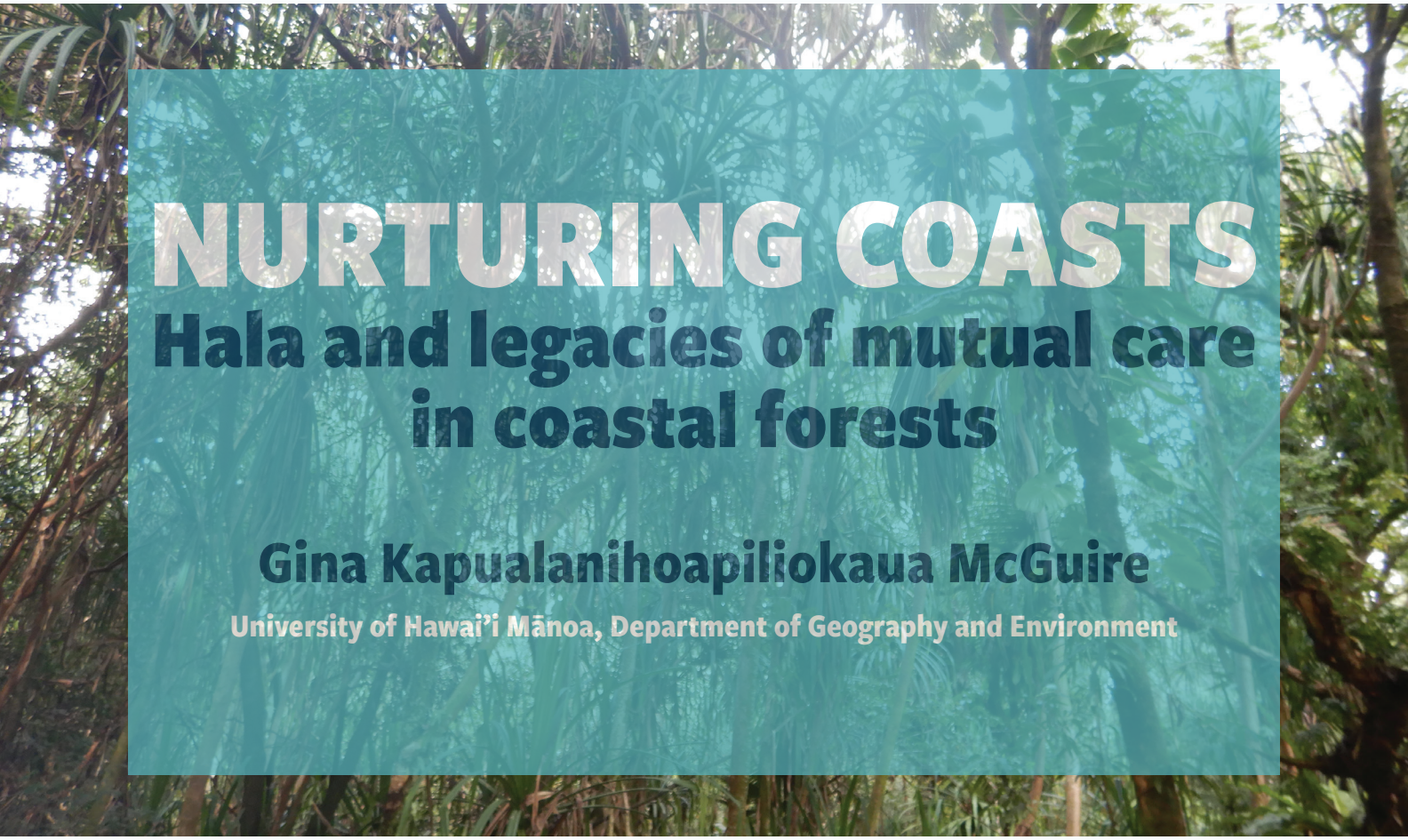

NURTURING COASTS
Hala and legacies of mutual care in coastal forests

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No luna ka hala, e;
ʻŌnini pua iʻa i ke kai.
No Panaewa ka hala e;
No Puna ka wahine—
No ka Lua, e![1]
– *Emerson* (1915)

Hala (*Pandanus tectorius*) has long been recognized as both an ecological and cultural "keystone" species in Hawaiʻi (where it is indigenous) and diverse coastal contexts globally. Ecologically, the presence of hala trees has been linked to higher plant biodiversity, and correspondingly, more abundant ghost crab populations, in coastal dunes in Australia (Noriega et al. 2012), and to arbuscular mycorrhizal fungi communities, which aid in the growth of dune plant communities, in Majorda, Goa, India (Rodrigues and Jaiswal 1999). Hala is a "cultural icon" within Oceania (Baba et al. 2016; Winter et al. 2020). Hala has been identified to foster interactions that perpetuate cultural ecosystem services, including well-being between communities and forested sites (Pascua et al. 2017; Winter et al. 2020). In Hawaiian cultural practice, parts of the hala tree are used for weaving, thatching and shelter-building, and lei-making, and as dye, medicine, and food. Despite these biocultural roles, in Hawaiʻi hala forests are now described as "rare" and "uncommon" (Gallaher et al. 2014; Kim et al. 2020), indicative of large-scale coastal change and displacement of ecologies that support Indigenous worlds and subsistence-based livelihoods.

