



**THE JONATHAN NAPELA CENTER  
FOR HAWAIIAN AND PACIFIC STUDIES**  
BRIGHAM YOUNG UNIVERSITY HAWAII

INTERSECTIONS

VOL. 1, No. 1—MAY 2023



**INTERSECTIONS:**  
JOURNAL OF ASIA PACIFIC  
UNDERGRADUATE RESEARCH

VOL. 1 MAY 2023

# INTERSECTIONS: JOURNAL OF ASIA PACIFIC UNDERGRADUATE RESEARCH

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An interdisciplinary journal of Asia Pacific undergraduate research established for students and alumni with a focus on Oceania and the Asia Rim

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MAY 2023

PUBLISHED BY  
THE JONATHAN NAPELA CENTER FOR HAWAIIAN AND  
PACIFIC STUDIES

BRIGHAM YOUNG UNIVERSITY HAWAI‘I

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# INTERSECTIONS

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May 2023

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## **BIRTHRIGHT CITIZENSHIP FOR AMERICAN SAMOANS: TRADITION VERSUS NATIONALISM?**

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This paper critically examines the legal history of American Samoa as the only United States (U.S.) territory where residents hold the political status of U.S. nationals rather than citizens. The territory faces a contentious struggle between individualistic legal attempts within the continental United States vying for a changed status from U.S. nationals to citizens by birth for American Samoans. The fundamental collectivistic cultural systems of the fa‘amatai and fa‘asamoa based on the customary land tenure system are interwoven into the socio-cultural fabric of the modern American Samoan hybrid system of governance. This paper explores these systems and the legal protections within the contemporary identity of national status for American Samoans. This work argues that conferred automatic birthright citizenship is detrimental to the fa‘amatai and fa‘asamoa systems based on the customary land tenure system and denial of political autonomy for American Samoans.

### **Introduction**

American Samoa is one of the five inhabited territories of the United States, and yet most U.S. Americans wouldn't be able to locate this territory on a map. The Samoan archipelago is divided into two geographical areas, partitioned by foreign powers into eastern and western domains. The eastern division, known today as American Samoa, is an official territory of the United States; the

western region presently stands as the Independent State of Samoa, formerly Western Samoa under British rule, and prior to that, Deutsch-Samoa controlled by Germany. Both maintain the same culture and language but are unique and distinct in their political status as a consequence of colonial occupation by foreign states. American Samoa has a population of roughly 50,000 and consists of the main inhabited islands of Tutuila, Ta'u, Olosega, Ofu, and Aunu'u.<sup>1</sup>

American Samoa was ceded to the United States as a territory at the start of the twentieth century. The cession was executed as a strategic component of economic and military imperialistic expansion through island territory acquisition to secure itself as a global superpower.<sup>2</sup> American Samoa is the only unincorporated and unorganized U.S. territory. American Samoans are distinctively identified by Congress as U.S. nationals, not citizens. The status of American Samoans as U.S. nationals instead of citizens currently allows for the existence of a hybrid legal system to serve as the official system of quasi-self-governance. This amalgamated system is founded upon the Samoan fa'amatai system, based on the customary land tenure system, in conjunction with an American system of governance. This is represented in the American Samoan Fono—the House of Representatives<sup>3</sup>—and exists due to the legal protections of the traditional Samoan systems outlined in the American Samoan Deeds of Cession and Revised American Samoan Constitution.

However, this status has become a legal issue for federal lawsuits, as litigants cite the status of American Samoans as U.S. nationals rather than citizens by birth to be the result of upheld racist and discriminatory American ideals, which designate American Samoans as “second class” to continental American citizens by birth.<sup>4</sup> This backlash is overwhelmingly within the continental United States, taking the form of legal federal court cases attempting to overturn the existing political classification of American Samoans.<sup>5</sup> Therefore, there is increasingly mounting support for the notion of conferred birthright citizenship for American Samoans by continental Americans.

American Samoa has an extensive history with the United States. American Samoa is a critical part of U.S. economic and naval expansion in building the American empire through strategic territorial acquisition in the Pacific. The issue framed today by continental American Samoans is the perception of “second class national status,” this status of American Samoans perceived to be a quasi-designation inferior to continental Americans, who receive citizenship by birth. Federal lawsuits filed thousands of miles away in different district and circuit courts on the continent are increasingly manufactured with individuals seeking judicial overturn of the Congressional conferral of statutory citizenship. Despite American Samoan resistance to birthright citizenship in the protection of the fa'amatai and traditional land tenure system, federal lawsuits supported by the U.S. American continental legal actors rooted in ethnocentric Western ideals of American nationalism continue to rage on.

I am an American citizen by birth. However, I am also Samoan and of American Samoan descent. Growing up in Las Vegas, Nevada, in the continental United States, has afforded me a lived experience of cultural duality, which offers me a particular vantage point to critically examine this issue of Samoan citizenship—specifically within both an American and Samoan context. Currently, I am studying at BYU–Hawai‘i on the island of O‘ahu. Throughout the United States’ initial contact with and colonization of the Hawaiian Islands in the 1800s, U.S. American citizens demanded the same rights in Hawai‘i to be equally applied to everyone. U.S. citizenship erased all Kanaka Maoli political identity. U.S. citizenship does not recognize native status or customary traditions, and the majority of native Hawaiian lands evolved into fee simple tenure, allowing all U.S. citizens access to ownership. Therefore, what would prevent a U.S. citizen non-Samoan living in American Samoa from suing in federal courts for ownership of customary land once everyone becomes U.S. citizens? The implications of imposed birthright citizenship for American Samoans are multifaceted, contextualized in colonial Pacific history of native land dispossession, and that may threaten the status and Samoan lifestyle of the territorial residents today. These issues are critically examined in this paper, particularly through an exploration of the legal history of American imperialistic expansion in the Pacific region and, thus, the historical creation of the contemporary status of American Samoa today.

This paper addresses the issues confronting American Samoans that threaten the fa‘amatai and fa‘asamoa systems based on the customary land tenure system and prohibit avenues for self-autonomy and determination of the American Samoan people. The first section provides an overview of the history of American imperialism and expansionism, mainly through U.S. navalism starting in the late 1800s. The second section explores the current manufactured dilemma of U.S. citizenship to outpost territories, particularly American Samoa, and some consequential recent legal actions brought within the continental United States. The third section highlights the centrality of the existing Samoan cultural systems of fa‘amatai and fa‘asamoa based on the customary land system and their overlooked role within the current legal battles. Finally, the last section examines the role of these Samoan systems in a transnational sense, situating them within a western concept of citizenship that is seen as the fallback standard for the current legal conceptions of U.S. citizenship.

### **American Imperialism and Expansionism**

American expansionism in the 1890s marked a new form of post–Civil War United States expansion and the high point of modern imperialism based on the imperialist movement of strategic advances focused on conquest



overseas.<sup>6</sup> Domestic social and economic unrest fueled many U.S. Americans to support a regenerated era of imperialism that would lift the daily lives of Americans from the economic depression in 1893. Imperial strategies focused on island outposts in the Pacific and Caribbean directly resulted from Congressional policies to establish economic strategies and colonial acquisitions such as the America-first protectionism. A national economic crisis in 1893 gave rise to a severe depression in the United States. At that time Americans elected President William McKinley in 1896 to build a strong military with protective tariffs to secure economic prosperity through foreign acquisitions of land, like Hawai'i. Notably, the McKinley Administration of this era was committed to hawkish American expansionism. This was a position widely supported by Americans to expand economic opportunity for the trade of raw materials and cheap labor that would propel America as a superpower nation. While America attempted to recover from the economic depression, growing violent conflicts between Spain and its Cuban colony continued to intensify, as did calls for American involvement to curtail Spanish influence in the region.

#### *Foreign Economic Policy*

In 1897, as a revival of the American economy began, many businessmen believed that the key to industry recovery was domestic and foreign stability, even if that meant warfare and colonialism.<sup>7</sup> Protectionism also reigned supreme in the minds of American politicians at that time, as a protectionist economic strategy was employed to help build the American economy through high tariffs on imports to encourage domestic industry. U.S. protectionism is “based on mercantilist principles which regard world trade as a game with winners and losers measured in terms of their trade balances.”<sup>8</sup> At the beginning of 1898, industrial and financial optimism strengthened, sourced from the expansion of the American export trade as businesses began to assess the gains of foreign markets, mainly secured through the acquisition of colonies.<sup>9</sup> Calls for needed imperialistic strategies in the interest of industrial and commercial development followed this.<sup>10</sup>

#### *American Empire: Colonization of Sovereign Hawai'i*

In April 1898, President William McKinley declared war on Spain, entering the Spanish-American War to secure America's geopolitical exercise of military dominance in international politics. A notable impact of this increasingly pressured notion of American expansion is in the 1898 annexation of the Kingdom of Hawai'i.<sup>11</sup> The McKinley Administration used the war as a pretext to annex

the sovereign Kingdom of Hawai'i after American businessmen led a coup against the reigning Queen Lili'uokalani and established a covert government.<sup>12</sup> Annexation of Hawai'i was previously proposed to former president Grover Cleveland; however, all attempts were officially rejected. The Spanish-American War legitimized calls for annexation in Congress. It strengthened proannexation favorability, citing the economic importance and strategic Pacific positioning for a naval base in Hawai'i to expand into "new frontiers" that were argued to be the foundation of a great nation. Proexpansionist Admiral Alfred Thayer Mahan argued that America could not be great without a powerful navy and overseas colonies.<sup>13</sup> This echoed growing American support for expansion by imperialistic means.

At McKinley's request, a joint resolution of Congress made Hawai'i a U.S. territory on August 12, 1898.<sup>14</sup> The United States seized the opportunity to fortify and expand the Navy in Hawai'i and began its military domination by conquest in the Pacific. The annexation of Hawai'i during the Spanish-American war increased American expansionism in the Pacific. This historic event also hails mounting backlash as the imperialistic pursuits of the United States and the contested legal basis upon which annexation occurred resulted in the colonization of the sovereign Kingdom of Hawai'i. Ultimately, the United States, through the McKinley Administration, strategically used the political environment of the time to advance the agenda of expansionism through the conquest of Hawai'i in the Pacific to gain the upper hand in the international race for territory acquisition and establishment as a superpower.

### *American Empire in Oceania*

The Spanish-American War ended in December 1898 with the United States victorious. It relinquished Spanish claims on Cuba (which became independent as a U.S. protectorate) in the 1898 Treaty of Paris, where Spain ceded sovereignty of Puerto Rico, Guam, and the Philippines to the United States.<sup>15</sup> The war ended Spain's historical colonial empire in the western hemisphere and vitally secured the United States' position as a Pacific power. The American spoils of this war enabled the start of its domination in the Pacific and its strategic pursuit of interests in Asia.<sup>16</sup>

The gain of Pacific Island territories set the stage for the United States to increasingly gain global power and influence and strengthen its military strategy in what is termed the "Indo-Pacific," encompassing both the Indian and Pacific oceans. However, the gain of sovereign Hawai'i and the spoils of the Spanish-American War were only the beginning, as the United States began its pursuit of naval bases in the Pacific, such as American Samoa for the Pago Pago harbor.<sup>17</sup>

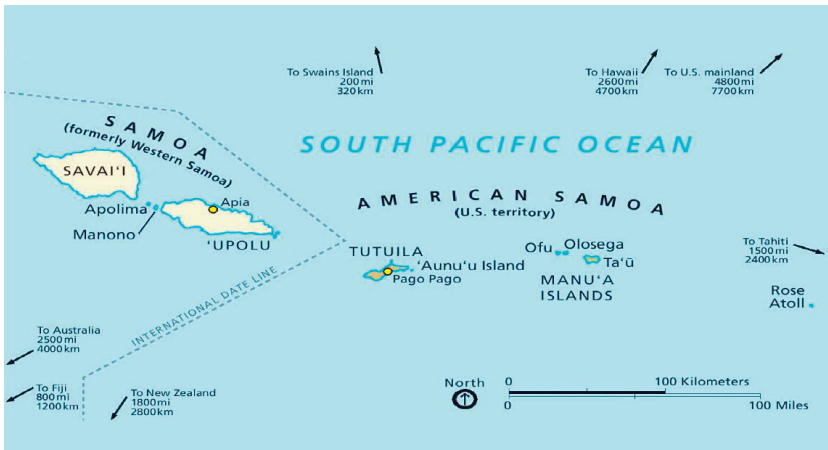


FIGURE 1. *American Samoa Map. National Parks Maps. Accessed 2022.*

### *U.S. Navy in American Samoa*

What was most notable about the Samoan Islands for western continental states was their strategic position in the heart of the Pacific and, therefore, their valuable shipment outpost and naval assets. British, Americans, and Germans each continued to explore, colonize, and expand trade and commerce in the Pacific throughout the mid to late 1800s.<sup>18</sup> With these powers came the beginning of an increased foreign consular presence in the islands of Samoa, with little authority to limit them to the outlined terms of their appointments. Each of these foreign powers increasingly grew their interests, influence, and competitive venture for political control over the islands. This was steadily established through relations and involvement with local matai (chiefs) throughout civil conflicts. The main island of Tutuila in the eastern part of the archipelago has a natural harbor in the capital Pago Pago, one of the deepest and most sheltered harbors throughout the Pacific.<sup>19</sup> The harbor's potential for use as a strategic naval and commercial shipment outpost and coaling refueling station was particularly valuable to the United States in its expansionist efforts in the Pacific and resulted in more direct and combative action to establish a secure foothold.<sup>20</sup>

### *Partition of Samoan Islands*

As a result of an explosive battle for power between the foreign actors and mounting political pressures from civil wars and conflict, Germany, Britain,

and the United States carved up the islands of Samoa (see Fig. 1). This was done while balkanizing Africa, implementing the demarcation of the two main groups standing today under the 1899 Treaty of Berlin. Thus, Samoa was partitioned with the preserved rights and interests of each sovereign country.<sup>21</sup> As the United States was actively expanding its grip on the Pacific region, it ensured possession of the eastern Samoan islands and atolls, encompassing Tutuila and its harbor.

Similarly, the Germans held their interest in protecting their large plantations in Upolu and Savai'i in the west. The British were persuaded to retain German rights in Tonga, the Solomon Islands to the southeast of Bougainville, territories in West Africa, and eventually Zanzibar upon renunciation of all rights and interests in Samoa.<sup>22</sup>

During this 1899 convention, no Samoans were present or included in any decision-making, effectively being pushed to the periphery of the plans for their own futures. However, there seemed to be an overall consensus among Samoans in the newly created eastern territory that, particularly, a relationship with the United States was a beneficial one that would prove to be prosperous for the people. In 1900, an Executive Order was enacted that placed the then "Samoan Group" under the control of the U.S. Navy, where the first institution of American laws was introduced alongside the traditional Samoan system: one that revolves explicitly around land.<sup>23</sup>

The official Deeds of Cession were signed separately in 1900 and 1904.<sup>24</sup> However, the drafting matai of the Deeds were united and clear in their intentions: keeping their people at the forefront of their minds, the decision was cited to be:

[T]he promotion of peace and welfare of the people of the islands, the establishment of a sound government, and the preservation of the rights and property of the people of the islands.<sup>25</sup>

The Deeds of Cession are treaties but minimized by the U.S. Congress to their benefit. American Samoans gave allegiance in exchange for the conditions of protection of fa'asamoa and native lands.<sup>26</sup> Consequently, American Samoans now exist today in an official classification of unincorporated and unorganized territory; American Samoans are U.S. nationals, not U.S. citizens. U.S. citizenship is not conferred as a birthright.

