contents, Process, and Techniques,” 53.

Recommendations

This section provides specific recommendations regarding how and which guidelines the NPS should update to include the proposed heritage species concept. Below are suggested updates to existing cultural landscape guidelines including revisions to Preservation Brief 36, *Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes*. I also provide updates to CLI and CLR NPS guidelines; specifically, I focus on updating the 2005 *Guide to Cultural Landscape Reports* and 2009 *Cultural Landscapes Inventory Professional Procedures Guide*.

Update Cultural Landscape Guidelines

Revise Preservation Brief 36 to include Heritage Species and Ethnobiological Landscapes

The Secretary of Interior provides guidance, advice, and professional standards to preserve cultural landscapes. Preservation briefs “provide information on preserving, rehabilitating, and restoring historic buildings” and are published by the Technical Preservation Services branch of the NPS.²⁹⁰ Charles A. Birnbaum authored Preservation Brief 36, *Planning, Treatment, and Management of Historic Landscapes* which describes the four types of cultural landscapes and provides a step-by-step process for preserving landscapes and balancing historic preservation with dynamic places.

Several areas within Preservation Brief 36 could be updated; however, I focus on the definitions section of the brief and first suggest adding a separate section that discusses heritage species, including the definition and criteria (Fig. 9). This addition expands upon historic

²⁹⁰ “Technical Preservation Services: Preservation Briefs,” National Park Service, accessed February 18, 2023, *Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes*.

vegetation topics already included within the brief to include nonhuman animal species rather than solely plant species. Secondly, I propose expanding the types of cultural landscapes to include a fifth landscape type called *ethnobiological landscapes* (Fig. 9). I propose the following definition for ethnobiological landscape:

A landscape comprised of various cultural and natural resources and at least one heritage species, which has evolved, impacted, or is representative of historically significant human and nonhuman relationships. Examples include wildlife refuges, urban neighborhoods, parks, rural farms, and coastal landscapes.

Ethnobiological landscapes are like the existing ethnographic landscapes, defined by the NPS as a “landscape containing a variety of natural and cultural resources that associated people define as heritage resources. Examples are contemporary settlements, religious sacred sites, and massive geological structures. Small plant communities, animals, subsistence, and ceremonial grounds are often components.”²⁹¹ However, the proposed ethnobiological landscape type refers to a wider range of landscapes. Additionally, it focuses on the human and nonhuman species relationship and the nonhuman species itself rather than only considering small plant and animal communities as potential components.²⁹²

The recommendations proposed above are limited due to the scope of this thesis. A detailed explanatory section would likely be required within Preservation Brief 36 to link the

²⁹¹ Birnbaum, “Preservation Brief 36: Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes.”

²⁹² It should also be noted that many places can be more than one type of landscape; for example, a park that contains old-growth trees as heritage species, like Glencarlyn Park, could be a vernacular landscape, designed landscape, or an ethnobiological landscape (if the relationship between species, people, and place is described well within documentation).

heritage species concept, ethnobiological landscapes, and use in practice. This might include an entirely revised preservation brief, “Preservation Brief 36a”, which could fully provide step-by-step guidance to introduce the heritage species concept, its definition, and criteria, and use within the context of the National Register. A revised Preservation Brief 36 would likely require updating sections such as Historical Research, Reading the Landscape, and Developing a Historic Preservation Approach and Treatment Plan sections.

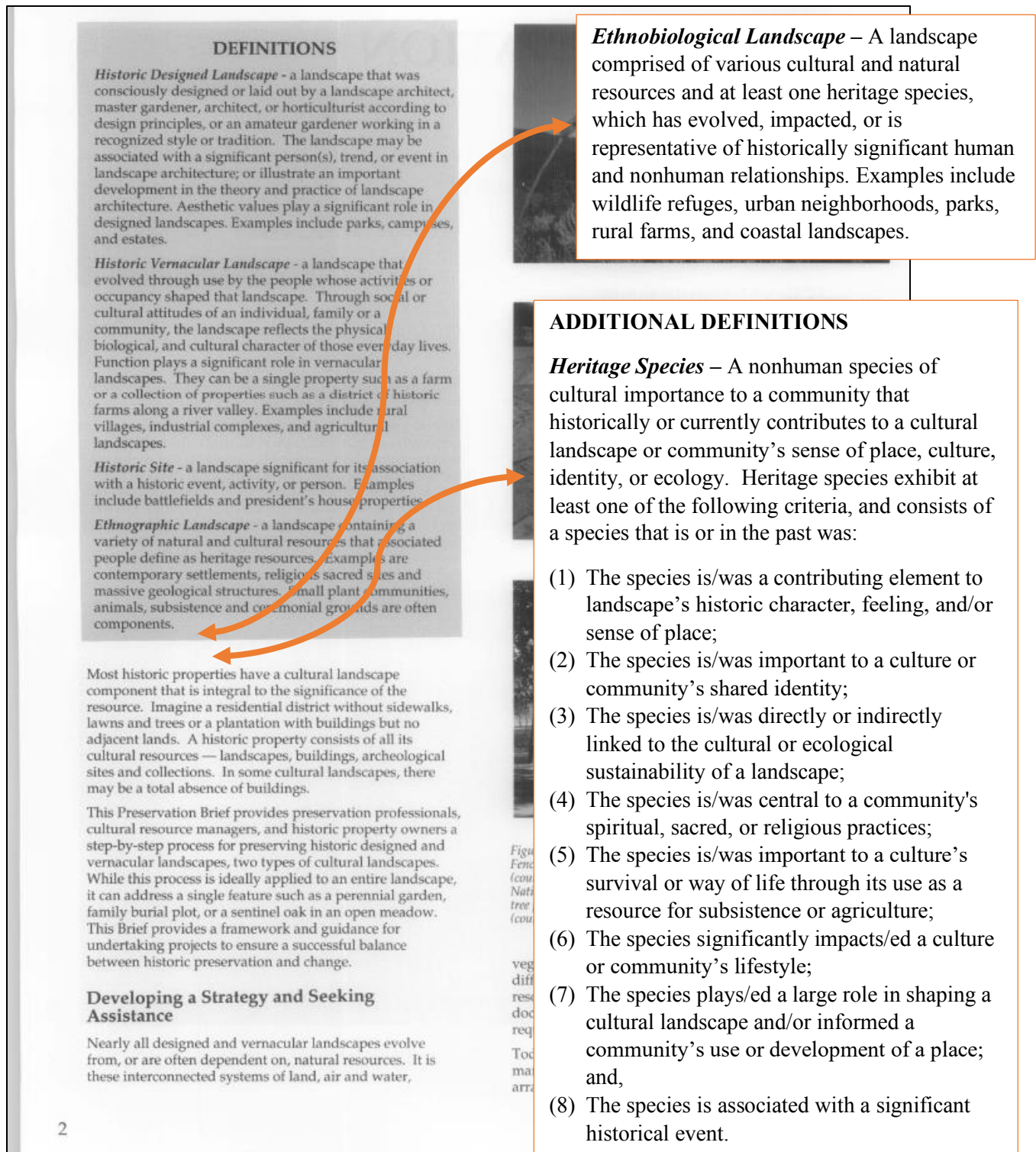


Figure 9: Excerpt from Preservation Brief 36, *Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes*, and proposed revisions.²⁹³

Add Heritage Species Habitat as a New Landscape Characteristic

There are currently thirteen existing landscape characteristics: natural systems and features, spatial organization, land use, cultural traditions, cluster arrangement, circulation, topography, vegetation, buildings and structures, views and vistas, constructed water features, small-scale features, and archaeological sites. Landscape characteristics are documented within CLIs and CLRs and define the historic character of a cultural landscape. To identify landscape characteristics as contributing to the historic character of a place, they must be defined in the National Register nomination either individually as part of the historic character of the district or collectively as a single resource that works as a “site.”²⁹⁴

Landscape characteristics determined to be noncontributing are also categorized as compatible or non-compatible, non-compatible meaning they detract from the landscape's historic character. Identifying which landscape characteristics are contributing resources has great implications regarding landscape treatment (i.e., management).²⁹⁵ The selection of landscape characteristics is tied directly to management and the management categories, whichever aspects of the landscape are chosen to be considered contributing, the NPS must decide how to manage that characteristic and maintain integrity. For example, consider a battlefield vista with cleared vegetation that is determined to contribute to the historic character of the overall landscape. In this example case, that viewshed (i.e., cleared vegetation) must be kept clear for the cultural landscape to maintain its historical integrity for that characteristic.