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Despite hala's significant biocultural role and documented decline, hala forests have been underemphasized within conservation theory, practice, and policy in Hawai'i (Gallaher et al. 2014). Globally, conservation narratives have focused on coastal vegetation zone value for carbon sequestration, buffering from storms, and as nursery habitat (Barbier et al. 2011; Bindoff et al. 2019). This separate consideration of the bio- from the cultural is problematic in the ways that it limits our understandings of the processes and relations that not only sustain, but have long cultivated and produced, the hala distributions that biogeographic and conservation scholarship is theoretically focused on (Ban et al. 2008). Few direct measures or associated funding structures have prioritized active management of these forests (e.g., through extensive invasive species removal or protection from development). Where engaged, work from within conservation science and practice has also tended to emphasize those elements of their biology, ecology, or biogeography as the most relevant to conservation science and practice (Ancrenaz et al. 2007; USGS 2012). These approaches excise questions of cultural practice and Indigenous epistemologies of wellness from view in ways that fail to weave other ways of knowing and conceptualizing hala wellness and stewardship into conservation management (Domínguez and Luoma 2020).

In this piece, I focus on understanding the current state of the hala forests along the lower Puna coastline on Hawai'i Island, drawing on mo'olelo (stories, accounts), vegetation surveys, and spatial consideration of ecohistorical features. Eco\historical features include historic village and cultural sites, lava flows, and histories of coastal gathering and change shared by a lifelong coastal user. Analyses of these stories and spatial histories document the contemporary biogeography of hala forests along this coast and embedded role of 'Ōiwi communities in their care.

HALA GROVES OF THE PUNA COAST

The Puna district, Hawai'i Island, consists primarily of rural residential and agricultural communities experiencing rapid population growth and sprawling development (Hawai'i County Planning Department 2005). Home to the Kīlauea volcanic rift zone, the Puna coastline is a mosaic of remnant native and alien forests, coastal shrublands, and agricultural lots that are fragmented (and connected) by historic and recent volcanic flows. Both nearshore marine and lowland ecosystems are supported by freshwater sourced in upland forests, carried by lava tube networks to the coast, historically fostering "vast groves of hala (*Pandanus*) trees" (OHA 2014).

The Puna district holds special meaning within the Hawaiian archipelago, both for its easternmost location (association with the rising sun) and for ties with Hawaiian deities, including Pelehonuamea (female deity associated with volcanic activity) and Kāne (male deity associated with light, rain, rebirth) (OHA 2014). Historically known as home to some of the finest lauhala (hala leaf) weavers, stories of these trees pervade biocultural constructions of the district in mo'olelo, the names of rains (Akana 2015), and place names. The following quote is drawn from an article of condolence for Mrs. Hannah Kaunukapu Kaloi Kamelamela (Ka Nupepa Kuokoa 1924), highlighting the sheer sensory role that hala forests and their hīnano flowers hold within certain localities:

> He kupu 'o ia, a kulaiwi, no kēia hapa o Puna paia 'ala i ka hala, a me ka hīnano mai ka pali o Hōlei a ke 'ala līpoa o Kaimū.[2]

By calling on ancestral voices specific to this district, it is my hope to establish the embedded role of coastal spaces within this locality and encourage an embodied look at whether and how hala is persisting today, as compared to documented historic abundances (Handy and Handy 1991; Mascaro et al. 2012; Coleman 2014; Terry 2017).