### **U.S. Citizenship Dilemma to Outpost Territories**

Currently, the United States has five inhabited territories: Guam, Commonwealth of Northern Mariana Islands (CNMI), Puerto Rico, Virgin Islands, and

American Samoa. All territories are unincorporated; they are not destined for statehood (see Table 1). U.S. Constitution Art. IV, section 3 states:

The Congress shall have power to dispose of and make all needful rules and regulations respecting the territory or other property belonging to the United States; and nothing in this Constitution shall be so construed as to prejudice any claims of the United States, or of any particular state.<sup>27</sup>

Under this constitutional provision, the U.S. Congress authorized the organic acts organizing Guam, CNMI, Puerto Rico, and Virgin Islands. These organizing organic acts are usually a body of laws that consist of a bill of rights and establishment and conditions of the insular territory's tripartite government enacted by U.S. Congress.<sup>28</sup> However, only one of these territories holds the status of unincorporated and unorganized: American Samoa. An incorporated territory is a United States insular territory in which Congress has applied the full corpus of the U.S. Constitution; once incorporated, a territory cannot be unincorporated.<sup>29</sup> An organized territory describes a U.S. insular territory where Congress has enacted an organic act. Therefore, as the only U.S. territory both unincorporated and unorganized, American Samoa is a territory where the U.S. Congress has determined that only part of the U.S. Constitution applies, and no organizing organic act has been enacted. Table 1 outlines each of the U.S. outpost territories and their individual political and legal status, where the unique status of American Samoa can be compared.

#### *U.S. Nationals versus Citizens*

As residents of an unincorporated and unorganized territory, American Samoans hold the political identity of an American national rather than an American citizen.<sup>30</sup> This has been a source of contention for many, and now more than ever, there is rising protest coming from both American Samoans and outsiders alike for American Samoans to be granted citizenship by birthright.

U.S. nationals cannot vote for the U.S. president or in federal elections. However, nationals can work and live anywhere in the United States and are eligible to apply for a U.S. passport or U.S. citizenship through the naturalization process.<sup>31</sup> U.S. citizenship is available via naturalization upon compliance with the requirements of either: living in any outlying U.S. territory for a minimum of five years immediately preceding their application or moving to the continental United States and establishing domicile there for at least three months.<sup>32</sup> Those opposing citizenship, however, firmly resist, mainly citing the need to protect the fa'amatai and, subsequently, the traditional land tenure system.

TABLE 1. **Kruse, Insular Case American Sāmoa, 37.**

Name	Location	Area size (sq. miles)	Population	Political and legal status
American Sāmoa	South Pacific Ocean	76	62,117	Unincorporated and unorganized territory (per 1900 and 1904 Deeds of Cession)
Guam	North Pacific Ocean	210	159,358	Unincorporated and organized territory (1898 Treaty of Paris—Spain ceded Guam to U.S.)
Commonwealth of Northern Mariana Islands	North Pacific Ocean	179	53,883	Covenant as commonwealth—1976 (formerly a United Nations Trust Territory placed under the U.S. administration)
Puerto Rico	North Atlantic Ocean	3,515	3,725,788	Unincorporated, organized commonwealth (1952)—Territory (1898 Treaty of Paris—Spain ceded Puerto Rico to U.S.)
Virgin Islands	North Atlantic Ocean	134	106,405	Unincorporated and organized territory (U.S. purchased from Denmark for \$25,000,000 in gold—1917)

*Birthright Citizenship Impacts on Custom Samoan Systems*

Birthright citizenship would mean the full application of the U.S. Constitution, which outlines certain rights and privileges such as the Equal Protection Clause in the Fourteenth Amendment that states “[N]o state should deny any person

within its jurisdiction the equal protection of the laws” and in the Due Process Clause asserting that “all persons born or naturalized in the United States, and subject to the jurisdiction thereof, are citizens of the United States and of the State wherein they reside.”<sup>33</sup> Protections against the alienation of lands and harm to the fa’amatai system are outlined in the Revised Constitution of American Samoa. Statutory citizenship has been enacted for every other insular territory, including Puerto Rico, CNMI, Guam, and the Virgin Islands.<sup>34</sup> Therefore, the conferment of birthright citizenship would mean that the currently established protections for American Samoa may be challenged.

### *Federal Lawsuits*

With a heightened push in recent years, some territorial and nonterritorial residents and organizations with assistance from nonterritorial actors have been trying to sidestep the U.S. Congress and obtain citizenship in the federal courts. Birthright citizenship is also part of the legal argument that addresses America’s colonial history and how the U.S. Congress discriminated against people denying citizenship, rights, and privileges to non-white people.

In 2012, a lawsuit was brought against the United States, the State Department, the secretary of state, and the assistant secretary of state for consular affairs by the Constitutional Accountability Center (CAC) on behalf of five individual plaintiffs and a California-based nonprofit.<sup>35</sup> The case, *Tuaua v. United States*, was dismissed and received backlash from many American Samoans, outraged that the litigants were pursuing these claims in U.S. district and circuit courts to unilaterally make a decision of citizenship for the people in American Samoa. This additionally raised questions as to who the supporting and funding organizations were, such as the CAC, and what purpose they serve. The CAC is a Washington, DC–based liberal nonprofit think-tank, law firm, and action center. They are a special interest group that ultimately has no ties or connections with Samoan systems or land, something at the heart of this issue.

After plaintiff appeals were submitted in June 2015, the DC Circuit ruled in *Tuaua v. United States* that “the United States” in the Fourteenth Amendment’s Citizenship Clause does *not* extend to unincorporated territories.<sup>36</sup> This solely impacted the territory of American Samoa, as Congress has already extended birthright citizenship by statute to the residents of most territories. Persons born in American Samoa are designated under the Immigration and Nationality Act of 1952 (INA) as “noncitizen nationals.”<sup>37</sup> In the case dismissal, the court stated:

At base Appellants ask that we forcibly impose a compact of citizenship—with its concomitant rights, obligations, and implications for cultural identity—on a distinct and unincorporated territory of

people, in the absence of evidence that a majority of the territory's inhabitants endorse such a tie and where the territory's democratically elected representatives actively oppose such a compact.<sup>38</sup>

Another federal lawsuit that garnered international attention in recent years has been *Fitisemanu v. United States*. In 2019, three American Samoan nationals with permanent residence in Utah, continental United States, asked the Utah District Court to declare American Samoans U.S. citizens. One of the plaintiffs, John Fitisemanu, an American Samoan-born national, moved to Utah decades ago and did not choose to naturalize. Judge Clark Waddoups of the Utah district court ruled in favor of the plaintiffs and declared that American Samoans should indeed be U.S. citizens by birth.<sup>39</sup> Soon after the ruling, the United States federal government and the American Samoan government appealed to the Tenth Circuit Court of Appeals to reverse the decision, after an outpour of backlash, stating American Samoans' and the government's belief that it is not the place of a Utah-based judge to decide the fate of all territorial residents of American Samoa. The Tenth Circuit Court agreed and upheld the federal law classifying American Samoans as U.S. nationals, not citizens, by birth. The Circuit court concluded that the district court decision was based on an invalid interpretation of the Citizenship Clause of the Fourteenth Amendment.<sup>40</sup> The district court, like the court that decided *Tuaua v. United States*, concluded:

It is evident that the wishes of the territory's democratically elected representatives, who remind us that their people have not formed a consensus in favor of American citizenship and urge us not to impose citizenship on an unwilling people from a courthouse thousands of miles away, have not been taken into adequate consideration.<sup>41</sup>

Fitisemanu and the original plaintiffs of this case appealed to the U.S. Supreme Court. The Supreme Court rejected review after advisement from the Biden Administration due to failure to address self-determination in American Samoa.<sup>42</sup>

Through legal cases such as these, there is a continued battle taking place in the continental American courts led by people vying for birthright citizenship for territorial residents. However, this goal is not one shared by all. Instead, it seems as though this propelled movement is composed not of the majority of territorial residents but rather of individuals creating large legal waves within the continental United States supported by shadow political organizations. These recent court cases do not hold the interests of all American Samoan territorial residents. Although the acquisition of automatic citizenship may be convenient or beneficial for some, it likewise can be detrimental for others.



These posed threats to the protections of traditional Samoan systems have been continuously recognized by the U.S. federal courts as reflected in the dismissal of each case brought contending for birthright citizenship.

### **Protection and Survival of Samoan Cultural Systems**

The fa'amatai is the Samoan chiefly title system that exists in relation to and as a larger part of fa'asamoa.<sup>43</sup> Fa'asamoa is largely defined as the "Samoan way of life" and pertains to everyday means of conducting oneself in Samoan culture.<sup>44</sup> Samoans created the fa'asamoa as a framework for action built on the social structure of the aiga (family) and nu'u (village) and the authority of matai (chief) and fono (governing council of a nu'u).<sup>45</sup> Because of this system, as time passes and social, cultural, and political norms change, the fa'asamoa and, subsequently, the fa'amatai system are adaptable and are able to thrive.

#### *Fa'amatai: Chiefly System*

In traditional Samoan society, each household has a matai title holder who exists within a ranked hierarchy of matai title holders in the village.

The traditional fa'amatai system is a complex configuration of matai titles, all ordered relative to each other. Matai titles are based upon kinship relations, mythology, and genealogical history, but also upon one's ability to garner loyalty and support within the aiga and aiga potopoto structure.<sup>46</sup>

The word matai itself comes from "mata i ai" which has connotations of "being set apart or consecrated."<sup>47</sup> As a result of the divided and colonized Samoas, the fa'amatai system today exists with specific distinctions between American Samoa and Independent Samoa. A few significant differences in the systems dictate the sociopolitical organization of society in two separate territories today. Unique to American Samoa, there is a matai title registry administered by the government, which only recognizes matai titles registered before January 1, 1969, and only allows one person to be assigned to each registered title.<sup>48</sup> Fa'amatai also extends beyond the geographic region of Samoa to all Samoans abroad as well. Samoans in the diaspora continue to actively participate in Samoan cultural activities or still exist (to varying degrees) within the sphere of influence of the fa'amatai system.<sup>49</sup>

#### *Fa'amatai and Traditional Land Tenure*

At the core of Samoan culture, genealogy, and traditional governance is customary land. The five existing classifications of land organization today are (1)

free hold, (2) government owned, (3) church owned, (4) individually owned, and (5) communal or native lands<sup>50</sup> (see Table 2).<sup>51</sup> Customary land is traditionally under the authority of the fa'amatai, used for the entire family's benefit, providing the means for Samoan traditions to survive.<sup>52</sup> The authority of matai leadership over communal lands is balanced between the state and local governance in the villages and districts.<sup>53</sup> Individually owned land is a land tenure created by the naval papalagi (foreigners) in the High Court. In American Samoa, the High Court under the judicial jurisdiction of the navy and president of the High Court was the commandant of the naval fleet. Prior to western contact, all land was customarily owned and organized by Samoans.<sup>54</sup>

The two core protections outlined in both Deeds of Cession are customary lands and the matai system. These are intertwined with one another and are at the heart of the existence of Samoan culture and people. The matai title holder controls communal land holdings, resources, and land distributions to members of the aiga traditionally passed down generationally.<sup>55</sup>

The relationship between American Samoa and the United States in terms of securing customary land tenure is a double-edged sword within the territorial flag islands. Samoans have always enjoyed the fruits of customary land tenure and the enrichment the culture gets from the matai system and access to and use of lands for traditional living.<sup>56</sup>

The Samoan political structure is rooted in communal lands. The fa'amatai is a fundamental organizing aspect of Samoa's political structure. The fa'amatai system exists both with and because of the existence of communal lands, as the role of aiga (family) members is to protect the communal lands and familial interests accordingly. Family organization exists on the basis of land, and the matai oversees control and stewardship of this organization. Land is also considered the most important tangible asset of the Samoan people and serves as a central mechanism for sustaining villages in a subsistence society.<sup>57</sup> The power and centrality of the fa'amatai system to Samoan existence cannot be overstated.

### *Hybrid Legal System*

The American Samoan Fono is the bicameral legislature created under the Revised Constitution of American Samoa. Senate eligibility in the Fono requires an individual to be a matai title holder. Article II, § 3 (d) of the Revised American Constitution states senators must "be the registered matai of a Samoan family who fulfills his obligations as required by Samoan custom in the district from which he is elected."<sup>58</sup> It is important to note the language here; while "traditional duties and responsibilities" are explicitly required, what exactly those obligations are is not clearly defined. Traditional customs and

TABLE 2. Kruse, Insular Case American Sāmoa, 53.

Designation	±	Total registered land in American Sāmoa											
		2003–2013	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003
Total registered land (Acreage)	+277	7,888	7,875	7,863	7,862	7,794	7,746	7,705	7,693	7,670	7,649	7,611	
Freehold	-53	1,072	1,072	1,072	1,072	1,018	1,018	1,018	1,018	1,018	1,019	1,019	
Government owned	—	1,651	1,651	1,651	1,651	1,651	1,651	1,651	1,651	1,651	1,651	1,651	
Church owned	+26	1,030	1,030	1,030	1,030	1,028	1,018	1,013	1,013	1,013	1,005	1,004	
Individually owned	+126	2,029	2,027	2,016	2,015	2,006	1,971	1,962	1,955	1,942	1,935	1,903	
Communal	+72	2,106	2,095	2,094	2,093	2,091	2,088	2,061	2,056	2,046	2,039	2,034	
Percent total	100		100	100	100	100	100	100	100	100	100	100	
Freehold	13.6		13.6	13.6	13.6	13.1	13.1	13.2	13.2	13.3	13.3	13.4	
Government owned	21.9		21.0	21.0	21.0	21.2	21.3	21.4	21.5	21.5	21.6	21.7	
Church owned	13.1		13.1	13.1	13.1	13.2	13.1	13.1	13.2	13.2	13.1	13.2	
Individually owned	25.7		25.7	25.6	25.6	25.7	25.4	25.5	25.4	25.3	25.3	25.0	
Communal	26.7		26.6	26.6	26.6	26.8	27.0	26.7	26.7	26.7	26.7	26.7	

practices can vary in different villages and counties, this allows for the individual will of people from district to district to determine what exactly the provisions are for Senate eligibility. Overall, this flexibility is essential to the survival of the fa'amatai system through modernization and in conjunction with the American political system, creating a hybrid system unique to this territory. This general adaptability accounts for the success of the continued existence through the evolution of the fa'amatai system.

The first Constitution of American Samoa was adopted in 1960, marking a new milestone for the territory toward self-governance.<sup>59</sup> There is no legislative or plebiscite push for American Samoan sovereignty. Instead, many are looking toward political alternatives that would incorporate a shift of self-governance toward autonomy. With a long and complicated relationship with the United States, many American Samoans are rightfully asking if the current integrated system of governance fully serves their best interests.

