

AN ECOSYSTEM SERVICES APPROACH TO CULTURAL RESOURCE PROTECTION

BY

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Cultural values reflect the ecosystems in which they develop. Various cultures across the globe have developed unique and interactive relationships with their surrounding environments, providing human societies with important cultural and resource connections. The depletion of natural resources and the disregard of the way ecosystems function present challenges for these connections. Of course, Congress has adopted laws intended to protect cultural resources, but such laws have failed to effectively navigate the competing interests in natural resources use and have undermined the integrity of specific places, ecosystems, and peoples. In large part, such failures are caused by design, prioritizing the use of natural resources and ignoring the role that the natural environment plays in forming cultural values.

The protection of cultural resources would benefit from an effective regulatory framework that demands consideration of non-market values provided by ecosystems. This Article offers an ecosystem services approach that focuses on the cultural benefits humans reap from functioning ecosystems. This approach goes beyond the market valuation of natural resources and recognizes that ecosystems provide valuable cultural benefits when left in place. Adopting a cultural ecosystem services approach to natural resources management will help understand where and how ecosystems provide cultural benefits and identify to whom they provide a benefit. Adoption, in turn, would produce a planning approach that demands a richer understanding of the flow of ecosystem services to ensure that the risks to, and trade-offs of, valuable cultural ecosystems play a role in managing the use of natural resources.

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“Our species evolved within nature, with our ancestors fitting in as a part of the many ecosystems which they shared with the rest of the plants, animals and micro-organisms that made every locality unique. By perhaps 200,000 years ago, they already were using fire and tools which gave them a dominant position in their ecosystems. Much evidence collected by paleontologists indicates that, even in the early stages, human cultures recognized that some parts of their territory had characteristics that required special treatment, and that some of the species that contributed to their welfare needed powerful management (such as by taboos) if they were to survive. Some places were therefore designated as special breeding grounds which needed protection against over-exploitation if the species was going to continue to provide meat, eggs, furs, feathers and other comforts for our ancestors. Other places were sources of springs that provided pure water in critical times of the year, or trees that attracted a multitude of creatures that people found useful, or just attractive. Other places were sites where the elders, and sometimes unfortunate younger people, were buried.”¹

I.	INTRODUCTION	667
II.	CULTURAL AND NATURAL RESOURCES	669
	A. <i>Rocks</i>	670
	B. <i>Mountains</i>	671
	C. <i>Islands</i>	673
	D. <i>Forests and Groves</i>	674
	E. <i>Water</i>	675
	F. <i>Land and Landscape</i>	678
III.	LAW AND CULTURAL RESOURCES	679
	A. <i>Privatizing Cultural Ecosystem Services Through Property Rights</i>	680
	B. <i>Federal Laws Designed to Aid in the Protection of Cultural Resources</i>	683
IV.	AN ECOSYSTEM SERVICES APPROACH TO CULTURAL RESOURCES	687
	A. <i>Ecosystem Services</i>	687
	B. <i>A Special Category: Cultural Services Provided by Ecosystems</i>	688
V.	CONSIDERATIONS IN THE DESIGN OF EFFECTIVE CULTURAL ECOSYSTEM SERVICES REGULATION	694
VI.	CONCLUSION	700

¹ Julia Marton-Lefèvre, *Foreword*, in *SACRED NATURAL SITES: CONSERVING NATURE AND CULTURE*, at xix (Bas Verschuuren et al. eds., 2010).

I. INTRODUCTION

Place has a special role in directing the development of culture and cultural resources. Cultural norms, practices, and meanings develop in a place, often as an adaption to circumstances in religious, economic, and social ways. In this regard, ecosystems, like the concept of place, serve as the context in which culture develops.²

Cultural resources appearing as shared icons and norms, situated challenges with nature, internalized beliefs, oral histories, and common words and practices, have significant meaning within a community and help organize identity and interactions among the group.³ Culture is an important phenomenon, and, as noted by Peterson and Lubchenco, “[s]uch values need recognition.”⁴ UNESCO reports:

We cannot ignore the promises of globalization nor its risks, not the least of which is the risk of forgetting the unique character of individual human beings; it is for them to choose their own future and achieve their full potential within the carefully tended wealth of their traditions and their own cultures which, unless we are careful, can be endangered by contemporary developments.⁵

Culture, which includes the resources that sustain a particular culture, is always at risk.

This Article considers the manner in which ecosystems provide the basis and context for cultural resources, referred to herein as cultural ecosystem services. Ecosystem services refer to that branch of natural resource economics that identifies the human benefits of ecosystem

² SCI. ADVISORY BOARD, VALUING THE PROTECTION OF ECOLOGICAL SYSTEMS AND SERVICES: A REPORT OF THE EPA SCIENCE ADVISORY BOARD, EPA-SAB-09-012, at 13 (May 2009), <https://perma.cc/Y8JD-GJTB> (“Ecosystems can be valued both as independent ends or goals and as instrumental means to others ends or goals.”).

³ Cultural resources are defined as “physical evidence or place of past human activity: site, object, landscape, structure; or a site, structure, landscape, object or natural feature of significance to a group of people traditionally associated with it.” NATIONAL PARK SERVICE, CULTURAL RESOURCES, <https://perma.cc/4AB9-KLSQ> last visited Mar. 8, 2020). See also Robert Fish et al., *Conceptualising Cultural Ecosystem Services: A Novel Framework for Research and Critical Engagement*, 21 *Ecosystem Services* 208, 208 (2016) (“As a paradigmatic class of service, ‘cultural ecosystem services’ has emerged as a concept around which researchers and decision makers can understand ecosystems in terms of their life-enriching and life-affirming contributions to human well-being, and represents one salient example of the way culture is more generally embraced as an important ‘variable’ in the work of environmental managers and planners. Encompassing a broad symbolic, experiential and virtuous realm of human interactions and understandings of the natural environment, cultural ecosystem services are considered[.]”).

⁴ Charles H. Peterson & Jane Lubchenco, *Marine Ecosystem Services*, in NATURE’S SERVICES: SOCIETAL DEPENDENCE ON NATURAL ECOSYSTEMS 177, 190 (Gretchen C. Daily ed., 1997).

⁵ Jacques Delors, *Education: The Necessary Utopia*, in LEARNING: THE TREASURE WITHIN, REPORT TO UNESCO OF THE INTERNATIONAL COMMISSION ON EDUCATION FOR THE TWENTY-FIRST CENTURY 14, 15 (1996).

processes.⁶ From this perspective, functioning ecosystems are assets that “provide basic life support for human and animal populations and are the source of spiritual, aesthetic, and other human experiences that are valued in many ways by many people.”⁷ The term “ecosystem services” has been defined to identify the “wide range of conditions and processes through which natural ecosystems, and the species that are part of them, help sustain and fulfill human life.”⁸ The ecosystem services approach provides a critical understanding of ecosystems that recognizes not only the commodity values of goods produced by ecosystems but also the value of the essential services that ecosystem processes provide.

Cultural ecosystem services are particularly problematic. Cultural ecosystem services are generally vulnerable to displacement like other ecosystem services; still, they may be considered even more vulnerable due to their intangibility and complications in deriving an objective means of valuation.⁹ Yet, given the historical and place-based relationships between culture and ecosystems, cultural resources are quite valuable to their beneficiaries and often irreplaceable. In some cases, such as those ecosystem circumstances relating to recreational opportunities or scientific, educational, or economic events, the loss of particular cultural ecosystem services might be problematic due to their inherently local character of influence¹⁰ as cultural ecosystem services are not valued outside of the cultural norms and practices in which they are situated.¹¹ Either way, the loss of cultural ecosystem services is challenged by the difficulty in comparing commodity values of resource development to the cultural role that the resource might play: environments of cultural importance have typically given way, and cultural norms have been forced into the impossible task of adjusting.

This Article identifies the troublesome characteristics present in the analysis of cultural ecosystem services and considers how such a concept might play a role in the identification, regulation, and protection of such services. To introduce the topic, this Article first looks to a variety of ecological circumstances that suggest dependencies on ecologically situated cultural practices and values. By starting with the bio-physical circumstances of cultural resources, we can begin to identify beneficiaries and understand how these resources can be viewed

⁶ Gretchen Daily et al., *Ecosystem Services: Benefits Supplied to Human Societies by Natural Ecosystems*, ISSUES IN ECOLOGY, Spring 1997, at 1, 4; Robert Costanza et al., *The Value of the World's Ecosystem Services and Natural Capital*, 387 NATURE 253, 253 (1997); MILLENNIUM ECOSYSTEM ASSESSMENT, ECOSYSTEMS AND HUMAN WELL-BEING: SYNTHESIS, at v (2005).

⁷ SCIENCE ADVISORY BOARD, *supra* note 2, at 8.

⁸ Daily et al., *supra* note 6, at 2.

⁹ See Andra Milcu et al., *Cultural Ecosystem Services: A Literature Review and Prospects for Future Research*, ECOLOGY & SOC'Y, Sept. 2013, at 44.

¹⁰ MILLENNIUM ECOSYSTEM ASSESSMENT, ECOSYSTEM AND HUMAN WELL-BEING: POLICY RESPONSES 409 (Kanchan Chopra et al. eds., 2005).

¹¹ *Id.* at 413.

as providing cultural services. This Article then looks to some of the major threats to cultural resources, including laws that fail to prioritize cultural resource integrity and those intended to heighten awareness of and protection for these resources. As a means of facing the continuing challenges of cultural resource protection, this Article suggests a more specific consideration of cultural ecosystem services. Based on the potential for the ecosystem services approach to provide better information on the relationships between ecological function and cultural resources, this Article identifies a framework for inquiry into cultural services regulation that may help to analyze the real costs of development on cultural resources and understand how policy can be used to protect the cultural benefits of ecological functionality.

II. CULTURAL AND NATURAL RESOURCES

Ecological resources are vital to the cultural and social demands of human well-being. Natural sites such as trees, forests, mountains, rivers, lakes, and streams provide places where animals and plant species thrive and survive. In addition, depletion of natural resources not only challenges the survival of the ecosystem but can also have a significant impact on the integrity of cultural practices.¹² Natural sites “provide resources such as water and medicines . . . they are the location of events and ceremonies[.] . . . They link to livelihoods in many ways and the concepts of cultural services and human well-being are associated with them.”¹³

In the process of studying cultural practices, it is important to recognize that cultural resources have some type of objective value. However, it is equally (if not more) important to observe that the special meaning these resources imbue cannot be observed from afar. As anthropologist Clifford Geertz notes,

at least some conception of what a human individual is, as opposed to a rock, an animal, a rainstorm, or a god, is, so far as I can see, universal. Yet, at the same time . . . the actual conceptions involved vary from one group to the next, and often quite sharply.¹⁴

Place-specific study of culture, art, religion, and justice, among others, exposes differences and norms that are central to living in a place, but that may make less sense across boundaries.¹⁵ Of course, the point of

¹² Bas Verschuuren et al., *Introduction: Sacred Natural Sites the Foundations of Conservation*, in *SACRED NATURAL SITES: CONSERVING NATURE & CULTURE*, *supra* note 1, at 1.

¹³ *Id.* at 5.

¹⁴ CLIFFORD GEERTZ, *LOCAL KNOWLEDGE: FURTHER ESSAYS IN INTERPRETIVE ANTHROPOLOGY* 59 (1983).

¹⁵ “The differences *do* go far deeper than an easy men-are-men humanism permits itself to see, and the similarities *are* far too substantial for an easy other-beasts, other-mores relativism to dissolve.” *Id.* at 41.

inquiring into instances of place-based culture is not to extoll, so much as to recognize that culture arises in such ways.

A. Rocks

Connection to ecological resources arises in a felt sense of place, which can happen through stories, myths, and legends. For instance, anthropologist Miriam Kahn has studied community dynamics in Wamira, a village on the northern shore of the southeastern tip of Papua New Guinea, where the land is dry and hot.¹⁶ In the Wamiran culture, hunger can indicate need and neglect, as well as the Wamirans' relationship with the land, their people, and the lack of food.¹⁷ This connection to their village, or sense of place, stems from myths passed down through generations.¹⁸

Long ago, a young woman lived with her husband and child. Every day her husband went to the garden, but returned without any food. Being hungry, the woman boiled stones. She and her child drank the broth from the cooked stones. One day, angered by her husband's behavior, she decided to turn herself into a cassowary and leave. She constructed wings for herself from coconut fronds, knee caps from coconut husks, and legs from black palm sticks. That day, when her husband returned, she spread her wings and fled. In an attempt to call his wife back, he tempestuously hurled stones after her. But she escaped and now lives as a cassowary in the mountains behind Boianai.