BIOGEOGRAPHY IN CONVERSATION WITH 'ŌIWI METHODS

Vegetation Surveys

Vegetation surveys of intact hala stands and groves were conducted along 24.5km of Government Beach Road in January 2022. This work follows previous road-based vegetation survey methods, which have established them as valuable for tracking change (Spooner and Smallbone 2009) and for providing "valuable, unbiased sources of information" (McCarthy et al. 2011). Presence points of hala stands and groves (Figures 1 and 2) were recorded using an inReach Garmin GPS device. Road surveys were completed with a cultural descendant and lifelong coastal gatherer of the Hawaiian Beaches community, who requested to remain ananymous in this work, and to whom I will refer going forward as The Kupuna (The Elder). In addition to documentation of the

▲▲ **FIGURE 1.** Hala "stand" (5–10 mature trees), January 2022. GINA MCGUIRE
▲ **FIGURE 2.** Hala "grove" (densely wooded group of mature trees), January 2022. GINA MCGUIRE

groves, The Kupuna's recollections of the coastline were recorded and georeferenced in time with the surveys. These recollections provided valuable information on changes witnessed in the coastal forest compositions since the late 1960s, reciprocal relationships with specific sites, and identification of embedded historic village and cultural sites. The value of sharing and receiving moʻolelo lies in engaged practice dependent on valuing and investing time in narratives (Lipe 2015; Oliveira 2015). I use the term "we" going forward, as all of the analyses and methods were discussed and advanced with The Kupuna and would not have been possible without the shared insight from our conversations. These processes were done in alignment with best practices of co-production (Alegado et al. 2017), with commitment to respect, reciprocity, and co-review under Institutional Review Board (IRB) #2020-00220, which monitors research practices for the protection of the welfare, rights, and privacy of the included knowledge holders.

At a finer resolution, vegetation community surveys were conducted along 13.8km of the immediate coastal edge environment in summer 2021. Surveys spanned the extents of traditional land districts Kīkala and Kēōkea, Kaimū, Kalapana, Kupahuʻa, and Kahauleʻa. These surveys provided three quadrat-points of vegetation community abundances every 100m, resulting in a modern inventory of coastal cliff species present. From this database we were able to understand the presence and absence patterns of hala on this portion of the coastline, where it once grew abundantly, as well as the associated and persisting plant communities.

Moʻolelo

Our method paired biogeographical data with moʻolelo. As Noelani Arista writes, our understandings of these sites can only be enhanced by "culturally literate ways of reading Hawaiian texts," and, I would add, Hawaiian worlds (2009). To contextualize and fully understand the role of ʻŌiwi communities in these hala forests, and of the role of these coastal forests play in lower Puna, a close analysis of written texts on hala trees in the Puna district was completed from the 19th and 20th centuries and in conversations with ʻŌiwi research partners. I would like to especially thank the Keliihoomalu, Hauanio, and Peleiholani families for their introductions to specific portions of the coast where their families have subsisted for many generations. Hala-focused anecdotes were coded for relevant themes, such as stewardship practices, species associations, etc., and considered for kaona: "hidden meaning, as in Hawaiian poetry; concealed reference, as to a person, thing, or place" (Pukui and Elbert 1986). Arista encourages us to sit with Hawaiian texts to consider the "interconnected meanings and contexts" of both written and oral sources (2010). For example, the opening song likens, on the surface, hala drupes (fruits) to sprats (fry fish) in the sea: "From above is hala; the fry fish ripple the sea" (Emerson 1915). However, a non-literal translation grounded in and inclusive of kaona might go beyond this comparison and implicitly link the presence of the hala with that of the fry fish, aligning this moʻolelo with others that tie hala trees to fish presence. All of the moʻolelo analyzed hold explicit links to the Puna Coast, and particularly the Kalapana side of the district. While this limits the number of moʻolelo available, it provides contextualized understanding of hala relationships in this locality.

Counter-Mapping Hala Contemporaneities

Road-based surveys suggest that Puna hala forests are highly fragmented and invaded by alien species. Intact hala communities are primarily located in Honolulu, Waʻawaʻa, and Kaueleau ahupuaʻa. During

All of the analyses and methods were discussed and advanced with The Kupuna and would not have been possible without the shared insight from our conversations._