### **Fa'amatai: Traditional to Transnational**

Fa'amatai was an institution situated primarily in Samoa. However, the fa'amatai as an institution has, over the past sixty years, expanded outside of Samoa and is commonly referred to as the transnational matai. Transnational matai are matai that live outside of Samoa. Studies have shown that over 80 percent of registered matai now live overseas.<sup>60</sup> Currently, much of the literature on fa'amatai is polarized. On one side,

Advocates of transnational fa'amatai view Samoans as Samoa's comparative advantage and competitive edge, founded on the acculturation of mobility, and remaining true to the key tenets of Samoa—the welfare of the collective.<sup>61</sup>

The opposing side argues,

The perception that transnational matai “lack the proper cultural grooming to become proper matai who know their stuff—oratory language, genealogy, and esoteric matters, and many subtle nuances associated with the fa'amatai.”<sup>62</sup>

The discourse surrounding opposing positions on the role of transnational fa'amatai is an ever-increasing reality for Samoans today. The strength of the fa'asamoa and fa'amatai systems lies within their flexible natures to survive.

For American Samoans, the notion of transnational matai is convoluted due to their political status as American nationals. The difficulty, however, comes in finding an appropriate balance of the two for American Samoans and in determining—according to one of the main tenets of fa’asamoa—what is best for the collective of American Samoans. Must American Samoans become American citizens in order to survive within the American domestic political sphere? I argue strongly against this, because American Samoans in American Samoa must decide what their political future is and what that will look like considering they have cultural political institutions like customary land, fa’asamoa, and fa’amatai to consider.

#### *American/Western Context of Citizenship*

The concept of citizenship is one held in high regard by continental Americans. Citizenship is oftentimes seen as a marker of identity. In 2023, American citizenship tends to be awarded gold-star status. But how exactly does the social importance that Americans place on citizenship impact the current situation for American Samoans? Law professor Linda Bosniak explores the conventional notions of the concept of citizenship itself:

Sometimes we view citizenship from an internal or endogenous perspective. From this vantage, citizenship is understood to designate the nature and quality of relations among presumed members of an already established society. As a normative matter, citizenship in this internal sense is understood to stand for a universalist ethic—for the inclusion and incorporation of “everyone.”<sup>63</sup>

Bosniak dives into widespread perceptions of citizenship for Americans and perhaps a broader western perspective in general, where she examines a lens of citizenship that is largely influenced by an individualistic understanding that is normative of American society. Widely accepted is the notion of presumed desirability of citizenship for all those on the outside looking in. Americans treat U.S. citizenship as a prize, as the ultimate end goal that everyone involved either is or should be working toward.

#### *American Context of Citizenship: A Samoan Perspective*

A Samoan perspective of governance and individual responsibility is not seen by a social contract from government to individual but within the fa’asamoa and fa’amatai institutions. Within fa’asamoa, there are important values and belief systems that enable the ability to make decisions and choices for the collective

family. These include *pule* (authority or power), *soālaupule* (joint decision-making), *‘autasi* (consensus), *alofa* (love, compassion, care), *fa’aaloalo* (respect), *mamalu* (dignity), *fa’autaga*, *tōfā*, and *moe* (all refer to wisdom).<sup>64</sup> These aspects are similarly present in the *fa’amatai* system, and their role must be understood while considering a Samoan view of gaining U.S. citizenship. While the transnational *matai* has access to increased socio-economic and political opportunities for success; they can, in fact, continue to be rooted by serving the Samoan village family. Therefore, U.S. citizenship may be seen as beneficial in the context of both American individualities as well as traditional Samoan collectivism.

### Conclusions

The importance of the Samoan *fa’asamoa* encompassing the *fa’amatai* and the customary land tenure systems cannot be understated. The *fa’amatai* system is intertwined with the traditional land tenure system; land exists at the core of Samoan culture, genealogy, and traditional governance. Ultimately, the *fa’amatai* system, and therefore *fa’asamoa* as a whole, could not exist without customary land, as the structure and authority of the *fa’amatai* lie within leadership over communal lands. Samoan culture begins and ends with Samoan customary land. The protections outlined through the Deeds of Cession and Revised American Samoan Constitution ensure that the *fa’amatai* system, protecting customary Samoan land, may exist in conjunction with the current U.S. system of governance through the American Samoan Fono. These protections may exist due to the status of American Samoans as U.S. nationals rather than citizens, since an application of the full U.S. Constitution, such as the due process and equal protection clauses in the Fourteenth Amendment, is not mandatorily applied, as it would be if Samoans were conferred automatic birthright citizenship.

Those advocating for the conferment of automatic birthright citizenship for American Samoans do so through an individualistic American nationalist view that denies full self-autonomy to American Samoans. This article recognizes the limited benefits that could be gained through obtaining birthright citizenship for American Samoans, which has always been available through the expedited naturalization process. Yet, the inclination to fear automatic birthright citizenship because of the risks to preserving the *fa’amatai* and the traditional land tenure system is not unreasonable given the history of the United States with other indigenous populations, such as the Native Hawaiians. Automatic birthright citizenship is detrimental to the continued survival of American Samoans, and the current legal push within the continental United States to judicially impose this on American Samoans goes directly against their rights to self-determination.

## NOTES

<sup>1</sup>For further information, please refer to Census Bureau Releases 2020 Census Population and Housing Unit Counts for American Samoa. United States Census Bureau, October 28, 2021.

<sup>2</sup>Dardani, Ross. 2020. Citizenship in empire: The legal history of US citizenship in American Samoa, 1899-1960. *American Journal of Legal History* 60 (3): 311–356.

<sup>3</sup>Kruse, Line-Nowe Memea. 2018. *The Pacific insular case of American Sāmoa: Land rights and law in unincorporated US territories*. Cham, Switzerland: Palgrave Macmillan, 6.

<sup>4</sup>McCloskey, Brendan. 2017. Granting Samoans American citizenship while protecting Samoan land and culture. *Drexel Law Review* 10: 497.

<sup>5</sup>I am limited by the time and space within this paper in providing an in-depth or comprehensive explanation and analysis of all relevant court cases. However, in the section entitled “Federal Lawsuits,” the *Tuaua v. United States* and *Fitisemanu v. United States* cases are examined further.

<sup>6</sup>David Healy. 1970. *US expansionism: The imperialist urge in the 1890s*. Madison, WI: Univ. of Wisconsin Press.

<sup>7</sup>Pratt, Julius W. 1934. American business and the Spanish-American War. *The Hispanic American Historical Review* 14 (2): 163–201, 166.

<sup>8</sup>Park, Sang-Chul. 2018. US protectionism and trade imbalance between the US and North-east Asian countries. *International Organisations Research Journal* 13 (2): 76–100, 78.

<sup>9</sup>Pratt, American Business Spanish-American War: 166, 179.

<sup>10</sup>*Ibid.*, 80.

<sup>11</sup>For further information please refer to The 1897 Petition Against the Annexation of Hawaii. National Archives and Records Administration. National Archives and Records Administration, 2021. <https://www.archives.gov/education/lessons/hawaii-petition>.

<sup>12</sup>*Ibid.*

<sup>13</sup>Sumida, Jon. 1999. Alfred Thayer Mahan, geopolitician, *The Journal of Strategic Studies*, 22:2–3, 39–62, DOI: 10.1080/01402399908437753.

<sup>14</sup>The Spanish-American War, 1898. U.S. Department of State Archive, Foreign Service Institute, 2016. <https://history.state.gov/milestones/1866-1898/spanish-american-war>.

<sup>15</sup>*Ibid.*

<sup>16</sup>*Ibid.*

<sup>17</sup>Kruse, Line-Nowe Memea. 2018. *The Pacific insular case of American Sāmoa: Land rights and law in unincorporated US territories*. Cham, Switzerland: Palgrave Macmillan, 6.

<sup>18</sup>Ripine, Muliaumasealii Aleni. 2008. *A history of Amerika Samoa: An annotated timeline*. Malaeimi: American Samoa Community College, 167.

<sup>19</sup>Kruse, *Insular case American Sāmoa*, 6.

<sup>20</sup>Ripine, *Amerika Samoa: Annotated timeline*, 222.

<sup>21</sup>Kruse, *Insular case American Sāmoa*, 20.

<sup>22</sup>Ripine, *Amerika Samoa: Annotated timeline*, 374.

<sup>23</sup>Kruse, *Insular case American Sāmoa*, 1.

<sup>24</sup>*Ibid.*, 6.

<sup>25</sup>Cession of Tutuila and Aunu'u. American Samoa Bar Association, April 13, 2013. <https://asbar.org/cession-of-tutuila-and-aunu/>.

<sup>26</sup>Faleomavaega, Eni Faauaa Hunkin. 1995. *Navigating the future: A Samoan perspective on U.S.-Pacific relations*. Suva: KIN Publications in association with the Institute of Pacific Studies, University of the South Pacific; and Honolulu: Pacific Islands Development Program.

<sup>27</sup>U.S. Const., IV, § 3.

<sup>28</sup>Definitions of insular area political organizations. U.S. Department of the Interior. Office of Insular Affairs, November 30, 2020. <https://www.doi.gov/oia/islands/politicatypes>.

<sup>29</sup>*Ibid.*

<sup>30</sup>8 U.S.C. § 1101(22) (b).

<sup>31</sup>Kruse, *Insular case American Sāmoa*, 80.

<sup>32</sup>8 U.S.C. § 1436, 8 U.S.C. § 1427.

<sup>33</sup>U.S. Const., amend. XIV § 1.

<sup>34</sup>Kruse, *Insular case American Sāmoa*, 80.

<sup>35</sup>*Ibid.*, 82.

<sup>36</sup>788 F.3d 300 (DC Cir. 2015).

<sup>37</sup>8 U.S.C. § 1408.

<sup>38</sup>*Tuaua v. United States*, 788 F.3d 300, 21 (DC Cir. 2015).

<sup>39</sup>*Fitisemanu v. United States*, 426 F. Supp. 3d 1155 (D. Utah 2019).



<sup>40</sup>*Fitisemanu v. United States*, No 20-4017 (10th Cir. 2021).

<sup>41</sup>*Ibid.*

<sup>42</sup>Robert Barnes, Biden administration urges Supreme Court not to take citizenship case, *The Washington Post*, 2022, <https://www.washingtonpost.com/national-security/2022/08/29/insular-cases-samoa-supreme-court/>; *Fitisemanu v. United States* 21-1394 U.S. (2021).

<sup>43</sup>Vaai, Saleimoa. 1999. *Samoa Faamatai and the Rule of Law*. To'omatagi, Samoa: National University of Samoa.

<sup>44</sup>Meleisea, Malama. 1987. *The making of modern Samoa: Traditional authority and colonial administration in the history of Western Samoa*. Suva: Institute of Pacific Studies of the University of the South Pacific, 16.

<sup>45</sup>*Ibid.*

<sup>46</sup>Kruse, *Insular case American Sāmoa*, 13.

<sup>47</sup>Meleisea, *Making of modern Samoa*, 7.

<sup>48</sup>A.S.C.A. § 1.0401 et seq., 1968.

<sup>49</sup>Va'ai, *Samoa Faamatai Rule of Law*, 1.

<sup>50</sup>Kruse, *Insular case American Sāmoa*, 53.

<sup>51</sup>In American Samoa there are five classifications of land ownership titles. Freehold title refers to land that was alienated from customary land by the International Claims Commission in Apia (Independent Samoa) before 1900. Freehold land may be sold or transferred (Lutali and Stewart 1974, 124). Author: Please supply reference information for Lutali and Stewart 1974. Government-owned land refers to land that was alienated from customary land and is owned by the American Samoa Government. Church-owned land refers to land that was alienated from customary land and is owned by a church entity. Individually owned land is defined in Public Law 7-19 as, "owned by a person in one of the first two categories name in Sec. 9.01012, or that is owned by an individual or individuals, except lands included in court grants prior to 1900. Such land may be conveyed only to a person or family in the categories mentioned in Sec. 9.0102, except that it may be inherited by devise or descent under the laws of intestate succession, by natural lineal descendants of the owner. If no person is qualified to inherit, the title shall revert to the family from which the title was derived. Communal land is land is protected by the American Samoa Revised Constitution and caselaw for the 'customs and usage' of the people of American Samoa. Communal land is held in a particular title-holder (matai) who has authority (pule) over the land. Communal land cannot be conveyed or mortgaged."

<sup>52</sup>*Ibid.*, 61, 124.

<sup>53</sup>*Ibid.*, 108.

<sup>54</sup>Kruse, *Insular case American Sāmoa*; Arutangai, Selwyn, and R. G. Crocombe. 1987. *Land Tenure in the Pacific*. 3rd ed. Edited by R. G. Crocombe. Suva: University of the South Pacific.

<sup>55</sup>Va'ai, *Samoa Faamatai rule of law*.

<sup>56</sup>Kruse, *Insular case American Sāmoa*, 38.

<sup>57</sup>Ibid., 59.

<sup>58</sup>Revised Constitution of American Samoa, art.II. § 3(d)

<sup>59</sup>Kruse, *Insular case American Sāmoa*, 89.

<sup>60</sup>Anae, Melani, and Ingrid Peterson. 2020. *A handbook for transnational Samoan Matai (chiefs): Tusifaitau o Matai Fafo o Samoa*. *Pacific Dynamics*. Christchurch, NZ: Macmillan Brown Centre for Pacific Studies, University of Canterbury. [http://pacificdynamics.nz/wp-content/uploads/2020/09/Final\\_proof\\_RM\\_N\\_2020-008.pdf](http://pacificdynamics.nz/wp-content/uploads/2020/09/Final_proof_RM_N_2020-008.pdf).

<sup>61</sup>Ibid.

<sup>62</sup>Ibid.

<sup>63</sup>Bosniak, Linda. 2006. *The citizen and the alien: Dilemmas of contemporary membership*. Princeton, NJ: Princeton Univ. Press.

<sup>64</sup>Huffer, Elise, and Asofou So'o. 2005. Beyond governance in Sāmoa: Understanding Samoan political thought. *The Contemporary Pacific* 17 (2): 311–333.

## NATURE'S HAND IN THE INVENTION OF WRITING

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The evolution of writing from tokens (images) to pictography, syllabary, and alphabet has remained an important aspect of study for several centuries (Schmandt-Besserat 2014, *The Evolution of Writing. International Encyclopedia of Social and Behavioral Sciences*. ed. James Wright, Amsterdam: Elsevier). Understanding the phenomena that drives change in a writing system can showcase differences across diverse cultures around the world. Selected graphemes from three ancient writing systems—Mayan hieroglyphs, Egyptian hieroglyphs, and Shang China's oracle bone script—demonstrate how ancient peoples based the characters of their writing systems on features from their physical environment and culture. Inventors of these writing systems across ancient civilizations drew upon elements in their physical environment to create visual representations of language, which became characters in their writing systems. Natural environments create constraints within which human cultures develop. Furthermore, culture itself influences the visual appearance of writing, so that writing systems reflect both their environment and culture in form and style.

### Introduction

My first real footsteps into the past began when I took a class on the history of writing systems here at BYU–Hawaii. Learning about something as broad as ancient writing can be daunting, but it is also thrilling. As I studied about more and more civilizations and their cultures, I fell in love with the learning process

and began to frequently ask questions. I noticed how diverse writing systems can be. Humankind has the natural ability to create, and writing provides a form of expression. As the Earth offers so much beauty and inspiration to its inhabitants, landscapes are often portrayed in artwork. Since writing systems are also a result of human ingenuity, I began to wonder if nature and the physical environment form a sort of constraint for the visual appearance of culture and writing, limiting the creative aspect but also acting as inspiration for those who used it to express themselves.