Today, one can still see the stones in the village. There is a massive pile of stones, a full meter high, that is said to have accumulated as the hungry woman, each day, boiled them and tossed them aside. The boulders that her husband threw after her lie scattered along the path that leads from the village towards the mountains.¹⁹

The stones throughout the village and on the way to the mountain symbolize the importance of nurturing one another through food and care.²⁰ This myth, which has been passed down from generation to generation, fosters the importance of the Wamiran culture within their village.²¹

Another Wamiran myth explains both the placement and importance of a semi-submerged rock through an account of two sisters,

¹⁶ Miriam Kahn, *Your Place and Mine: Sharing Emotional Landscapes in Wamira, Papua New Guinea*, in SENSES OF PLACE 167 (Steven Feld & Keith H. Basso eds., 1996).

¹⁷ *Id.* at 173.

¹⁸ *Id.* at 174.

¹⁹ Miriam Kahn, *Stone-Faced Ancestors: The Spatial Anchoring of Myth in Wamira, Papua New Guinea*, 29 ETHNOLOGY 51, 55 (1990).

²⁰ *Id.*

²¹ *Id.*

Maradiudiva and Marakwativeta.²² This story memorializes the local significance of food sharing.²³

[E]ach time Maradiudiva went down to the sea to fetch salt water, her sister, Marakwativeta, with whom she lived, gobbled up all the food and later fabricated lies about relatives who had come and eaten it. Hungry and hurt, Maradiudiva walked in to the sea and turned into stone. Now, with her stony countenance, she stands all alone in the bay. As the tide rolls in and out, the Wamirans perceive Maradiudiva rising and descending; a steady reminder to all that social living hinges on the sharing of food.²⁴

This Wamiran myth, shared with generations, highlights the importance of sharing food and treating each other with care, and further illustrates the connection between culture and place.²⁵ The village is located on the tip of the Solomon Sea, and the ebb and flow of the sea is a constant reminder of how their sense of place relates to the culture of food, sharing, and history.

The challenge of cultural resource protection is in understanding the role of a rock formation in the local stories that are told about nature and natural events, just as it is to the formation of concepts of community, identity, trade, family, and even justice. Geological formations, water, local wildlife, and the like are the raw materials for local lore.

B. Mountains

As the highest features in landscape, with a seemingly perpetual and unmovable character, mountains have long been singled out as symbols of religious sacred resources. Religions often associate specific mountains with the highest values and ideals of culture²⁶ in ways that suggest mountains have influenced the development of religious ideals.²⁷ For instance, in North America, the Hopi tribe regard the San Francisco Peaks (Nuvatukya'ovi) as the dwelling place of the ancestral spirits (katsinas), invoked for the rains they can produce on the dry mountains of Colorado.²⁸ In the Judeo-Christian religion, Mount Sinai, also known as Mt. Horeb and Jebel Jusa, has stood as “the place where God made the most important covenant with the Jewish people and gave Moses the first five books of the Bible and the Ten

²² *Id.*

²³ *Id.*

²⁴ *Id.*

²⁵ *Id.*

²⁶ Edwin Bernbaum, *Sacred Mountains and Global Changes: Impacts and Responses*, in SACRED NATURAL SITES: CONSERVING NATURE & CULTURE, *supra* note 1, at 33, 33.

²⁷ *Id.* at 34.

²⁸ *Id.*

Commandments.”²⁹ The mountain is the center of a revered pilgrimage.³⁰

Likewise, Mount Kailas (or Kailash) in Tibet is considered the “centre of the universe and the abode of deities” to more than a billion Hindus and Buddhists.³¹ The mountain is revered as the most venerated holy place and is supremely sacred, but it is rarely visited because of its remote location.³² On Mount Kailas resides the Hindu god, Lord Shia, a “deity who has wisely integrated the extremes of human nature and thus transcended attachment to any particular, and limited, way of being.”³³ People of the Bon religion, Tibet’s pre-Buddhist, shamanistic religion, believe the Sky Goddess Sipaimen sits on top of the mountain as a symbol of spiritual liberation.³⁴

Mountains have provided the framework and totems for important religious and cultural resources and have had an undeniable impact on the manner in which cultures connect to their local environments:

Mountains function as sacred natural sites in three general ways. Firstly, certain mountains are singled out by religions, cultures and societies as traditional sacred mountains, their designation clearly indicated by webs of myth, ritual, practice and belief associated with them. Secondly, mountains or mountain ranges that may or may not be revered directly, take on more diffuse auras of sacredness from the smaller sacred sites they contain within them, such as groves, springs, rocks, and places associated with holy personages. Thirdly, in a looser way, mountains may inspire a sense of wonder and awe that makes them appear sacred in the eyes of particular groups or individuals.³⁵

In the meantime, mountain ranges supply important opportunities to recreate, experience different ecosystems, and admire elevated views.³⁶

²⁹ *Id.* See also *Exodus* 19:7–11 (King James).

³⁰ It may be interesting to note that there is no archaeological evidence that the peak of Jebel Musa on the Sinai Peninsula is the actual Mt. Sinai referenced in the Old Testament. *Mount Sinai, Egypt*, WORLD PILGRIMAGE GUIDE, <https://perma.cc/SP83-24R5> (last visited Apr. 11, 2020).

³¹ Edwin Bernbaum, *Sacred Mountains and Global Changes: Impacts and Responses*, in SACRED NATURAL SITES: CONSERVING NATURE AND CULTURE, *supra* note 1, at 33, 34.

³² *Mt. Kailash*, WORLD PILGRIMAGE GUIDE, <https://perma.cc/XUY6-UEL9> (last visited Apr. 11, 2020).

³³ *Id.*

³⁴ *Id.*

³⁵ Edwin Bernbaum, *Sacred Mountains and Global Changes: Impacts and Responses*, in SACRED NATURAL SITES: CONSERVING NATURE AND CULTURE, *supra* note 1, at 33, 34.

³⁶ For instance, Mount Rainier is one of the most massive volcanoes in the world, with its peak stretching nearly three miles in height. Carolyn Driedger & William Scott, *Mount Rainier – Living Safely with a Volcano in Your Backyard*, GEOLOGY.COM, <https://perma.cc/Y9JA-PF9F> (last visited Apr. 11, 2020). While Mount Rainier was growing, glaciers carved valleys on and around the mountain. *Geology of Mount Rainier National Park—Geologic Wonders*, US-PARKS.COM, <https://perma.cc/B35U-NAZJ> (last visited Apr. 11, 2020). The 25 major glaciers located here form the “largest collection of permanent ice on a single US mountain south of Alaska.” *Mount Rainier & Mount St. Helens Volcano Tour*, KENMORE AIR, <https://perma.cc/L4GZ-P2HZ> (last visited Apr. 11, 2020). Visitors of-

Because of the character of those connections, changes to mountainous regions from rising temperatures, loss of snow cover, rapid glacial retreat, and other effects of climate change are likely to alter the spiritual dimension of the mountains.³⁷

C. Islands

While mountains are the highest features in landscapes that serve as religious symbols, islands are among the lowest. Nihoa Island, a Northwestern Hawaiian Island, has more than eighty culture sites, including habitation terraces, bluff shelters, religious places, agricultural terraces, and burial caves.³⁸ The cultural places, known as wahi pana, are home to many cultural objects, known as mea makamae.³⁹ The Native Hawaiians of Nihoa Island use their lands for cultural fishing practices; essential to their fishing practices are coral reefs, which “supply substantial habitat for thousands of local species, provide essential marine nutrients . . . and have a special cultural meaning for Native Hawaiians.”⁴⁰

The Holy Island of Lindisfarne, located off the northeast coast of England, has been the center of a Christian holy site and pilgrimage since AD 635.⁴¹ The island is not only home to St. Cuthbert, one of the religion’s Nature Saints, it is also an important marine wetland and wildlife area.⁴² Lindisfarne is “one of Britain’s foremost Christian sacred natural sites and is the only one where national ecological values overlap with national religious and historical values.”⁴³ Ecologically-dependent values can make this island a center for tourism, which enhances the economy of the island, but also puts the local religious and community values at an increased risk.⁴⁴

ten travel here in July and August to see the wildflowers at their best. *Everything to Know About Mount Rainier National Park*, NAT’L GEOGRAPHIC, <https://perma.cc/P336-CQYK> (last visited Apr. 11, 2020).

³⁷ See Edwin Bernbaum, *Sacred Mountains and Global Changes: Impacts and Responses*, in SACRED NATURAL SITES: CONSERVING NATURE AND CULTURE, *supra* note 1, at 33, 35, 37.

³⁸ *Nihoa Island*, NORTHWESTERN HAWAIIAN ISLANDS MULTI-AGENCY EDUCATION PROJECT, <https://perma.cc/5GQX-QG3J> (last visited Apr. 11, 2020).

³⁹ *Id.*

⁴⁰ Jennifer Van Trump, *Protecting the ‘Rainforests of the Sea’: Creating the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve by Executive Order*, 11 PENN ST. ENVTL. L. REV. 273, 293 (2003).

⁴¹ Robert Wild, *Nature Saint and Holy Island, Ancient Values in a Modern Economy: The Enduring Influence of St Cuthbert and Lindisfarne, United Kingdom*, in SACRED NATURAL SITES: CONSERVING NATURE & CULTURE, *supra* note 1, at 77, 77.

⁴² *Id.*

⁴³ *Id.* at 85.

⁴⁴ *Id.*

D. Forests and Groves

Trees, forests, and groves are often treated as sacred natural sites to people all over the world. In addition to providing food, medicine, and shelter, trees offer a sense of place and communal consciousness in the development of customs and practices.⁴⁵ In some cultures, trees are planted to honor ancestors, as a symbol of marriage, or to celebrate a newborn.⁴⁶ In others, certain trees serve as a meeting place, are included in ceremonies, and even appear in national flags.⁴⁷ Some trees are decorated with rags and other items as prayer offerings.⁴⁸ The famous white oak in Georgia known as the Jackson tree, also called “the tree that owns itself,” bears a history of memories and properties that might be difficult to reproduce for other resources.⁴⁹ In particular, the unconventional act of deeding the tree and surrounding property to the tree itself is striking as a reflection on the tree’s importance.⁵⁰ The Bodhi tree, acknowledged in Buddhism for its relationship to the enlightenment of the Buddha, is referred to as the Tree of Enlightenment.⁵¹ The Tree of Knowledge in the Garden of Eden is

⁴⁵ *Baobab*, SIYABONA AFRICA, <https://perma.cc/BWN5-LWXR> (last visited Apr. 11, 2020).

⁴⁶ See, e.g., *Honoring Our Ancestors—Descendants Honor Enslaved Ancestor with Tree Planting & Blessing Ceremony*, L’OBSERVATEUR (Nov. 5, 2019), <https://perma.cc/SQ6M-R34U>; Treasure Cohen, *Tree-Planting Ritual*, RITUALWELL, <https://perma.cc/YP8J-CU6J> (last visited July 13, 2020) (“In ancient Israel, a tree was planted when a child was born—a cedar for a boy, a cypress for a girl. As the children grew up, they cared for their own trees. When they were married, the bridegroom and bride stood under a canopy made of branches cut from the trees that had been planted in their honor years before. Thus, the Jewish tradition formed a strong bond between birth and marriage, and helped to develop a love for trees and a sensitivity to the wonders of nature.”); McKinley Corbley, *Village in India Plants 111 Trees Whenever a Girl is Born*, GOOD NEWS NETWORK (Nov. 7, 2019), <https://perma.cc/6UR4-VS6T>.

⁴⁷ See generally JO WOOLF, *BRITAIN’S TREES: A TREASURY OF TRADITIONS, SUPERSTITIONS, REMEDIES AND LITERATURE* (2006). See, e.g., Jureerat Buakaew, *Beliefs and Rituals Related to Chao Bao Noi, a Sacred Tree on Khuan Sung Hill, Southern Thailand*, 39 KASETSART J. SOCIAL SCI. 143, 144 (2018) (“Every year, the community holds a ceremony to pay respect to Chao Bao Noi and to fulfill the vows they have made to the tree. This ceremony or ritual is regarded as a tradition that unites people in the community.”); *Flag of Lebanon – A Brief History*, FLAGMAKERS, <https://perma.cc/3MJV-SB87> (last visited Apr. 11, 2020).