²⁹⁴ Page, “National Park Service Cultural Landscapes Inventory Professional Procedures Guide.”

²⁹⁵ The CLI ultimately defines the management category, which ranges from Must be Preserved and Maintained (Category A), Should be Preserved and Maintained (Category B), May be Preserved or Maintained (Category C) or May Be Released, Altered or Destroyed (Category D).

The NPS definition of cultural landscapes specifically includes *wildlife*. However, the current list of landscape characteristics, used to determine the integrity of landscapes, lacks a way to identify nonhuman animal species. Additionally, guidance on documenting nonhuman animal species within CLI or CLR procedures is lacking. Therefore, for the NPS to provide accurate accounts of landscape histories and manage cultural landscapes holistically, *heritage species habitat* should be included as a fourteenth landscape characteristic. This would require updates to both the NPS *Cultural Landscape Inventory Professional Procedure Guide* and the *Guide to Cultural Landscape Reports*.

I propose heritage species habitat in lieu of heritage species because I anticipate pushback from resource managers and preservation professionals to adding living nonhuman animal species as a landscape feature, especially without explicit treatment guidelines from the NPS. These objections could range from practical points, such as not wanting to overburden government staff with an overcomplicated system that would take time and resources to be allocated in order to implement. Pushback may also focus on the technical or legal aspect, that Congress did not implement NHPA with living species in mind. Interviews with resource managers within the park system and elsewhere would help to understand potential pushbacks, objections, and implications of integrating heritage species.

Therefore, as mentioned above, an alternative and more practical approach to avoid some concerns is to add *heritage species habitat* as a new characteristic (Fig. 10). I define heritage species habitat as:

Landscapes containing habitats that support heritage species. Habitats consist of an area that supports the continued existence of a heritage species and their conservation.

By focusing on the species' habitat, the landscape characteristic is tied to a concrete portion of the cultural landscape, which aligns with the other characteristic types and may alleviate some of the anticipated conflicts with capturing, living and movable landscape elements. Additionally, while adding a new landscape characteristic type does not require it to be included, it opens a new window and opportunity for its consideration within the process. Lastly, it further facilitates the ability of preservationists to pursue Option 5 listed in Table 6, as it provides a path forward within the cultural landscape methodology specifically to evaluate heritage species habitat as a contributing resource.

Including living nonhuman animals highlights competing interests between species conservation and historic preservation, welcoming conversations of interdisciplinary management. However, as with any contributing resource, deciding which resource should take precedence over another is part of the documentation and evaluation process of the CLI and CLR and is unique to each cultural landscape. The *Guide to Cultural Landscape* notes that cultural landscape treatment involves balancing both natural and cultural resource values and “the relative importance and relationship of all values are weighed to identify potential conflicts between preservation goals based on the significance of a cultural landscape and goals pertaining to other cultural or natural resources.”²⁹⁶ The guide goes on to clarify that when conflicts arise, “value judgements” must be made in terms of what is “preserved, compromised, or removed” and an integrated approach to define the cultural and natural resource values in the landscape are

²⁹⁶ Page, Gilbert, and Dolan, “A Guide to Cultural Landscape Reports: Contents, Process, and Techniques,” 106.

required to resolve conflicts.²⁹⁷ The guide concludes, “in certain cases, one resource value will take precedence over another. For example, an endangered species habitat will take precedence of the cultural landscape values.”²⁹⁸ This guidance is echoed again within *NPS-28 Cultural Resource Management Guidelines* which states, “Federally or state-listed threatened or endangered species must receive utmost protection. They may be considered “specimens” within the cultural landscape system.”²⁹⁹ Including heritage species as an added landscape characteristic within cultural landscape reports could assist the NPS in adhering to its own guidelines to protect endangered species over cultural resources.

²⁹⁷ Page, Gilbert, and Dolan, 108.

²⁹⁸ Page, Gilbert, and Dolan, 108.

²⁹⁹ “NPS-28: Cultural Resource Management Guidelines,” chap. 7.

