

Increasing conservation capacity by embracing ritual: kuahu as a portal to the sacred

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Abstract.

*E ulu ē
 E ulu kīni o ke Akua
 Ulu a‘e ‘o Kāne me Kanaloa
 Ulu ka ‘Ōhi‘a a lau ka wai
 Ka ‘Ie‘ie
 Ulu a‘e ke Akua a noho i kona kahu
 Eia ka wai lā
 He wai ola
 E ola ia‘u i ke kumu
 E ola i ke po‘o, ke po‘o pua‘a
 E ola i ka pae, ka paepae
 E ola i nā haumana, nā haumana a pau
 ‘Eli‘eli kapu, ‘eli‘eli noa*

In this *Pule Ho‘oulu* (prayer for inspiration), we are calling ourselves and you, the reader, to embrace growth and perpetuation of life’s many sacred manifestations, to honour the guardians of our places and the sources of our knowledge, and affirm the profound responsibility that is conservation management. This chant initiates the process of *kuahu*, an altar of Native Hawaiian spiritual practice within *Hālau ‘Ōhi‘a*, a ritual-based stewardship program in Hawai‘i led by *Kumu* (master teacher, a primary holder and source of knowledge for the community) Kekuhi Kealiikanakaoleohaililani. This paper outlines how the *kuahu* process has advanced learner capacity to embrace the many sacred dimensions of resource stewardship, thereby transforming conservation biology, and related conservation practices, through Indigenous perspectives. We examine themes evoked during the *kuahu* process at scales spanning the universal, the regional, and the personal. In doing so, we describe how *kuahu* practice can serve as a coparticipant, catalyst, and portal to sacred conservation, allowing learners to engage and grow more personal relationships with the environment, our communities, and ourselves.

Keywords: altar, ancestral knowledge, Hawai‘i, indigenous, *kuahu*, sacred.

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Introduction

Humans engage their world, create the societal structures that shape the human experience, and reappropriate these structures to shape personal identity, and one's norms, beliefs, values and practices – an iterative sequence of processes that Berger (1967) identified as externalisation, objectivation and internalisation. Most people across planet Earth engage in some form of spiritual practice (Zinnbauer *et al.* 1997; Hill *et al.* 2000), and over much of human history, ritual-based spiritual practices have been among humanity's most striking, pervasive and persistent examples of externalisation, objectivation and internalisation. Hill *et al.* (2000) describe spirituality as supporting an individual's efforts to search for meaning, wrestle questions of truth, appreciate life's mysteries, engage the transcendent while participating in intimate community, and perhaps most importantly, expose oneself to forces of personal transformation. Despite remarkable diversity across cultures, these practices at their core are driven by the desire to engage the sacred (Hill *et al.* 2000). In this paper we use the terms sacred and spiritual as defined by Kealiikanakaoleohaililani and Giardina (2016): “those sentiments, actions, and commitments that emerge from spirit-based relationships that are founded on love, respect, care, intimate familiarity, and reciprocal exchange.” They continue: “By spirit, we refer to that which gives life to the material body, the enigma that is our collective conscious, subconscious, and unconscious beings.” Finally, we view ritual as a regular practice shared by practitioners with the goal of enhancing spirit-based relationships.

While secular modernity has grown across societies (Hill *et al.* 2000), humankind's desire to engage the sacred persists (Huntington 1997), with some disciplines seeing a resurgence in research on the role of spiritual practice in shaping identity and well-being – for example, in the psychology and health care professions (Hill *et al.* 2000; Hill and Pargament 2003). Diverse studies have shown that participation in a ritual-based spiritual practice can lead to emotional healing, personal transformation, improved emotional well-being, and feelings of social connection (Hill and Pargament 2003; Hobson *et al.* 2017). In contrast, conservation biology, a strongly spiritual discipline when conceptualised over a century ago (Nash 2014), remains largely sanitised of its sacred foundations. While concepts of the sacred have clearly found an academic home in university conservation programs across the planet (Berkes 2017), mainstream conservation has not yet re-embraced the sacred. E. O. Wilson (1984) coined the term *biophilia* to describe the core human desire to relate to the natural world, including mountains, canyons, caves, rocks and rivers (Kahn *et al.* 2009). In earlier work, Naess (1973) concluded that humankind's interconnectedness with nature is essential to ecological identity and well-being – ideas echoed in popular writing about the importance of nature to children (Louv 2005). It has been suggested that severed connections between person and nature are causing many of today's environmental and socio-psychological problems (Nisbet 2005; Nisbet *et al.* 2009), driving calls for broader perspectives in conservation (Chan *et al.* 2016; Kohler *et al.* 2019), including from ancestral traditions (Johnson 2013; Kimmerer 2013; Kealiikanakaoleohaililani and Giardina 2016; Berkes 2017; Pascua *et al.* 2017; Kurashima *et al.* 2018).

Altars are centerpieces for ritual-based spiritual practices that often address questions about history, form, location and function (Burkert 1987). Altars continue to serve as an important locus of spiritual practice, and, in this paper, we examine how the *kuahu* (altar of Native Hawaiian spiritual practice) serves as a coparticipant, catalyst and portal to the sacred. *Kuahu* is a central practice for learners in *Hālau 'Ōhi'a*, a novel, contemporary and ritual-based stewardship training program for conservation practitioners in Hawai'i. *Hālau 'Ōhi'a* is led by *Kumu* (master teacher, a primary holder and source of knowledge for the community) Kekuhi Kealiikanakaoleohaililani (lead author on this manuscript) and was developed to enhance learner capacity to embrace sacred dimensions of resource stewardship (Kealiikanakaoleohaililani *et al.* 2018).