⁴⁸ See, e.g., Kaushik Patowary, *Clootie Wells: The Celtic Wishing Trees*, AMUSING PLANET, <https://perma.cc/Y4RH-N9K6> (last visited Apr. 11, 2020).

⁴⁹ See Kyle Nazario, *See the Georgia Tree that Owns Itself*, ATLANTA JOURNAL-CONST. (Apr. 29, 2016), <https://perma.cc/S5U3-PHQU>.

⁵⁰ See Ian Harvey, *Strange but True: “The Tree that Owns Itself,”* VINTAGE NEWS (Feb. 26, 2018), <https://perma.cc/NU2T-FXC9>. Nevertheless, the example illustrates the effort to adapt property concepts to serve cultural needs.

⁵¹ See PETER MATTHIESSEN, *THE SNOW LEOPARD* 16–17 (1978) (“[A] Buddhist temple stands beside an ancient pipal [tree], descended from that *bodhi* tree, or ‘Enlightenment Tree.’”).

associated with the downfall of humans.⁵² In Zambezi Valley, a region of northern Zimbabwe, sacred forests have been more protected than other (non-sacred) forests because of the species and ecosystems present in the sacred forests.⁵³ More recently, however, changing social norms and beliefs, as well as increased pressure on resources, have resulted in a decline of many old (hundreds of years) sacred sites.⁵⁴

In Tanzania, there are over 920 protected forests in the Handeni and Mwanga district that serve as sacred sites to the people in those communities.⁵⁵ In Kalimantan, Indonesia, a study of sacred forests recognized that Iban people are traditionally animists and have strong rituals and beliefs, “many of which integrate closely with rice planting and harvesting.”⁵⁶ To celebrate their connection to the land and honor the souls of rice, the Iban hold an annual rice harvest festival, Gawai Dayak, including a rice spirit appeasement ceremony.⁵⁷ The study concluded that the sacred forests of Kalimantan, Indonesia contribute to this very unique tradition of the Iban people and found that “sacred sites played an important role in peoples’ livelihoods” in their everyday lives.⁵⁸

The sacred trees and forests found in these countries are often protected and managed by the local communities, but there has been a lack of recognition of the importance of these sacred natural resources by conservation practitioners.⁵⁹ Misunderstanding the importance of the sacred resources to the communities may be due to “traditional custodians maintaining secrecy as a form of protection or even a tenet of their faith.”⁶⁰ The forests are so important to the religious and cultural resources of the communities that the people are reticent to share their forests with outsiders.⁶¹

E. Water

Water plays a critical role in all cultures, as water is essential for life. Societies frequently exist along coastal and riparian areas for

⁵² See *About Genesis 3: The Garden of Eden Story: The Fall (or Perhaps Rise) of Humanity, & Original Sin*, RELIGIOUS TOLERANCE, <https://perma.cc/M8CY-JWY2> (last visited Apr. 11, 2020).

⁵³ Nigel Dudley et al., *Conservation of Biodiversity in Sacred Natural Sites in Asia and Africa: A Review of the Scientific Literature*, in SACRED NATURAL SITES: CONSERVING NATURE & CULTURE, *supra* note 1, at 19, 25.

⁵⁴ *Id.* at 26.

⁵⁵ *Id.* at 21.

⁵⁶ *Sea Dayak, Iban in Indonesia*, JOSHUA PROJECT, <https://perma.cc/9UUD-2WFD> (last visited Apr. 11, 2020).

⁵⁷ *Id.*

⁵⁸ Nigel Dudley et al., *Conservation of Biodiversity in Sacred Natural Sites in Asia and Africa: A Review of the Scientific Literature*, in SACRED NATURAL SITES: CONSERVING NATURE & CULTURE, *supra* note 1, at 19, 25.

⁵⁹ *Id.* at 26.

⁶⁰ *Id.*

⁶¹ *Id.*

convenient access to water and food, building materials, and other products.⁶² As an illustrative example of cultural dependency on water resources, the interrelationship between ancient Egypt and the Nile River produced deities in river creatures (such as the crocodile) and associated the Nile's plants and animals with biological and spiritual functions.⁶³ Moreover, the water itself played a central role in cultural practices: "The Nile was so important to the Egyptians that they assigned to the god Hapi responsibility for the river's annual inundation. Hapi and the Pharaoh were believed to control the flooding of the Nile. The river was also considered a causeway from life to death and the after-life."⁶⁴ The presence of water, the water cycle, the vegetation, and wildlife have been central to the development of cultural practices and values in Egypt, as elsewhere.

Water and water sources also provide symbolic, cultural meaning. In Christianity, religious people use holy water as a natural symbol of purification, specifically as a ritual to remove uncleanness.⁶⁵ The use of holy water stems back to the first half of the first millennium AD, when "[w]ells and springs were named for Christian saints and martyrs," thus making the water holy.⁶⁶ Many of these wells and springs have been kept safe from agricultural reformation because of the supposed healing qualities.⁶⁷

Cultural connections to water serve as an illustration of the degree to which societies adapt cultural practices to meet changes in the environment. For instance, in Ecuador, the Indigenous Quicha people living near the town of Cotacachi use glacial sacred springs and streams as a means of survival.⁶⁸ As the glaciers disappear and the rivers and springs dry up, the "elders believe that Mama Cotacachi, as they call the sacred peak, is angry at deforestation on the lower flanks of the mountain and has withdrawn glaciers and water as a form of punishment."⁶⁹ The Quichua appealed to shamans to perform rituals as a way to appease the mountain and awake the springs, but when that did not work, the shamans accused the change of the mountain as diminishing their powers as healers.⁷⁰

⁶² L. W. Mays et al., *Water for Human Consumption Through History*, in EVOLUTION OF WATER SUPPLY THROUGHOUT THE MILLENNIA 19, 19 (IWA Publishing, 2012).

⁶³ L. W. Mays & A. N. Angelakis, *Ancient Gods and Goddesses of Water*, in EVOLUTION OF WATER SUPPLY THROUGHOUT THE MILLENNIA, *supra* note 62, at 1, 3–4.

⁶⁴ Thymio Papayannis & Dave Pritchard, *Wetland Cultural and Spiritual Values, and the Ramsar Convention*, in SACRED NATURAL SITES: CONSERVING NATURE & CULTURE, *supra* note 1, at 180, 183.

⁶⁵ *Holy Water*, BRITANNICA, <https://perma.cc/4D3B-WMMC> (last visited Apr. 11, 2020).

⁶⁶ Denis Byrne, *The Enchanted Earth: Numinous Sacred Sites*, in SACRED NATURAL SITES: CONSERVING NATURE & CULTURE, *supra* note 1, at 53, 54.

⁶⁷ *Id.* Figure 5.1.

⁶⁸ See Edwin Bernbaum, *Sacred Mountains and Global Changes: Impacts and Responses*, in SACRED NATURAL SITES: CONSERVING NATURE & CULTURE, *supra* note 1, at 33, 35.

⁶⁹ *Id.* at 35.

⁷⁰ *Id.*

Likewise, waters in the United States bear a similar link to both history and present civilization. Consider the “surreal landscape[s] of vast salt flats”⁷¹ of Badwater Basin, the lowest point in North America that held waters “so stagnant and foul that [a prospector’s] mule refused to drink it, despite the extreme heat.”⁷² Or perhaps, the scenery of the Hudson River which continues to be celebrated for its roles in early pioneering efforts and artistic expression.⁷³

Further south, the Native Americans lived along the banks of the Mississippi River and used the river as a source of sustenance and transportation.⁷⁴ The Mississippi River is “one of the world’s most important commercial waterways and one of North America’s great migration routes for both birds and fishes.”⁷⁵ Today, the Mississippi is used recreationally by boaters, canoeists, hunters, and birdwatchers, and accounts for a large portion of the economy in the upper Midwest.⁷⁶

Niagara Falls State Park is the oldest state park in the United States and “3,160 tons of water flows over Niagara Falls every second.”⁷⁷ For more than 215 years, Niagara Falls has been called the “Honeymoon Capital of the World.”⁷⁸ The first honeymooners to visit Niagara Falls were Theodosia Alston, the daughter of Aaron Burr, and her husband back in 1801.⁷⁹ Today, thousands of honeymooners visit Niagara Falls each year and receive a complimentary “Honeymoon Certificate” issued by the mayor, Jim Diodati.⁸⁰

Back west, the Washoe Tribe, the ancestral inhabitants of Lake Tahoe, considered the lake to be a “sacred life-sustaining water” and the center of their world.⁸¹ The lake is currently designated an “Outstanding National Resource Water” under the Clean Water Act.⁸²

⁷¹ *Badwater Basin*, NAT’L PARK SERV., <https://perma.cc/WZ62-TSZN> (last visited Mar. 6, 2020).

⁷² *Badwater Basin*, LAST ADVENTURER (Feb. 26, 2016), <https://perma.cc/UE9F-WDEM>.

⁷³ See Rebecca Haynes, *A Region Steeped in History Preserves Its Past*, HISTORIC HUDSON RIVER TOWNS, <https://perma.cc/YMG4-KGC4> (last visited Mar. 6, 2020) (the “Hudson River School of Painting” continues to celebrate the rich history of the Hudson River).

⁷⁴ *Mississippi River Facts*, NAT’L PARK SERV., <https://perma.cc/3GAT-NRTK> (last visited Mar. 10, 2020).

⁷⁵ *Id.*

⁷⁶ *Id.*

⁷⁷ *Facts About Niagara Falls*, NIAGARA FALLS STATE PARK, <https://perma.cc/9C6R-C8NU> (last visited Mar. 10, 2020).

⁷⁸ *How Did Niagara Falls Become the Honeymoon Capital*, NIAGARA FALLS CANADA (July 3, 2018), <https://perma.cc/97YV-QMB6>.

⁷⁹ *Id.*

⁸⁰ *Id.*

⁸¹ *About Lake Tahoe*, U.S. ENVTL. PROT. AGENCY, <https://perma.cc/9LW9-JAEJ> (last visited Mar. 10, 2020).

⁸² *Id.*; Federal Water Pollution Control Act, 33 U.S.C. §§ 1251–1388 (2012).

F. Land and Landscape

Land and landscape are essential ingredients in the development and expression of cultural identity and are critical components in understanding spiritual beliefs, customs, practices, language, social institutions, and other instances of cultural difference. Yi-Fu Tuan notes that “[s]pace, a biological necessity to all animals, is to human beings also a psychological need, a social prerequisite, and even a spiritual attribute.”⁸³ As noted by the trial court in *Office of Hawaiian Affairs v. Housing and Community Dev. Corp. of Hawaii*:

‘Aina, or land, is of crucial importance to the [n]ative Hawaiian [p]eople—to their culture, their religion, their economic self-sufficiency and their sense of personal and community well-being. ‘Aina is a living and vital part of the [n]ative Hawaiian cosmology, and is irreplaceable. The natural elements—land, air, water, ocean—are interconnected and interdependent. To [n]ative Hawaiians, land is not a commodity; it is the foundation of their cultural and spiritual identity as Hawaiians. The ‘aina is part of their ‘ohana, and they care for it as they do for other members of their families. For them, the land and the natural environment is alive, respected, treasured, praised, and even worshiped.⁸⁴

The trial court’s description of the relationship between Hawaiian culture and land was bolstered by the testimony of Professor David Getches:

Land generally for native people—I am now speaking based on my knowledge of Indian tribes throughout the United States and the ones I have worked with—*land is generally extremely important as the very root of their culture. It is the homeland. It provides the basis for self determination, self expression. It is a source of identity. Who we are. As a people.* As people have said it to me. *It is a connection*, as well, *to one’s cultural roots*, going back to the ancestors that can be felt and who were known and the ancestors who were unknown and exist only in the spiritual world. That connects present day communities with one another, within those cultural roots. So *the land is symbolic* for that, whether it is for burial places or just the feeling that this is the place of importance.

Finally, *it is important for spiritual fulfillment, something we as non native people don’t feel, is the importance of place in a spiritual way.* I love certain places that I go and some that I own. But it is really quite different, having the land, water, nature connection that native people have. *I don’t like generalizations* about native groups. And what is common among them. *This is the only generalization I have found in over thirty-some years that*

⁸³ YI-FU TUAN, SPACE AND PLACE: THE PERSPECTIVE OF EXPERIENCE 58 (1977).

⁸⁴ 177 P.3d 884, 924 (Haw. 2008).