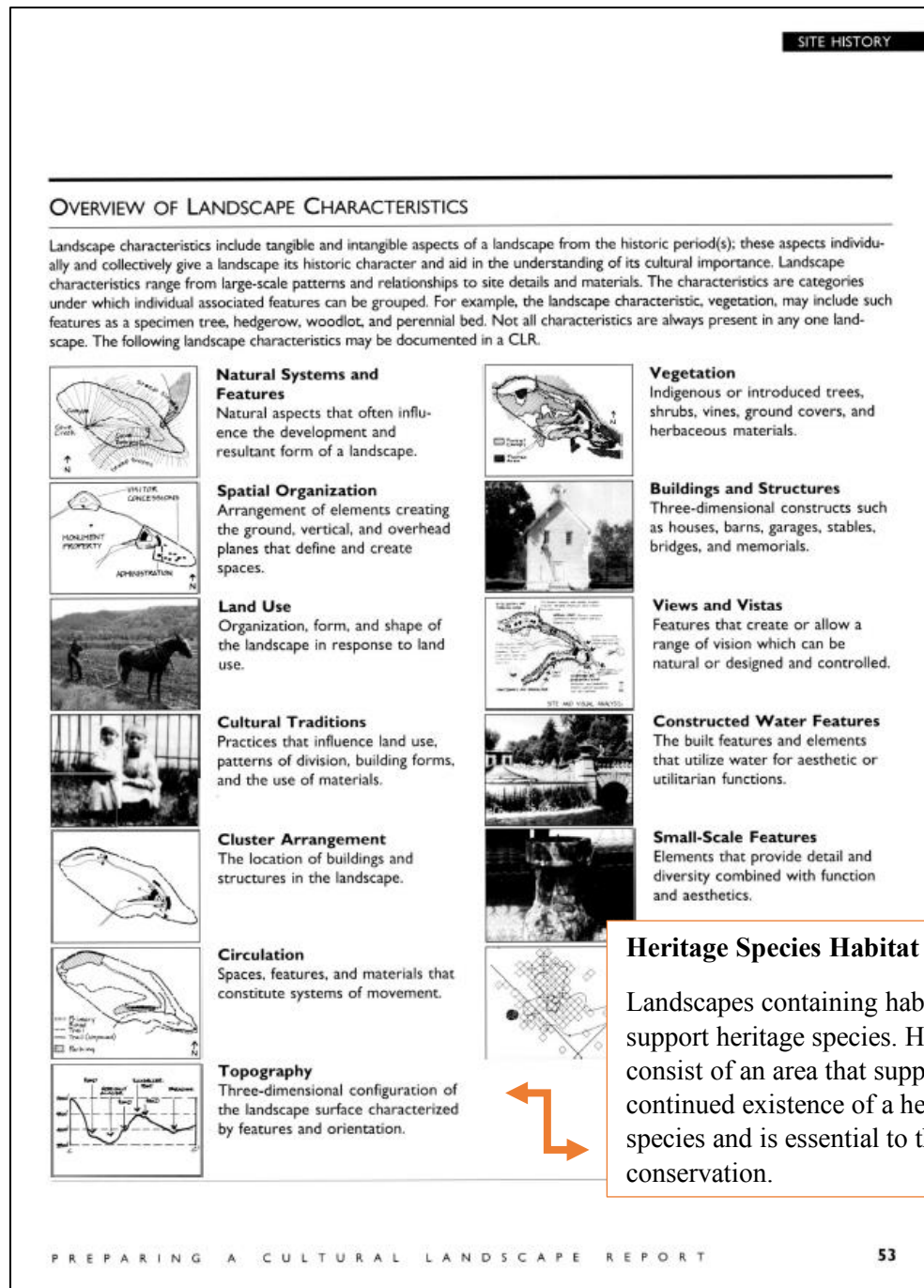


Figure 10: Excerpt from *Guide to Cultural Landscape Reports* and proposed updates.³⁰⁰

³⁰⁰ Page, Gilbert, and Dolan, "A Guide to Cultural Landscape Reports: Contents, Process, and Techniques," 53.

There is also a set precedent to protecting nonhuman species habitats within the CLIs at the NPS that can be referenced to support these recommendations. For example, in 2014, the NPS began efforts to create pollinator meadows under a Presidential Memorandum “for the creation and enhancement of pollinator meadows on Federal lands” and to protect pollinator species such as bumble bees.³⁰¹ As a result of this memorandum, the 2021 Anacostia Park Cultural Landscape includes a discussion of pollinator meadows (installed after 2015 by the NPS) within the discussion of landscape characteristics, specifically under Natural Systems and Features. This inventory concludes within their evaluation that pollinator meadows were “designed to be compatible with the park’s mission to preserve and protect the Anacostia River watershed. They are non-contributing elements that do not detract from the significance of the cultural landscape.”³⁰² While the NPS concluded the pollinator meadows were non-contributing, compatible resources to the Anacostia Park Cultural Landscape, the inventory links the continued existence of pollinator species and their habitat and the integrity of the Anacostia watershed. In other words, “the cultural landscape features natural systems and features such as pollinator meadows, wooded areas, wetlands, and drainage ponds that are non-historic but are in keeping with the park’s mission to preserve and protect the Anacostia River watershed.”³⁰³ This is one example of the existing use of CLIs to incorporate species’ habitat into the cultural landscape methodology; adding heritage species habitat as a landscape characteristic would push

³⁰¹ Torkelson and Lester, “Anacostia Park Cultural Landscape Inventory,” 216.

³⁰² Torkelson and Lester, 218.

³⁰³ Torkelson and Lester, 207.

this idea further and require this lens to be considered within every future cultural landscape documented.

Publish Additional Landscape Lines

This thesis focuses on the inclusion of heritage species within documentation. However, considering documentation is the basis of treatment it is hard to discuss documentation without touching upon treatment. The Landscape Lines series was first published in 1998 and according to the NPS “serve as the foundation for treatment planning” as an appendix alongside the *Guide to Cultural Landscapes*. Existing Landscape Lines consist of a wide array of topics to clarify treatment for resource managers; for example, there are several related to vegetation and two of particular interest to this thesis: Landscape Lines 12: *Treatment of Plant Features* and Landscape Lines 4: *Historic Plant Materials Sources*. There is also a Landscape Lines 3: *Landscape Characteristics* that provides a useful history of the historical classification and use of the existing landscape characteristics which define the methodology used to analyze, evaluate, and provide treatment options for cultural and natural resources within the National Park System. While it is not within the scope of this thesis to write a new landscape line for the purpose of heritage species, and new guidance should be created by a myriad of professionals at all levels of employment, I make suggestions and envision what new landscape lines would entail below.

Like Landscape Lines 4: *Historic Materials Sources*, NPS could create standalone guidance on heritage species related to how to research living species. Secondly, like Landscape Lines 12: *Treatment of Plant Features*, there should be a “sibling” Landscape Line that discusses the treatment of heritage species. This might not be a far stretch for the NPS to reach; consider chapter two that discussed the NPS’ long history of managing wildlife. However, the shift would

be that this would require cultural resource professionals (landscape historians, historians, ethnographers, and anthropologists) to view living species no longer as pests to be managed or culled, but as cultural entities.³⁰⁴ Guidance would need to be created in tandem with ecologists and conservation biologists to create treatment guidance that keeps this in mind. For example, the NPS states several times through guidelines several times that endangered species should be prioritized within cultural landscape management. Specifically, the *NPS-28 Cultural Resource Management Guidelines* states “Federally or state-listed threatened or endangered species must receive utmost protection.”³⁰⁵ Additionally, the NPS Guide to *Cultural Landscape Reports* states that “...an endangered species habitat will take precedence of the cultural landscape values.”³⁰⁶ Treatment guidelines would provide more details in terms of how resource managers should go about this and balance built environment preservation with living species conservation.

Implications for Historic Preservation

Adopting a living-species-first approach and including heritage species within preservation practice has many implications. This thesis focuses on implications for Section 106 consultation and integrated resource management within the historic preservation field and touches on implications for wildlife conservation.

³⁰⁴ This is likely more of a stretch for architectural historians and historians, as the other professions listed typically do deal with human-nonhuman relationships (particularly ethnographers) or are well-trained in vegetation identification (landscape architects).

³⁰⁵ “NPS-28: Cultural Resource Management Guidelines,” chap. 7.

³⁰⁶ Page, Gilbert, and Dolan, “A Guide to Cultural Landscape Reports: Contents, Process, and Techniques,” 108.

Section 106 Consultation

36 CFR 800.1(a) summarizes the NHPA Section 106 review process as one that:

seeks to accommodate historic preservation concerns with the needs of Federal
undertakings through consultation among the agency official and other parties with an
interest in the effects of the undertaking on historic properties [...].³⁰⁷

Public involvement is part of the Section 106 process. It is intended to provide a pathway so that the public can voice concerns regarding projects that may affect a historic property (i.e., a proposed highway routed through a historic district). Living species have historically been excluded as resources eligible or listed in the National Register; therefore, the public currently does not have a tool to voice concerns for federal undertakings which may negatively affect species of cultural importance. Many readers will point to the National Environmental Policy Act (NEPA), which is intended to mandate federal agencies to consider all environmental impacts on all aspects of the environment. However, NEPA is limited to considering impacts onto species with threatened or endangered statuses or those species associated with Indigenous groups. If nonhuman species or their habitats were to be included as part of a National Register determination of eligibility (or CLI or CLR), federal agencies would be required to consider their impacts per the regulations that require consideration for eligible or listed properties.