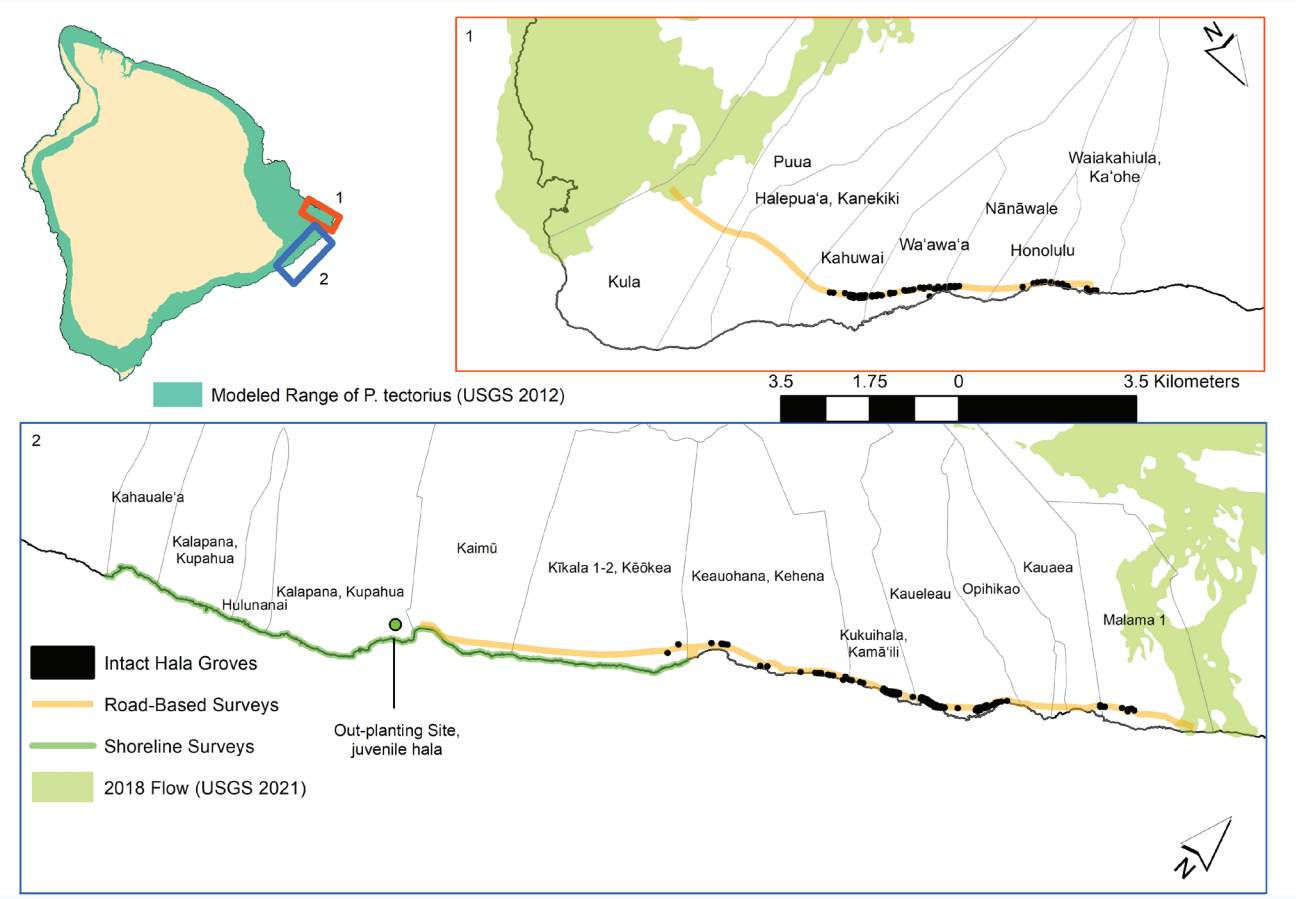
the surveys, The Kupuna shared that "the only place where lauhala are left is where humans haven't bulldozed them." Cleared areas were observed as points of fragmentation that facilitate alien species invasion into the pre-existing forests (Figure 3). In addition to facilitating identification of historic sites and hala groves, The Kupuna also spoke of other native-dominated stands that used to persist in areas that are now subject to alien species invasion. These native stands include coconut (*Cocos nucifera*), mango (*Mangifera indica*), and hau (*Hibiscus tilaceus*) groves, which now persist in remnant pockets. The Kupuna remarked on the vast loss of kou (*Cordia subcordata*) and milo (*Thespesia populnea*) stands.

Vegetation surveys along the Kalapana side of the coast show that hala is not repopulating lava-devastated areas of the coastline, with no individuals present on young substrate unless planted. The only juvenile hala in the area are near the Kaimū community black sand beach, where Kalapana families have out-planted. There are no hala colonizing the 200- to 400-year-old coastal shrublands. While mature hala trees were observed in the remnant coastal kīpukas (remnant forest pockets) in Kalapana ahupua'a and in the Kaimū Black Sands subdivision (not part of surveyed areas), along the immediate coastal edge there is just one mature hala individual growing (Figure 4).

Out-planted juvenile coconut trees, another cultural keystone species for this community, were located within and adjacent to sites surveyed on foot across the coastline, particularly near hotspots of active community engagement. Intact coconut groves remain in Kaimū and Kalapana ahupua'a within the immediate coastal edge environment, in contrast to the lack of intact hala groves.