*holds up, that is, that there is a special spiritual connection with land among all native groups that I know.*⁸⁵

Land and landscape, like the other resources discussed in this section, provide a context in which we can grasp how people meet, fight, love, survive, and thrive—and how cultural meaning develops in a particular place. Hence, in 1984, Congress created the “Paria Canyon - Vermilion Cliffs Wilderness” in order to preserve the last remaining areas of “vast wilderness,” including the Coyote Buttes.⁸⁶ Coyote Buttes contains 112,500 acres of “outstanding scenery, desert wildlife, colorful history, and opportunities for primitive recreation[.]”⁸⁷ Tallgrass Prairie is revered for its ecosystem diversity, bearing over 500 species of plants.⁸⁸ Tallgrass prairie “once covered more than 170 million acres, from Canada through Texas” and eastward as far as Ohio.⁸⁹ The red mesas and buttes of Monument Valley are the iconic depictions of the American West, having been filmed and photographed throughout the years.⁹⁰ Bryce Canyon contains several “natural amphitheatres” carved into the edge of its plateau, the most famous of them being the “Bryce Amphitheater.”⁹¹ Bryce Canyon is enjoyed by over two million visitors each year, mostly between March and early October.⁹² The Grand Canyon encompasses 1,218,375 acres and provides a “record of three of the four eras of geological time.”⁹³ The Grand Canyon contains numerous caves “containing extensive and significant geological, paleontological, archeological and biological resources.”⁹⁴ In 2018, 6.3 million people visited the Grand Canyon National Park and spent \$947 million in the nearby communities.⁹⁵

III. LAW AND CULTURAL RESOURCES

The protection of cultural resources is complicated due to their location and intangibility relative to their competing values. As a

⁸⁵ *Id.* at 925.

⁸⁶ *Paria Canyon Permit Area*, U.S. DEPT INTERIOR, BUREAU LAND MGMT., <https://perma.cc/56BR-APYH> (last visited Mar. 3, 2020).

⁸⁷ *Coyote Buttes Permit Area*, U.S. DEPT INTERIOR, BUREAU LAND MGMT., <https://perma.cc/2BEC-JNWT> (last visited Mar. 3, 2020).

⁸⁸ *Tallgrass Prairie National Preserve*, NATURE CONSERVANCY, <https://perma.cc/TZP3-PQK3> (last visited Mar. 3, 2020).

⁸⁹ *Id.*

⁹⁰ *Monument Valley*, AM. SOUTHWEST, <https://perma.cc/464W-UWVT> (last visited Mar. 3, 2020).

⁹¹ *Bryce Canyon*, NAT'L PARK SERV., <https://perma.cc/LAG7-ZV4X> (last visited Mar. 3, 2020).

⁹² *Id.*

⁹³ *Grand Canyon*, NAT'L PARK SERV., <https://perma.cc/B6Z5-GK8D> (last visited Mar. 3, 2020).

⁹⁴ *Id.*

⁹⁵ *Tourism to Grand Canyon National Park Creates Economic Benefit*, NAT'L PARK SERV., (May 28, 2019), <https://perma.cc/G8CW-U4YU>.

simple, almost banal example, consider a hypothetical mature and stately oak tree in a residential neighborhood. A tree appraiser might identify an attractive market value for the tree based on the board-feet of lumber the tree might produce. From an urban forest perspective, an ecological economist might value the tree for the shade produced for the home, stormwater or air pollutant capture, or even the property value benefit derived from the aesthetics of such a tree. From a cultural perspective, we might also identify the value of the tree in terms of relevant events (e.g., I proposed to my partner under this tree and my children jump in its leaves in the autumn), recreational opportunities (e.g., I climb this tree), history, role in major storm events, or other constructs of cultural significance. As to the cultural meanings, the difficulties in identifying an appropriate valuation method include the task of considering what might qualify as a suitable replacement for the lost resources. Trade-offs between cultural resources and other goods are complicated: first, by the dilemma that if the tree served one purpose (e.g., cut and sent to market), the use might be to the exclusion of other opportunities;⁹⁶ and second, by the extent of the divergence such valuation takes from more conventional norms and practices.⁹⁷

In response to this dilemma, cultural resource protections have been addressed to varying degrees in statutes and the courts.⁹⁸ However, there remains a troubled relationship between cultural resources and the laws that skew the balance toward consumption and devastation of such resources.

A. Privatizing Cultural Ecosystem Services Through Property Rights

Property rights have established values that often complicate the aims of ecosystem protection and, in many instances, are incommensurable with the idea that cultural resources have real value. As a searching but relevant example, consider how the time-tested controversy of *Pierson v. Post*⁹⁹ favors privatization of property and individual rights and, in the process, ignores any meaningful dialogue about cultural values arising in the ecosystem.¹⁰⁰ If the law required

⁹⁶ See Heather Tallis & Stephen Polasky, *Assessing Multiple Ecosystem Services: An Integrated Tool for the Real World*, in NATURAL CAPITAL: THEORY AND PRACTICE OF MAPPING ECOSYSTEM SERVICES 34, 37 (Peter Kareiva et al. eds., 2011) (“[A] fundamental socio-economic truth is that a manager cannot simultaneously maximize returns for all sectors of society at once.”).

⁹⁷ *Id.* at 36.

⁹⁸ What are “Cultural Resources”?, NAT’L PRESERVATION INST., <https://perma.cc/8FAL-GF9S> (last visited Mar. 3, 2020).

⁹⁹ 3 Cai. R. 175 (N.Y. Sup. Ct. 1805).

¹⁰⁰ Keith H. Hirokawa, *Three Stories about Nature: Property, the Environment, and Ecosystem Services*, 62 MERCER L. REV. 541, 552–53 (2011) (proposing alternative outcomes for *Pierson v. Post* based on alternative legal schemes).

prioritization of cultural services, rather than privatization and property rights, the decision would look quite different.¹⁰¹

Recall the story of the foxhunt. Post was a committed, vested hunter who entered the forest with a team of hounds of imperial descent, intent on chasing down his quarry.¹⁰² He came prepared for the hunt. After what we imagine to be a grueling day of tracking and chasing, misfires, and near misses, Post came upon an interloper, Pierson, who was aware of the hunt and intervened to kill and capture the fox.¹⁰³ Pierson refused to hand over the prize, even as he was set upon by Post, leading to litigation.¹⁰⁴ In this story, Pierson emerges as the victor because the law of capture favors domination as a basis for a claim to property.¹⁰⁵ The court decided in favor of Pierson, finding that “pursuit alone vests no property or right in the huntsman; and that even pursuit, accompanied with wounding, is equally ineffectual for that purpose, unless the animal be actually taken.”¹⁰⁶ At base, converting the wild, wily fox from unowned to dominated—and in the meantime, transforming the fox from nature into some form that benefits humans under the rules of property and preference of the individual—is the goal of the rule of capture and is rewarded with the right to exclude others.

The rule of capture provides a foundation against which much of property law (and associated market valuation) adjudicates competing claims to things.¹⁰⁷ Domination is the key in a process that requires the claimant to establish that a claim is supported by conquer and depriving the thing of its natural liberty.¹⁰⁸ The rule of capture does not allow room for consideration of other, non-property interests. No consideration is given in the rule for the well-being of the fox, the ecological roles and responsibilities played by this creature or any symbolic value that the fox may have held before being killed. As such, it is worthwhile considering the effect on property rights if the controversy was portrayed in a different light.

We might envision a different decision based on different legal priorities. In this story, Post might be a victim because another person privatized the resource and interfered with the culturally significant activity of fox hunting. In this version of the story, we consider the benefits offered by the fox, the fox in an ecological context, and the manner in which human well-being was served by this resource prior to the intervention of the interloper. This version of the story recognizes that the existence and presence of the fox gave rise to the recreational

¹⁰¹ *Id.* at 553.

¹⁰² *Id.* at 542.

¹⁰³ *Pierson*, 3 Cai. R. at 175.

¹⁰⁴ *Id.*

¹⁰⁵ *Id.* at 177 (defining possession of a wild animal as “occupancy,” and defining “occupancy” as “actual [physical bodily] possession”).

¹⁰⁶ *Id.*

¹⁰⁷ See Hirokawa, *supra* note 100, at 545–47 (proposing alternative outcomes for *Pierson v. Post* based on alternative legal schemes).

¹⁰⁸ *Id.* at 545.

and social practice of the foxhunt, an activity of some cultural significance.

The traditional sport of foxhunting originated in England when a Norfolk farmer attempted “to catch a fox using farm dogs in 1534.”¹⁰⁹ From this one farmer’s attempt to catch a fox, foxhunting evolved into a prestigious sport.¹¹⁰ Hunters went from using farm dogs to imperial hounds and donned traditional uniforms including “a scarlet (“pink”) coat with a white stock (cravat) and black velvet cap for the master, huntsman, and whippers-in.”¹¹¹ In England, the hunt was about the kill more than the chase. As foxhunting migrated to America, it “evolved its own distinct flavor which [was] noticeably different from the British. The most obvious difference [was] that in North America the emphasis [was] on the chase rather than the kill.”¹¹²

In the American heritage of foxhunting, with the emphasis on the chase rather than the kill, the activity appears as a social and recreational practice.¹¹³ For Post, foxhunts in the woods may have been his “important means of relaxation, de-stressing and recharging [his] energies for future challenges. . . . [And also, for] socialising and sustaining friendships, of learning new skills, and generally raising the quality of life, self-esteem and confidence.”¹¹⁴ We might imagine that foxhunts for Post were his pastime and his passion. Post was connected to the woods, to the chase, to the social practice, and to all of the incidents of sense of place and self that can be attributed to such an activity. Post *may* have felt harmed by leaving the hunt empty-handed, but *he was also injured by Pierson’s interference with the foxhunt*. Pierson interfered with Post’s recreation, his social event, and any future opportunities to engage in such activities. Regardless of one’s personal view on foxhunting, it is a different question to consider the effect of Pierson’s privatization of the fox and devastation of the hunt.

Of course, explaining cultural resources in this way is not entirely honest, at least because the question of ecosystem and cultural resource disruption was not a question before the court. Rather, the parties argued about the fox as property, and the rule of capture asks only which of the parties has dominated the creature.¹¹⁵ Yet in large part, property law prevents the court from addressing the alternative, culture-based valuation of natural resources. Nevertheless, it also

¹⁰⁹ Ben Johnson, *Fox Hunting in Britain*, HISTORIC UK, <https://perma.cc/55NT-4GGZ> (last visited Mar. 10, 2020).

¹¹⁰ *Foxhunting*, BRITANNICA, <https://perma.cc/2VWW-DGQK> (last visited Mar. 10, 2020).

¹¹¹ *Id.*

¹¹² *History of American Foxhunting*, MASTERS OF FOXHOUNDS, <https://perma.cc/2FD5-ATEU> (last visited Mar. 3, 2020).

¹¹³ *Id.*

¹¹⁴ Peter Clough, *The Value of Ecosystem Services for Recreation*, N.Z. INST. OF ECON. RESEARCH 330, 332 (2013).

¹¹⁵ See generally *Pierson*, 3 Cai. R. 175, 182 (N.Y. Sup. Ct. 1805). (discussing the rule of capture regarding fox hunting).

illustrates the difficulties relevant to prioritizing cultural resources where individual rights and cultural practices collide.

B. Federal Laws Designed to Aid in the Protection of Cultural Resources

Congress has recognized the historical, educational, and social roles played by particular cultural resources and has adopted a variety of laws aimed at offering protection for cultural resources of importance. For instance, in 1906, Congress passed the Antiquities Act,¹¹⁶ which gave the President the authorization “to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interests that are situated upon the lands owned or controlled by the Government of the United States to be national monuments.”¹¹⁷ In 1966, Congress passed the National Historic Preservation Act (NHPA)¹¹⁸ “to encourage the preservation and protection” of cultural and historic resources in America.¹¹⁹ Likewise, the Historic and Archaeological Data Protection Act of 1974 (HADPA)¹²⁰ requires that a federal agency notify the Secretary if the agency finds the existence of significant historic data that could be lost or destroyed as the result of the agency’s project.¹²¹ In addition, Congress has passed laws to protect cultural dependencies on particular natural areas, such as the National Park Service Organic Act of 1916¹²² and the National Wildlife Refuge System Administration Act of 1966.¹²³

Congress and the courts have developed the protection afforded under these broad laws to thwart action that would impair the identified values in the resources. However, such laws have failed to reach common cases where competing interests of exploitation and use have undermined the cultural integrity of specific places and practices. Conversion of lands historically farmed by the Hispanos in New Mexico, combined with failure or refusal of the U.S. government to confirm their

¹¹⁶ Antiquities Act of 1906, 54 U.S.C. §§ 320301–320303 (2014).