Federal agencies do not always willingly consider the cultural importance of animals under the NHPA or NEPA, even when members of the public point out their cultural attachment

³⁰⁷ 36 CFR 800.1(a)

as such. This is especially true when the ethnographic group is not Indigenous.³⁰⁸ An example is the Final Programmatic Environmental Impact Statement (PEIS) for the Eagle Rule Revision completed in 2016. This PEIS analyzed “the potential impacts to the human environment that may result from implementation of proposed revisions by the Service to several eagle permit regulations that authorize take of bald and golden eagles (“eagles”) and eagle nests under the Bald and Golden Eagle Protection Act (Eagle Act; 16 USC 668–668d).”³⁰⁹ Within this PEIS, the USFWS Service responded to a public comment that voiced concerns about impacts to their accessibility to falcons. The community group stated:

We believe that falconers are being emotionally and spiritually impacted by the Service’s refusal to allow access to golden eagles for falconry. As practitioners of a 4000-plus year old art form, recognized by UNESCO treaty in 2010 as an Intangible Cultural Heritage of Mankind, we are deeply affected by not having access to one of the most iconic species of raptors found worldwide.³¹⁰

The USFWS responded:

While we appreciate the long history of falconry, we are skeptical of equating modern falconry to tribal cultural and spiritual beliefs and practices. Falconry is not a culture in the sense of tribal culture and it is not a religious belief...at any rate, regulatory access to

³⁰⁸ A major reason for this may be that federally recognized Native American groups within the United States are sovereign nations and therefore, federal agencies are more likely to take these comments into consideration versus a non-Indigenous ethnographic group that might not have additional regulations or protections.

³⁰⁹ “Programmatic Environmental Impact Statement for the Eagle Rule Revision” (United States Department of the Interior Fish and Wildlife Service, December 2016), <https://www.fws.gov/sites/default/files/documents/programmatic-environmental-impact-statement-permits-to-incidentally-take-eagles.pdf>.

³¹⁰ “Programmatic Environmental Impact Statement for the Eagle Rule Revision,” 225.

golden eagles by falconers is outside the scope of the regulations analyzed by this PEIS.³¹¹

The USFWS acknowledges the importance of eagles' continued existence within the PEIS to many Indigenous groups, stating, “outside of rituals and practices that depend on possession of eagle feathers and parts, the very existence of eagles as live beings in the wild is deeply important to many tribes.”³¹² There is also an entire section on the intrinsic value of eagles, such as the Bald Eagle, and the value of the existence of eagles without ever seeing one in person, as well as the importance of eagles as the symbol of the United States; however, capturing the value of existence is noted as being difficult. The proposed heritage species’ habitat concept, proposed to be adopted through Option 5 within Table 6 above, could help define which species hold such cultural values. It would additionally provide members of the public with a regulatory pathway, relying on the argument that the heritage species is eligible or listed in the National Register as a contributing resource to a landscape.

Another example of the exclusion of living species in environmental compliance review is through Section 106 review processes where public members have attempted to identify an adverse effect on a living species, only to be told that living species are not within the scope of a Section 106 review. For example, in 2012, a telecommunications company proposed the installation of a 100-foot above-ground-level self-support lattice tower with lighting approximately 800 feet from the Appalachian National Scenic Trail. Many public comments, including the NPS, voiced concerns about visual impacts to the trail which could adversely affect

³¹¹ “Programmatic Environmental Impact Statement for the Eagle Rule Revision.”

³¹² “Programmatic Environmental Impact Statement for the Eagle Rule Revision,” 125.

aspects of the trail which make it eligible for the National Register, specifically its wilderness qualities. A private wildlife sanctuary, Hawk Mountain, attempted to provide feedback to mitigate effects to birds, an aspect of the scenic trail that contributes to the property's historic character and wilderness qualities. The consultant responded, “please note that Section 106 of the National Historic Preservation Act of 1966 requires Federal agencies to consider the effects of their undertakings on historic properties, the Appalachian Trail in this case. This comment appears to be unrelated to impacts on this property.”³¹³ This comment indicates that living species are seen as not within the scope of a Section 106 review process, despite the migrating birds contributing to the trail’s scenic qualities. With the adoption of heritage species, specifically heritage species habitat as Option 5 proposes, into historic preservation practice and the push to consider living nonhuman animals as contributing resources to properties such as the Appalachian Trail, the federal agency would be required to consider Hawk Mountain’s comment rather than stating it is out of scope.

Integrated Resource Management

There will always be conflicts when considering the conservation of living species and the built environment.³¹⁴ However, it is essential to work toward bridging the nature-culture divide and consider nonhuman species as cultural resources to better understand how natural and cultural landscapes interact and relate.³¹⁵ A living species approach and the proposed heritage

³¹³ See page three of the Section 106 documentation provided within the appendices of this thesis.

³¹⁴ For scholarly work on this topic see: Melnick, “Considering Nature and Culture in Historic Landscape Preservation.”

³¹⁵ An example of how CLRs can be reimaged using a systems-based approach can be found by Melnick, “Re-Envisioning the Cultural Landscape Report: Straddling the Nature/Culture Divide at Pecos National Park.”

species concept can help push toward an integrated resource management approach that considers natural and cultural resources together. The complexities and nuances of living landscapes can be better understood and managed through integrated resource management. For example, consider CLIs and CLRs at the NPS: without the inclusion of nonhuman animals as a landscape characteristic, there is no current methodology which requires consideration of impacts to nonhuman animals or development of treatment plans to avoid adversely affecting a species (and by extension, perhaps also other landscape characteristics), except for vegetation.³¹⁶

Calls for integrated resource management and acknowledging the need to consider nature and culture are not new. For example, in November 2011, the Marine Protected Areas Federal Advisory Committee recommended integrated management using a cultural landscape approach in the National System of Marine Protected Areas (MPAs) system.³¹⁷ The committee recommended the cultural landscape approach and using cultural landscapes as an analytical framework to understand landscapes and “the relationships among living and non-living resources, and their environment.”³¹⁸ The document also recognizes that “the protection of cultural heritage resources in marine areas is often separated from that of natural resources,” “...living things and the physical environment are multifaceted and often inseparable,” and “managing places using an ecosystem-based approach requires the simultaneous understanding

³¹⁶ The NPS must also comply with NEPA; however, routine maintenance is generally Categorically Excluded from further environmental evaluation and as previously stated, NEPA only consider impacts to threatened or endangered species and not necessarily heritage species.

³¹⁷ “A Cultural Landscape Approach,” National Marine Protected Areas, accessed October 2, 2022, <https://marineprotectedareas.noaa.gov/toolkit/cultural-landscape-approach.html>; “Recommendations for Integrated Management Using Cultural Landscape Approach in the National MPA System” (Marine Protected Areas Federal Advisory Committee, November 2011), http://marineprotectedareas.noaa.gov/pdf/helpful-resources/mpafac_rec_cultural_landscape_12_11.pdf.

³¹⁸ “A Cultural Landscape Approach,” 2–3.

of cultural and natural factors and resources.”³¹⁹ The key driver of this approach is that a shift in thinking that Western society needs to take an understanding of the human connection to the land and nonhumans, a worldview that “tribal and indigenous peoples for many places have known for generations [...]”.³²⁰

A second example that displays the need for an integrated approach to cultural landscape and natural resource management is within Chinn Ridge, a cultural landscape within Manassas National Battlefield Park in Virginia (MANA). MANA is a battlefield park and Chinn Ridge is interpreted to focus on the First and Second Battles of Manassas (Battle of Bull Run) which occurred in 1861 and 1862, respectively. The NPS manages Chinn Ridge as a cultural landscape unit within the overall park. A key focus on park treatment is the maintenance and clearing of vegetation, including hardwood forests, to preserve the views and vistas of the battlefield as it looked in the 1860s.³²¹ The 2018 Chinn Ridge CLR states under the Natural Systems and Topography landscape characteristic “there is potential for federally threatened Northern long-eared bat (*Myotis septentrionalis*) and federally endangered Indiana bat (*Myotis sodalis*) habitat in hardwood areas. Presence of these species has not yet been confirmed.”³²² The CLR does not provide recommendations regarding wildlife surveys or treatment options regarding the potential bat populations (species conservation is not the typical focus of a CLR). The CLR additionally recommends the park should “define historic views, now obscured by woody vegetation [...].” It

³¹⁹ “A Cultural Landscape Approach,” 2.