Analyses of mo'olelo highlight the following central themes (see Table 1 for main anecdotes):

▼ **FIGURE 3.** **Modeled distribution of *P. tectorius* across Hawai'i, location of survey sites, and areas of hala stands and groves.**



▲ **FIGURE 4.** **Single mature hala on immediate Kalapana coastal edge, June 2020.** GINA MCGUIRE

- Historic *abundance* of these forests, from the early 1800s to mid-20th century, with descriptors such as "impenetrable" (Dutton 1882), "plentiful" (Pavao 1988), and, "Nui ka kumu lauhala"[3] (Kauhi and Langlas 1996). Historic *ease of access* to hala resources is recorded for lei-making (Ellis 1823), weaving (Kauhi and Langlas 1996), and for medicinal use (Peʻa Lee Hong via Langlas and kūpuna 2016).
- *Spatial association of hala groves with cultural sites* was observed during the drive with The Kupuna (association with stone work and cultivars of kī, *Cordyline fruticosa*), in aerial photos of heiau (temples) in Kalapana and Kahauleʻa (Weisel 1992), accounts from Dutton (1882), and Ilalaʻole's account of hala groves as places for pā hala-style kalo cultivation in Kalapana, Kehena, and Kamaili (Handy and Handy 1972).
- The *role of women and children* in gathering and weaving the lau hala is documented in mother–daughter and aunt–niece moʻolelo (Pavao 1988; Kauhi and Langlas 1996).
- *Roles of reciprocity* are discussed in acts of site fidelity with return to specific trees, in seasonality of harvest, and in "cleaning" of the trees for rotten and old leaves (Pavao 1988) as well as in the active role of out-planting following lava flow activity (Stapleton 1992; Keliihoomalu-Holz 2022).
- The value of out-planting is linked to *honoring ancestral connections to* ʻāina *and the perpetuation of subsistence-based lifestyles* (Keliihoomalu-Holz 2022).
- Recurring references *link hala to marine species health and presence*: Writing specifically of the Kalapana coastline, Aunty Emma Kauhi states: "Inā hua ka hala, iʻo ka wana me ka hāʻukeʻuke"[4] (Kauhi and Langlas 1996). Mary Kawena Pukui (originally of the neighboring Kaʻū district) documents, "Pala ka hala, momona ka uhu"[5] (Pukui 1983). Hala indicates the reproductive timing of several marine invertebrates as well as the "fatness" of the parrotfish. As hinted at earlier, when kaona comes into play, we can consider: "No luna ka hala, e; ʻŌnini pua iʻa i ke kai"[6] (Emerson 1915). The ʻōnini pua are juvenile