Kuahu

We focus on the *kuahu* within a larger ritual process because the *kuahu* is the physical centre of ritual practice within *Hālau 'Ōhi'a*, and the first ritual to be performed during regular class sessions. Further, the *kuahu* has its roots deep within *hālau hula* (Native Hawaiian schools of learning focused on teaching the sacred practice of *hula*, the Indigenous dance of Hawai'i based on the environment). Learners within *Hālau 'Ōhi'a* utilise the multitiered *Ki'i* (image, reflection, representation) framework to structure access to multiple layers of dynamic and often transcendent meaning (Fig. 1) (Kealiikanakaoleohaililani *et al.* 2018). These representations of the human experience span three layers: *Ki'i ākea* (universal), *Ki'i honua* (regional) and *Ki'i 'iaka* (personal). The *Ki'i* framework challenges learners to deepen their understanding of a topic by exploring why each topic is important to the universal community, a regional community, and themselves. Within *Hālau 'Ōhi'a*, outcomes of *kuahu* practice include: setting spiritual intentions in a community of practice; reframing nature as kin and not commodity; reinforcing that humans and nature are inextricably dependent on one another; providing a venue for the conscious and subconscious integration of conventional, Indigenous, and Local knowledge; creating a safe environment for learners from diverse backgrounds including non-profit organisations, state and federal entities, universities and communities; and enhancing learner capacity to develop intimate connections with place and each other. Collectively, these outcomes translate into an improved capacity of the conservation community to steward place and each other (Kealiikanakaoleohaililani *et al.* 2018).

This paper is formatted as an examination of the *kuahu* practice through the three lenses of *Ki'i* described above. We start with *Ki'i ākea*, linking *kuahu* to cultures across universal time and space. Then, we engage *kuahu* regionally through the lens of *Ki'i honua*, the importance of *kuahu* in *hula* and incorporation into *Hālau 'Ōhi'a*. Finally, we engage the lens of *Ki'i 'iaka*, where we address what the *kuahu* experience has birthed within learners, how learners apply the lessons from *kuahu* to their own professional and personal lives, and what resulting insights mean for participants going forward. And then we end with the *Pani* (closing) where we complete the creation story of the *kuahu* and release you, the reader, by closing the *kuahu* that we build together.



Fig. 1. Imagine sitting in the Hālau ‘Ōhi‘a (a ritual-based stewardship program in Hawai‘i) classroom, and a learner places a kalo plant (taro, *Colocasia esculenta*) on the kuahu (altar of Native Hawaiian spiritual practice). Using the Ki‘i (image, reflection, representation) framework, how are you, the reader, initially engaging and connecting to the kalo plant on the kuahu? One of the learners in the class explains that in one of the Hawaiian cosmology stories the kalo plant and the Hawaiian people are offspring of Papa and Wākea, the maternal earth and paternal sky elements, which from a Ki‘i ākea (universal) layer, brings forth the idea of environmental kinship, and feelings of being a part of, and not separate from, nature. Another learner shares that kalo is a staple food for many Polynesian cultures, which, from a Ki‘i honua (regional) layer, helps to place us in Hawai‘i. The learner who brought the kalo to the kuahu states that they are acknowledging the role of kalo in a Indigenous rites of passage ceremony, shown in the image above (pictured are members of Hālau ‘Ōhi‘a and Nā Wa‘a Hanakahi), that the class had just experienced during the past winter solstice, which through a Ki‘i ‘iaka (personal) layer, brings up the feelings of pride and accomplishment of having gone through that ceremony, as well as feelings of close connection to other learners and environmental features who were part of the ritual. As the class reminisces on that experience that surrounds the kalo, our attention now focuses on that memory in the photograph. Focusing on the canoe and ocean elements in the photograph, the Ki‘i ākea layer can indicate the journey, movement of people and cultures, and evolution of society; the Ki‘i honua layer brings up the name Moananuiākea, the vast, large and deep ocean, which places us in an oceanic and island landscape and culture; and the Ki‘i ‘iaka layer may remind us of what we appreciate in a team, like a crew of paddlers, that knows how to work cohesively towards a common goal. The Ki‘i framework provides perspective into the fluid energetics of our connection and understanding of the world around us, which can change across time and space. The kuahu is not only a physical portal to accessing that understanding, like the altar in the classroom, but is also a process that promotes that exchange of energetics, like being in a canoe on the Moananuiākea, and understanding how you are related to everything around you – vertically, horizontally, internally, externally, past, present, future – the connections and possibilities are limitless. We all ‘come to the kuahu’ with our own personal experiences and associations, and when that energy is shared with a group, those energetics then become part of everyone there, expanding our consciousness outward and deepening our relationships with each other and our places, deepening our inward relationships with ourselves, and deepening our relationships with our places and with our metaphorical journeys across the expansive ocean.

Ki‘i ākea

We start with the largest layer of Ki‘i ākea to describe kuahu’s genealogical links to altars across universal space and time. For communities across the globe, ritual reinforces personal and community identity, and within Indigenous communities ritual also provides ecological identity including self, the human and non-human community, the ecosystems that sustain

communities, and spiritual beings (Naess 1973; Donatuto *et al.* 2014). The practice of altar-based ritual is diverse, with altars most often being a physical recreation of the Earth or ecosystems. Throughout Judaism and Christianity, but also in Eastern religions, altars have been central features of places of worship. In contemporary Hindu practice, the *pūja* (altar) occupies a central location within the *mandir* (Hindu temple) to remind devotees of

spiritual connections with nature and sacredness of Earth, water, and all living creatures. Beyond facilitating the practice of religion, the mandir provides a sacred setting for performing *shloka* and *mantras* (ritual chants), for supporting the holy *aarti* (fire), and the presentation of flowers, leaves, and prepared food for specific deities (Mazumdar and Mazumdar 2009; Sahney 2010). Altar practices in some forms of Buddhism are similar, with statues of Buddha being presented along with incense, flowers, chants, and prepared foods (Denjongpa 2002). In the Yucatec region of Central America, Indigenous Mayan communities integrate Maya philosophy and religion into *ch'a chaak* (complex rain ritual), which involves the creation of an altar constructed from specific species of trees, fashioned into a platform with arches, and supported by succulent vines to remind participants that the altar is connected to the rest of the forest (Flores and Balam 1997; Salazar *et al.* 2012). Within Indigenous (Salomon 2018), but also social justice (Issa 2007), communities, spiritual practices have persisted through even the most severe forces of political, religious and cultural colonisation, and so have been able to sustain belonging, identity and unity.