³²⁰ “A Cultural Landscape Approach,” 5.

³²¹ Quinn Evans Architects, “Chinn Ridge Cultural Landscape Report,” Cultural Landscape Report, 2018, <https://irma.nps.gov/DataStore/Reference/Profile/2265873>.

³²² Quinn Evans Architects, 4–7.

is easy to see how common conflicting park management goals are set by natural and cultural resource sides of the table. This shows the usefulness of a CLR that can integrate natural and cultural resources together and consider their management in one document; however, there is still a missing link between cultural landscape treatment and their potential impacts on resources beyond vegetation, like threatened and endangered species and other non-protected species that are more difficult to incorporate into a CLR framework.

It should be noted that the NPS is required to comply with NEPA and within the natural resources group, and wildlife surveys and natural resource assessments completed; however, these are completed separately from the CLI and CLR processes. Additionally, while in this example, the bats may not be contributing resources that date to the period of significance and interpretation of the park, they could still be considered heritage species due to their threatened and endangered statuses and essential link to the ecosystem within the park, as well as the continued existence and resiliency of the landscape. The use of heritage species could highlight these connections and bring the living-species to the forefront of the conversations that drastically change the cultural landscapes they inhabit.

Implications for Wildlife Conservation

There are three main implications that the integration of heritage species concept into preservation has for the field of wildlife conservation. First, the heritage species concept also presents a novel way to provide additional protections for culturally important species, which could be useful for species not yet designated as threatened or endangered but are *nearing* these classifications, which wildlife conservationists may welcome. The heritage species concept could work in tandem with environmental conservation efforts to conserve common species, like the

U.S. Geological Survey Gap Analysis Project (GAP), which focuses on the science in answering the question, “how well are we protecting common plants and animals?”³²³ Heritage species works towards the conservation of potentially common species, especially if common heritage species habitats are integrated within CLIs and CLRs and either considered contributing resources to an eligible or listed National Register property (i.e., cultural landscape) or, at a minimum, be considered noncontributing but still documented within the CLI/CLR framework and considered within future landscape treatment options. My proposed heritage species concept is complementary to the GAP program because it is ingrained with the National Register framework, providing a way to identify species at the local and state level which may not have legal protections but could be equally important to local communities from a cultural perspective.

Second, there may be species that could be designated as heritage species that are ecologically damaging such as invasive species or nuisance and pest species. For example, overpopulation of white-tailed deer significantly negatively impact forest regrowth and overall health and yet deer may hold cultural value for some groups of people. Reconciling how to deal with species that are both culturally significant but ecologically damaging will require consideration on a case-by-case basis. This conflict illustrates the need for updated treatment guidelines regarding managing nonhuman animal species as cultural resources. However, while heritage species may introduce new problems to tackle within historic preservation and require further guidance updates, the preservation field is already used to dealing with contested spaces

³²³ “Gap Analysis Project,” US Geological Survey (USGS), n.d., <https://www.usgs.gov/programs/gap-analysis-project>.

and difficult histories, such as Confederate monuments. Deciding how to document and manage ecologically damaging heritage species is similarly difficult to resolve but not impossible, and would require community input and long-term planning.

Lastly, adopting a living species approach within historic preservation also could have negative side effects to wildlife conservation norms. For example, it may exacerbate the issue of charismatic species within the conservation field. Charismatic species are criticized as being biased in conservation (i.e., Siberian tigers, pandas, etc.) and receiving more attention, money, and support in conservation efforts and funding simply because they are well-known, well-liked, and often cute animals.³²⁴ Heritage species could exacerbate this effect because heritage species would likely be charismatic species as well. Another negative side effect of the heritage species concept is that it includes living species in the same framework as the built environment, which treats nonhuman animal and plant species as “resources” and “properties.” There would need to be an effort to remember we must not treat living species as “things”, as items to be collected, or treated as expendable resources owned by people. An ethical approach to integrating species conservation within historic preservation should be at the forefront of practitioners and land managers alike, who may only be trained to deal with inert, nonliving elements. Heritage species are their entities and deserve attention, respect, and conservation because they exist, not because people attribute value to them. To be accepted within the wildlife conservation community, the

³²⁴ “Wildlife Conservation Tends to Save Charismatic Species. That May Be about to Change,” *All Things Considered* (National Public Radio, September 12, 2022), <https://www.npr.org/2022/09/12/1110852137/wildlife-conservation-charismatic-species-change>.

heritage species concept would need to be implemented as a framework to highlight important human-animal relationships without resorting to tokenism.³²⁵

Future Research

The integration of heritage species into cultural landscapes is a large topic. As a result, there are numerous additional areas of needed research beyond this study. For example, how do heritage species and cultural landscapes intersect with environmental justice, Traditional Ecological Knowledge (TEK), environmental history, climate change, sustainability, citizen science methodologies, etc.? Additionally, preservationists need guidelines to assist in research of living species, since much of their professional and educational experience has focused on non-biological archives, references, and databases. This thesis hopes to act as a starting point for these important conversations and help merge the natural and cultural disciplines together. Below, I discuss additional areas of research that should be completed to expand the heritage species concept.

Limitations in terms of adopting a heritage species concept in practice should be acknowledged. There are many reasons why incorporating this heritage species concept into the current historic preservation concept is difficult. Beyond the issues described throughout this thesis in terms of competing interests on the natural and cultural resource sides, the field of historic preservation is trying to update its theories and practices in many other ways that are equally or perhaps more important, like reconciling a past of ignoring places and resources important to marginalized and underrepresented groups. Additionally, preservationists in the

³²⁵ For more information regarding the ethical approach to nonhuman animal species, see: Marris, *Wild Souls: Freedom and Flourishing in the Nonhuman World*.

field carrying out preservation work, especially at federal agencies like the NPS, are underfunded, overworked, and underpaid. How can historic preservation be expected to further complicate documentation and management practice by throwing nonhuman species into the mix? The reality is that most professionals are working hard just to complete the work at hand with existing guidelines without considering how the theories and methods could be better updated. However, I argue that many professionals are looking toward the future of historic preservation and can adapt to new concepts and methodologies just like the NPS did when it first recognized cultural landscapes in the 1980s; the proposed heritage species concept is no different.

In terms of additional research areas, additional quantitative research is needed, such as a comprehensive review of select National Register nominations, CLIs, and CLR, to create a better understanding of research gaps within past documentation practices, specifically identifying gaps where nonhuman species have been excluded (or vice versa, where they have been included and in what way). Qualitatively, to push heritage species into practice, interviews with practitioners at all levels (local, state, and Federal), should be conducted. Interviews with professionals such as NPS park managers or architectural historians at State Historic Preservation Offices should be conducted to understand to what extent they think about nonhuman species when documenting places. The results would help verify the consensus of views towards the inclusion of living species, animals and plants, within NRs, CLIs, and CLR. Finally, historic preservation undergraduate and graduate curriculum should be analyzed to understand where and how the content matter can be updated to integrate natural and cultural

resources sides better, as graduate programs are typically separated along natural and cultural lines content amongst different degrees.