Year	Location	Knowledge-Holder	Theme	Quote
1823	Kaimū	William Ellis	Abundance Embodiment of joyous occasion Lei-making	He walked before us as we entered the village. The old people from the houses welcomed him as he passed along, and numbers of the young men and women came out to meet him, saluted him by touching noses, and wept for joy at his arrival. Some took off his hat, and crowned him with a garland of flowers; others hung round his neck wreaths of a sweet-scented plant resembling ivy, or necklaces composed of the nut of the fragrant pandanus odoratissime (hala).
1882	Puna	Captain Clarence Dutton	Impenatrable/ Intact Forests Spatially correlated with cultural sites	Perhaps the strongest attraction was the pandanus groves.... They cluster together very thickly, and form the most impenetrable shade of any tree with which I am acquainted. They have no need for soil, for they send down their roots among the moist rocks and clinkers, where no trace of soil is visible.... To make the illusion more complete I found within an opening in one of these large groves an ancient heiau or temple in a good state of preservation.... In many places the pandanus groves are on either hand with their long weeping leaves and dense shade, forming an impenetrable jungle with their strange aerial roots.
1916–1935	Kapa‘ahu	Emma Kauhi via Kauhi & Langlas	Wahine & Keiki Business Abundance	Loa‘a nō nā kumu lauhala. Nui ka kumu lauhala ma laila. ‘O ia nō ka hana a nā po‘e wāhine, me nā po‘e keiki — hele akula e kōkua, e ki‘i lauhala, ho‘oma‘ema‘e i ka lauhala. No laila ua loko ka ‘āina i nā mea a pau. There were lauhala trees, lots of lauhala trees there. That was the work of the women; and the children, they’d go help, get lauhala, clean the lauhala. So the land had everything.
1960s?	Kaimū	Helen Haleola Pe‘a Lee Hong via Langlas & Kūpuna (2016)	Medicine ‘Cabinet’ — readily available	The ‘ule hala. You know, the roots of the hala, the bottom. And these the mea. They would pound that you know, mash. Pound it and squeeze it, then the strainer, and then drink that after. That is to clean the afterbirths and all that, clean the system.
1987	Poupou	Kuulei Pavao via Pili Produtions	Reciprocity in Practice Seasonality in Harvest	Kuulei went with her mother to Poupou to pick lauhala. Her mother went during the summer, June to September, because it’s dry then. They went once to “clean the tree” of the old, rotten leaves. Then every time they went after that all the leaves that had fallen down would be good.
1988	Kapa‘ahu	Kuulei Pavao via Pili Produtions	Individual tree fidelity Communal resource practices	The lauhala was plentiful in the Kapa‘ahu area, so people could be choosey about what they wanted to pick — the tree with the soft leaf, or the wide leaf, with the white leaf or the dark leaf. A lady would have her favorite trees where she always picked, and the others would know those were her trees and not pick from them.
2022	Kaimū	Mini Keliihoomalu-Holz via personal conversation	Out-planting motivations: perpetuate subsistence-livelihood, follow values of ancestors, live in a pono way	Aloha ‘āina, aloha ke akua, aloha kekāhi i kekahi. These are three important things our kūpuna always ask us to remember. One who understands and lives by these perspectives embraces the world of Native Hawaiians. Puna was known for its kua‘āina residents: those who actually live and perpetuate the Hawaiian culture to keep the spirit of the land alive. Because when the land is doing well, so will the people living on that land. Out planting our native trees, the niu, the hala, for example, is a great way for me to follow the footsteps of my kūpuna who came before me. It serves as hope to show that this is just the beginning in aiding the importance of our natural resoures and the hope for a more subsistence-based livelihood. I believe that the best and most immediate way of saving our ‘āina is to cultivate as many native plants as possible.
1992	Kaimū	Frankie Stapleton of Pi‘ilani Ka‘awaloa	Active roles of cultivation of coastal forests	It would be hard, it would take a different kind of effort, but there was much to gain and nothing to lose. The effort could begin with preparation of the land; she could begin by cultivating seedlings of the plants that had sustainted the ancient Hawaiians.... By the spring of 1991 there were already signs of a new life at Kaimū. Hawaiians living nearby had already begun planting coconuts and other vegetation in the virgin sands of a beach that had formed along the extended Kaimū coast.
1972	Kalapana, Kehena, Kamaili	Joseph Ilala‘ole as told to Kawena Pukui via Handy & Handy	Cultivation-sites	At Kalapana, Kehena, and Kamaili our kinsmen grew fine taro by the pa-hala (pandanus clearing) method.... Be sure that the place chosen is in a pu hala grove, to save the labor of hauling hala branches into the patch later on....

▲ **TABLE 1.** **The primary texts/conversations and coded themes as they relate to cultural practice surrounding hala trees, specific to the Puna district.**

fish, potentially linking hala trees implicitly to nursery grounds along the coastline.

LIMITATIONS AND LENS

I put forward this piece as an example of how we can gain different understandings of our coasts from an inter-weaving of Western and Indigenous perspectives, which itself has benefits and trade-offs. Our method initially relied on a remotely sensed approach to consider these coastal forests at a larger extent. However, given the role of other, more emergent trees in these systems (e.g., ironwood and coconut, which often tower over the hala), we soon realized that an aerial method would greatly underestimate the presence of these groves (see Figure 5, depicting a hala grove beneath a canopy of *Casuarina equisetifolia*). The Carbon Assessment Hawaii (CAH) land cover map, for example, denotes the same forests we surveyed as primarily wet or mesic alien- and native-dominated forests, rather than as its land classification "Closed Hala Forests," which CAH documents as only occurring on the island of Oʻahu (Price et al. 2016). While we would benefit from a full-scale coastal assessment of these forests, to really understand hala presence and legacy, our methods need to be embodied and rooted. This study provides an efficient snapshot of coastal hala forests along linear paths through this coast. Future studies could expand surveys further inland and seaward for a wider understanding of the status of hala forests and further consider the role of reciprocal relationships in their maintenance. These surveys could be paired with a larger analysis of the status of hala forests within and surrounding conservation-designated and private property to spatially assess the role of land tenure in their persistence and decline.

CONSIDERING THE KAONA

This work documents the story of hala decline with high detail in a specific locality and the recognized

▼ **FIGURE 5.** **Hala grove beneath ironwood canopy, January 2022.** GINA MCGUIRE

The restoration of hala groves is important not only to maintaining cultural practices and re-establishing dependent ecological communities, but also to maintaining connections between the terrestrial and the marine.

importance of out-planting to the future of these forests. Hala has two main eco-dispersal mechanisms, via flotation-based wave dispersal and via biota, emphasizing the role that anthropogenic dispersal (following seedling-based spread) can play on this steep rocky coastline. Gallaher et al. remark that ʻōhiʻa (*Metrosideros polymorpha*) is usually the first flowering plant species to establish on younger lava substrate, while hala begins "to establish only after at least 200 years have passed" (2014). However, as evidenced by the single out-planting site on the approximately 30-year-old flow site at Kaimū, and the total absence of hala on the approximately 200-year-old flow sites of the Kalapana areas, hala groves are not recolonizing on their own from neighboring groves to the east and are not being established in the way that they were historically. The influx of invasive species and the recent lava history do not alone explain the absence or presence of hala in the immediate-coast environment, as survey efforts cross a wide variety of coastal ages and vegetative communities.