Within academia, ritual has often been examined as a 'behavioral trademark of our species' (Watson-Jones and Legare 2016), but within Hālau 'Ōhi'a, the Ki'i ākea framework allows learners to recognise the universality of the altar and its deep roots within many cultures. Viewed from this perspective, conventional psychology and anthropology have begun a cross-disciplinary examination of ritual (Watson-Jones and Legare 2016), and in an Indigenous context, altar-based spiritual practices offer opportunities to heal the historical wounds imposed by conventional conservation biology on both coloniser and colonised, globally and in Hawai'i.

Ki'i honua

At the smaller scale of Ki'i honua, we begin to understand the kuahu through the lens of ancestral Hawai'i. The Indigenous knowledge system – defined as all the types of knowledge within an Indigenous mindset (Cajete 1999; Ramos 2018) – of Hawai'i tell us that humans are genealogically tied to a person's geography of birth, but also their current residence (Kealiikanakaoleohaililani and Giardina 2016). The kuahu continues to serve multiple functions in sustaining these connections, and here we focus on origins of kuahu in the practice of the environmental dance, hula, which was born from kin-centric-based stewardship relationships with nature (Emerson 1909). The teaching of hula integrates sacred connections among hula, the dancer, and the natural world (Barrère *et al.* 1980; Ticktin *et al.* 2006) with the kuahu becoming a microcosm of the practitioner's intimate world, while also serving as a portal to the sacred and catalyst for authentic discussions spanning the personal to the professional. These hula teachings have been incorporated into the curriculum of Hālau 'Ōhi'a, with kuahu being a crucial component.

Kuahu origins in Hālau Hula

The Native Hawaiian understanding of *akua* (deity, environmental elements and energies) is that the many *akua* are both elements and elemental phenomena (Kealiikanakaoleohaililani and Giardina 2016). Hula is an environmental dance composed of chants and the intricate use of the entire body that celebrates

akua while supporting the sharing of oral history and observational data. The forest deity, *Laka*, is centrally important to hula in Hawai'i but also serves diverse functions throughout the Pacific as Rata in Aotearoa and Tahiti, Raka in Rarotonga, Lata in Pukapuka, and Lasa in Samoa and Tonga (Taonui 2007). Kuahu historically comes from the Indigenous practice of hula, with the details of those practices varying across hālau and geographic regions and islands. The function of the kuahu in the hālau is to provide space for Laka's *kinolau* ('many bodies'; the manifestation of *akua* in plants and animals, but also ecological processes, such as transpiration), to remind and inspire the hula dancer of Laka's many roles in a forest – ecological, physiological or hydrological. Kinolau of Laka include diverse species, but the kuahu can be adorned with kinolau of other deities (Emerson 1909; Barrère *et al.* 1980). Customarily in a hālau hula, every component of the ritual process is carefully orchestrated including the site of the hālau, the location of the kuahu, what hula and chants are offered, what and how kinolau are gathered, and how the kuahu is adorned (Emerson 1909). The function of kuahu for the hālau hula that continue to engage with their *akua* and landscapes in these ways persists.

Given the central role of nature in hula, practitioners often possess an intimate understanding of forest plants and their ecology. This understanding is intricately woven throughout Native Hawaiian knowledge systems, providing current best practices for stewarding forests including the sustainable gathering and propagation of a wide diversity of plant species, as well as restrictions on when and where to gather (Ticktin *et al.* 2006). This stewardship-focused kuahu practice aligns closely with the kuahu practice within Hālau 'Ōhi'a.

The meaning of kuahu in Hālau 'Ōhi'a

The root words *ku* and *ahu* form the word kuahu. Translations of *ku*, or *kū*, include 'upright, to stand, to rise, to reach, in a state of, to appear, transform, and reveal' and translations of *ahu* include 'a collection, altar, shrine, mass, or pile' (Pukui and Elbert 1986). These definitions reveal the dynamic nature of kuahu, and in Hālau 'Ōhi'a this dynamic portal to the sacred encompasses four stages: (1) setting of intentions; (2) clearing the mind and preparing for the practice; (3) gathering of kinolau; and (4) performing the ritual. This kuahu practice is not bound to a specific type of physical structure or location, but rather is that which allows learners to establish a sacred space for organic yet structured engagement of the natural world. The contemporary engagement of kinolau is similarly dynamic (Kukahiko 2019). Here we provide you with an abbreviated example of the discussions that Hālau 'Ōhi'a learners have engaged with during kuahu ritual. For simplicity, we provide examples of six kinolau (Table S1 available as Supplementary Material to this paper) with a focus on the plant, 'Ōhi'a (*Metrosideros* spp., a dominant, keystone, native tree of Hawai'ian forests), below.

To better engage you, the reader, we ask you to imagine walking through a natural place that is deeply important to you. Then imagine approaching a plant or shoreline or river to gather an item of personal significance. You humbly ask for permission to enter the place. Before gathering, you reflect on the item's various meanings in your life. You stop to pick up some trash or pull invasive weeds, giving back to the place that has sustained

some aspect of your being. Upon arriving at your item of personal significance, you ask if it is willing to accompany you on your journey (seeking permission to collect that item). After a quiet pause and sign from the environment indicating permission to proceed, you gather the item and respectfully leave. As you consider this item, imagine being a part of a community of conservation practitioners from a wide array of backgrounds and professional careers and it is your turn to adorn a virtual kuahu with your item – a chosen kinolau that you have reverently given universal relevance, regional symbolism, and personal meaning.

The request to enter the Hālau ‘Ōhi’a classroom begins, the space is silent save the voices of the chanters, ‘Ua lū kinikini ka hua ‘ōhi’a lehua mai ‘ō a ‘ō o Lōnonuiākea (the multitudes of ‘ōhi’a lehua seeds are scattered everywhere on Hawai‘i Island) ...’. When the mele komo (entrance chant) ends, Kumu Kekuhi invites the learners in with a mele kāhea (response chant). The learners enter the transformed space as they walk one by one to place their pōhaku (rock, stone) on the kuahu, building the very foundations of our island microcosm and our learning for the day. When all pōhaku are in place the room begins to vibrate with the rhythm of clapping hands and voices chanting the Pule Ho‘oulu (prayer for inspiration): ‘E ulu ē, e ulu kini o ke akua (grow and inspire your myriad potentiality) ...’. The chant (provided in its entirety in the abstract; see Text S1, Supplementary Material for a full translation of the chant) continues to the final line and then repeats until all kinolau transform the kuahu into an island of sprouted greenery.