¹¹⁷ *Id.* § 320301.

¹¹⁸ National Historic Preservation Act, 16 U.S.C. § 470 (1966).

¹¹⁹ See Walter E. Stern & Lynn H. Slade, *Effects of Historic and Cultural Resources and Indian Religious Freedom on Public Lands Development: A Practical Primer*, 35 NAT. RESOURCES J. 133, 136 (1995) (citing *Indiana Coal Council, Inc. v. Lujan*, 774 F. Supp. 1385, 1387 (D.D.C. 1991)).

¹²⁰ Historic and Archaeological Data Protection Act of 1974, Pub. L. No. 93-291, 88 Stat. 174 (codified as amended at 16 U.S.C. §§ 469–469c (1988)).

¹²¹ See Stern & Slade, *supra* note 119, at 173.

¹²² 16 U.S.C. § 1 (2012). This Act authorizes the Director of the National Park Service to promote and regulate conservation by protecting scenery, natural and historic objects, and wildlife, leaving them unimpaired for the enjoyment of future generations. *Id.* The Act states that “[t]he Secretary has an absolute duty, which is not to be compromised, to fulfill the mandate of the 1916 Act to take whatever actions and seek whatever relief as will safeguard the units of the National Park System.” *Sierra Club v. Andrus*, 487 F. Supp. 443, 448 (D.D.C. 1980) (internal quotations omitted).

¹²³ 16 U.S.C. §§ 668dd–668ee; National Wildlife Refuge System Administration Act, U.S. FISH & WILDLIFE SERV., <https://perma.cc/V4EZ-7T3K> (last updated Nov. 7, 2017).

claims, has undermined their self-determination and place.¹²⁴ Overfishing, human presence, and management disputes are continuing to take a severe toll on culturally significant sites, including habitation terraces, bluff shelters, religious places, agricultural terraces, and burial caves.¹²⁵ The Dakota Access pipeline approvals threatened special areas where the Standing Rock Sioux Tribe “lived, loved, worshipped, and mourned wherever the buffalo roamed. These people created stone alignments, burial cairns, and other rock features throughout the area to conduct important spiritual rituals related to the rhythms of their daily life.”¹²⁶ Federal land management, including mining and reclamation, has resulted in dispossession and displacement as an assault on Native American culture and religion.¹²⁷ As in most conflicts involving resource extraction and development, mining operations are often characterized as imbalances of power, underlined by differences in perspective.¹²⁸ In one study of the conflicts between mining and culture in Ghana, the authors report on the “battleground” contests:

It is a form of interaction where there is enormous power and relational inequality between companies and communities. Companies wield considerable resources (legal, financial) both in size and potency while communities are poor and weak with limited impact. Thus[,] people have resorted to publicly opposing mining operations and often resort to violent agitations resulting in deep rooted disputes. In certain instances, mining companies have insisted these suggestions from local groups are perceptive, misguided and instigated by environmentalists who blind their eyes to what gold mining present[s] to these communities and their territory.¹²⁹

In the meantime, climate changes are expected to result in changing economic trends, demographic shifts, increased vulnerabilities to storm surges, and to force changes to cultural practices that rely on ecological circumstances.¹³⁰ Disappearing glaciers, forests, and

¹²⁴ See John Schelhas, *Race, Ethnicity, and Natural Resources in the United States: A Review*, 42 NAT. RESOURCES J. 723, 731–32 (2002).

¹²⁵ See *Nihoa Island*, PAPAĀNAUMOKUĀEA MARINE NATIONAL MONUMENT <https://perma.cc/F2SG-WYCW> (last updated Feb. 20, 2019); Jennifer Van Trump, *Protecting the ‘Rainforests of the Sea’: Creating the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve by Executive Order*, 11 PENN ST. ENVTL. L. REV. 273, 288, 293 (2003).

¹²⁶ *Standing Rock Sioux Tribe v. U.S. Army Corps of Eng’rs*, 205 F. Supp. 3d 4, 12 (D.D.C. 2016) (internal quotations omitted).

¹²⁷ Robert Charles Ward, *The Spirits Will Leave: Preventing the Desecration and Destruction of Native American Sacred Sites on Federal Land*, 19 ECOLOGY L.Q. 795, 805–06 (1992).

¹²⁸ Seth Opoku Mensah & Seth Asare Okyere, *Mining, Environment and Community Conflicts: A Study of Company-Community Conflicts over Gold Mining in the Obuasi Municipality of Ghana*, 5 J. OF SUSTAINABLE DEV. STUD. 64, 66 (2014).

¹²⁹ *Id.*

¹³⁰ U.S. GLOB. CHANGE RESEARCH PROGRAM, FOURTH NATIONAL CLIMATE ASSESSMENT: VOLUME II: IMPACTS, RISKS, AND ADAPTATION IN THE UNITED STATES: REPORT-IN-BRIEF 12, 15–17 (2018).

waterfalls will have severe cultural impacts on economic, recreational, and aesthetic resources.¹³¹ Most importantly, as communities adapt to such changes (including and especially where communities are aided in the adaptation process), the local relationship to the local environment also transforms, often by abandoning their cultural identities. The United States Global Change Research Program (USGCRP), in the recent Fourth National Climate Assessment, reports:

Many Indigenous peoples have lived in particular areas for hundreds if not thousands of years. Indigenous peoples' histories and shared experience engender distinct knowledge about climate change impacts and strategies for adaptation. Indigenous peoples' traditional knowledge systems can play a role in advancing understanding of climate change and in developing more comprehensive climate adaptation strategies. . . .

. . . .

Climate impacts to lands, waters, foods, and other plant and animal species threaten cultural heritage sites and practices that sustain intra- and intergenerational relationships built on sharing traditional knowledges, food, and ceremonial or cultural objects. This weakens place-based cultural identities, may worsen historical trauma still experienced by many Indigenous peoples in the United States, and adversely affects mental health and Indigenous values-based understandings of health.¹³²

Climate change looms ahead, largely unabated by the governmental decision-making process,¹³³ threatening not just ecosystem dependencies, but cultural existence itself.¹³⁴

The difficulties arising in the law affecting cultural resources protection are both structural and functional. In many ways, the idea of national standards, national agencies, and national protection for cultural ecosystem resources institute a limited framework for understanding the relationship between ecology and human

¹³¹ For instance, Glacier National Park houses ice formations that have existed for more than 7,000 years. Nadja Popovich, *Mapping 50 Years of Melting Ice in Glacier National Park*, N.Y. TIMES (May 24, 2017), <https://perma.cc/25Z6-44WC> ("The Park's most visited glacier, Grinnell, lost 45 percent of its footprint—more than 100 acres—from 1966 to 2015.").

¹³² U.S. GLOB. CHANGE RESEARCH PROGRAM, *supra* note 130, at 105.

¹³³ *Id.*

¹³⁴ E. Rania Rampersad, *Indigenous Adaptation to Climate Change: Preserving Sustainable Relationships through an Environmental Stewardship Claim & Trust Fund Remedy*, 21 GEO. INT'L ENVTL. L. REV. 591, 592–93 (2009). The indigenous community is most vulnerable to climate change because of the following: (1) the people are economically disadvantaged, have little access to the governmental decision-making process, and have an intimate connection with the land that is easily disrupted; (2) their livelihood, cultural identity, and religious ceremonies are threatened with extinction; (3) their culture is "an irreplaceable part of the rich diversity of human thought, art, and religion . . . [and they] often have vast and unique knowledge of ecosystems[.]" and (4) threats to indigenous people are indicative of the "looming threat of climate change to humankind." *Id.* at 594–95.

beneficiaries. In important ways, culture and ecology are inherently local. It is essential to recognize that broad brush protections such as those included in federal natural resource statutes may correspond with the way we experience places from afar – like a flag or a song, or places of national importance that carry more symbolic than experienced meaning.¹³⁵ Although one may feel a personal sense of connection to a place from seeing a picture or hearing a story, or even through an occasional but infrequent instance of physically interacting with the place, national special places are more conceptual in importance. We value these as a nation because they are symbolic of a common interest in a common value. In contrast, many cultural ecosystem services involve local beneficiaries and recognizing such services focuses on the way that value is created in the context (e.g., community) in which that service has real meaning. On a local level, individuals experience surroundings, environments, and ecosystems. We interact with wildlife locally, we explore the woods locally, we swim in local swimming holes. As a local matter, ecosystems serve cultural needs in a way that is very personal and tangible.

Moreover, although the current litany of laws and regulations accomplishes some laudable cultural resource protections, the system lacks predictability and coherence relative to the benefits of cultural resources. In some cases, cultural resources are not considered important enough for protection when compared to other, incompatible uses for the resource.¹³⁶ In other cases, where consumptive uses are presumptively at odds with the resource values, resources are protected to such a great extent that the protections may be seen to diminish the public support for, and understanding of, protection.¹³⁷ In most controversies over cultural resource protection, the cultural resource is objectified¹³⁸ and valued without sufficient regard for place, context, and the environmental circumstances that underlie the cultural practice or value.¹³⁹

¹³⁵ See TUAN, *supra* note 83, at 176–77.

¹³⁶ *Cultural Resource Management Guideline*, NAT'L PARK SERV., <https://perma.cc/J9GY-P85U> (last visited May 7, 2020).

¹³⁷ See Robert L. Fischman & Jeremiah I. Williamson, *The Story of Kleppe v. New Mexico: The Sagebrush Rebellion as Un-Cooperative Federalism*, 83 U. COLO. L. REV. 101, 123 (2011) (detailing battles over federal natural resource management). See generally Keith H. Hirokawa, *Property Pieces in Compensation Statutes: Law's Eulogy for Oregon's Measure 38* 38 ENVTL. L. 1111 (2008) (examining libertarian strategies to undermine environmental and land use regulation by state and local governments).

¹³⁸ See MILLENNIUM ECOSYSTEM ASSESSMENT: ECOSYSTEMS AND WELL-BEING: POLICY RESPONSES, *supra* note 10, at 404 (“Much of the thinking on nature conservation and ecosystem management is still based on separating nature from culture. . . . Building a vision for the new millennium on the environment requires overcoming the dichotomy of nature versus culture, the perception that natural and anthropogenic landscapes are mutually exclusive, and instead building respect for the diversity of perspectives on environmental conservation and management.”).

¹³⁹ As noted in the Millennium Ecosystem Assessment, “Many natural resource management systems and conservation strategies still separate people from their environ-

IV. AN ECOSYSTEM SERVICES APPROACH TO CULTURAL RESOURCES

An ecosystem services approach to cultural resource protection could focus attention on connections between ecosystems and particular cultural practices. Ecosystem services research facilitates a place-based valuation and often establishes a valuation process that allows decisionmakers to consider comparative benefits and costs for resource uses. Ultimately, ecosystem services account for the costs of losing resources.

A. *Ecosystem Services*

Recently, an increased interest in the relationships between human well-being and functioning ecosystems has produced a wealth of knowledge on the value of ecosystem functions.¹⁴⁰ Referred to as “ecosystem services,” this approach combines the insights of ecology and economics to focus on the ways that functioning ecosystems produce benefits to human well-being.¹⁴¹ The result is a valuation of ecosystems that reaches beyond the values derived from the marketplace: where the market focuses on the commodity values of goods taken from ecosystems (e.g., crops, building materials), an ecosystem services approach identifies the value of ecosystem processes as they are essential for human life.¹⁴² Hence, when the term “ecosystem services” is defined as the “wide range of conditions and processes through which natural ecosystems, and the species that are part of them, help sustain and fulfill human life,”¹⁴³ the term is intended to broadly conceive of the manner in which ecosystems produce and maintain conditions that benefit humans.

Ecosystem services have been generally ignored in the marketplace:¹⁴⁴ ecosystem services “have no market value for the simple reason that no markets exist in which they can be exchanged.”¹⁴⁵ Hence, land values in the market are seldom increased *because of* the functions and ecological roles of wetlands or forests, except to the extent that these features can be converted into saleable goods.¹⁴⁶ Indeed, such environmental features are typically removed in the development of

ments, freezing and stereotyping both cultures and ecosystems. Such systems and strategies are less effective in addressing linkages between ecosystem functioning, development, and human well-being.” *Id.* at 417–18.

¹⁴⁰ See, e.g., Robert Costanza, et al., *supra* note 6, at 253.

¹⁴¹ *Ecosystem Services*, U.S. DEP’T OF AGRIC., <https://perma.cc/L5KS-HJ88> (last visited Mar. 27, 2020).