As I began to research this question, there seemed to be a lack of any attempt to find correlation between environment and writing appearance. The research closest to my question came from literary editor and author Andrew Robinson (2009) on the relationship between medium—the materials and methods used to deliver a piece of writing, such as the digital keyboard I used to produce this article—and orthographies—the conventional spelling system and characters that make up the writing itself. Swedish scientist Huidong Tian et al. (2017) performed in-depth studies into observing the relationship between climate and human populations and structure, noting how epidemics and other concerns were often the result of the location of a people, but there was little discussion on the alteration of writing under the same umbrella. Following the path laid by this research, I began to look for the connection from the characters themselves.

Despite the vast distances between civilizations and their respective writing systems, similarities in writing structure are apparent when two or more places are compared. “As in Egypt, among the Maya there was a strong linkage between text and picture, one providing a commentary on the other . . .” (Coe 2001, 8) and the modern historian gets a vague idea of the individual's experiences through time. Images from the daily life of an individual thousands of years ago are preserved in their writing—both the style and the words themselves. An ancient scribe creates a memory or a snapshot from their own time period, which reflects their distinct cultural habits.

Writing systems also preserve living cultures that adapt and respond to the environment. Horticulture and agriculture formed the economy, society, and the necessity for record-keeping—such as the need for keeping track of inventory after a harvest, which became a birthplace for writing (Wilken 1971: 432–448). Humans are subject to the world around them in its seasons, time, and behaviors. The natural environment provides the historian with a backdrop and new ways of understanding the emergence of a writing system, and writing provides a glimpse into a people's history and an insight into its future.

In this paper, the beginning eras of three distinct writing systems are explored. Mayan hieroglyphs come in complex shapes and appearances, and they originated in a busy tropical environment approximately 2,000 years ago.

Egyptian hieroglyphs come with a long history of evolution and use, spanning several millennia, but beginning as early as 3000 BC. Shang China's oracle bone script—an evolved form of Chinese character writing—is credited to begin around the same time as the Shang dynasty it is named after, in the eighteenth-century BC, over a millennium after the earliest characters likely surfaced. Egypt's dry landscapes stand distinctly apart from the rainforests of Mayan Mesoamerica, and the highlands of ancient China would have looked nothing like the deserts of Northern Africa. By exploring these particular writing systems from entirely different eras of Earth's history and with seemingly little in common, an idea of how writing became one of humanity's creative outlets starts to take form.

### **Mayan Hieroglyphs in Their Early Stages, 100 BC–100 AD**

The ancient Maya of Mesoamerica lived in stunning forests and tropical flora, what “. . . is considered today among the world's most biodiverse places . . .” (Ford and Nigh 2014: 87–106). This tropical climate inspired the Mayan scribes to start writing. Evidence for the environment's influence on Mayan culture is found in Maya iconography and epigraphy, as physical representations of its characteristics appear in the Maya's written symbols (Coe 2001, 8). Busy with diverse colors, sounds, and shapes, the environment is reflected in the people's complex and detailed writing system. The era of Mayan civilization from which their writing system emerged is known as the Classic period, and examples of the script appear to be dated no earlier than 100 BC (Saturno 2006: 1281–1283). The earliest forms of archaic Maya script, consisting of mixed logo-syllabic glyphs read in clockwise order, are found on excavated objects, carved into stone steles, and contained in codices made of fig bark paper (Vail 2006: 497–519). The characters number over 800 and can be combined to form any word or concept in the Mayan language (Coe 2001).

#### *Animals and Landscapes*

Many characters have more than one meaning or interpretation. To aid in the understanding of Mayan hieroglyphs, many of its logograms—signs or characters that represent a word or phrase and can't be sounded out—are accompanied by one or more symbols that represent its syllables, hence they are logo-syllabic (Coe 2001, 24). Animals unique to Central America, such as the macaw, the jaguar, and the leaf-nosed bat, occasionally have glyphs that represent them in Mayan writing using this structure. These glyphs become a combination of logographic and phonetic bases (Coe 2001, 129). The glyphs are not just abstract representations but show actual features of the animal. Several allographs for



FIGURE 1. From left to right: Jaguar, macaw, and rain (Davies 2022).

the macaw look like the head of the bird, complete with a curved beak shape and marks around the eyes to imitate its colored feather patterns (Fig. 1). The caiman alligator's and the jaguar's respective glyphs contain their distinct spotting, while the turtle has scaled plating. The glyph for the leaf-nosed bat contains accurate details, including large ears and a pointed nose. The complexity and ornate details of the glyphs make it easier to determine the animals they depict. Animals also appeared in glyphs with other meanings, such as the glyph for "child," which appears like a baby bird in the mouth of a larger bird. Ancient Mesoamerican landscapes are also featured in Mayan writing. Circular shapes are drawn into the character for "mountain," representing caves and sinkholes (Coe 2001, 127). A round, gridded shape in the "earth" glyph is also found in the "rain" glyph. Visited by frequent and powerful rainstorms, the Maya drew curved lines falling toward the "earth" in their representation of rainfall.

Natural resources were used in carving, colors, and cosmetics. The Maya had several minerals to choose from, including obsidian, granite, basalt and other volcanoclastic rocks, quartz, magnetite for black pigment, or limonite for yellow pigments (Wanyerka 2006). Quarries yielded large stela, or stone slabs, that Maya scribes carved with images of rulers and deities and inscriptions of dynasties and histories. Some of the stela still stand today, having preserved the Mayan glyphs through time.

#### *Color and Materials*

The Maya used colors in their representation of the cardinal directions: white—north, red—east, yellow—south, and black—west, while the center is represented in green. David Bolles (2021) suggests that these colors are based on varieties of corn. In a study on nearby Aztec culture that encompasses the Maya, Manuel Aguilar-Moreno (2007), associate professor of art history, goes further in-depth, suggesting that each color individually represents something: black for nighttime; red for vegetation, love, and fire; yellow for the sun and ripe corn; white for old age and rays of light; and green for water, jade, and turquoise. Assistant professor of Anthropology Alexandre Tokovinine (2012)

found examples of language originating from colors of the environment, such as the word *yaxha*, meaning clear/blue/green water, originated from Lake Yaxha. The lake's colors were also reflected in the wings of the quetzal bird. As the Mayan colors enter the language, they enter the writing system. In summarizing his thoughts, Tokovinine wrote,

Color terms seemingly obtain certain iconographic correspondents . . . The other alternative—to refer to colors by the coloring of a glyph—is found only once, on the stucco façade of the Margarita Structure at Copan, where a *k'an* logogram is replaced by a generic shape painted yellow (2012).

Other color logograms come from unique Maya icons (Tokovinine 2012, 286).

A unique material available to Maya scribes was a blue-green dye now known as “Maya Blue.” This color differs from any medieval paintings or other forms of art based in Europe or Asia and stays vivid through centuries in the extreme conditions of the rainforest. Although the origin of Maya Blue is contested, the paint is likely a combination of indigo and intercalated clay found in the Mayan environment (José-Yacamán et al. 1996: 223–225).

### **Old Kingdom Egyptian, circa 3300–2200 BC**

Unlike the Maya, Egypt received little rainfall in its dry, arid deserts, so the people took advantage of the nearby Nile for their sustainability, dependent on its swells and currents. Droughts frequently affected agriculture, economy, and trade (Bell 1971: 1–26). Writing in Egypt and other parts of the Middle East developed in this environment. The ancient Egyptians created a unique writing system between 3300 and 3100 BC—perhaps inspired by Mesopotamia's Sumerian scripts nearby of a few centuries earlier (Farndon 2003, 16). Static and simplistic characters reflect the scarce plant and animal life. Traditional Egyptian writing employed both semantic principles—using meaningful grammatical marks—and phonetic principles that were pronounced out loud.

The original hieroglyphic system was based on pictorial representations of objects in the daily life of an ancient Egyptian, such as humans, animals, plants, or tools (Beylage 2018). Over time, many of the characters became abstracted or a hieratic style was adopted, but some still hold to their original shape. Though the number would fluctuate throughout Egypt's long history, traditional Old Kingdom Egyptian characters or graphemes numbered nearly 1,000 (Mattessich 2002: 195–208). These were originally used to record historical

events and honor deities but were later also used to express cultural artwork (Loprieno 1995, 12).

### *Culture and Religion*

Afterlife was one of the Egyptians' emphasized ideologies; they carved most of their hieroglyphs into temples and tombs that reflect its importance. The glyphs detailed instructions to guide the soul in its journey toward the afterlife. For their royalty, they also frequently carved names and drew an oval shape around the characters known as a cartouche. Egyptians believed this would embody a person's identity and provide a form of protection. Subsequent generations that wanted rulers to be forgotten or lost would score out their names from their tombs (Duque-Domingo 2017, 589). Tutankhamen and Queen Hatshepsut stand as examples of this practice (Powell 2012). Since these carvings are placed in stone and are buried in tombs, the environment has preserved them well beyond their years. The name hieroglyphs—or "sacred carvings" in Greek—honors the Egyptians' own title for their writing, which is translated as "divine words," and their tradition that writing was a gift from the gods. Gods of Egypt came from intense observation of nature and embodied different animals (Newberry 1951: 72–74).

The Egyptians' color methodology is similar to the Mayan's. Ancient Egyptian language had four basic color terms for black, white, red, and green; all other colors were included in these umbrella categories. The people used color to represent various emotions and aspects of their environment. Black showcased the underworld or afterlife and came from the black mud around the Nile. White referred to all things luminous and pure. Red encompassed the sun, blood, fire, and the desert itself—full of life but also perilous. Green represented both vegetation and the ocean, along with the protection and sustenance they provided the people (Morgan 2011, 4).

### *Materials and Characteristics*

Scribes also wrote on papyrus, leather, limestone, or pottery using a reed brush (stylus), as the tool was readily available in Eastern Africa and the Arabian Peninsula. A reed has a distinct wedge shape, which would influence the appearance of the hieroglyphs. Similarly, the Sumerians had previously created a writing system known as cuneiform, or "wedge-shaped," that also employed the reed brush, though they typically wrote on clay tablets (Robinson 2009, 23).

The Egyptian character for *akhet*, or "horizon," appears like the valley of a mountain with a sun overhead. The sun character itself appears in the logograph for "time," as the Egyptians used nature to represent the passage of time





FIGURE 2. From left to right: horizon, phonetic letter “m,” and eternity (Faulkner 1962).

(Faulkner 1962) (Fig. 2). The Egyptians also used animals in their writing. The owl, in Old Egyptian, was used for the alphabetic sound “m” and thus fairly frequently used. Owls symbolized death and mourning, so they were applied as both a phonetic sound in writing and a symbol of the afterlife. They were often included in related words and found in tombs. Lions directly drawn as their own symbol show some of the more detailed visual aspects of Egyptian writing (Faulkner 1962, 28).

#### Oracle Bone Script of China’s Shang Dynasty, Beginning 1766 BC

“China has a long history of recording political events and natural disasters” (Tian et al. 2017). Their detailed and unbroken line of records have a lot to offer modern historians. During the first half of second-century BC, an urban civilization emerged in Northern China complete with wheeled vehicles, bronze working, and a writing system now known as oracle bone script. The people enjoyed advanced agricultural techniques and used tamped earth to build walls and foundations (Young 1982, 311). Anthropologist Kwang-chih Chang (1976) claims that the term, “Shang,” holds several meanings but in general refers to the kingdom that flourished under the second dynasty of Chinese literature’s historical period.

The Shang experienced large differences in temperature throughout the year; warm, long summers, and cold, snowy winters. Climate affected several aspects of life in ancient China, from food taste to economic collapse. Colder winters directly led to a higher transmission of diseases, and indirectly led to drought, famine, and wars (Tian et al. 2017). Highly dynamic weather patterns made changes in lifestyle a frequent occurrence, for example food availability and business markets changed often. Unstable conditions may have contributed to the highly religious values of the people that lived through them. Religion, in many societies, is seen by anthropologists as a reconciliation between humankind and the forces of nature and human life, and religious activity tends to increase during less prosperous times (Frazer 1890).



FIGURE 3. From left to right: elephant, mountain, and turtle (Yuwen 2020).

### *Religion and Medicine*

The highly developed religion of the Shang is traditionally believed to have begun around 1766 BC with the dynasty itself. Elaborate mortuary rituals and a detailed sacrificial system, which may have been around for centuries longer, became customary for the Shang in their worship of ancestor spirits (Smith 1961, 144). The people used cattle scapula and tortoise shells for divination—inscribing questions onto the surface before burning them and interpreting the cracks that appeared (Zong 2017). The visual appearance of the cracks evolved into writing and recording, and various characters in the script look just like what they depict, becoming distinct and abstracted logographic characters over time. Some 3,000 unique characters have been discovered on bronze emblems, bamboo booklets, and oracle bone inscriptions, providing information on lineage, families, historical events, and centers of manufacture (Young 1982, 312). As the Shang began to record information outside of divination, they created other characters based on their environment, completing the first full writing system east of the Indus Valley (Zong 2017).

### *Landscapes*

The original oracle bone character for *rén*, “human,” appears like the side profile of a person standing in a hunched position with arms extended forward. The *shan* “mountain” character looks like a drawing of a mountain range with three peaks. The *yuè* “moon” character has a crescent shape, and the *yu* “rain” character looks like drops of water descending from a line at the top of the figure. The shape of a rice field during the Shang dynasty was carved into a grid-like pattern to allow irrigation, so the character for *tian* “field” is a foursquare grid. Animals that the Shang associated with also appear in oracle bone script. The *xiang* “elephant” has a long trunk, legs, torso, and a tail (Fig. 3). The *gui* “turtle” is drawn with a head, legs, tail, and circle for a shell. The “sheep” character has the curved horns of the Himalayan mountain goats and sheep that the

Shang domesticated (Jing 2008). Chinese mythology appeared in the writing system, such as the *fenghuang* bird, which extends outward with the appearance of wings. The extra lines in the figure likely came from the cracks of divination and are kept to illustrate the bird's power and honor (see Chinese Scripts 2022).

### *Color and Materials*

The remains from oracle bone script come in shades of red or black. The Shang used materials available to them to create dyes for calligraphy and carving. The red pigments are typically made of cinnabar, while the black appears to be mixed inorganic crystals and/or organic materials such as blood (Britton 1937, 3). The characters commonly contain sharp corners and lines that make them distinct from more stylized writing like Mayan hieroglyphs. This may be a result of oracle bone script originating from naturally formed cracks and human carvings before evolving into more curved form through the growing practice of calligraphy. Further abstracted characters from oracle bone script still appear today in Chinese *hanzi*, and some still resemble their original form (Chang 1976).

### **Conclusions**

Despite the vast differences in location between these societies, some similarities can be found in cultural ties. All three civilizations—Maya, Egypt, and Shang China—had cities divided into five regions that conformed to the cardinal directions: north, south, east, west, and a center where all elements connected. Each division of the city served a different purpose (Young 1982, 311).

All of these cultures relied on aspects of their environment coupled with human ingenuity to create elaborate writing systems for the purposes they needed. Different environments require different responses, as agriculture and climate affect the daily lives of individuals and societies. Writing systems were invented for various purposes, and their use evolved over time with the changing needs of the people who wielded them. In this way, the natural environment creates a backdrop within which human cultures develop, and writing systems reflect both their environment and culture in form and style. Humankind has a natural, innate creativity expressed in writing.