‘Now who do we have here on the kuahu?’ asks Kumu Kekuhi. A learner that works in natural resource management responds: ‘I brought ‘ōhi’a because it’s one of the first native species able to colonise new lava and also a kinolau of the deity Hi‘iaka (associated with forest growth and regeneration), the sister of Pele (deity associated with volcanic activity). ‘Ōhi-‘ia means ‘to be gathered’. ‘Ōhi’a seeds blow in the wind, once germinated, its roots sink into the rocks and begin to break apart the crevices. Its leaves fall around it, decomposing and creating soil. It captures passing dust and seeds, creating more dirt. Other plants begin to sprout around it. Birds land and poop ... more things sprout. Over time, a kīpuka (an oasis of vegetation) forms. The kīpuka grows and eventually connects to nearby kīpuka, creating a forest.’ Kumu Kekuhi then asks: ‘What else do we know about ‘ōhi’a?’ A learner that works with loko i‘a (Native Hawaiian fishpond aquaculture) adds: ‘Because ‘ōhi’a is the backbone of many forests it can ‘ohi (gather) the rain and helps to bring that wai (water, freshwater) into the forest ecosystem. We also use ‘ōhi’a in our mākāhā (fishpond sluice gates) for that function – to gather fish into the ponds. The wood is hard and rot resistant’. A mother then shares a personal relationship with the kinolau: ‘‘Ōhi’a was present, in its many different forms and colors, when my son was born. Seeing ‘Ōhi’a growing in the wild makes me think of resilience, growth, promise, and infinite possibility. All of these things I wish for him’. Two learners from the university chime in about the many forms and genealogy of ‘ōhi’a captured in taxonomy, ‘Metrosideros polymorpha Gaud., is

from the family Myrtaceae. There are at least 14 taxa of ‘ōhi’a, all endemic to Hawai‘i. The islands of Hawai‘i, Kaua‘i, and Maui Nui (Maui, Moloka‘i, Lāna‘i, and Kaho‘olawe) each have varieties of M. polymorpha and/or M. waialeale that are endemic there, while three species are found only on the island of O‘ahu!’

And so, the discussion continues until all items adorning the kuahu have been discussed.

(Table S1 available as Supplementary Material to this paper).

The ritual adornment of kuahu and ensuing discussions consistently catalyse a deeper understanding of the ecosystems, plant/animal people, and geological features of their place. Every aspect of the kuahu, from the foundation to the kinolau, is imbued with meaning, both intentional and subconscious. Sometimes gathering of diverse kinolau is spontaneous, with themes arising during discussions. At other times themes are chosen to determine which kinolau are to be gathered. A second layer of meaning is derived from the form that kinolau take, including presentation of anatomical parts (e.g. foliage, flowers, fruits), life stages (e.g. seedling, large plant, piece of wood), or cultural uses (e.g. lei (Indigenous adornments in Hawai‘i composed of various environmental materials, such as vegetation (flowers, leaves, nuts), feathers, shells, dog teeth, ivory, etc.), lā‘au lapa‘au (Indigenous herbal medicine and medicinal practices of Hawai‘i)). Fig. 2 illustrates an example of a kuahu that was built by the learners of Hālau ‘Ōhi’a, with an overarching theme of Kaho‘olawe, an island in Hawai‘i, which was returned to the Native Hawaiian people following decades of civil disobedience to end a half century of military bombing of this sacred place. Because the practice is grounded in patience, respect and inclusivity, discussions can last hours with each learner who wishes to share knowledge – conventional, Local, Indigenous – provided opportunity to do so. Without fail, this practice facilitates a collective, experiential, and often deeply moving learning process. For the readers who are participating in this virtual kuahu, how has reflection on your kinolau advanced your connection to that item or the place from which you gathered that item? Do your questions or revelations provide insights into how to meet your broader needs or those of your community?

Introducing kuahu to mainstream conservation

In response to the question – how can we apply in a sincere and authentic way what we learn to the diversity of spaces and places that we occupy? – Hālau ‘Ōhi’a has brought the practice of kuahu to a wide diversity of formal and informal learning spaces, and we highlight three here: a Symposium during the 2017 Hawai‘i Conservation Conference held at the Honolulu Convention Center; a workshop of non-governmental, State, and Federal urban green and blue space managers in New York City; and a classroom of graduate students in a Conservation Biology course at the University of Hawai‘i at Mānoa. These diverse settings provided an opportunity for experimentation that is driving the evolution of kuahu practice.

In 2017, learners of Hālau ‘Ōhi’a led a novel symposium at the annual Hawai‘i Conservation Conference that engaged attendees in a kuahu-based ritual. Attendees were instructed to gather items to which they could give meaning. These were not



Fig. 2. Illustration example of a kuahu (altar of Native Hawaiian spiritual practice) from one of the Hālau ‘Ōhi‘a (a ritual-based stewardship program in Hawai‘i) class sessions. Illustrated by Hālau ‘Ōhi‘a learner and artist, Haley Kailiehu.

intended to serve as kinolau, but rather to inspire reflection and discussion. What resulted was surprising, and the many powerful emotions evoked by the connections and sharing forged by the kuahu organically transformed an instructional exercise into a sacred process.

In 2017, learners of Hālau ‘Ōhi‘a and Kumu Kekuhi organised an exchange with the Urban Field Station of the USDA Forest Service’s Northern Research Station in New York City (NYC), with the goal of bringing a Native Hawaiian system of learning to one of the planet’s largest metropolitan areas (McMillen *et al.* 2020). Learners led the second day of the meeting with a call to enter a space, permission being granted to entering participants, and the creating and adornment of a kuahu. What resulted was a remarkable discussion about sacred kinship in an intensely urban environment, including deeply personal and professional sharing about the importance of sacred considerations in the stewardship of urban places, and how these places serve as refuges that sustain the physical and spiritual wellbeing of NYC’s many green and blue space users. These NYC participants were deeply inspired by the practice and have integrated kuahu into ongoing Stewardship Salons that bring together diverse learners from across NYC (McMillen *et al.* 2020).