¹⁴² In other words, “without ecosystem services, we all die.” J.B. RUHL ET AL., *THE LAW AND POLICY OF ECOSYSTEM SERVICES* 57 (2007).

¹⁴³ Daily et al., *supra* note 6, at 2.

¹⁴⁴ James Salzman et al., *Protecting Ecosystem Services: Science, Economics, and Law*, 20 STAN. ENVTL. L. J. 309, 311 (2001).

¹⁴⁵ *Id.* at 312.

¹⁴⁶ See *id.*

land into the built environment.¹⁴⁷ Yet, an ecosystem services approach recognizes that such environmental features are valuable when left in place, such as through filtration of air and water pollutants, storm surge protection, and other services provided by wetlands and forests that we will miss in the conversion of land to another use.¹⁴⁸ The thrust of ecosystem services research is to recognize that ecosystems can only continue to produce goods and provide services if they are functioning, an alternative that is not represented in other economic models.¹⁴⁹

Ecosystem services illustrate the value of ecosystem processes according to the benefits provided, including the roles of particular ecosystem components or processes in providing such benefits. Ecosystem services have been classified more specifically into four primary areas to reflect the depth and pervasiveness of ecosystem processes: provisioning services, regulating services, cultural services, and supporting services.¹⁵⁰ Provisioning services generally include the production of goods, such as the wetlands processes that filter contaminants from water and produce goods that we use as food, fuel, and other consumables.¹⁵¹ Regulating services include the benefits stemming from the processes that regulate ecosystem interactions and other processes, including the regulation of air and water quality, erosion, climate, waste treatment, disease, pests, pollination, and natural hazards.¹⁵² Supporting services are essential for the manner in which they facilitate other ecosystem services.¹⁵³ Supporting services provide indirect and sustained benefits, in contrast to the direct and short-term impacts caused by other types of ecosystem services.¹⁵⁴ Finally, cultural services benefit people in nonmaterial ways, such as by providing opportunities to build on a sense of self and place, for reflection and spiritual enrichment, and for cognitive development.¹⁵⁵

B. A Special Category: Cultural Services Provided by Ecosystems

The idea of cultural ecosystem services groups together a variety of benefits that humans derive from local ecosystems. This category might include the ways that nature provides scientific and educational opportunities, recreational opportunities, aesthetic values, and opportunities for the development of social relations.¹⁵⁶ However, the category also encompasses the less tangible benefits that we derive from

¹⁴⁷ See Daily et al., *supra* note 6, at 1.

¹⁴⁸ See Salzman et al., *supra* note 144, at 310.

¹⁴⁹ See *id.* at 312.

¹⁵⁰ Stephen Farber et al., *Linking Ecology and Economics for Ecosystem Management*, 56 BIOSCIENCE 121, 123 (2006).

¹⁵¹ *Id.*

¹⁵² *Id.*

¹⁵³ MILLENNIUM ECOSYSTEM ASSESSMENT, *supra* note 6, at 40.

¹⁵⁴ *Id.*

¹⁵⁵ *Id.*

¹⁵⁶ *Id.*

natural systems, such as a sense of place and identity, cultural diversity, religious icons, attachments to nature, and psychological influences on our emotional well-being that we find in nature.¹⁵⁷ A cultural ecosystem services perspective may help to identify the benefits that ecosystems provide in terms of history, place, identity, science, and philosophy. These services help humans—in particular, situated individuals—to understand *who* they are and *where* they are:

Cultural services are tightly bound to human values and behavior, as well as to human institutions and patterns of social, economic, and political organization. Thus perceptions of cultural services are more likely to differ among individuals and communities than, say, perceptions of the importance of food production.¹⁵⁸

Cultural ecosystem services provide benefits that are variously appreciated in direct and indirect ways. Peter Clough has inventoried a simple outline of recreational activities to illustrate a range of recreational benefits derived from ecosystems:

- Activities dependent on extractable natural resource stocks, such as fishing, hunting and other forms of collecting
- Non-extractive activities carried out in settings created by natural ecosystems, such as
 - Land-based activities like tramping, mountain biking, horse trekking, camping
 - Water-based activities, such as swimming, beach-bathing, canoeing, sailing
 - Motorized activities such as trail biking, four-wheel-drive vehicles, motor boating, or driving in scenic areas
 - Passive recreations such as picnicking, strolling, sunbathing or sightseeing in setting defined by natural ecosystems.¹⁵⁹

Not all people engage in such activities, but the availability of such opportunities helps to characterize an area or region, as does the absence of such opportunities.

Of course, not all cultural resources are so easily organized. Although some cultural services are directly felt, like recreational opportunities in the environment, “[t]he physical, emotional, and mental benefits produced by cultural ecosystem services are often subtle and

¹⁵⁷ *Id.*

¹⁵⁸ MILLENNIUM ECOSYSTEM ASSESSMENT: ECOSYSTEMS AND HUMAN WELL-BEING: A FRAMEWORK FOR ASSESSMENT 59 (2005).

¹⁵⁹ Clough, *supra* note 114, at 331.

intuitive in nature and implicitly expressed through indirect manifestations.”¹⁶⁰ Research has suggested that visual access to vegetation may play a role in the speed and quality of recovery from surgery¹⁶¹ and that roadside plantings may reduce stress that come from driving and congestion.¹⁶² Likewise, the cultural resources identified above in this paper detail the variety of religious, spiritual, and other psychological benefits that human societies have derived from ecosystems.

It might be understandable that cultural ecosystem services have been largely unattended in legal, political, and scientific research.¹⁶³ First, from an outsider’s perspective, certain cultural services may be difficult to ascertain¹⁶⁴ because they are often “bundled” with other services.¹⁶⁵ Although aesthetics are critical for visitors who may seek a variety of recreational, spiritual, and other cultural experiences related to the landscape, cultural ecosystem services are often appreciated quite locally. For instance, recreation is important for tourism as a source of income and as an important source of identity and recreation for local communities.¹⁶⁶ The difficulties in valuing cultural ecosystem services are more complicated when we consider the geographical dependency and temporal variability of the value of ecosystem services.¹⁶⁷ The real value of such services will depend on the manner in which the benefits

¹⁶⁰ Andra Ioana Milcu et al., *Cultural Ecosystem Services: A Literature Review and Prospects for Future Research*, 18 *ECOLOGY & SOC’Y* 44, 44 (2013).

¹⁶¹ Roger S. Ulrich, *View Through a Window May Influence Recovery from Surgery*, 224 *SCI.* 420, 421 (1984).

¹⁶² Jean Marie Cackowski & Jack L. Nasar, *The Restorative Effects of Roadside Vegetation: Implications for Automobile Driver Anger and Frustration*, 35 *ENV’T & BEHAV.* 736, 738 (2003).

¹⁶³ See MILLENNIUM ECOSYSTEM ASSESSMENT, *supra* note 158, at 56 (“[W]hen people refer to ‘ecosystem goods and services,’ cultural values and other intangible benefits are sometimes forgotten.”).

¹⁶⁴ See generally Jonathan Rosenbloom & Keith H. Hirokawa, *Foundations of Insider Environmental Law*, 49 *ENVTL. L.* 631, 633 (2019).

¹⁶⁵ Nigel Cooper et al., *Aesthetic and Spiritual Values of Ecosystems: Recognising the Ontological and Axiological Plurality of Cultural Ecosystem ‘Services’*, 21 *ECOSYSTEM SERVICES* 218, 219 (2016) (“Several explanations for this limited attention to CES may be offered. Cultural services are often not discrete, but bundled up with others, e.g. Canadian salmon have cultural values as well as food value, they are not easily localised, and changes in them are not measurably marginal or well-correlated with other ecosystem services; CES are everywhere and nowhere. This makes them hard to quantify, let alone price, and so attention mostly goes to CES like recreation that are easy to measure.”).

¹⁶⁶ Uta Schirpke et al., *Cultural Ecosystem Services of Mountain Regions: Modelling the Aesthetic Value*, 69 *ECOLOGICAL INDICATORS* 78, 86 (2016).

¹⁶⁷ For example, “[c]onsider savanna ecosystems suited to grazing livestock. The service of supplying forage would be valued only in those geographic areas (now a substantial portion of the land surface) where human societies graze livestock.” Gretchen C. Daily, *Valuing and Safeguarding Earth’s Life-Support Systems*, in *NATURE’S SERVICES: SOCIETAL DEPENDENCE ON NATURAL ECOSYSTEMS* 365, 366–67 (Gretchen C. Daily ed., 1997). Moreover, livestock are not uniformly valued throughout a region, nation, or the planet. *Id.* at 367.

are needed and felt.¹⁶⁸ The contingencies of location apply to other services, especially cultural ecosystem services.

Second, cultural ecosystem services stand out among ecosystem services for their intangibility.¹⁶⁹ Beyond the provision services that a situated community relies on, natural ecosystems also provide a physical and relational “basis of culture” that grounds common identities and goals.¹⁷⁰ In the context of communities situated in marine environments, “[t]he transmission of cultural information about the habits of marine animals and about the ecosystem processes that organize nature forms a centerpiece of traditional society and culture for these and many other native peoples.”¹⁷¹ In the meantime, communities and individuals find symbols of religious and spiritual importance in the processes that drive functioning ecosystems.¹⁷² As such, although there are obvious overlaps and feedbacks, there is likely a difference between localized and more regional or national valuations for this type of service.¹⁷³ Where cultural ecosystem services are enjoyed and appreciated in common, their loss is more readily targeted for replacement and protection.¹⁷⁴ Individually appreciated services, in contrast, might be less objective and more difficult to objectify.

Cultural ecosystem services diverge from many ecosystem services in the way that the services benefit human well-being: in contrast to many ecosystem services, such as photosynthesis or pollination, the loss of cultural services is not easily compared to economic valuations of other services. In many cases, cultural biases result in divergent prioritizations for particular uses, resulting in different views about the necessity of cultural services.¹⁷⁵ Although there is some belief that including socio-psychological values such as cultural ecosystem services is practical because it appeals to such a broad array of perspectives on how ecosystems benefit communities,¹⁷⁶ because cultural ecosystem

¹⁶⁸ See Clough, *supra* note 114, at 341. (“The challenge for recreational management is in decision-making in a world where tastes change and the supply of information lags behind the demands made on the infrastructure of recreation settings and facilities.”).

¹⁶⁹ Intangibility is a critical component of cultural services. Kai M. A. Chan et al., *Cultural Services and Non-Use Values*, in NATURAL CAPITAL: THEORY AND PRACTICE OF MAPPING ECOSYSTEM SERVICES 206, 207 (Peter Kareiva et al. eds., 2011). See also, Milcu et al., *supra* note 160 at 44.

¹⁷⁰ See Peterson & Lubchenco, *supra* note 4, at 189.

¹⁷¹ *Id.* at 189–90.

¹⁷² *Id.* at 190.

¹⁷³ See N. Small et al., *The Challenge of Valuing Ecosystem Services That Have No Material Benefits*, 44 GLOBAL ENVTL. CHANGE 57, 62 (2017).

¹⁷⁴ *Id.*

¹⁷⁵ See Schirpke et al., *supra* note 166, at 85 (describing how some studies have shown that “tourists are more open to natural reforestation than local people, [while] the results of [other studies] indicate differences in the perception of increasing forest areas related to the cultural background”).

¹⁷⁶ See Milcu et al., *supra* note 160, at 52 (recognizing “that including immaterial benefits in the management of natural resources can improve the social acceptance and legitimacy of management decisions”).

services are so susceptible to being characterized as intangible, it has been difficult to assess the value or capture the precise nature of the service rendered.¹⁷⁷

Given the foregoing, it is understandable that most cultural ecosystem services are rarely reflected in economic indicators such as market value,¹⁷⁸ research on valuation methods has been selective,¹⁷⁹ and, in many cases, the displacement of cultural practices is incentivized.¹⁸⁰ On the other hand, some cultural benefits are easier to identify. Peter Clough reports on the following research on the economic value provided by recreation:

- Economic contribution, sometimes expressed as the direct and indirect (multiplier) impacts arising from investment in the recreation base of parks, trails, facilities, etc.
- Welfare benefits, expressed through participants' willingness to pay for the recreation themselves

¹⁷⁷ See *id.* at 44–46; see also Schirpke et al., *supra* note 166, at 79 (“Although the development of ecosystem services indicators is progressing rapidly, the assessment of cultural ecosystem services continues to be difficult because of their subjective and intangible character.”).