Further studies would be possible with numerous other writing systems to choose from across a biologically and culturally diverse world. How environments and climate change affected the alteration of writing systems over time would also be a fascinating topic of exploration, as the history of a writing system itself can offer insights into the life of the people who used them. Writing systems did not spontaneously materialize and then remain static and

unchanging, but were developed over time. Cultures without writing systems also incorporated their environment into their language, history, and storytelling. In the modern world, the digital environment acts as a sort of constraint for the expression of culture and writing, as well as an inspiration for its form—continuously altering how it is used in our daily lives. Nature's hand in various aspects of human culture is a broader topic of study that would encompass far more than what can be accomplished in this paper alone. Understanding nature's influence in writing will offer an image of humanity's creative history as well as its future.

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## TONGAN LAND RIGHTS: INHERITANCE AND INEQUALITY

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Land is significant to Tongans and Tongan society for economic, social, cultural, and political development. The largest sector in Tonga is agriculture. Land is one of the most significant assets that Tongans enjoy and use to provide income to their families. All land in Tonga belongs to the king of Tonga. One hundred forty-five years ago, King George Tupou I enacted the Constitution on November 4, 1875, whereby Tongan land cannot be bought or sold. Inheritance of land is passed through male heirs. Every boy reaching sixteen years of age is eligible for the *'api 'uta* (tax allotment) of eight and a quarter acres of agricultural land to grow food. This same boy is also eligible for the *'api kolo* (town allotment) of a quarter acre of land to build a house. The aim of this research is to examine the struggles that Tongan and foreign women confront without landownership. In Tonga's quasi-feudal society, land allotments by the king of Tonga provide the mainstay of economic and social support to commoners. The push of Tongan out-migration is the lack of capital assets like land to make loans to create new businesses or diversify existing businesses. Tongans must have access and land allotments to survive. Magnified by COVID-19 and in the past twenty years, population growth and out-migration have outpaced land availability, leaving Tongan women without economic stability or social security to survive. This research shows that there are landless Tongan commoners living in Tonga today without security or prospects for a high quality of life that Tongan commoner women suffer disproportionately in Tongan society. This legal mode of disenfranchisement against Tongan women has directly contributed to Tongan out-migration and demographic imbalances

in Tongan society, negatively impacting all arenas of life and furthering the cyclical nature of poverty in the country.

### Introduction

As a Tongan female scholar, I often consider whether I can afford to return to Tonga to live when I know that land allotments are gifted only to my brothers. Would I be able to afford to live without having land or any inheritance of land to my children once I am married? The Kingdom of Tonga is a beautiful island nation in the Pacific Ocean that does not allow women or foreign women to own land.

In Oceania, Tonga is the only Pacific Island nation that enacted legislation that expressly discriminates against Tongan and foreign women. The Constitution of Tonga is supreme law under which the government of Tonga operates. Under the Constitution and the Land Act, all land belongs to the king of Tonga. Tongan land allotments are inherited by the eldest legitimate son. Christian morality is intertwined with qualifications of land inheritance based on legitimate heirs only through Christian marriage. Tongan female widows must also exercise public morality by not remarrying or engaging in sexual relations.

As Tongans, we understand and value the importance of our land to our culture, society, and traditions. The land, people, ancestors, and deity are all connected to one another. It is our *Tuku Fonua* that has probably had the greatest impact on our land. We refer to *Tuku Fonua* as the titular historic event when King George Tupou I gave all land and everything in Tonga to God. It was important to him that Tongan land and people were in unison with Christianity.

After more than a century of rule by constitutional monarchy, it is time for the king and government to amend the Constitution to provide Tongan women with rights to own land. This research will examine the Tongan cosmogony of land, land in Tonga after the arrival of Christianity, land law, and how land rights impede equitable sustainability to Tongan and foreign women living in Tonga.

### Tongan Cosmogony to Land

#### *Fonua*

The Tongan word for land is *fonua*. Although *fonua* has different meanings, in this article, I am employing *fonua* to mean “placenta” in English. In the Tongan tradition, after a mother gives birth to a baby, the placenta of the mother is buried back into the *kelekele* (land/soil) of a special place that can be remembered as a symbol of link and connection of the baby to the land. This tradition was done to my siblings and me. All of our placenta is buried in our *’api kolo* in the village of *Ha’ateiho, Tongatapu*. This reminds us that no matter where we go in



life, we are always rooted in Tonga. The placenta, which comes from mothers or females, is also feminine. And since it is feminine, women should have the rights, based on Tongan culture, to hold lands.

Just like how a placenta gives us life, the land also serves the same purpose. It is the source of survival for food, water, dwelling, and shelter. Dr. 'Okusitino Māhina, a Tongan scholar, has defined *fonua* as “lands and its people.” He has also written about *fonua* as the nourishing environment. The land also represents other aspects of human existence, such as a connection to place and history, a place for learning and playing, *fonua*-based behaviors, spiritual places, and anchoring memory. *Fonua* has now become a national identity.

### *Land Wars in Tonga*

Growing up in Tonga, we embrace traditional events that have happened in *ono'aho* (distant past) through storytelling of our grandparents. Most of the events were not documented, and people will hear most of it only through a *talanoa* (story) that has passed down through generations by word of mouth and *talatupu'a* (creation myth) of the ancestors. Tongans have pursued this important indigenous knowledge in academe by studying more of the history of Tonga and documenting the *talanoa* of ancestors.

A retired Tongan language teacher in Tonga, Hopo Teumohenga, who also worked in the Ministry of Education, argues that

people at *ono'aho*, lived within their *Ha'a* (tribe). The *tu'a* (commoners) with the *Hou'eiki* (chiefs) in their villages. The commoners were enslaved by the *Ho'ueiki* of the land, which means that people must do as the *Ho'ueiki* pleased in order to be offered a *konga kelekele* (piece of land) in the village to stay. The *Tu'i Tonga* owned all the land in Tonga and people would present their best food, crops, and all the items they have to the *Tu'i Tonga*. (Heimuli Paletu'a interview with Teumohenga, Hopo [Ministry of Education], October 21, 2022)

There was a period of land wars in the Kingdom of Tonga beginning in late 1799 and lasting approximately fifty years. When *Tu'i Tonga* lost their status as *Tu'i Tonga*, peace was disrupted. As a result, all the *Hou'eiki* fought among themselves to control pieces of land. Tupou I fought alongside his father *Tupouto'a* in land wars in *Ha'apai* and *Vava'u*. *Tupou I* defeated chief *Laufilitonga*, the last *Tu'i Tonga*, and became *Tu'i Ha'apai* and *Tu'i Vava'u*. He then assumed the other two kings' dynasties, *Tu'i Tonga* and *Tu'i Ha'atakalaua*. He was later appointed as the nineteenth *Tu'i Kanokupolu* and had the title *Tu'i Siaosi Tupou I* and continued the *Tu'i Kanokupolu* dynasty.

The *talanoa* of the history of land wars has impacted the land distribution in the Kingdom of Tonga. Women were not part of the land wars, nor were they mentioned as part of them. During the land wars, women are not told to be active participants; only men fought in the wars. Is Tongan land inheritance only for male heirs because of their bloodshed?

### Land in Tonga

#### *Tuku Fonua*

The *Tuku Fonua* that happened at Pouono, Vava'u, in 1839 after the land wars and when Siaosi Tupou I won is an act that united the people of the land under Taufa'āhau leadership. During the *Tuku Fonua* prayer, Siaosi Taufa'āhau Tupou I gave the land of Tonga to God:

*E Otua koe Tamai. 'Oku ou tukuatu 'a hoku fonua mo hoku kakai, mo kinautolu e muimui mai 'i hoku tu'a, ke malu'i mai mei langi.*

O God our Father, I give unto you my land and my people, and all generations of people who follow after me. I offer them all to be protected from Heaven.

<Original text in the Tongan language translated into the English language.>

This prayer is significant to every Tongan as a constant reminder that Tonga is a "Land given to God." It is not just the land but also the people of the land. The *Tuku Fonua* changed Tongan society and Tonga. Everything changed in 1839: Tongans were freed from slavery (serving another against their free will), and a declaration of freedom and freedoms for individuals were introduced. What is truly significant is that the laws that were created applied to the Hou'eiki equally as commoners. The introduction of laws that apply equally to all Tongans is significant to relational spaces of roles in families and societies.

#### *Christianity*

In 1839, Tonga founded itself on Christianity and reverence to the singular act of Siaosi Taufa'āhau Tupou I, uniting Tongans as Tongans and Christians. Unity in obedience to Christian principles is magnified in public and private spheres on Sundays: no commercial activity, no loud music, no parties, and no conducting of business. The only permitted noises heard on Sundays are church bells and church hymns. Smoke on the Sabbath is about all the noise to be heard

throughout the villages from the *'umu* (underground oven) for family dinner. Christian principles go hand in hand with church, public, and private spaces; the Christian institution is embedded in the role of genders.

Men are the heads of churches and congregations. Men are also the heads of families and children in Tongan homes. When Tonga became a constitutional monarchy, the nobles who lead Parliament, the church hierarchy, and rights to land are men. Land laws are gendered to privileged men made by privileged men. Everything changed in Tonga in 1839; does this also mean that in Christian Tonga, women must be under the care and stewardship of men in all spaces?

*'E 'Otua Mafimafi,  
Ko ho mau 'Eiki Koe,  
Ko Koe ko e falala 'anga,  
Mo e 'ofa ki Tonga:  
'Afio hifo 'eamu lotu,  
'A ia 'oku mau fai ni,  
Mo ke tali homau loto,  
'O malu 'i a Tupou.*

Oh, almighty God!  
You are our Lord,  
It is You, the pillar  
And the love of Tonga.  
Look down on our prayer  
That is what we do now  
And may You answer our wish  
To protect Tupou.

<Original text in the Tongan language translated into the English language.>

The words to the Tonga national anthem are as stated in Act 25 of the Tonga legislation of 1973. It is a prayer to God asking for protection on the king, the people, and the land of the Kingdom of Tonga. These words of prayer are sung every morning during a school assembly at a function where a member of the royal family is present and at every government function. This act signifies how important Christianity is in the Kingdom of Tonga.

Does equality in Tonga truly exist, or is it only equal in its inequality that legally upholds men as caretakers and women as cared for by fathers and brothers? Only boys inherit land, and once a woman marries, her right to ownership of land is extinguished. Do laws uphold Christian-based beliefs that women are to be cared for by men?

## Land Law

### *Constitutional Monarchy and Constitution*

Land in Tonga is administered by the laws defined by the Land Act of Tonga. The Kingdom of Tonga has a unique system of landownership and management; all land is the property of the Crown. There is a representative of the Crown, the minister of lands, who handles all the matters of land and can approve all the paperwork contingent on Cabinet approval.

As part of the land law, Alaric Maude wrote, “It shall not be lawful for any Chief or people in Tonga, Ha‘apai or Vava‘u to sell a portion of land to strangers (foreigners)” (Maude 1965). This law is still enforced today in the Kingdom of Tonga whereby foreigners, both male and female, cannot own land in Tonga. The same law applies to Tongan women.

Land is automatically owned by the oldest son. Kerry James argues that “every male Tongan who is over sixteen years of age is entitled to a ‘*api tuku*hau (tax allotment) and a ‘*api kolo* (town allotment)” (James 1995). This can be considered inequality in land distribution (Salomon 2009). My father has an ‘*api kolo* and ‘*api ‘uta* where we are from. And even though my sisters and I helped with taking care of both pieces of land, our brother has the right to it. I do not know what might happen in the future when he has a family of his own, but I have sometimes wished my sisters and I had the same rights to these lands as my brother.

Additionally, according to Tongan customs and traditions, sisters are given the titles of *fahu* and *mehekitanga* (paternal aunts), while men are given ownership rights to the property. During ceremonies like birthdays, weddings, and funerals, they are recognized and honored. Throughout these rituals, they receive *koloa* (mats, tapas). Most people could argue that these rights are balanced and apply to Tongan men and women equally, but I disagree. The value of the *koloa* being given to the sisters is not equivalent to the value of a piece of land in Tonga. The oldest sister, or *fahu*, will be the only one with the claim to the *koloa* if there are other sisters.

### *Village Dominion (Hou ‘eiki)*

During Siaosi Taufa‘āhau Tupou I’s reign, he chose some of the most powerful chiefly titles to become land nobility in Tonga. Since all land is ultimately the property of the Crown, some of the areas in Tonga were granted to these nobilities as a *tofi ‘a* (hereditary estate) from the royal family to the nobles and to a few of the *matāpule* (talking chief/leaders of lower rank).

The remainder of the land is under the direct control of the minister of lands on behalf of the government (Maude 1965). Today in Tonga, there are two ‘*Eiki*

(nobles) who own the most land, Lord Tu‘ivakano and Lord Lavaka. In 2022, Lord Tu‘ivakano and Lord Lavaka have a higher rank in the nobilities in Tonga. Each village in Tonga has a *Hou ‘eiki* and *matāpule* that looks after the land and the well-being of the people. They are one of the most highly respected people in the village. The *Hou ‘eiki* and the *matāpule* help keep the peace in the community and the land agreement in their villages.

### *Land Law and Impacts on Women*

Land laws leave Tongan women vulnerable and could be considered dispossessed from native land due to their gender. Structurally, men lead the country, churches, ministries, and homes, so how do women sustain their families without the reliance on a man? Are the laws not amended so that women remain dependent on men in all private and public spaces? The current land acts and laws mandate that women lean and rely on men for survival, as they have more power and authority to own land, decide on final family matters, and rule on church and parliamentary acts. The *Matangi Tonga News* discussed how Tongan women are more successful in foreign countries because husband and wife are treated unequally in Tonga.

### **Conclusions**

Land rights in Tonga have brought attention to people in the business industry in Tonga, especially to Tongan women and foreigners living in Tonga, as they cannot own land. The Tongan cosmogony of land has helped us understand why Tongan people are so connected to their land. Since Tonga is a Christian country, land laws are based on Christian principles.

It is time for the Tongan Parliament and Constitution to grant women in Tonga the right to own land. This act will help spread equality in Tonga for both men and women. It is time for land reformation that can benefit both men and women and contribute to the equitable development to the success of all Tongans, not just men.

The failure to take effective action to reform the land tenure system could undoubtedly make it difficult to maintain harmonious relationships among the various social classes in Tongan society. I believe that this might be a tough movement for the government and the people in leadership, but this might be the actions needed by most Tongan women. It will empower women in Tonga knowing that they have an equal right to the land of their birth.

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## O‘AHU: ECOLOGICAL AND CULTURAL SIGNIFICANCE OF CORAL REEF ECOSYSTEMS

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Coral reefs act as the lungs of the ocean. They help feed the marine life in the sea with significant cosmogenic value to the Kānaka Maoli. Reefs have been under attack for generations. Unrestricted tourism by the millions destroys native ecosystems. Agriculture on O‘ahu contributes to the coral reefs’ destruction because of chemicals in pesticides and loose sediment that end up on the reefs. These impacts have caused major changes to the reefs on O‘ahu. It is the responsibility of local residents and tourists to care for and preserve the reefs because the reefs cannot fight for themselves. Humans must stand up for them. This study focuses on why coral reefs are important, the threats to coral reef ecosystems, current conservation methods, and proposed sustainable solutions.