To better manage landscapes holistically, the NPS, other federal agencies, and any place that manages landscapes should explore scenario-based landscape planning. Scenario-based investigations help decisionmakers choose courses of action based on potential outcomes. Since the 1970s, they have been used by landscape planners.³²⁶ Applied to cultural landscapes, a scenario-based landscaping planning methodology would allow resource managers to scenario-plan outcomes of chosen landscape treatments, to better gauge how a treatment option might impact nonliving and living elements within a landscape. Future studies could explore the intersection of cultural landscape preservation, heritage species, and use of Scenario-Based Landscape Planning. This could lead to the creation of a new type of report for NPS to provide to resource managers in lieu of a CLI or CLR which could be called a *Landscape System Planning Report*. A new type of treatment report could provide a report that combines natural and cultural planning objectives and lays them out for resource managers to decide how to reconcile competing needs. CLI and CLR reports are already expensive, time-consuming, and complex reports and perhaps adding more on top of the existing framework would put too much strain on resource professionals. Scenario-based landscape planning is an avenue that should be explored and researched as a way to holistically balance heritage species along with other natural and cultural resources within cultural landscapes.

³²⁶ Allan W Shearer, "Approaching Scenario-Based Studies: Three Perceptions about the Future and Considerations for Landscape Planning," *Environment and Planning B: Urban Analytics and City Science* 32, no. 1 (February 2005), <https://doi.org/10.1068/b31>.

Beyond historic preservation planning, the historic preservation architecture design-side of the field should explore how to build better alongside our living counterparts. Paul Dobraszczyk's recently published *Animal Architecture, Beasts, Buildings and Us* provides thirty different animals to consider new ways of thinking about animals and architecture. He states,

...animals are designed for only when they are deemed of use to humans, whether as livestock, domestic pets, spectacles to consume at zoos, menageries and aquaria, or objects of scientific manipulation in laboratories. If animals cannot be instrumentalized, they are usually ignored; if those animals take it upon themselves to inhabit buildings, they are invariably regarded as pests and removed or annihilated.³²⁷

He argues there is an urgent need to build with nonhuman species, especially given the fact the global construction industry is a driver of climate change and species destruction. He suggests we “build with animals not just in mind, but also as cohabitants that seeks some measure and recompense for the long sad history of human exceptionalism.”³²⁸ Following Dobraszczyk's lead, can we use this concept to build *with* rather than *against* our heritage species?

Conclusion

Historic preservation must adopt a living-species-first approach because heritage species are an important component of our history and deserve recognition as such. Further, integration of heritage species is imperative considering threats like climate change and the increased rates of nonhuman species becoming extinct. In fact, according to the United Nation's key biodiversity

³²⁷ Paul Dobraszczyk, *Animal Architecture: Beasts, Buildings and Us* (London: Reaktion Books, 2023), 7.

³²⁸ Dobraszczyk, 7.

conference, COP15, “the planet is experiencing its largest loss of life since the dinosaur era ended: one million plant and animal species are now threatened with extinction.”³²⁹ The endangerment of United States’ natural heritage propelled the introduction of the Recovering America’s Wildlife Act (RAWA), passed by the House and currently in consideration by the Senate, which would provide nearly \$1.4 billion for wildlife across the United States.³³⁰ The National Wildlife Federation stated that a third of wildlife within the United States faces an elevated risk of extinction and that RAWA is a “bold, bipartisan solution that will help at-risk species with cost-effective, collaborative conservation.”³³¹ Recognizing heritage species helps achieve documentation that tells a more holistic story of our living landscapes in the past while simultaneously assisting in species conservation and creating sustainable systems for the future. Federal agencies like the NPS have historically been involved in manipulating nonhuman species populations and cultural landscapes, like contributing to habitat fragmentation, deforestation, and the culling of species; the NPS should no longer ignore the inclusion of nonhuman animal species within their cultural landscape programs.

I conclude this thesis with a personal anecdote: over a decade ago, as part of my undergraduate studies in environmental studies, I worked as an intern for a small, environmental

³²⁹ “‘Without Nature, We Have Nothing’: UN Chief Sounds Alarm at Key UN Biodiversity Event,” UN News Global Perspective Human Stories, December 6, 2022, <https://news.un.org/en/story/2022/12/1131422#:~:text=What%20is%20biodiversity%20COP15%3F%20COP15%20aims%20to%20achieve,global%20blueprint%20to%20save%20the%20planet%E2%80%99s%20dwindling%20biodiversity>.

³³⁰ Debbie Dingell, “Recovering America’s Wildlife Act of 2021,” Pub. L. No. H.R.2773 (2021), <https://www.congress.gov/bill/117th-congress/house-bill/2773>.

³³¹ “Recovering America’s Wildlife Act,” National Wildlife Federation, accessed April 25, 2023, <https://www.nwf.org/Our-Work/Wildlife-Conservation/Policy/Recovering-Americas-Wildlife-Act#:~:text=The%20Recovering%20America%E2%80%99s%20Wildlife%20Act%20would%20give%20the,of%20plants%20and%20animals%20in%20need%20of%20assistance>.

non-profit in New Haven, Connecticut. As part of my duties, I was tasked with designing volunteer t-shirts for upcoming summer beach cleanups. After drawing up a variety of choices, I decided on one species in particular, the osprey, that would proudly display on the back of the shirt (Fig. 11). Why did I choose the osprey? I had no specific intentions of being a wildlife biologist or bird biologist and at the time had very little biological knowledge about osprey. Looking back, without needing an in-depth knowledge of the ecological connections of osprey to the Long Island Sound, I largely settled on osprey because of their iconic, cultural connection to Connecticut's shoreline, a connection I still feel today. Like many other species, osprey should be documented by historic preservationists to determine their heritage species status within cultural landscapes to understand the connection between species, people, and places.



Figure 11: Front and back of my 2012 design of volunteer t-shirts featuring an osprey (photo by author, April 2023).

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APPENDIX I:
NATIONAL BISON LEGACY ACT

Public Law 114–152
114th Congress

An Act

To adopt the bison as the national mammal of the United States.

May 9, 2016

[H.R. 2908]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the “National Bison Legacy Act”.

National Bison
Legacy Act.
36 USC 301 note
prec.

SEC. 2. FINDINGS.

Congress finds that—

(1) bison are considered a historical symbol of the United States;

(2) bison were integrally linked with the economic and spiritual lives of many Indian tribes through trade and sacred ceremonies;

(3) there are more than 60 Indian tribes participating in the Intertribal Buffalo Council;

(4) numerous members of Indian tribes are involved in bison restoration on tribal land;

(5) members of Indian tribes have a combined herd on more than 1,000,000 acres of tribal land;

(6) the Intertribal Buffalo Council is a tribal organization incorporated pursuant to section 17 of the Act of June 18, 1934 (commonly known as the “Indian Reorganization Act”) (25 U.S.C. 477);

(7) bison can play an important role in improving the types of grasses found in landscapes to the benefit of grasslands;

(8) a small group of ranchers helped save bison from extinction in the late 1800s by gathering the remnants of the decimated herds;

(9) bison hold significant economic value for private producers and rural communities;

(10) according to the 2012 Census of Agriculture of the Department of Agriculture, as of 2012, 162,110 head of bison were under the stewardship of private producers, creating jobs and providing a sustainable and healthy meat source contributing to the food security of the United States;

(11) on December 8, 1905, William Hornaday, Theodore Roosevelt, and others formed the American Bison Society in response to the near extinction of bison in the United States;