In 2019, learners of Hālau ‘Ōhi‘a led a kuahu practice for students enrolled in a graduate-level Conservation Biology

course at the University of Hawai‘i at Mānoa. This class period was devoted to biocultural conservation and the visiting lecturer and student organisers, who were learners with Hālau ‘Ōhi‘a, prepared an unconventional session centered on formally engaging the practice of kuahu. Students embraced the opportunity, each bringing a plant to class that held meaning to them. This included kinolau but also photographs of plants from distant places. Students were asked to share: who is my plant, where does my plant come from, and what is the plant’s significance to me, the student? The discussions were powerful and sometimes emotional, and postclass evaluations indicated that the process was intuitive and fostered important discussion about a possible future for conservation. Many students expressed that the activity, discussion and overall experience broke down barriers and strengthened classroom engagement; many rated the class as the most valuable of the semester, commenting that the class should have come earlier in the semester.

From these and other experiences, learners have found the kuahu practice to be effective for inspiring practitioners to engage a broader conservation ethic. In contrast, learners in the conservation workplace typically are asked to focus on acres treated, number of native species planted, or number of invasive animals eradicated. Kuahu practice teaches that while quantitative measures are important, we are inspired primarily by a

spiritual connection to place. And it is this spiritual connection, to place and each other, that sustains work in conservation.

Ki'i iaka

There are many areas of overlap between spirituality and religion (Hill *et al.* 2000), and the goal here is not to engage distinctions or to discern categories. This is important when addressing the personal reflections of learners on how the practice of kuahu has helped link mind, body and spirit, and to realise enhanced relationships with place and the many members of the ecological community. Simply put, Ki'i iaka encourages learners to apply what kuahu practice has birthed in their own professional and personal lives. In Hālau 'Ōhi'a, learners quickly come to appreciate that adorning the kuahu carries expectations beyond the aesthetic act of beautifying an altar. There is a sacrifice when gathering kinolau, and as with many cultures, the depth of the exchange with a place and an item gathered can signify the importance of the exchange (Delaere *et al.* 2019). And so, the depth of planning and sacrifice can reveal a learner's devotion to an individual plant, species or place, with collective devotion determining the quality and depth of the discussions resulting from this ritual practice. Motivation for gathering kinolau for kuahu should include universal, regional and personal considerations, with the actual act of gathering serving the critical function of revealing, but also inspiring sacred and reciprocal relationships among learner, place and kinolau – perhaps best described by Kimmerer (2011) as ecological reciprocity. We describe here a necessarily tiny fraction of the diverse meanings invested by contemporary practitioners of Native Hawaiian culture, as the realm of personal insight is as vast and diverse as the number of learners (Kukahiko 2019).

Personal transformation

A central outcome of the kuahu practice is personal transformation. For example, one learner shared that kuahu *'breaks people open; every time it brings strong emotion and wakes us up'*. Another shared, *'This is the first time I've felt like it's OK to be connected to this place as a person (as a non-Native Hawaiian), not just a scientist'*. These insights reveal that the practice allows learners to be vulnerable and engage new aspects of their being, and to actively engage these new aspects rekindles relationships with kinolau. Another learner commented: *'I ask how does this plant I have chosen embody what I want to be right now, in hālau, in my entire life? If I bring a plant that represents resilience to the kuahu, I elevate that resilience in myself. I place it on the kuahu because I strive to be resilient, to embody everything that kinolau does for our environment and for us'*. The result is a growing recognition that effective care for place requires integration of multiple knowledge systems and an intimate, life-long and multigenerational commitment to place.

Knowledge system integration

For the diverse learners of Hālau 'Ōhi'a, kuahu practice breaks down cultural barriers to reveal new ways of knowing. The discipline of conservation biology is focused on population genetics and ecology (Pressey and Tully 1994; Mills *et al.* 2012) and has grown into a utilitarian pursuit of preventing

biodiversity loss, with success determined by metrics of efficacy. Conventional conservation discourse rarely considers or embraces Indigenous Knowledge. While conventional approaches are rich with tools and information, detachment from nature is antithetical to Indigenous concepts of kinship and perspectives on care for place (Kealiikanakaoleohaililani and Giardina 2016), and Indigenous perspectives challenge the way conventional trained professionals are taught to relate to nature (Rozzi *et al.* 2006; Rozzi 2012; Artelle *et al.* 2018).

Kuahu as a biocultural practice and praxis has the potential to transform the learner by facilitating the integration of diverse knowledge. For the conventional trained biologist, transformation leads to engaging respectfully or even embracing a Native Hawaiian ethos about Native Hawaiian perspectives on community – human and non-human, animate and inanimate. For example, as one learner shared, *'I've always been interested in how plants function and interact with each other, but kuahu made the networks real. Communication from a voiceless community opened up a whole new world for me'*. Another shared *'I am seeing the landscape differently now. I find myself starting to talk to plants in the field like they are people too'*. Kuahu practice also leads to dialogue among people from different perspectives and to sharing their personal connections with nature. In a sense, kuahu practice is a pedagogical tool that stimulates exploration by making permeable the professional, cultural and personal boundaries that isolate the conservation community.

Increasing conservation capacity

Over the past half-century, conservation thinking has evolved from protecting nature 'from' people to protecting nature 'for and with' people (Mace 2014). This transition speaks to the unsustainable, colonial foundations of conventional conservation, the growing threats to ecosystems posed by climate change, habitat loss, and invasive species, and increases in *per capita* consumption married to human population growth. Learners of Hālau 'Ōhi'a become personally exposed to the decolonising mindset of 'nature AND people', with individual transformation catalysing collective transformation. By cultivating what Cajete (1999) describes as a respectful relationship with nature and authentically honoring Indigenous knowledge, learners create communities of conservation practice that are more effective and resilient. For example, by integrating Indigenous knowledge – and conventional knowledge – practitioners are better able to embrace the spiritual, genealogical and cosmological connections between people, culture and place (Osorio 2006; Lyver *et al.* 2019). Learners can more effectively engage Native Hawaiian Indigenous knowledge such as the functional significance of ecological zones of Hawai'i (Mueller-Dombois 2007; Winter *et al.* 2018), the creation of intentional and highly productive agricultural systems (Kurashima *et al.* 2019), or the significance of intricate place names and names for different types of natural phenomena (Akana and Gonzalez 2015). This diversification of one's knowledge base means a greater number of tools can be brought to a problem. Further, the kin-centric ethic underlying learning in Hālau 'Ōhi'a helps learners to be more mindful of and committed to their relationships with place, with species, and with each other. Finally, open, powerful, authentic and personal dialogue has led to strong relationships

and comradery among learners that extend well outside the classroom and into the local conservation community. Collectively, the kuahu practice facilitates the creation of an expansive conservation 'ohana (family), and such a familial network of committed individuals is more resilient to the vagaries of national politics and local funding environments.