### Introduction

Tropical coral reefs rank among the planet’s most crucial life support systems. They provide shelter and food for different species of coral, sponges, crustaceans, fishes, and other marine life (Sheppard et al. 2018). With their vibrant colors and diverse wildlife, coral reefs exist in warm shallow ocean waters of O‘ahu (Hinrichsen 1997). Kānaka Maoli cosmogony beautifully chants a deep respect for coral reefs. The second verse in the *Kumulipo*, the Hawaiian cosmogony chant, “Kumulipo was born in the night, a male. Poele was born in the night, a female.

A coral insect was born, from which was born perforated coral” (Lili‘uokalani 1978). The *Kumulipo* identifies coral as a significant life-form in the creation of the universe; it was created immediately following the creation of humans.

According to Siler (2012), Kānaka Maoli cared diligently for coral reefs, the first of the living organisms in the connectivity between man and the natural environment. Foreigners did not show as much care for the reefs. She explains how power was formed from continental conquest and coral reefs among other fundamental native beliefs were not part of manifest destiny westward. Upon the United States’ overthrow of the Kingdom of Hawai‘i, the landscape of O‘ahu shores and coral reefs experienced dramatic change toward the introduced capitalistic model of business, altering land-based stewardship values into commodity-based land resources for exploitation. Following the overthrow of the Kingdom of Hawai‘i and statehood in 1959, government politicians introduced destination tourism to feed government funds. It can clearly be seen from Hitch (1958) that Hawai‘i was looked at as an island paradise full of potential economic enterprise for American banks, developers, and agriculture-based corporations as early as the 1950s. His writing continues to show that O‘ahu was purposefully remade to be the flagship representation of a tropical paradise as an island state by the government. The ocean and pristine coral reef systems became marketing tools to promote Hawai‘i as a destination paradise.

Tourism and Hawai‘i residents’ behavior and activity have increased the coral reef ecosystem decline. Everything that passes through land ends up in the ocean. This includes potentially harmful chemical substances, such as fertilizers and herbicides, which can cause much damage and harm to the coral reefs (Damiani 2020). Human interaction has caused pollution and changed O‘ahu’s shores. Today, Waikiki and Shark’s Cove have distinct differences. Recent efforts have worked to preserve and restore the damaged reefs. Some efforts saw no success, but efforts on the North Shore of O‘ahu have seen some success. This research focuses on why reefs are important, the threats to them, current conservation methods, and proposed sustainable solutions.

### **The Agricultural Effects on Coral Reefs**

When Kānaka Maoli arrived in Hawai‘i, the production of Hawaiian sugar cane began. For generations, native people cultivated their crops and used them to benefit the families in their local villages (Lincoln 2017). Unfortunately, this charitable way of life did not last long after foreigners stumbled upon the beautiful archipelago in 1778. In 1802, only 24 years after Captain Cook’s voyage, the first sugar cane manufacturing plant



was established in Hawai‘i by the Chinese. Initially, the industry experienced slow growth, but after the United States’ annexation of the Hawaiian Kingdom, the sugar cane industry began to boom (Mangelsdorf 1950). As the sugar cane industry grew, new agricultural techniques were developing. These advances resulted in the introduction of herbicides in the Hawaiian Islands.

Herbicides are chemicals used to remove undesired plants from an agricultural area. Plantation owners throughout the Hawaiian Islands, including O‘ahu, have been using these toxins to cultivate higher-quality crops since 1913. This quick and cost-effective solution for crop owners often leads to harmful side effects for the surrounding environment, and if they are not handled properly can even cause severe damage to the individual working with them. “From [1913], until about 1945, sodium arsenite in water was the main chemical used in sugar cane” (Hanson 1955). Sodium arsenite was the first herbicide introduced in Hawai‘i. It is capable of causing severe damage to humans by simply touching it. Just imagine the kind of irreparable damage chemicals such as this could do to the fragile ecosystems of Hawai‘i. Fortunately, this chemical’s use was phased out, but others were introduced along the way. There are now numerous types of chemicals in use to support the high demand for agriculture (Thelin and Stone 2013). Thelin and Stone state that as plantation owners spray these chemicals into their fields, the chemicals go into the soil and, because of Hawai‘i’s substantial amount of rainfall, end up in streams. Streams always lead to the ocean and bring with them anything that may have been washed away, including herbicides and damaged soils.

Montgomery (2007) shares how damaged and polluted soil becomes loose. There are many different factors that lead to soil degradation. Agriculture is one of these factors. Planting and removing crops from the same spot over and over again cause the soil to become loose and loses much of the nutrients contained within it. When soils become loose, they have been in use for a few years. This means that they are potentially chalked full of harmful chemicals. When herbicides enter the ocean, it harms the symbiotic algae found within reefs. Living corals have built symbiotic relationships with the algae (Sheppard et al. 2018). This means that the coral provides the algae with a safe space to live and photosynthesize, and the algae will help the coral by removing waste from the reefs. A decrease in algae can cause the health of the coral reefs to decrease, making them susceptible to other threats.

The input of sediment also causes another indirect effect on the coral reefs. When large amounts of sediments are dumped into the ocean, it clouds up the water. The murky water allows less sunlight to pass through the ocean. With less light available, the algae cannot perform photosynthesis.

An increase of sediments in the water not only causes the reefs to have less oxygen, because of being choked out by dirt, but also the reefs cannot have their waste removed by the helpful algae. Streams running sediments into the ocean also fill the shores with fresh water. A flood of a stream causes an excessive amount of freshwater to be mixed in with the ocean water. When this occurs, the water has a lower concentration of salt than it usually does. This is called hyposalinity. Hyposalinity allows harmful bacteria to grow and weakens the defense of the coral reefs, making them more susceptible to infection. (Health & Medicine Week 2018). These factors all harm the coral reefs, but they are not the only issues that negatively harm the reefs in O‘ahu.

### **Tourism’s Toll on Coral Reefs**

Upon the United States’ acquisition of the Hawaiian archipelago in 1898, a new issue was introduced: tourism. Tourists from the United States had the impression that this land was an “island paradise,” and businessmen saw it full of “economic opportunity” (Hitch 1958). Trask (1999) shares how she believes that tourism profits and proliferates off of commercializing, romanticizing, and sexualizing their people and culture. A majority of Kānaka Maoli despise the tourism industry. The United States’ government works to blur the history of the Hawaiian Kingdom, fooling many American citizens into thinking that Hawai‘i can be compared with states found on the North American continent. Much like the western United States prior to annexation, the Hawaiian Islands were seen as a blank slate, ready for development and with a population that required the assistance of the white man (Hitch 1958). This clear disrespect for native lands and spaces aggravate many Kānaka Maoli. As tourism continues to develop in Hawai‘i, beachfront properties are built to attract foreign investments and, eventually, sell. In doing so, plants that once lived on the shores that kept sand in place are removed, causing much of the sand to be drug into the ocean. This process is known as erosion (Nargi 2022). Erosion causes detrimental effects on coral reefs.

#### *The Negative Impacts of Tourism*

In an interview with chief scientist, Daniel DeMartini of Kuleana Coral Restoration, identified the effects that tourism has had on Waikīkī. To attract and please tourists, sand was pulled from different beaches around the island of O‘ahu to help “restore” the beach that had disappeared due to urbanization and construction occurring on beachfront property.



FIGURE 1. Shore of Waikiki. (Reproduced with permission from *Hawai'i Magazine*, Wagner 2017.)

The shore of Waikiki looks dramatically different compared with today (Fig. 1). The beach now contains much less vegetation and significantly more buildings than in the early twentieth century. The dumping of recycled sand on the shores of Waikiki caused dramatic changes to life under the sea. Recycling sand to the shores did not solve the issue, which is similar to placing a bandage on a bullet hole in hopes of healing the wound. The introduced recycled sand on the shores of the washed-out beach continues to be pulled back to sea. Sand continues to build up on the reef, choking out marine life. The commissioners only care about making the surface look good for the panoramic scenes tourists see in movies; they do not consult or consider the environmental or sustainable impacts on the space. Beach restoration has been effective, but the effects of this process on the coral reefs are not realized (Fig. 2). The sand on the beach always ends up on top of the coral reefs. According to Smith and Pai (1992), Kānaka Maoli believed that gods created the land and sea. It was the kuleana, or responsibility, of all Kānaka Maoli to care for both and all that was found within. This is a mindset that the commissioners of O'ahu did not have when they made decisions regarding the shores. While Hawaiian lands were still in native hands, they observed the ecological changes that were occurring. Kānaka Maoli noticed how sometimes actions that made on the land changed interactions in the sea. When they fished, they paid careful attention to where they were and how many fish were present. This preserved the fishing areas and allowed them to continue fishing close to their homes. When foreigners entered the scene, the ahupua'a system, which was an ancient practice that saw

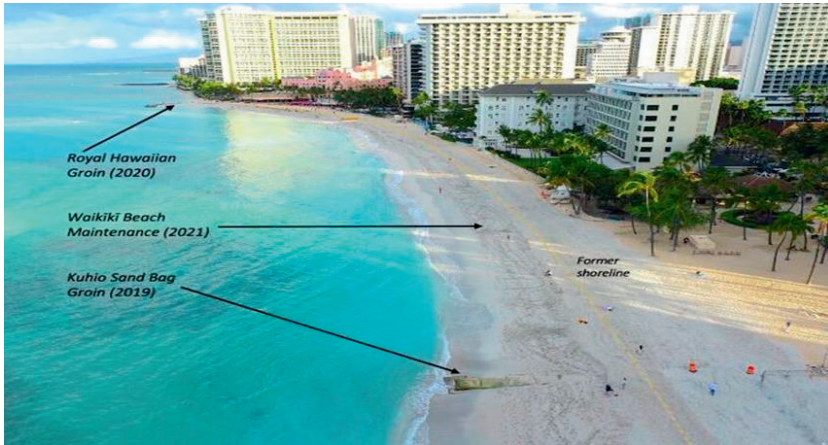


FIGURE 2. Waikiki sand restoration. (Reproduced with permission from KITV News, Doorey 2022).

the connection between the land and the sea, was replaced by foreign interests in the growth of money and individualism obliterating the ahupua‘a system and stewardship toward each other and the land-sea relationship to humans.

Commercial and government interests erase Hawaiian culture and the values embedded in historic Kānaka Maoli spaces then and now, including the belief that the coral polyp was the first living organism created (Siler 2012; Lili‘uokalani 1978). This can be interpreted as coral being the foundation of life throughout the archipelago. DeMartini emphasizes the amount of time it requires for the coral polyp to become a coral colony. The polyp grows at a rate between 0.3 and 2 cm every year, taking hundreds of years to become the massive colonies they are today (Fig. 3). Coral colonies are literally living history and have surrounded O‘ahu longer than any person who has ever set foot on the island. This truth is often not understood by visitors and sometimes, locals (DeMartini).

### *A Potential Solution*

Many visitors, short-term residents, and long-term residents do not seek to harm the fragile ecosystems of the island, but harm occurs. One way to prevent this damage is through better educational methodologies specifically to enhance knowledge of coral reef and stewardship interaction between land, humans, and sea. This can be tackled by both the state and local residents. Signage explaining not to walk on or take from coral reefs will help people to



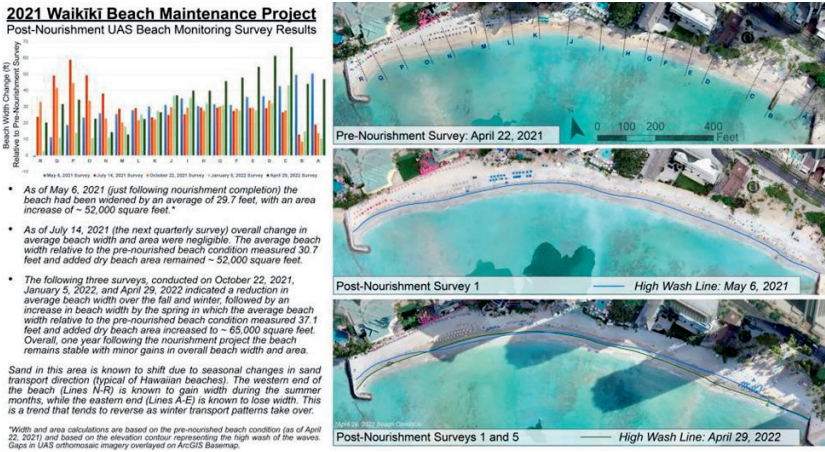
**FIGURE 3. Healthy coral colony. Coral colony started as a single polyp growing only a few centimeters a year. (Reproduced with permission from Kuleana Coral Restoration.)**

understand that their actions have negative impacts on fragile ecosystems such as the reefs. Educated local residents can help by educating others, but the situation must be approached in a stern but nonthreatening manner. Friends and acquaintances have had unpleasant encounters with locals when they unintentionally damage reefs and local or sacred lands. The anger and yelling make them inclined to continue with the harmful behaviors, whereas those who are treated kindly and softly informed of their ignorance are quick to change their ways and want to become better. Helping people understand the consequences of their actions can help people change the way they treat these living ancient artifacts.

### **Comparing O‘ahu Shores and How They Can Be Restored**

The presence of agriculture and tourism has led to soil degradation across the island. These soils are loose and fall into the coral reefs found on O‘ahu. Different sides of the island experienced different kinds of change because of the impacts of tourism and agriculture. The first location that comes to mind has already been mentioned: Waikīkī. Waikīkī has seen tremendous change and cannot even be recognized as the place it once was. This area, when compared with the Pūpūkea Marine Life Conservation District, composed of Pūpūkea (Sharks Cove), Kalua o Maua (Three Tables), and Waimea, is in horrific condition.

The reason for this drastic difference is the amount of tourism the shores see. Tourism always brings pollution. The more tourists in an area, the more



**FIGURE 4. Postnourishment survey of Waikiki. (Reproduced with permission from University of Hawai‘i 2022.)**

polluted an area becomes. According to Hotels.com, there are 4,261 hotels found in Waikiki. The Pūpūkea Marine Life Conservation District has zero. In Waikiki, there is a lack of marine life and coral in the water. When snorkeling at Pūpūkea, the waters appear nearly crystal clear, bursting with marine life in every crevice. Fortunately, restoration can still be done at both locations; however, when working on restoration, it is important not to impose a rural system on an urban environment and vice versa. More simply put, conservation efforts in Waikiki and Pūpūkea look extremely different.

In May 2021, 21,700 cubic yards of eroded sand were brought from the ocean to the shore. This project is expected to be recurring every five to ten years (University of Hawai‘i 2022). This helps keep the beach present and picture perfect to help increase tourism. DeMartini shares how this method helps keep the beaches looking beautiful but plays a negative effect on the coral reefs. The sand moved to the shore recedes into the ocean by the waves and washes into the coral reefs and smothers them. Figure 4 shows that within a year’s time, the beach grows wider due to erosion occurring on the shores. Waikiki seems to be a hopeless case because the government continues to maintain the beach for tourists and pays no regard to the reefs underneath. The best method to help preserve the life left is to limit the amount of pollution. Everyone must be consciously aware of the damage they may be doing. It is imperative that people restrain from leaving trash on the shores and use reef-safe sunscreens. These seemingly small actions will go a long way in preserving coral reefs. Although Waikiki can easily discourage environmentalists, O‘ahu’s North Shore offers hope.