We turn to the role of culture and practice in constructing these coastal buffer zones, a stewardship that can only be maintained through active engagement and reciprocity. In Hawaiian story, hala is deeply intertwined with rebirth. For example, the opening oli (chant) in this article was orated by a female spirit in response to Hiʻiaka's gift of a hala drupe from her own lei (garland) (Emerson 1915). Hiʻiaka is the Hawaiian akua (deity) associated with rebirth and new life, often associated with regrowth on her sister Pele's lava fields. The female spirit who receives the hala has fingerless hands, perhaps symbolic of the lands of Puna where she is from, which have historically been, and are still being, devastated by periodic lava flows (Emerson 1915). In Aunty Nona Beamer's telling of the story, this gift of hala allows the woman to release her pain (Yuen 2021). Hala is highlighted here as an essential component and embodiment for restoration, new life, and processes of *ola* (health, well-being) on this particular coastline. While there may be consensus on the decline of hala forests across Hawaiʻi, this article acts as a red flag that hiʻiaka (processes of restoration) are not occurring in the same ways that they did historically, as when "each Hawaiian household had a weaver" (Keawe 2014). As the moʻolelo considered above show, hiʻiaka is manifested through reciprocal acts of care in gathering, out-planting, and maintaining cultural and cultivated sites. We would encourage further ethno-ecological work that focuses on the current state of ʻŌiwi roles in forest maintenance and use, in particular on feminine roles of care, traditionally and in modern times, of these sites.

The restoration of hala groves is important not only to maintaining cultural practices and re-establishing dependent ecological communities, but also to maintaining connections between the terrestrial and the marine. As evidenced by several moʻolelo, by means of these trees we are allowed insight to the fish-people, the invertebrate-people, on whom our ancestors depended. An ʻŌiwi perspective encourages us to consider not only the role of hala as an indicator, but as an essential player within these processes. When hala is extirpated, do these processes occur in the same ways? The Hawaiian creation chant, the Kumulipo, perhaps suggests that they do not (Beckwith 1951): Hānau ka Pahaha noho i kai. Kiaʻi e ka Pūhala noho i uka.[7] This linkage to hala trees as guardians, as necessary entities for dependent species, aligns with the work done in India and Australia that recommends a deeper look at

ecological and biocultural interconnectedness of hala between coastal and marine environments (Rodrigues and Jaiswal 1999; Noriega et al. 2012).

Hala allowed Indigenous Oceanic Peoples to construct sails, thatch houses, ease births, adorn themselves, create places of rest … to thrive and explore. This legacy stands in pockets of persistence within a current narrative of neglect and invasion. What we do now, what we choose to care for, will define the future coastline.

HA'INA

The word "hala" in the Hawaiian language holds several meanings besides that of our beloved tree, the first of which is, "sin, vice, offense," and is sometimes used to reference the passing, either of time in general or of one individually to death (Pukui and Elbert 1986). In legend, Hi'iaka (deity of rebirth and new growth), wearing a lei hala (garland of hala fruit), is unable to help a healer bring back a patient from the dead because it is too late. The word "hala," the embodiment of it in this story, is symbolic of turning points from which there are no returns. There is a duality of new birth, of life, of healing, as encompassed in Aunty Nona's telling of the hala drupe's effect, that is essentially paired with the concept of impermanence. Our work reveals that we are still in a moment of the "coming back" of these spaces, if only we can move forward in modalities of reciprocity and stewardship.