Pani – Closing

Recognising that humans and the rest of nature are inextricably connected is critical to conservation biology operating within socially and ecologically challenging times. Perhaps by the end of this paper you are asking yourself, 'What is my kuahu? What might my kuahu look like? What would I place on it?' We challenge you, the reader, to ask yourself these questions, knowing that there are no right or wrong answers. For guidance, ritual practices and cultural customs throughout the world may help you answer these questions. Kuahu has helped learners facilitate a shift in consciousness regarding sacred relationships with nature, communities and within self, thereby transforming conservation biology through Indigenous perspectives. In reading this paper, you have engaged in a ritual process, including the building of a virtual kuahu, and so we will close this practice with a Pani, which will release you from this paper. Just as the kuahu is brought to a close at the end of the Hālau 'Ōhi'a class session, we will close the kuahu here with a short chant. Remember that although the kuahu is closed, you and your kinolau are still connected. Take your kinolau and return it to its home or where it may be needed most to give it new life. We all turn to the focal point, the kuahu, and say the following words that mark the end of a chant to *noa* (release, lift, and free) the ritual:

'Āmama ua noa, 'āmama ua noa'.

Glossary

Below are descriptions and definitions of Hawaiian Language terminology, as interpreted by Hālau 'Ōhi'a. We acknowledge that there are multiple definitions and forms of interpretation for these terms. For additional, commonly accepted definitions, please visit <http://wehewehe.org>

Ahu – a collection, altar, shrine, mass or pile

Akua – deity, environmental elements and energies

'Āmama ua noa – A Native Hawaiian language saying, 'the prayer is said, the taboo is over'

Hālau – Native Hawaiian schools of learning

Hālau hula – Native Hawaiian schools of learning focused on teaching the sacred practice of hula

Hālau 'Ōhi'a – a ritual-based stewardship program in Hawai'i

Hi'iaka – a deity in Hawai'i associated with forest growth and regeneration

Hula – Indigenous dance of Hawai'i based on the environment

'Ohana – family

'Ohi – to gather

'Ohi-ia – to be gathered

'Ōhi'a – *Metrosideros* spp., a dominant, keystone native tree of Hawaiian forests

Ki'i – image, reflection, representation

Ki'i ākea – universal image, reflection, representation

Ki'i honua – regional image, reflection, representation

Ki'i 'iaka – personal image, reflection, representation

Kinolau – 'many bodies'; the manifestation of *akua* (deity, environmental elements and energies) in plants and animals, but also ecological processes, such as transpiration

Kīpuka – an oasis of vegetation

Ku/Kū – upright, to stand, to rise, to reach, in a state of, to appear, transform, and reveal

Kuahu – altar of Native Hawaiian spiritual practice

Kumu – master teacher, a primary holder and source of knowledge for the community

Laka – a deity in Hawai'i associated with forests, and centrally important to the practice of hula

Lā'au lapa'au – Indigenous herbal medicine and medicinal practices of Hawai'i

Lei – Indigenous adornments in Hawai'i composed of various environmental materials, such as vegetation (flowers, leaves, nuts), feathers, shells, dog teeth, ivory, etc.

Loko i'a – Native Hawaiian fishpond aquaculture

Mākāhā – fishpond sluice gate

Mele kāheha – response chant

Mele komo – entrance chant

Moananuiākea – the vast, large, deep ocean

Noa – release, lift, and free

Pani – closing, to close

Papa – foundation, surface; the maternal earth element in Hawai'i

Pele – a deity in Hawai'i associated with volcanic activity

Pōhaku – rock, stone

Pule Ho'oulu – prayer for inspiration

Wai – water, freshwater

Wākea – expansive space, zenith; the paternal sky element in Hawai'i

References

- Akana, C. L., and Gonzalez, K. (2015). 'Hānau Ka Ua: Hawaiian Rain Names.' (Kamehameha Publishing: Honolulu, HI.)
- Artelle, K. A., Stephenson, J., Bragg, C., Housty, J. A., Housty, W. G., Kawharu, M., and Turner, N. J. (2018). Values-led management: the guidance of place-based values in environmental relationships of the past, present, and future. *Ecology and Society* **23**, 1–15. doi:10.5751/ES-10357-230335
- Barrère, D. B., Pukui, M. K., and Kelly, M. (1980). 'Hula: Historical Perspectives.' (Department of Anthropology, Bernice Pauahi Bishop Museum: Honolulu, HI.)
- Berger, P. L. (1967). 'The Sacred Canopy: Elements of a Sociological Theory of Religion.' (Doubleday and Company, Inc.: Garden City, NY.)
- Berkes, F. (2017). 'Sacred Ecology.' 4th edn. (Routledge: New York, NY.)
- Burkert, W. (1987). 'Greek Religion.' (Harvard University Press: Cambridge, MA.)
- Cajete, G. (1999). Look to the mountain; reflections on Indigenous ecology. In 'A People's Ecology: Explorations in Sustainable Living'. (Ed. G. Cajete.) Chapter 1, pp. 1–20. (Clear Light Publishers: Santa Fe, NM.)
- Chan, K. M. A., Balvanera, P., Benessaiah, K., Chapman, M., Díaz, S., Gómez-Baggethun, E., Gould, R., Hannahs, N., Jax, K., Klain, S., Luck, G. W., Martín-López, B., Muraca, B., Norton, B., Ott, K., Pascual, U., Satterfield, T., Tadaki, M., Taggart, J., and Turner, N. (2016). Opinion: why protect nature? Rethinking values and the environment. *Proceedings of the National Academy of Sciences* **113**, 1462–1465. doi:10.1073/PNAS.1525002113
- Delaere, C., Capriles, J. M., and Stanish, C. (2019). Underwater ritual offerings in the Island of the Sun and the formation of the Tiwanaku state.