The Pūpūkea Marine Life Conservation District lies in much better condition, but it still faces similar threats. Sedimentation is an ever-looming threat because the Waimea River feeds into Waimea Bay. Additionally, tourists flock to this district because of its picture-perfect postcard appearance. Waimea Bay has been better at combating tourism because of its rural location. Local residents of O‘ahu’s North Shore constantly fight against the addition of new development, which means that new resorts are scarcely ever built. The most recent construction was Turtle Bay Resort, located seven miles north of Waimea, in 1972.

In marine environments, marine biologists and activists often jump into creating marine protected areas (MPAs). MPAs can help restore the native ecosystems in an area, help create sustainable fisheries, assist in education, and even boost the economy (Young 2005). Among these benefits, MPAs still have their fair share of drawbacks. These spaces limit the amount of commercial activity occurring in the protected zone, but they often restrict access to ancestral lands, traditional fishing, and specified waters. MPAs do not have a history of ever returning to what they once were. Once they are put into place, they tend to remain this way for decades with no plan to allow the same kind of access that was once available. Additionally, MPAs can cause overcrowding. This is most evident on O‘ahu at Hanauma Bay. In 1967, Hanauma Bay was established as an MPA. Prior to the COVID-19 pandemic, 3,000 people would visit the bay to see the coral reefs and other marine life each day. Over time, this caused a decline in the success of the coral reef ecosystems. Establishing an MPA in Hanauma only curved the damage done but failed to prevent it. MPAs can be beneficial but only by preventing all access to the area. This would not work. Instead, preserving the coral reefs on the island requires actions, such as beach cleanups, blackout fishing dates, and preventing harmful chemicals from entering the ocean, taken by the state, local residents, both Kānaka Maoli and haole, and tourists.

### **Conclusions**

Kānaka Maoli have cared for and cherished coral reefs and the life-forms that thrive alongside them for generations. They used their ahupua‘a system to care for the land from the mountain tops to the ends of the reefs. When foreigners stumbled upon the Hawaiian archipelago, these ancient and effective practices were replaced by Western beliefs that included forsaking care of the ocean and its reefs. As foreigners continued to seize native lands, the damage increased exponentially. It is now the duty of local residents, tourists, and the Hawai‘i state government to play their part in combating the damaging effects of herbicides, sedimentation, pollution, and tourism on coral reef ecosystems. Local residents and the state government must better educate the tourists who enter this space as a guest. In the end, educational efforts mean nothing if the tourists fail to follow guidelines shared.

Conservation methods on O‘ahu look different on various shores. More rural areas have different needs and use conservation models that prove incredibly ineffective in urban environments. The same can be said about urban models in rural environments. Common conservation methods often include the establishment of MPAs. They have the potential to be beneficial and help the marine ecosystems; however, some of them, such as at Waikiki, do more harm than good to the native ecosystems. They create a beautiful surface but slowly deteriorate the reefs underneath. Working with local communities to decide what works for the area is a much more practical method of preserving coral reef ecosystems. When working with communities, it is important to understand why coral reefs are significant to them.

The coral reefs are in grave danger and are no longer being cared for as part of land management systems. More effective conservation methods must be adopted to preserve coral reefs. They are the basis of life found within the ocean and house life that has helped feed the people of this planet for generations (Sheppard et al. 2018). Although the reefs cannot be viewed from the surface, this does not discredit the importance of them. If the coral reefs are not saved, the repercussions will be horrific. Pollution within the ocean will increase. Thousands of marine species will go extinct. The ocean itself will be considered dead. The coral reefs must be saved, but they cannot save themselves. People need to speak up for the reefs and play their part to ensure protection.

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## PARADISE ON FIRE: HOW HAWAI‘I DEVELOPED ONE OF THE WORST WILDFIRE PROBLEMS IN AMERICA

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Hawai‘i is experiencing a massive wildfire problem that has grown in size, rate, and frequency. As a Hawaiian scholar, I am concerned and passionate about understanding and combating this crisis. My kūpuna cared for and stewarded over the natural spaces on which they were dependent. I share the same kuleana as them in understanding and caring for the natural spaces around me. The aim of this research is to increase awareness about what’s causing these wildfires and how Hawai‘i has developed into a fire-prone state over time. This research will also provide quantitative data as to the rate, growth, and measurement of land that is burned each year to determine the scale of environmental harm and the annual growth of wildfire size and ignition frequency over time.

### Introduction

Hawai‘i is not known for wildfires; larger desert states like California, Oregon, Texas, and Utah are more well known. From 2005 to 2011, Hawai‘i was engulfed by the flames of one of the biggest wildfire problems out of any state. Wildfires know no boundaries and are readily ignitable from makai<sup>1</sup> to mauka<sup>2</sup> landscapes across the archipelago island state. Wildfires affect everything in their direct and indirect pathways, including infrastructure, economy, agricultural production, native forests and grasses, coral reefs, watershed, wetlands, human

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*Intersections*, Vol. 1, No. 1—May 2023

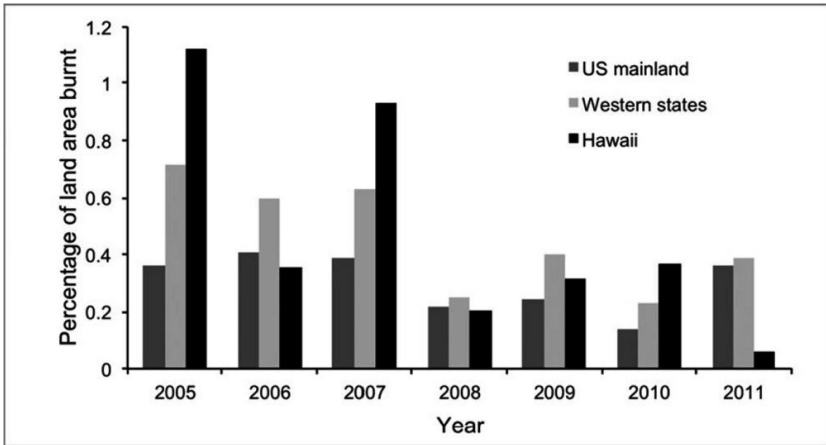


FIGURE 1. The percentage of land area burned in the US mainland, the westernmost fire-prone US states, and Hawaii from 2005 to 2011. Hawaii (black) is shown burning more than the whole mainland (dark gray) in 2005, 2007, and 2010, including the westernmost fire-prone states (light gray). (Contemporary Scale and Context of Wildfire in Hawaii, *Pacific Journal*, 2015.)

and animal safety, and cultural resources. Over the past century, wildfires have grown in rate, size, and frequency.

The first portion of this article will identify the scale and magnitude of wildfires in Hawai'i by looking at their history over the past century. It will examine the amount of land burned, size, frequency, intensity of wildfires, and where they are occurring. Following will be a focused look at the role humans have played in causing these wildfires. The third portion of this article will examine the correlation between societal and economic changes that took place from the nineteenth to the twenty-first century and the conversion of Hawaiian landscapes into fire-prone environments. A concluding section will expound upon the role in which invasive grasses and shrubs occupy in fueling and perpetuating the fire cycles in Hawaii today.

### Magnitude and Depth of Hawaii's Wildfire Problem

The overall scale at which flames are engulfing Hawaii is nothing less than alarming when you confront the amount of acreage being burned annually. Hawai'i currently burns a larger percentage of land annually than any other US state yet is the forty-seventh smallest state. According to fire ecologist and scientist Clay

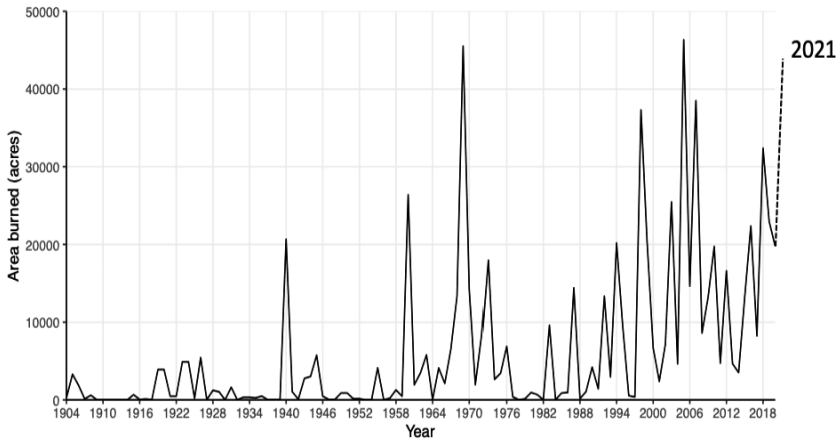


**FIGURE 2. Aerial view of the Leilani wildfire. Firefighters continue to battle the Big Island wildfire; 25,000 acres were scorched. (Department of Land and Natural Resources 2022.)**

Trauernicht (Trauernicht et al. 2015), “The mean annual area burned in Hawai’i from 2005 to 2011 ( $8,427 \text{ ha yr}^{-1}$  [20,823 acres]) accounted for 0.48 percent of Hawai’i’s total land area, which was greater than the proportion of land area burned across the entire U.S. mainland (0.30 percent), and even across the 12 states in the fire-prone, western United States (0.46 percent, includes Alaska) over this same time period.” In terms of total land area, Hawai’i is an island state with significantly less land acreage than any continental state, yet the data show that the annual percentage of land area burned in Hawai’i surpasses that of any continental state. Figure 1 shows a comparison of the percentage of land burned in Hawai’i, the westernmost fire-prone US state, and the entire US mainland from 2005 to 2011.

Disaster struck again on the Big Island only a year later in August 2022, “just south of Waikōloa Village, the resort area, and mauka of Highway 190 near the Puu Lani Subdivision, a 17,000-acre wildfire has left a charred landscape” (Department of Land and Natural Resources 2022). That fire, called the “Leilani wildfire,” started on military training grounds and threatened nearly 7,000 civilians who resided in Waikōloa Village (see Fig. 2).

## Annual area burned in Hawai'i 1904-2021



**FIGURE 3. Annual area (acres) burned in Hawaii from 1904 to 2021, showing an overall consistent rise over the past century 1. (Trauernicht and Hawaii Wildfire Management Organization 2021.)**

Hawai'i has been burning a significant portion of its land annually because of risk factors such as human population, climate change, and natural landscape change. Wildfires have drastically become more frequent, especially in the past decade. From 2012 to 2021, Hawaii has seen an overall consistent rise in the amount of land burned annually, as represented in Figure 3, where land burned from under 20,000 acres in 2012 to over 30,000 acres in 2018 and 2019 and then over 40,000 acres in 2021. There have even been incidents of wildfires burning a higher percentage of land within a single burn than the majority of fire-prone western states have annually. This was seen on July 30, 2021, when “the Mana Road Fire burned 1 percent of the Hawaiian Islands’ land area in a single incident. For context, a year’s worth of fires in California burn, on average, 0.7 percent of the state’s land area” (Trauernicht 2021). The Mana Road fire (see Fig. 4) spread at a rate of one hundred acres per hour and consumed 40,000 acres of Hawaiian land.

Examining the rate and frequency of wildfires requires a look at the historical context of wildfires in Hawai'i. Taking a step away from recent years and looking at the past century, “total area burned statewide increased more than fourfold from 1904 to 1959 to peaks in the 1960s–1970s and mid-1990s to present” (Trauernicht et al. 2015). The University of Hawai'i at Manoa and the Hawaii Wildfire Management Organization formed a joint program called



**FIGURE 4. The Mana Road fire burning on the Big Island, 25th Infantry Division, Hawaii Fire. (Gabbert 2021.)**

the Pacific Fire Exchange, which is dedicated to making wildfire science available that is specific to the Pacific region. Shown below are data provided by the Pacific Fire Exchange that charts the amount of area burned (in acres) annually from 1904 to 2021.

Figure 3 shows the annual area burned (acres) from 1904 to 2021, indicating a strong overall trend of an increasing amount of land burned annually from 1904 to 2021. While this is close to the present, it still doesn't account for incredibly large wildfires, such as the previously mentioned Mana Road fire and the Leilani wildfire.

In 1901, the first large wildfire recorded in Hawaiian history burned 30,000 acres over the span of three months on the Hamakua coast of the Big Island. The fires caused so much destruction to land that a system and data collection policy was developed, leading "to the establishment of Hawai'i's Forest Reserve

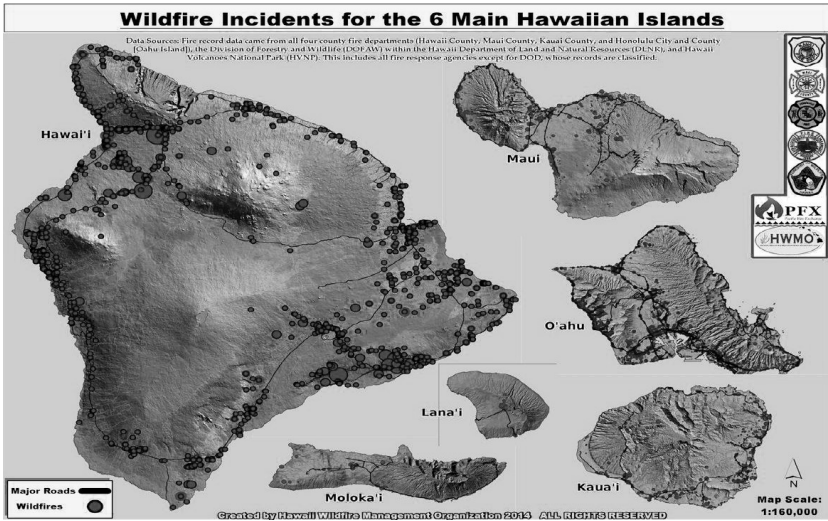


FIGURE 5. Map showing wildfire incidents that have taken place among the six main Hawaiian Islands from 2000 to 2012. (Hawai'i Wildfire Management Organization 2021.)

System, the integration of wildfire into government forest management policy, and the initiation of annual wildfire reporting in 1904” (Trauernicht et al. 2015). Since 1904, wildfires have been documented and recorded by the Hawaii Division of Forestry and Wildlife, county fire departments, and the Hawaii Wildfire Management Organization. The map shown in Figure 5 was created by the Hawaii Wildfire Management Organization using records from multiple sources to show where these wildfire ignitions took place specifically from 2000 to 2012. Figure 5 is important because it is showing us visually where these fires are and how big they are. The many red circles littering the coasts in the map show an incredible number of fires taking place within a twelve-year span and give us an idea of which communities are dealing with wildfires.