¹⁷⁸ Milcu et al., *supra* note 160, at 44 (noting that ecosystem services losses are excluded from market considerations); Lawrence H. Goulder & Donald Kennedy, *Interpreting and Estimating the Value of Ecosystem Services*, in NATURAL CAPITAL: THEORY AND PRACTICE OF MAPPING ECOSYSTEM SERVICES 15, 15 (Peter Kareiva et al. eds., 2011) (“Many of the critical ecosystem services generated by natural capital (such as pollination services, flood control, water filtration, and provision of habitat for biodiversity) are externalities – they are not given a price in markets. As a result, unfettered markets often lead to the compromising or collapse of ecosystems, much to the detriment of human welfare. Oftentimes society would benefit from greater protection of ecosystems and their services than results from unregulated markets.”); Emily McKenzie et al., *Incorporating Ecosystem Services in Decisions*, in NATURAL CAPITAL: THEORY AND PRACTICE OF MAPPING ECOSYSTEM SERVICES 339, 339 (Peter Kareiva et al. eds., 2011) (“[E]cosystem services that lack market prices are often not considered in project evaluations, enabling other interests to determine decisions.”).

¹⁷⁹ See Schirpke et al., *supra* note 166, at 85 (describing how some studies have shown that “tourists are more open to natural reforestation than local people, [while] the results of [other studies] indicate differences in the perception of increasing forest areas related to the cultural background”).

¹⁸⁰

Much of the thinking on nature conservation and ecosystem management is still based on separating nature from culture. Cultural perceptions of landscapes reflect a gradient ranging between the extremes of complete separation to the integration of culture and nature. These are reflected in histories of colonial occupation as well as academic developments over the past century. Transformations of landscapes have been and will continue to be influenced by cultural perceptions of nature as well as by sociopolitical and economic demands and aspirations. Species and entire land covers have been introduced or removed to “domesticate” the land and/or to recreate wilderness.

- Productivity and health benefits associated with a more active population with lower incidence of obesity and associated ill-health, with savings and economic costs from avoidance of medical expenditures, lost productive days at work, etc.
- Education and research benefits, and that purposeful recreational activity is associated with improved mental well-being and a boost to learning capabilities, as well as making people more aware of their surroundings and able to contribute to scientific understanding of the environment
- Improvements in social capital, with people joining together in social networks for their recreation, and using the skills gained in recreational activities productively in other settings, in work, voluntary activity and at home
- Crime reduction is a benefit claimed, particularly in deprived urban context, for providing outlets for purposeful leisure activities and diverging people from taking up crime.¹⁸¹

Using Clough's framework as a guide may provide some insights into the other cultural services that communities derive from functioning ecosystems. Nevertheless, there remain significant research gaps.

Due to the difficulties in valuing cultural ecosystem services and the manner in which they provide value locally, such services may fare poorly in an analysis of tradeoffs, particularly in decisions that risk substantial economic value.¹⁸² As noted, "[a]lthough cultural ecosystem services are greatly valued by diverse stakeholders and score highly in assessments of public perceptions, they are sometimes sacrificed by decision makers for economic and ecological reasons."¹⁸³ However, even when value is complicated, utilizing the ecosystem services approach brings the relationships between cultural resources and ecosystems to the fore; from this perspective, cultural ecosystem services can be considered in decisions relating to changes in the landscape (such as whether to build in a scenic area or convert farmland to housing)¹⁸⁴ including climate changes.¹⁸⁵

Although cultural ecosystem services are difficult to quantify outside of some type of contingent valuation method, it is often simple to

¹⁸¹ Clough, *supra* note 114, at 333.

¹⁸² Tallis & Polasky, *supra* note 96, at 36. ("Many decision-makers are conditioned to analyzing policy alternatives in terms of the net benefits measured in monetary terms.")

¹⁸³ See Milcu et al., *supra* note 160, at 45.

¹⁸⁴ See Schirpke et al., *supra* note 166, at 85 ("Land-use changes influence not only the aesthetic value but also many other cultural ecosystem services, such as leisure activities, spirituality and cultural heritage. Hotspots of cultural ecosystem services provision are greatly linked to specific landscapes and their features.")

¹⁸⁵ *Id.* at 78 ("Cultural ecosystem services in particular, offering nonmaterial benefits to people, seem particularly vulnerable to global change because they are difficult to replace.")

qualify the value and potential value, given that communities are situated in particular environments.¹⁸⁶ Situated communities interact with and rely on local ecosystem products and services because they are available. For example, a community situated in a marine environment would be likely to rely on marine resources in the development of social and economic practices, shared religious beliefs, and other cultural circumstances:¹⁸⁷ “A long tradition of subsistence is based on the use of goods derived from the marine ecosystem that are extracted by the taking of plants and animals for foods, clothing, shelter, fuel, medicines, and other purposes.”¹⁸⁸

V. CONSIDERATIONS IN THE DESIGN OF EFFECTIVE CULTURAL ECOSYSTEM SERVICES REGULATION

As indicated above, the law is peppered with a variety of mechanisms that assist in the protection of cultural resources of significance. Historical buildings and sites, aesthetic and educational resources, religious icons, and other place-based cultural resources are relevant to some extent. However, treatment of the services that provide these resources largely remains an unaddressed and misunderstood topic of research. It is in this complicated circumstance that we propose principles for developing a framework of cultural ecosystem services regulation.

First, employing an ecosystem services understanding of ecosystem value helps in identifying the types of information that are needed in the regulation of ecosystem impacts. The accumulation of baseline information on ecosystem processes helps to provide an understanding of the actual costs of environmental degradation and ecosystem displacement.¹⁸⁹ The cultural aspects of human well-being would benefit from a system of cultural ecosystem services regulation that can respond to the information and valuation deficiencies that currently pervade the law. The foremost challenge relates to the informational deficiencies in identifying and characterizing cultural ecosystem services. Little research has been done to qualify or quantify the

¹⁸⁶ Because of the difficulties in assigning a monetary value to cultural ecosystem services, many studies “propose alternative methods and concepts to monetary valuations, and complete ecosystem services valuations be including social and cultural values, as many provisioning and regulating services also create nonmaterial values.” *Id.* at 85.

¹⁸⁷ Peterson & Lubchenco, *supra* note 4, at 189. (“[M]arine ecosystems have cultural value in the present and potential for realization of scientific value to society in the future.”).

¹⁸⁸ *Id.*

¹⁸⁹ DAVID BATKER ET AL., GAINING GROUND: WETLANDS, HURRICANES, AND THE ECONOMY: THE VALUE OF RESTORING THE MISSISSIPPI RIVER DELTA 21 (2010) (“Ecosystem service valuation assigns a dollar value to goods and services provided by a given ecosystem. This allows for proposed management policies to be considered in terms of their ability to improve ecological processes that produce the full diversity of valuable ecosystem goods and services.”).

relationship between functioning ecosystems and the flow of cultural resources to beneficiaries,¹⁹⁰ yet many are cognizant of the connections and the enormous local losses suffered when cultural ecosystem services are displaced or destroyed. For instance, in the context of the informational services provided by ecosystems:

In a real sense, the natural ecosystem is a repository of information, a capital resource that when tapped in the future will create economic wealth and improve the welfare of human society. Although the scope and application of future scientific discoveries are impossible to predict, it is clear that failure to preserve this information bank that is the natural ecosystem represents irretrievable loss of natural capital that would generate tangible future economic value.¹⁹¹

In part, lack of attention to cultural ecosystem services may be due to the complicated and intangible nature of the subject.¹⁹² However, some areas, such as recreational services provided by ecosystems are better understood, even if difficult to value with specificity. Nonetheless, there remains an informational gap. A regulatory approach that mandates informational collection and analysis, such as the informational mandates employed in the National Environmental Policy Act (NEPA),¹⁹³ could aid in understanding the quantity and quality of the ecosystem features that make a cultural contribution.¹⁹⁴ Consider the benefits of informational regulations:

Perhaps the most important basis for supporting a policy that would protect otherwise threaten to ecosystem services is evidence that society gains more value from such protections than it gives up. Providing such evidence requires an understanding of the biophysical processes involved, that is, the various services offered by the ecosystem in question. It also

¹⁹⁰ In each of the studies reviewed, researchers noted the problematic dearth of research on valuing cultural ecosystem services. *See supra*, Part IV. In general, research in the past has focused on services that were easier to quantify, such as recreation, and excluded (or simply ignored) the more difficult topics, such as biodiversity and spirituality. *See, e.g.*, Milcu et al., *supra* note 160, at 45 (“The Economics of Ecosystems and Biodiversity initiative, for example, clearly delineated a subset of cultural ecosystem services amenable to traditional valuation: recreation, ecotourism, cultural heritage, and educational values. Unsurprisingly, the most frequently studied cultural ecosystem services are the most easily quantifiable.”). Without such information, the value of cultural ecosystem services remains difficult to assess and compare to other services, and as such, difficult for policy makers to judge.

¹⁹¹ *See* Peterson & Lubchenco, *supra* note 4, at 190.

¹⁹² The EPA Science Advisory Board noted that, in general, “[p]revious valuation assessments have often focused on what can be measured relatively easily, rather than what is most important to society. This can diminish the relevance, usefulness, and impact of the assessment.” SCI. ADVISORY BOARD, *supra* note 2, at 21.

¹⁹³ National Environmental Policy Act of 1969, 42 U.S.C. §§ 4321–4370h (2012) (NEPA).

¹⁹⁴ Tallis & Polasky, *supra* note 96, at 267. (“Knowing *how much* of a service each action will yield can help managers choose among different actions.”).

requires an assessment of the benefits to well-being—or values to society—
—of these ecosystem services.¹⁹⁵

This call for an informational analysis converges with the policy of NEPA and other similar natural resources statutes, in which the thrust of the program is justified by the hopes for a more informed decision-making process. Moreover, the information gathered in this process will provide a basis for integrating cultural resource values into the decision-making processes from which we permit natural resource extraction and use.

It should be noted that the process of integrating cultural services into informational regulations may require a shift in the method of study for other environmental impact. As Robert Fish and his colleagues explain, research into the value of cultural ecosystem services has emphasized the “psychological realm of human experience and perception,” and has “tended towards the participatory and ethnographic realm.”¹⁹⁶ They observe that “cultural ecosystem services are about understanding modalities of living that people participate in, that constitute and reflect the values and histories people share, the material and symbolic practices they engage in, and the places they inhabit. These practices may be creative, ceremonial, celebratory, but also every day and routine.”¹⁹⁷ They further refine their approach by noting that cultural ecosystem services should be understood “as relational *processes and entities that people actively create and express through interactions with ecosystems*.”¹⁹⁸ In a sense, this does not distinguish cultural from other types of services: “all—*not only* cultural—ecosystem services are co-determined and co-produced through human-non human relationships.”¹⁹⁹ For instance, “[p]laces, localities, landscapes and seascapes enable cultural practices to occur, but are also created through them.”²⁰⁰

Nevertheless, a system of regulation that performs an informational function is likely to provide co-benefits of social and environmental significance.²⁰¹ Paying attention to cultural ecosystem services is thought of as a mechanism to bridge different approaches to value²⁰² “in a direction that more deeply engages people and accounts

¹⁹⁵ Goulder & Kennedy, *supra* note 178, at 15.

¹⁹⁶ Fish et al., *supra* note 3, at 210.

¹⁹⁷ *Id.*

¹⁹⁸ *Id.* at 211.

¹⁹⁹ *Id.* at 212.

²⁰⁰ *Id.* at 213.

²⁰¹ See McKenzie et al., *supra* note 178, at 339 (“Information on ecosystem services can tell us how and which services are relevant to our goals, whether important services are at risk, where services are provided, who is affected, and the trade-offs of different choices; all key pieces of information for the design and implementation of a broad set of policy mechanisms.”).

²⁰² See Tallis & Polasky, *supra* note 96, at 34 (“The inclusion of ecosystem services in decision-making provides a framework that enables managers to broaden their perspectives by considering the multiple, interlinked consequences of their decisions.”).

for social values” because it “deals with many topics and addresses cultural ecosystem services in a diversity of ways.”²⁰³ Information on cultural ecosystem resources will facilitate a better understanding²⁰⁴ of the distributional challenges of environmental protection and economic development, particularly in an era in which climate circumstances are changing and the divide between climate winners and losers is bound to be vast.²⁰⁵ Given that ecosystem services, like most infrastructure, are rarely evenly distributed throughout a society, an informational approach would help to initiate a dialogue about the location and extent of ecosystem investments that would yield fair results.²⁰⁶

Second, the regulation of cultural ecosystem services would benefit from prioritization that focuses on the values of ecosystems where (and to whom) they provide a benefit. To effectively grasp particular cultural values, “[a]ny working definition should be specific to the culture of the people whose valuations are being sought,”²⁰⁷ and as such, a starting place for this inquiry is that cultural ecosystem services are the “co-produced and co-created outcome of peoples’ interaction with ecosystems[.]”²⁰⁸ Undertaking the ecosystem services approach could produce a substantive planning approach that requires an understanding of the flow of cultural services to ensure that the loss of cultural ecosystem services is set on a level playing field against other, incompatible land uses.²⁰⁹ The economics of such services will consider whether replacement of cultural services is possible, and whether total displacement is a cost that is too much to carry. Of course, there are bound to be disagreements over the significance of particular cultural

²⁰³ See Milcu et al., *supra* note 160, at 54.