- Proceedings of the National Academy of Sciences* **116**, 8233–8238. doi:10.1073/PNAS.1820749116
- Denjongpa, A. B. (2002). Kangchendzonga: secular and Buddhist perceptions of the mountain deity of Sikkim among the Lhopos. *Bulletin of Tibetology* **38**, 5–37.
- Donatuto, J., Grossman, E. E., Konovsky, J., Grossman, S., and Campbell, L. W. (2014). Indigenous community health and climate change: integrating biophysical and social science indicators. *Coastal Management* **42**, 355–373. doi:10.1080/08920753.2014.923140
- Emerson, N. B. (1909). 'Unwritten Literature of Hawai'i: The Sacred Songs of the Hula.' (Government Printing Office: Washington, DC.)
- Flores, J. S., and Balam, J. K. (1997). Importance of plants in the Ch'A Chaak Maya ritual in the Peninsula of Yucatan. *Journal of Ethnobiology* **17**, 97–108.
- Hill, P. C., Pargament, K. I., Hood, R. W., Jr, McCullough, J. M. E., Swyers, J. P., Larson, D. B., and Zinnbauer, B. J. (2000). Conceptualizing religion and spirituality: points of commonality, points of departure. *Journal for the Theory of Social Behaviour* **30**, 51–77. doi:10.1111/1468-5914.00119
- Hill, P. C., and Pargament, K. I. (2003). Advances in the conceptualization and measurement of religion and spirituality: implications for physical and mental health research. *American Psychologist* **58**, 64–74. doi:10.1037/0003-066X.58.1.64
- Hobson, N. M., Schroeder, J., Risen, J. L., Xygalatas, D., and Inzlicht, M. (2017). The psychology of rituals: an integrative review and process-based framework. *Personality and Social Psychology Review* **22**, 260–284. doi:10.1177/1088868317734944
- Huntington, S. P. (1997). 'The Clash of Civilizations and the Remaking of World Order.' (Simon and Schuster: USA.)
- Issa, D. (2007). Praxis of empowerment: mística and mobilization in Brazil's landless rural workers' movement. *Latin American Perspectives* **34**, 124–138. doi:10.1177/0094582X06298745
- Johnson, J. T. (2013). Kaitiakitanga: telling the stories of environmental guardianship. In 'Deeper Sense of Place: Stories and Journeys of Collaboration in Indigenous Research'. (Eds J. T. Johnson, and S. C. Larsen.) pp. 127–138. (Oregon State University Press: Corvallis, OR.)
- Kahn, P. H., Jr., Severson, R. L., and Ruckert, J. H. (2009). The human relation with nature and technological nature. *Current Directions in Psychological Science* **18**, 37–42. doi:10.1111/J.1467-8721.2009.01602.X
- Kealiikanakaoleohaililani, K., and Giardina, C. P. (2016). Embracing the sacred: an Indigenous framework for tomorrow's sustainability science. *Sustainability Science* **11**, 57–67. doi:10.1007/S11625-015-0343-3
- Kealiikanakaoleohaililani, K., Kurashima, N., Francisco, K., Giardina, C., Louis, R., McMillen, H., Asing, C., Asing, K., Block, T., Browning, M., Camara, K., Camara, L., Dudley, M., Frazier, M., Gomes, N., Gordon, A., Gordon, M., Heu, L., Irvine, A., Kaawa, N., Kirkpatrick, S., Leucht, E., Perry, C., Replogle, J., Salbosa, L. L., Sato, A., Schubert, L., Sterling, A., Uowolo, A., Uowolo, J., Walker, B., Whitehead, A., and Yogi, D. (2018). Ritual + sustainability science? A portal into the science of aloha. *Sustainability* **10**, 1–17. doi:10.3390/SU10103478
- Kimmerer, R. (2011). Restoration and reciprocity: the contributions of traditional ecological knowledge. In 'Human Dimensions of Ecological Restoration: Integrating Science, Nature, and Culture'. (Eds D. Egan, E. E. Hjerpe, and J. Abrams.) Chapter 18, pp. 257–276. (Island Press: Washington, DC.)
- Kimmerer, R. W. (2013). 'Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge and the Teachings of Plants.' (Milkweed Editions: Minneapolis, MN.)
- Kohler, F., Holland, T. G., Kotiaho, J. S., Desrousseaux, M., and Potts, M. D. (2019). Embracing diverse worldviews to share planet Earth. *Conservation Biology* **33**, 1014–1022. doi:10.1111/COBI.13304
- Kukahiko, E. K. (2019). Ke 'a'ali'i kū makani: kinolau of a feminist mo'olelo. *Educational Perspectives* **50**, 13–16.
- Kurashima, N., Jeremiah, J., Whitehead, A., Tulchin, J., Browning, M., and Duarte, T. (2018). 'Āina kaumaha: the maintenance of ancestral principles for 21st century Indigenous resource management. *Sustainability* **10**, 1–21. doi:10.3390/SU10113975
- Kurashima, N., Fortini, L., and Ticktin, T. (2019). The potential of Indigenous agricultural food production under climate change in Hawai'i. *Nature Sustainability* **2**, 191–199. doi:10.1038/S41893-019-0226-1
- Louv, R. (2005). 'Last Child in the Woods: Saving Our Children From Nature-Deficit Disorder.' (Algonquin Books: New York, NY.)
- Lyver, P. O., Ruru, J., Scott, N., Tylanakis, J. M., Arnold, J., Malinen, S. K., Bataille, C. Y., Herse, M. R., Jones, C. J., Gormley, A. M., Peltzer, D. A., Taura, Y., Timoti, P., Stone, C., Wilcox, M., and Moller, H. (2019). Building biocultural approaches into Aotearoa – New Zealand's conservation future. *Journal of the Royal Society of New Zealand* **49**, 394–411. doi:10.1080/03036758.2018.1539405
- Mace, G. M. (2014). Whose conservation? *Science* **345**, 1558–1560. doi:10.1126/SCIENCE.1254704
- Mazumdar, S., and Mazumdar, S. (2009). Religion, immigration, and home making in diaspora: Hindu space in Southern California. *Journal of Environmental Psychology* **29**, 256–266. doi:10.1016/J.JENVP.2008.07.004
- McMillen, H. L., Campbell, L. K., Svendsen, E. S., Kealiikanakaoleohaililani, K., Francisco, K. S., and Giardina, C. P. (2020). Biocultural stewardship, Indigenous and local ecological knowledge, and the urban crucible. *Ecology and Society* **25**, 1–14. doi:10.5751/ES-11386-250209
- Mills, M., Adams, V. M., Pressey, R. L., Ban, N. C., and Jupiter, S. D. (2012). Where do national and local conservation actions meet? Simulating the expansion of *ad hoc* and systematic approaches to conservation in the future in Fiji. *Conservation Letters* **5**, 387–398. doi:10.1111/J.1755-263X.2012.00258.X
- Mueller-Dombois, D. (2007). The Hawaiian ahupua'a land use system: its biological resource zones and the challenge for silvicultural restoration. In 'Biology of Hawaiian Streams and Estuaries'. (Eds N. L. Evenhuis, and J. M. Fitzsimons.) Chapter 3, pp. 23–33. (Bishop Museum Press: Honolulu, HI.)
- Naess, A. (1973). The shallow and the deep, long-range ecology movement. A summary. *Inquiry* **16**, 95–100. doi:10.1080/00201747308601682
- Nash, R. F. (2014). 'Wilderness and the American Mind.' 5th edn. (Yale University Press: USA.)
- Nisbet, E. K. L. (2005). The human-nature connection: increasing nature relatedness, environmental concern, and well-being through education. M.A. thesis, Carleton University.
- Nisbet, E. K., Zelenski, J. M., and Murphy, S. A. (2009). The nature relatedness scale: linking individuals' connection with nature to environmental concern and behavior. *Environment and Behavior* **41**, 715–740. doi:10.1177/0013916508318748
- Osorio, J. (2006). On being Hawaiian. *Hūlili: Multidisciplinary Research on Hawaiian Well-Being* **3**, 19–26.
- Pascua, P., McMillen, H., Ticktin, T., Vaughan, M., and Winter, K. B. (2017). Beyond services: a process and framework to incorporate cultural, genealogical, place-based, and Indigenous relationships in ecosystem service assessments. *Ecosystem Services* **26**, 465–475. doi:10.1016/J.ECOSER.2017.03.012
- Pressey, R. L., and Tully, S. L. (1994). The cost of *ad hoc* reservation: a case study in western New South Wales. *Australian Journal of Ecology* **19**, 375–384. doi:10.1111/J.1442-9993.1994.TB00503.X
- Pukui, M. K., and Elbert, S. H. (1986). 'Hawaiian Dictionary: Hawaiian-English, English-Hawaiian.' (University of Hawai'i Press: Honolulu, HI.)
- Ramos, S. C. (2018). Considerations for culturally sensitive traditional ecological knowledge research in wildlife conservation. *Wildlife Society Bulletin* **42**, 358–365. doi:10.1002/WSB.881
- Rozzi, R. (2012). Biocultural ethics: recovering the vital links between the inhabitants, their habits, and habitats. *Environmental Ethics* **34**, 27–50. doi:10.5840/ENVIROETHICS20123414