(12) on October 11, 1907, the American Bison Society sent 15 captive-bred bison from the New York Zoological Park, now known as the “Bronx Zoo”, to the first wildlife refuge in the United States, which was known as the “Wichita Mountains Wildlife Refuge”, resulting in the first successful reintroduction

of a mammal species on the brink of extinction back into the natural habitat of the species;

(13) in 2005, the American Bison Society was reestablished, bringing together bison ranchers, managers from Indian tribes, Federal and State agencies, conservation organizations, and natural and social scientists from the United States, Canada, and Mexico to create a vision for the North American bison in the 21st century;

(14) there are bison herds in National Wildlife Refuges and National Parks;

(15) there are bison in State-managed herds across 11 States;

(16) there is a growing effort to celebrate and officially recognize the historical, cultural, and economic significance of the North American bison to the heritage of the United States;

(17) a bison is portrayed on 2 State flags;

(18) the bison has been adopted by 3 States as the official mammal or animal of those States;

(19) a bison has been depicted on the official seal of the Department of the Interior since 1912;

(20) the buffalo nickel played an important role in modernizing the currency of the United States;

(21) several sports teams have the bison as a mascot, which highlights the iconic significance of bison in the United States;

(22) in the 2nd session of the 113th Congress, 22 Senators led a successful effort to enact a resolution to designate November 1, 2014, as the third annual National Bison Day; and

(23) members of Indian tribes, bison producers, conservationists, sportsmen, educators, and other public and private partners have participated in the annual National Bison Day celebration at several events across the United States and are committed to continuing this tradition annually on the first Saturday of November.

SEC. 3. ESTABLISHMENT AND ADOPTION OF THE NORTH AMERICAN BISON AS THE NATIONAL MAMMAL.

(a) **IN GENERAL.**—The mammal commonly known as the “North American bison” is adopted as the national mammal of the United States.

(b) **RULE OF CONSTRUCTION.**—Nothing in this Act or the adoption of the North American bison as the national mammal of the United States shall be construed or used as a reason to alter,

change, modify, or otherwise affect any plan, policy, management decision, regulation, or other action by the Federal Government.

Approved May 9, 2016.

LEGISLATIVE HISTORY—H.R. 2908 (S. 2032):

HOUSE REPORTS: No. 114–483 (Comm. on Oversight and Government Reform).
CONGRESSIONAL RECORD, Vol. 162 (2016):

Apr. 26, considered and passed House.
Apr. 28, considered and passed Senate.

APPENDIX II:
POLICY VERSUS PRACTICE TABLE

Appendix II: Key elements of the National Register of Historic Places codified in 36 CFR Part 60 in comparison to elements utilized to list properties to the National Register that have been defined through NPS guidance.¹

Element	36 CFR Part 60 Definition	Bulletin 15 Definition
Property Type (36 CFR 60.1)	<p>(a) The National Historic Preservation Act of 1966, 80 Stat. 915, 16 U.S.C. 470 et seq., as amended, authorizes the Secretary of the Interior to expand and maintain a National Register of districts, sites, buildings, structures, and objects significant in American history, architecture, archeology, engineering and culture. The regulations herein set forth the procedural requirements for listing properties on the National Register.</p> <p><i>Note that definitions for these resources types are not codified within 36 CFR Part 60.</i></p>	<p>Building: “A building, such as a house, barn, church, hotel, or similar construction, is created principally to shelter any form of human activity. "Building" may also be used to refer to a historically and functionally related unit, such as a courthouse and jail or a house and barn.”²</p> <p>Structure: “The term "structure" is used to distinguish from buildings those functional constructions made usually for purposes other than creating human shelter.”³</p> <p>Object: “The term "object" is used to distinguish from buildings and structures those constructions that are primarily artistic in nature or are relatively small in scale and simply constructed. Although it may be, by nature or design, movable, an object is associated with a specific setting or environment.”⁴</p> <p>Site: “A site is the location of a significant event, a prehistoric or historic occupation or activity, or a building or structure, whether standing, ruined, or vanished, where the location itself possesses historic, cultural, or archeological value regardless of the value of any existing structure.”⁵</p> <p>District: “A district possesses a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical</p>

¹ Note that the elements within this table are the same as tables within Chapter IV of this thesis. There are additional sections within 36 CFR 60 not defined above as I have only included elements applicable to this discussion.

² “National Register Bulletin: How to Apply the National Register Criteria for Evaluation” (National Park Service, 1995), 4, https://www.nps.gov/subjects/nationalregister/upload/NRB-15_web508.pdf.

³ “National Register Bulletin: How to Apply the National Register Criteria for Evaluation,” 4.

⁴ “National Register Bulletin: How to Apply the National Register Criteria for Evaluation,” 5.

⁵ “National Register Bulletin: How to Apply the National Register Criteria for Evaluation,” 5.

		development.” ⁶ Note that properties are also referred to as <i>resources</i> within Bulletin 15.
Geographic Boundaries	Definition not codified within the NHPA or 36 CFR 60. Guidance provided through NPS bulletins, such as Bulletin 15, <i>How To Apply the National Register Criteria for Evaluation</i> .	Bulletin 15 provides a definition for geographical boundaries in relation to historic districts: “a district must be a definable geographic area that can be distinguished from surrounding properties by changes such as density, scale, type, age, style of sites, buildings, structures, and objects, or by documented differences in patterns of historic development or associations...the boundaries must be based upon a shared relationship among the properties constituting the district.” ⁷
National Register Criteria A, B, C, and D (36 CFR 60.4)	(a) that are associated with events that have made a significant contribution to the broad patterns of our history; or (b) that are associated with the lives of persons significant in our past; or (c) that 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; or (d) that have yielded, or may be likely to yield, information important in prehistory or history.	Definitions follow what is codified within 36 CFR 60.4.
Integrity & Areas of Significance	Definition not codified within the NHPA or 36 CFR 60.	Integrity: To exhibit integrity, “it is important that the significant data contained in the property remain sufficiently intact to yield the expected important information.” ⁸ A property must retain one or more of the seven aspects of integrity which are: location, design, setting, materials, workmanship, feeling, and association. Areas of Significance are tied into the theme of the historic context. A theme is described as a “means of organizing

⁶ “National Register Bulletin: How to Apply the National Register Criteria for Evaluation,” 5.

⁷ “National Register Bulletin: How to Apply the National Register Criteria for Evaluation,” 6.

⁸ “National Register Bulletin: How to Apply the National Register Criteria for Evaluation,” 23.

		properties into coherent patterns”; the bulletin notes that “many significance themes can be found in the following list of Areas of Significance” and a list of areas is provided. ⁹ A relatively wide range of themes is listed in the bulletin; three of particular interest to the context of this thesis are social history, conservation, and science.
Places With Significance Less than 50 Years (36 CFR 60.4) (excerpt)	<p>Criteria considerations. Ordinarily cemeteries, birthplaces, or graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past 50 years shall not be considered eligible for the National Register.</p> <p>However, such properties will qualify if they are integral parts of districts that do meet the criteria of if they fall within the following categories:</p> <p>(g) A property achieving significance within the past 50 years if it is of exceptional importance.</p>	Definition follows what is codified within 36 CFR 60.4.
Contributing Resource	Definition not codified within the NHPA or 36 CFR 60.	<p>A definition for “contributing” is not provided, although it is mentioned within Bulletin 15 in relation to elements within a historic district that are contributing versus non-contributing. Bulletin 15 states the following regarding what constitutes a non-contributing resource: “A property also cannot be considered a contributing element in a historic district because it does not add to the district’s sense of time and place.”¹⁰ Thus, a contributing resource could be interpreted as a resource that <i>does</i> add to an area’s sense of time and place.</p> <p>“Defined characteristics” are also mentioned within Bulletin 15, which are “physical features the property must possess in order for it to reflect the significance of the historic context.”¹¹</p>

⁹ “National Register Bulletin: How to Apply the National Register Criteria for Evaluation,” 8.