²⁰⁴ As noted in the report:

Information about the condition of cultural services can be obtained by identifying the specific features of the ecosystem that are of cultural, spiritual, or aesthetic significance and then examining trends in those features. For example, salmon are a totemic or revered species in almost all parts of the world where they are found, and thus the degradation of wild salmon stocks represents degradation of a cultural service provided by the ecosystem. But cultural service information such as this would be difficult to obtain and to quantify: tigers, for instance, remain totemic species even in areas where they have been extinct for decades.

MILLENNIUM ECOSYSTEMS ASSESSMENT, *supra* note 10, at 66.

²⁰⁵ Tallis & Polasky, *supra* note 96, at 47–48 (“While it is important to know the total amount of ecosystem services provided and their overall value to society, it is also important to know who benefits from the provision of services and their social and economic status. Without information about the distribution of benefits from ecosystem services, management decisions can lead to serious unintended consequences for equity and well-being.”).

²⁰⁶ See *id.* at 48 (suggesting that access to ecosystem services is of “utmost importance” in identifying the equitable distribution of ecosystem benefits).

²⁰⁷ Cooper et al., *supra* note 165, at 222.

²⁰⁸ Fish et al., *supra* note 3, at 209.

²⁰⁹ See Cooper et al., *supra* note 165, at 223 (offering the novel point that although spiritual and aesthetic values may include benefits to humans, the unique aspect of cultural services is that they also imply a duty towards such services).

resources (and the ecosystems that provide such services). In some cases, property owners and local communities may prefer to reap the benefits of commodifying resources to realize an economic advantage.²¹⁰ In other instances, the outsider's view of particular resources will fail to capture the significance of an ecosystem feature to local culture. Unpretty ecosystem features, which generally are not valued objectively, are no less important, at least because they are common and daily: "the falling of dying leaves, the miniscule symmetry of a flower of a common weed, perhaps."²¹¹

It is notable that cultural resource values are often replaced on the belief that new, technological advancements are superior to local knowledge, resulting in the notion that local customs and practices are not just inferior,²¹² but wrong.²¹³ In contrast, according to the Millennium Ecosystem Assessment, the effort to capture cultural value in law "requires extensive knowledge concerning the specific way in which the link between the sacred, nature, and society operates in a specific locale."²¹⁴ This means not just studying cultural practices and cultural reliance on nature in general: "Local specifics need to be studied thoroughly in a participatory way to develop initiatives that suit the

²¹⁰ Importantly, cultural ecosystem services regulation will recognize that property's individualistic character, as an opponent to the common pool aspect of cultural services, has eroded around the edges. Courts have demonstrated a willingness to find the public drivers in property's character and scope. *See, e.g.,* *Just v. Marinette City*, 201 N.W.2d 761, 768 (Wis. 1972) (holding that "[a]n owner of land has no absolute and unlimited right to change the essential natural character of his land so as to use it for a purpose for which it was unsuited in its natural state and which injures the rights of others"). In the case of cultural ecosystem services, individual choice in property disposition may be competitive with the cultural resource, and courts may favor a limitation on property to contain loss of the resource. *See id.* at 768, 772 (upholding a state law prohibition against filling wetlands, "a necessary part of the ecological creation," "essential to the purity of the water in our lakes and streams," and "possess[ing] their own beauty in nature"). Either way, it is worth accounting for both the importance of local knowledge to local identity and the context of that knowledge, as "[l]ocal knowledge is, just as scientific knowledge, produced in a context of power relations." MILLENNIUM ECOSYSTEM ASSESSMENT, *supra* note 10, at 411. In addition, "local and indigenous knowledge evolves in specific contexts and one needs to be very careful with de-contextualizing it. . . . The social and economic context is important, since it defines who benefits from opportunities opened up by particular development programs and what factors constrain local participation." *Id.* at 413.

²¹¹ Cooper et al., *supra* note 165, at 220. *See also* Keith Hirokawa, *Environmental Law from the Inside: Local Perspective, Local Potential*, 47 ENVTL. L. REP. (Envtl. Law Inst.) 11048, 11052–53 (2017) (contrasting insiders' and outsiders' views of ecological resources).

²¹² *See* MILLENNIUM ECOSYSTEM ASSESSMENT, *supra* note 10, at 411 ("Much of the local and indigenous knowledge is not written down, but transmitted through daily practices, stories, songs, dance, theatre, and visual arts. Not only knowledge but also attitudes and perceptions are transmitted that way.").

²¹³ *Id.* at 409 ("[T]he drive for modernization and technological change is often based on the substitution of small-scale practices. Understanding of crop and forest biodiversity lies in the oral history and cultural memory of local and indigenous communities, but is frequently disregarded as backward and unneeded.").

²¹⁴ *Id.*

local situation, and care need[s] to be taken to avoid an approach that is too instrumental.”²¹⁵

The result of the foregoing is that, for purposes of identifying an appropriate regulatory structure to accommodate the benefits of cultural ecosystem services, priority can be fashioned to neutralize the external economic pressures that may be placed on local cultural needs. Such prioritization might counterbalance economic pressures that might undermine important cultural connections between ecosystems and resources of cultural importance. At issue is the insider’s experiential perspective of cultural value that arises from a sense of place against the outsider’s more removed understanding of value.²¹⁶ An ecosystem services approach will include consideration of maintaining the benefits of such services, which in the case of cultural services will serve to identify and prioritize ecosystem features of cultural significance.

Third, consideration for a cultural ecosystem services system of regulation should also involve the incorporation of remedies in the regulatory structure. A remedy analysis will involve consideration of the extent of loss of ecosystem services and, in some cases, balancing the benefits from a trade-off of protecting ecosystem benefits against the lost opportunities from leaving ecosystems in place.²¹⁷ In the case of cultural ecosystem services, commodity and economic development values will be balanced against the potential loss of sacred sites, potential sources of medical information, recreational opportunities, and aesthetic benefits. Although the outcomes from such a balancing analysis will vary in specific cases, at least such an analysis will involve serious consideration of the cultural services at hand, without ignoring or denigrating them.

One way to balance competing aims between working ecosystems and economic values is to integrate into the regulatory system considerations to manage transitions from property constructs. Researchers have proposed different mechanisms to compensate

²¹⁵ *Id.*

²¹⁶ See Hirokawa, *supra* note 211, at 11052–53.

²¹⁷ A complicated present-day example involves planning for the Thirty Meter Telescope (TMT) project. See Trisha Kehaulani Watson-Sproat, *Why Native Hawaiians are Fighting to Protect Maunakea from a Telescope*, VOX (July 24, 2019), <https://perma.cc/SJ33-NUBM>. The site is a “premier site for studying the universe” because, in addition to the low humidity, “smooth airflow, combined with the high altitude of Maunakea’s summit, lends to much clearer images of stars, galaxies, planets, etc. compared to other sites.” *Maunakea is Unique*, MAUNAKEA OBSERVATORIES, <https://perma.cc/2KZX-RH4K> (last visited Mar. 5, 2020). “Maunakea is the only 14,000’ shield volcano surrounded by thousands of miles by a flat surface (Pacific Ocean) in the world – the ideal combination for viewing the cosmos with spectacular clarity.” *Id.* Controversy ensues because the mountain “contains numerous cultural resources and historical and burial sites” in addition to its fragile natural resources. Watson-Sproat, *supra* note 217. The mountain is “considered an origin of Hawaiian cosmology, a Hawaiian equivalent to Christianity’s Garden of Eden.” *Id.* “It is the meeting place of Earth Mother, Papahānaumoku, and Sky Father, Wākea. In turn, Maunakea is considered a piko, center, of the Hawaiian universe.” *Id.*

landowners for their lost transformative opportunities.²¹⁸ Referred to as “payments for ecosystem services” programs (PES), this compensatory approach recognizes that regulatory interference with private property preferences might be complicated as a political matter and may incite takings litigation under the Fifth Amendment to the U.S. Constitution.²¹⁹ PES programs are intended to provide an effective tool to incentivize the voluntary conservation of ecosystem functions.²²⁰

On the other hand, the success of an informational program may undercut the need for a PES program. Economists note, for instance, that public education about the benefits of functioning ecosystems can help landowners and communities realize the manner in which ecosystem conservation furthers their economic goals: “if a farmer does not realize that an increase in habitat for native pollinators will raise yields, simply providing the type of information provided by [ecosystem service] models . . . may induce landowners to set aside habitat.”²²¹ In many cases, education and technical training may be preferable to direct payments or regulatory programs.

VI. CONCLUSION

Cultural resources provide evidence of the identity and social fabric of civil society. Because of the manner in which losses of such resources are felt, the protection of cultural resource protection demands a searching, integrated approach that gives due consideration to the relationship between location and the vulnerable cultural practice. The ecosystem services approach provides important suggestions on how cultural resources protection might help us apply natural resource laws in a manner that accounts for both resource use and cultural values. Of

²¹⁸ See Goulder & Kennedy, *supra* note 178, at 20.

²¹⁹ See *Payments for Ecosystem Services*, WORLD WIDE FUND FOR NATURE, <https://perma.cc/VXV8-UVK8> (last visited May 7, 2020) (“Payments for Ecosystem Services is the name given to a variety of arrangements through which the beneficiaries of environmental services, from watershed protection and forest conservation to carbon sequestration and landscape beauty, reward those whose lands provide these services with subsidies or market payments.”). See U.S. CONST. amend. V (“[N]or shall private property be taken for public use, without just compensation.”).

²²⁰ See, e.g., Schirpke et al., *supra* note 166, at 86 (“To preserve aesthetic beauty and the cultural values by maintaining the traditional Alpine landscape, first of all it is important to prevent the decline of mountain farming. The abandonment of agricultural land can be avoided by payments for ecosystem services, compensating farmers for higher costs or loss of income. . . . Such payments, which are in more cases measure-oriented, can mitigate the homogenisation of the landscape up to a certain ratio, but with increasing pressure from the public to prove their effectiveness, policy changes are needed.”). See also Tallis & Polasky, *supra* note 96, at 34 (“In most cases and for most services, there is little incentive for business managers and local landowners to account for the provision of ecosystem services in their decision-making. Landowners receive financial rewards for producing crops for developing their land as real estate. They typically do not receive financial rewards for providing public goods from ecosystems, such as pollution filtration or flood mitigation.”).

²²¹ See McKenzie et al., *supra* note 178, at 344.

course, cultural ecosystem services provide only one way of understanding the relationship that communities have with their local environment.²²² Indeed, ecosystem services analysis does not legitimize particular decisions so much as explain how the relevant values might have been, or could be, prioritized. It might help to understand why an explosion of engagement by women to inspire a feminist consciousness in land management in India appears as a “malfunctioning tool.”²²³ Hence, first, the point of this Article—almost a banal point—is that cultural resources are in need of a framework that prioritizes the interests of those beneficiaries of cultural resources that are ecosystem-dependent. The more interesting point of this Article, though, is that an effective approach to cultural resources regulation must recognize the value of cultural resources, both as they relate to the location-dependency of cultural phenomenon and in identifying how value accrues in a particular place.

²²² Clifford Geertz, *Afterword*, in *SENSES OF PLACE*, *supra* note 16, at 261–62 (“The disaggregation of the worn, prefabricated units in terms of which we are used to thinking about the contemporary world . . . into configurations of particular places, particularly inhabited, is at least one of the ways—it is hardly the only one—in which the received procedures of small-scale ethnography can be brought to bear on the grand complexities that plague that world.”).

²²³ Radhika Borde & Alana Jules Jackman, *The Devi as Ecofeminist Warrior: Reclaiming the Role of Sacred Natural Sites in East-Central India*, in *SACRED NATURAL SITES: CONSERVING NATURE & CULTURE*, *supra* note 1, at 278.