- Rozzi, R., Massardo, F., Anderson, C. B., Heidinger, K., and Silander, Jr., J. A., Jr. (2006). Ten principles for biocultural conservation at the southern tip of the Americas: the approach of the Omora Ethnobotanical Park. *Ecology and Society* **11**, 1–56. doi:[10.5751/ES-01709-110143](https://doi.org/10.5751/ES-01709-110143)
- Sahney, P. (2010). Hindu domestic mandirs: home temples in greater New York. *Voices: The Journal of New York Folklore* **36**, 39–44.
- Salomon, F. (2018). 'At the Mountains' Altar: Anthropology of Religion in an Andean Community.' (Routledge: New York, NY.)
- Salazar, C., Zizumbo-Villarreal, D., Brush, S. B., and Colunga-García-Marín, P. (2012). Earth ovens (piib) in the Maya lowlands: ethnobotanical data supporting early use. *Economic Botany* **66**, 285–297. doi:[10.1007/S12231-012-9207-2](https://doi.org/10.1007/S12231-012-9207-2)
- Taonui, R. (2007). Polynesian oral traditions. In 'Vaka Moana, Voyages of the Ancestors: The Discovery and Settlement of the Pacific'. (Ed. K. R. Howe.) Chapter 2, pp. 1–32. (University of Hawai'i Press: Honolulu, HI.)
- Ticktin, T., Whitehead, A. N., and Fraiola, A. (2006). Traditional gathering of native hula plants in alien-invaded Hawaiian forests: adaptive practices, impacts on alien invasive species and conservation implications. *Environmental Conservation* **33**, 185–194. doi:[10.1017/S0376892906003158](https://doi.org/10.1017/S0376892906003158)
- Watson-Jones, R. E., and Legare, C. H. (2016). The social functions of group rituals. *Current Directions in Psychological Science* **25**, 42–46. doi:[10.1177/0963721415618486](https://doi.org/10.1177/0963721415618486)
- Wilson, E. O. (1984). 'Biophilia.' (Harvard University Press: Cambridge, MA.)
- Winter, K., Beamer, K., Vaughan, M., Friedlander, A., Kido, M., Whitehead, A., Akutagawa, M., Kurashima, N., Lucas, M., and Nyberg, B. (2018). The moku system: managing biocultural resources for abundance within social-ecological regions in Hawai'i. *Sustainability* **10**, 1–19. doi:[10.3390/SU10103554](https://doi.org/10.3390/SU10103554)
- Zinnbauer, B. J., Pargament, K. I., Cole, B., Rye, M. S., Butter, E. M., Belavich, T. G., Hipp, K. M., Scott, A. B., and Kadar, J. L. (1997). Religion and spirituality: unfuzzifying the fuzzy. *Journal for the Scientific Study of Religion* **36**, 549–564. doi:[10.2307/1387689](https://doi.org/10.2307/1387689)