The forest remnants that we see today are the embodied legacies of the 'Ōiwi people who subsisted and depended on intact coastal forest spaces. Understanding the distribution and wellness-status of hala forests through an Indigenous biocultural lens has important material implications—ones that relate to the recognition and elevation of Indigenous epistemologies for managing coastal forests, highlighting the importance of promoting cultural practice and Indigenous relationships in forest care. "Forest-dependent people not only deforest but also afforest or reforest spontaneously, that is, without government or project sponsorship" (Peluso 1996). Forest-dependent people actively shape their ecosystems. For instance, Armstrong et al. showed that Indigenous management of forest garden ecosystems left legacies in plant community composition and functional trait diversity that remain within the landscape over 150 years after management ceased (2021). As with Puna hala forests, culturally modified tree sites in the Pacific Northwest are an example of "intentional products of ecological management as well as enduring and visible constructions that speak to emergent and changing economic, social, and spiritual practices through time" (Lepofsky et al. 2017). Modern, more exclusionary practices of both reserve-based conservation and privatized coasts, in combination with moves away from subsistence-based livelihoods, can actively prevent Indigenous-based stewardship, preventing the hi'iaka discussed. Walls are put up, lines are drawn, around the tree-people, the fish-people, that can prohibit modalities of embodiment and practice to be sustained. The invaded and cleared coastal spaces are the result of land legacies that restrict Indigenous access and use of ancestral coasts (Domínguez and Luoma 2020). The out-plantings, the cultural persistence of weaving … *these* practices provide models of a more care-based and cultivated future actively being sustained by resilient Indigenous practitioners. Our actions and practices—today—will influence the ecological communities that our children, grandchildren, and great-grandchildren will inherit.

MAHALO NUI

I would like to first thank the akua, my ancestors, and family. I would like to thank the lower Puna communities (human and non-human), particularly the Keliihoomalu, Hauanio, and Peleiholani families for being so generous with their time and knowledge. Field work would not have been possible without the help of The Kupuna, Mini Keliihoomalu-Holz,

The word "hala," the embodiment of it in this story, is symbolic of turning points from which there are no returns.

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ENDNOTES

1. The hala, tossed down from the cliff, Ruffs the sea like a school of sprats, The hala from Panewa, The Woman's homeland is Puna—That wonderful Pit of Puna!
2. She was a native with deep roots from this half of Puna, with its hala-scented walls, and the hīnano flowers from the cliff of Hōlei to the līpoa fragrance of Kaimū.
3. Lots of lauhala trees.
4. When the hala bears, the wana (*Echinometra* spp., *Diadema* spp.) and the hāʻukeʻuke (*Colobocentrotus atratus*) will be full of meat.
5. When the hala fruits, the uhu (parrot fish) is fat.
6. The hala, tossed down from the cliff, roughs the sea like a school of juvenile sprats.
7. Born is the Pahaha [young mullet] living in the sea. Guarded by the pandanus living on land.

FOR MORE INFORMATION

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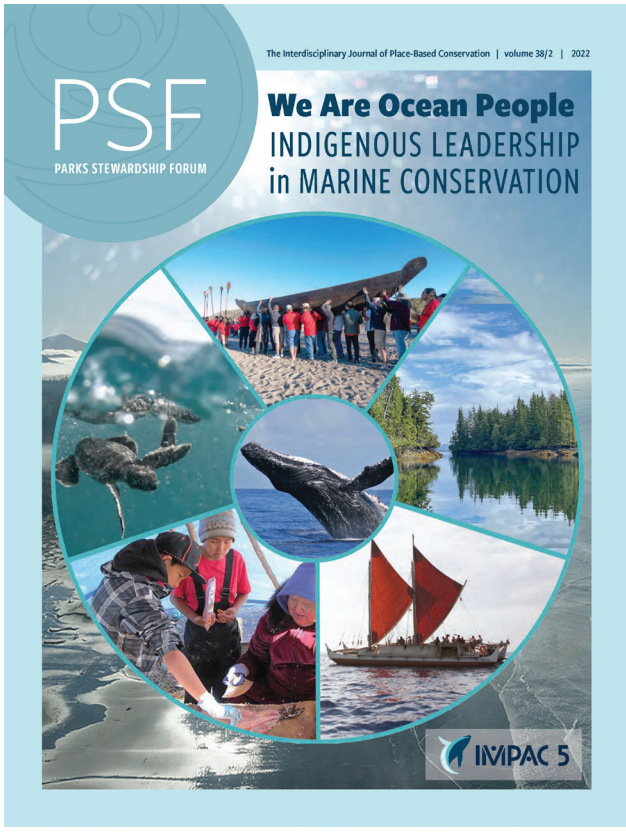

On the cover of this issue

CIRCLE DESIGN, clockwise from top:
- Northern Chumash ceremony | ROBERT SCHWEMMER
- Haida Gwaii | CINDY BOYKO
- The Polynesian Voyaging Society's voyaging canoe Hōkūleʻa | NOAA
- Elder teaching youths, northern Alaska | US FISH AND WILDLIFE SERVICE
- Baby Honu (sea turtles), Papahānaumokuākea Marine National Monument | NOAA
- Center: Humpback whale, Papahānaumokuākea Marine National Monument | NOAA

Background: Pacific Rim National Park Reserve | PARKS CANADA