¹⁰ “National Register Bulletin: How to Apply the National Register Criteria for Evaluation,” 47.

¹¹ “National Register Bulletin: How to Apply the National Register Criteria for Evaluation,” 8.

APPENDIX III:
WORLD HERITAGE SPECIES CRITERIA

Species Program within the specific context of the Gorilla Agreement, UNESCO and CMS would be at the forefront of the birth of a new legal approach to conservation.

ANNEX 1

Criteria for Designating "World Heritage Species"

Goal

The goal of designating a species as "World Heritage Species" is to conserve species of outstanding universal value to humankind through effective conservation and management.

Definition

"Species" means any species, subspecies, geographically separate population of a species, or other relevant taxonomic group.

Criteria

A. A species that has outstanding universal value to humankind qualifies as a World Heritage Species. Species of outstanding universal value to humankind are:

1. Species that have a significant connection or relationship to humans. A significant connection or relationship to humans means that:
 - a. a species has at least one of the following values:
 - i. cultural,
 - ii. religious,
 - iii. medicinal,
 - iv. social,
 - v. evolutionary,
 - vi. traditional, or
 - vii. survival, and
 - b. the loss of the species would constitute an impoverishment of the heritage of humankind.
2. Species that have a significant connection or relationship to global biodiversity. A significant connection or relationship to global biodiversity can mean that:
 - a. a species has at least one of the following values:
 - i. ecological,
 - ii. biological, or
 - iii. genetic value or
 - iv. other values that warrant international protection; and
 - b. the loss of the species would constitute an impoverishment of the world's biological heritage.

B. If a Party or Parties wishes to list a species, it must submit a proposal to the "Bureau" (to named otherwise and defined elsewhere, but likely to meet between general sessions) for review. The proposal must include:

1. the name of the species to be listed;

2. any relevant information, demonstrating that the species is of outstanding universal value;
 3. the goals to be achieved by listing the species; and
 4. a draft implementation plan for accomplishing the goals described in (3), above.
- C. Once a species is listed, the proponent Party or Parties must develop an Implementation Plan that describes the steps to be taken domestically and internationally to conserve and, if warranted, sustainably use the listed species.
1. The Implementation Plan should include:
 - a. conservation goals and actions that identify and address the threats to the species;
 - b. domestic legislation providing for the conservation of the species through protection and management and, if warranted, sustainable use;
 - c. actions taken and to be taken to adopt and implement appropriate international conventions and programs in ways meaningful to the conservation of the listed species;
 - d. engagement of international bodies or networks for capacity-building, training, financial assistance, or any other aid;
 - e. habitat protection;
 - f. measures for achieving coordination with local communities, local support for the management plan;
 - g. timeframes for achieving the Implementation Plan; and
 - h. goals to educate and increase awareness of the significance of the species.
 2. A Party or Parties may consult with any organizations, institutions, or the Bureau to develop the Implementation Plan and to secure funding for its implementation.
- D. Once a species is listed, the proponent Party or Parties must submit to the Bureau annual reports on implementation of the Implementation Plan and the status of the species.
- E. If the Implementation Plan is not completed within six months or annual reports are not received for two consecutive years, the Bureau will investigate the cause of nonsubmission and work with the noncomplying Party to submit the necessary management plan or reports.
- F. If a Party continues to fail to submit its management plan after the above process, then the Bureau will investigate whether the World Heritage Species designation is warranted.

APPENDIX IV:
USDA GRAPHIC: HEALTHY SAGEBRUSH COMMUNITIES

Conifer Encroachment

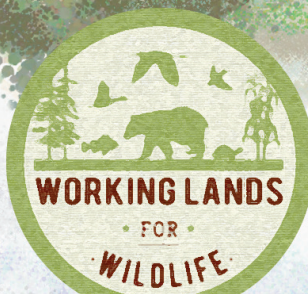
Sage grouse breeding habitat is lost to invading junipers when trees exceed 4% canopy cover. Focused tree removal prevents conversion of sagebrush steppe to conifer woodlands and benefits sage grouse populations.

Benefits of conifer control

1. Maintaining native understory plants.
2. Reducing risk of large and severe wildfires.
3. Improving habitat for declining species.
4. Reducing soil erosion and conserving soil water.
5. Increasing ecosystem resilience to fire and resistance to cheatgrass.

Did you know that trees catch the snow?

Removing encroaching conifer stands from sagebrush ecosystems helps keep snow on the ground longer during the spring. This allows water to seep slowly into the ground to better sustain plants, streams, and wildlife during the West's hot, dry summer.



nrcs.usda.gov/wildlife
sagegrouseinitiative.com

The Sage Grouse Initiative is a partnership-based, science-driven effort that uses voluntary incentives to proactively conserve America's western rangelands, wildlife, and rural way of life. This initiative is part of Working Lands For Wildlife, which is led by USDA's Natural Resources Conservation Service.

HEALTHY SAGEBRUSH COMMUNITIES

THE SAGE GROUSE IS AN UMBRELLA SPECIES

Studies have shown that conservation efforts for sage grouse also help 350 other species of plants, invertebrates, amphibians, reptiles, birds and mammals inhabiting the sagebrush sea, like mule deer and songbirds.



MULE DEER

Conservation measures set in place for sage grouse significantly increase the protection for mule deer migration and winter habitat.



SONGBIRDS

Songbirds like the Brewer's sparrow, sagebrush sparrow and sage thrasher are 13-19% more abundant near large leks, which support half of all sage grouse populations.

MESIC MEADOWS

Wet "mesic" habitat, or places where water meets land comprise less than 2% of the entire landscape in the West. Protecting and restoring these "emerald islands" in the desert benefits livestock ranching and wildlife, including sage grouse.



FENCE MARKING

Sage grouse can collide with livestock fences when flying low over sagebrush. When grouse fly into their breeding grounds, or "leks," the dim predawn light makes it difficult to avoid fence wires. By placing markers on fence wires, ranchers are doing their part to reduce the potential for fence collision by 83%.

PRESCRIBED GRAZING

Sage grouse eat different things depending on their age and the season. Rest-rotation grazing boosts the abundance of arthropods, like spiders and butterflies, a key part of the sage grouse diet in spring and summer, particularly for growing chicks. Rested or deferred pastures from grazing host the most arthropods important for nutrition.

HEALTHY SOIL

Raptors

Conifers provide perches for predators.



Invasive Grasses

The spread of invasive annual grasses, like cheatgrass and medusahead, are linked to unwanted wildfires. Invasive grasses are highly flammable and dry out earlier than native plants, leading to more frequent, hotter fires. Once sagebrush habitat burns in a megafire, it's hard to restore, leaving noxious weeds that degrade rangelands and wildlife habitat.

These invasive grasses replace the sagebrush sea's diverse, native plants — like sagebrush, wildflowers, and bunchgrasses — with a monoculture of weeds. That's bad for birds and herds, which rely on nutritious, native perennial plants.

HEALTHY RANGE

Solution

Conservation on working western landscapes restores sagebrush communities where sage grouse and other wildlife share the same extensive home range, and helps ranchers pass on their legacy and rural way of life.