### Human Error

The wildfire crisis in Hawai'i is caused primarily by human activity on many levels. Human error is responsible for almost all wildfire ignitions in Hawai'i; rarely do natural occurrences like lightning or lava cause wildfires. Humans completely changed Hawaiian landscapes to become more fire prone by

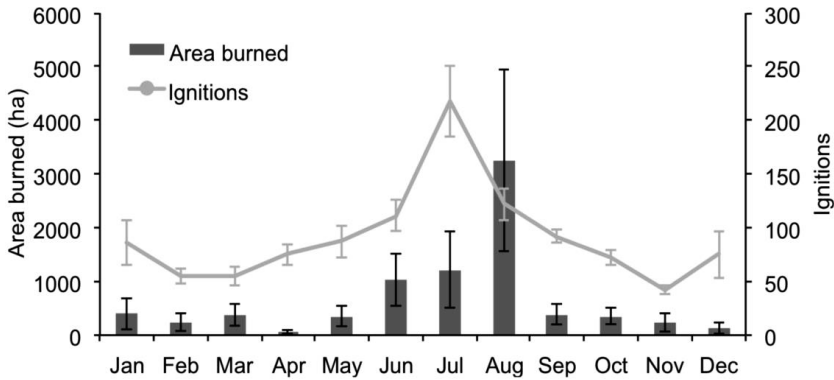


FIGURE 6. Average area burned in hectares (dark gray bars) and the amount of wildfire ignitions that took place each month during 2005–2011. This shows year-round ignitions with peaks in June, July, and August. (Contemporary Scale and Context of Wildfire in Hawaii, *Pacific Journal*, 2015.)

introducing invasive plant species that are extremely flammable and that dominate the terrain pre- and postburn. The abandonment of sound and proven Native Hawaiian land management practices enabled residential, commercial, and military development to convert Hawai'i to a fire-prone state through landscape changes and increased human interactions within the Wildland Urban Interface<sup>3</sup> (WUI).

All wildfires start at ignition, and, unfortunately, most ignitions start with humans. In fact, “more than 99% of known wildfire causes were attributable to human activities, for example, sparks from machinery, cars, and downed electrical lines; campfires; fireworks; and arson” (Trauernicht and Lucas 2016). Natural causes of ignition are rare and exclusive to lava flow, volcanic activity, and lightning strikes. Lightning strikes don't seem to be a major culprit, “accounting for <0.2% of attributed wildfire causes” (Trauernicht et al. 2015). Natural conditions and weather within an environment are huge determinants of wildfire activity. Things like temperature, humidity, and rainfall all contribute to wildfire ignitions.

Climate and time of year play a critical role in the frequency of ignitions and the overall chance of ignition transpiring. From 2005 to 2011, the majority of wildfire ignitions took place in June, July, and August during the hottest, driest times of the year (see Fig. 6). They also most frequently take place on the drier leeward sides of the islands. Despite peaking during hotter, drier months and most frequently occurring on the drier sides of the island, when looking at



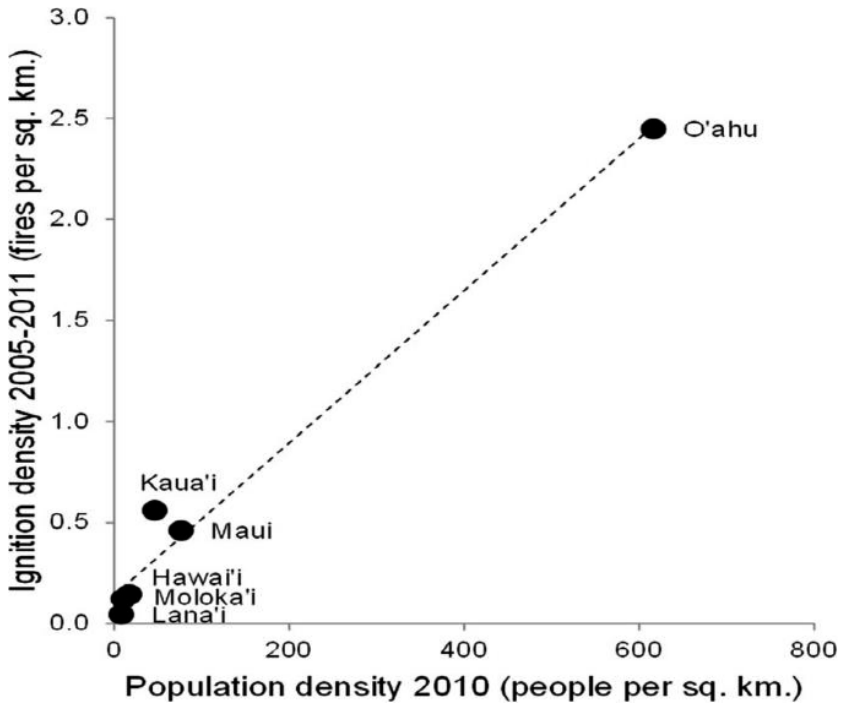


FIGURE 7. Ignition density from 2005 to 2011 shown in correlation with each island's population density from the 2010 census. (Contemporary Scale and Context of Wildfire in Hawaii, *Pacific Journal*, 2015.)

Figures 5 and 6, year-round wildfire occurrence is observed on both dry and wet sides of the islands.

There is also a direct connection between population density and wildfire ignitions. Population density increases within the limits of the islands, causing more human interactions to transpire within the WUI. “The Wildland Urban Interface (WUI) is the zone where structures and other human development meet and intermingle with underdeveloped wildland or vegetative fuels” (Department of Land and Natural Resources 2010). The WUI is a vulnerable zone where human development starts to affect undeveloped land and human activities start and carry fires over into wildland. Figure 5 shows wildfire ignitions from 2000 to 2012, where we can see that the majority of ignitions took place along roadside areas. In other words, the more people there are in such a small space as Hawai'i, the more wildfire ignitions occur.

Figure 7 illustrates the correlation between population density and ignitions per square mile for Oahu, Hawai'i, Moloka'i, Maui, Kauai, and Lana'i from 2005 to 2011. Note how Oahu has the highest population density, which correlates to the highest ignition density.

### **Societal Change and Abandonment of Comprehensive Land Management Practices**

One of the things that has most contributed to the wildfire problem seen today is the many societal and economic changes that have taken place in Hawai'i since the cessation of subsistence culture and society. Through proper stewardship of watershed-based land divisions, Kūpuna, "lived close to the land, developing systems and ways to protect, preserve, and restore the ocean and the land resources" (Department of Commerce and Consumer Affairs 2004). During this time, fire was present only as a tool used to burn pili grass and serve other agricultural functions. According to Trauernicht et al. (2015), "There are accounts of larger-scale, intentional land-scape burning to manage plant resources such as the native pili grass (*Heteropogon contortus*) for thatching." These types of tools and agricultural methods were common in Polynesia.

The most notable event in the history of land tenure took place in 1848 with, the Mahele, when King Kamehameha III gathered with 245 *Ali'i*<sup>4</sup> and *Konohiki*<sup>5</sup> to divide up all 4 million acres of land. The Mahele made it possible for an individual to own title to land and "is the single most important event in the history of land title in Hawai'i. It essentially abolished the feudal system and gave rise to an allodial system of land tenure. Private ownership of most of the property in Hawai'i began with the Great Mahele" (Department of Commerce and Consumer Affairs 2004). Land could then be purchased as a result of private ownership, changing Hawaiians' relationship with the living systems that surrounded them. Private landownership and capitalism replaced the feudal system under a sovereign monarch, leading to the end of subsistence culture throughout Hawaii.

By the mid 1800s, both ranching and plantation agriculture had established a foothold in Hawaiian society. According to a research paper published by the University of Hawai'i on wildfires, "The development of Hawai'i's agricultural economy from the mid-nineteenth to early twentieth centuries accelerated population growth and likely had significant impacts on the number of wildfire ignitions" (Trauernicht et al. 2015). As plantations and other agriculture grew, labor opportunities drove immigrants to Hawai'i to work, contributing to the rise in population. According to the US Department of Commerce (2022), in 1950, the population of Hawai'i had grown to 493,437. As shown in Figure 7, there is a direct correlation between population and wildfire ignition frequency.

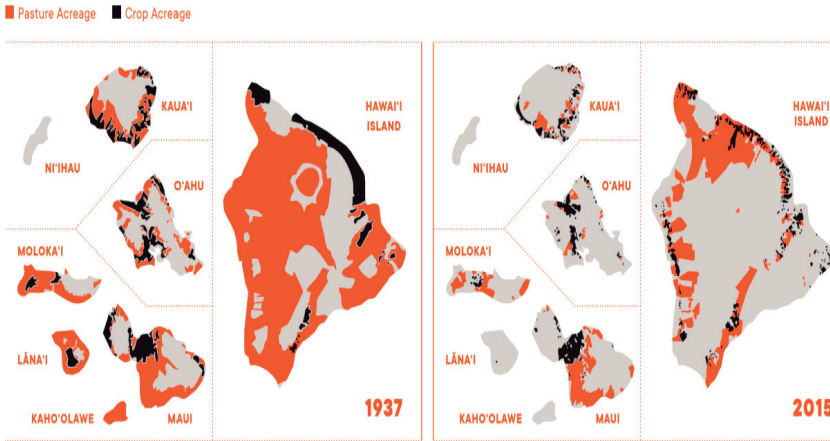


FIGURE 8. Loss of suitable pasture and agricultural land from 1937 to 2015. (Hawaii Department of Agriculture Statewide Agricultural Land Use Baseline, 2015.)

The scale to which ranching and plantation agriculture rose and fell greatly contributed to the transformation of Hawaiian land into fire-prone landscapes and can be seen in Figure 8. In 1937, over 50 percent of Hawaiian land was used for ranching and another 5 percent for sugarcane. Consequently, ranching declined in Hawai'i in the mid- to late twentieth century. Over 2 million acres in Hawai'i were classified as “grazing lands,” and by 2015, only 750,000 acres of land were classified as “pasture” (Department of Land and Natural Resources 2017), resulting in a 62.5 percent decrease in ranching and agricultural land from 1937 to 2015. By 2015, 90 percent of the remaining suitable agricultural land was fallow, unmanaged, and overrun with non-native invasive grasses, shrubs, and trees.

The reason the rise and fall of ranching and agriculture in Hawai'i has contributed to wildfires is because the non-native plants that have dominated the remaining fallow land are the primary fuel sources for the wildfires that are occurring. According to researchers at the University of Hawai'i, “Unmanaged, fallow agricultural lands in Hawai'i typically become dominated by nonnative grasses” (Veldman and Putz 2011), making agricultural abandonment a primary driver of the current dominance of fire-prone, nonnative grasslands statewide” (Trauernicht et al. 2015).

While the presence of non-native ungulates<sup>6</sup> negatively affects native ecosystems in diverse ways, they do a great job at preventing wildfires. “Domestic and non-native ungulates can reduce fine and woody fuel loads through grazing

and browsing, and increase the discontinuity of the fuel bed, therefore affecting the frequency, intensity and severity of wildfires” (Archibald and Hempson 2016; Belsky 1992; Kellner 2011; Trauernicht 2013; Zhu et al. 2021). Grazing on non-native grasses and shrubs by domesticated livestock reduces the primary fuel load for wildfires and decreases their intensity and rate of spread. During Hawaii’s peak era of ranching and plantation agriculture from 1929 to 1937, the frequency of wildfires that occurred was dramatically less than is seen today. A noticeable difference in the severity and frequency of wildfire activity is observed (see Fig. 2) from the mid-twentieth century, when ranching and agriculture started to decline, to the present day.

### Wildfire and Fuel Loading Cycle

The wildfire and fuel loading cycle is the driving force behind the rapid non-native grassland dominance of native Hawaiian ecosystems. These invasive species can outcompete and outlive native Hawaiian plant species in the case of wildfire and provide an incredible source of fuel to wildfires. Such plants are fountain grass (*Pennisetum setaceum*), Guinea grass (*Megathyrsus maximus*), Formosa koa trees (*Acacia confusa*), buffel grass (*Cenchrus ciliaris*), and molasses grass (*Melinis minutiflora*). Currently, “Wildfires in the region are exacerbated by invasion of fire-prone grasses and shrubs, which now make up 25% of Hawai’i’s land area” (US Forest Service, n.d.). Invasive grass species are dominant in Hawai’i and cover nearly one-quarter of all land.

These invasive grasses possess intrinsic qualities that make them a perfect and readily available fuel source for wildfires. When studying what physical properties make invasive grasses and shrubs such a fast-growing and potent fuel source, researchers at the University of Hawai’i at Manoa (UHM) found that “intrinsic fuel properties associated with type conversion from forest to grassland can include increased flammability due to lower fuel moisture (Brooks 2004), total curing of grass (Andrews 2006), and higher ratios of surface area to volume (Hoffmann 2012), followed by competitive superiority for above- and belowground resources in the postfire environments (Veldman and Putz 2011; Ammond and Litton 2012; Invasive grasses change landscape structure and fire behaviour in Hawai’i 2009). These qualities allow invasive grasses and shrubs to cover immense space and burn easily. They are perfectly built for wildfire, so how does that affect wildfire behavior?

In 2014, a study by researchers at UHM sought to better understand how invasive grasses affect potential fire behavior in open grasslands versus grass-invaded native forest. Their method of collecting data “quantified fuel load and moisture in non-native forest and grass-land (*Megathyrsus maximus*) plots (n = 6) at Makua Military Reservation and Schofield Barracks, and used these field

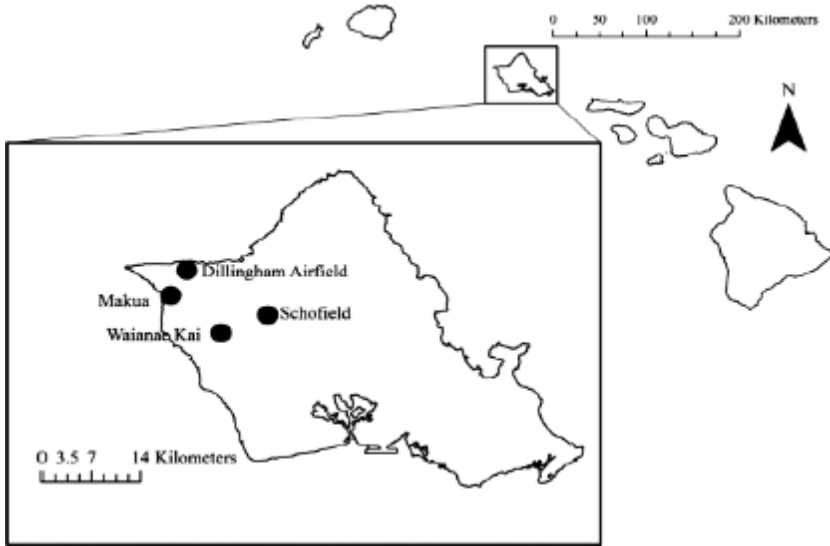


FIGURE 9. Open grassland and grass-invaded native forest sites where fuel loads were quantified and fire modeling took place for the 2014 UHM study on fire behavior. (*Journal of Applied Vegetation Science*, Department of Natural Resources and Environmental Management UHM, 2014.)

data to model potential fire behaviour using the BehavePlus fire modeling program” (Ellsworth et al. 2014). At each of these sites (see Fig. 9), they examined three open grassland plots and three non-native forest plots. The understories of all these plots were dominated by *M. maximum* (both open grassland and forest). Within each of these 50 × 50-m plots, they measured the total fuel loads (dead and living grasses, shrubs, and trees), mean fuel height, fuel composition, and moisture levels. Using these data, they found that “mean surface fuel height was 31% lower in forests (72 cm) than grasslands (105 cm;  $P < 0.02$ ), which drove large differences in predicted fire behaviour. Rates of fire spread were three to five times higher in grasslands than forests, and flame lengths were two to three times higher in grasslands than forests” (Ellsworth et al. 2014). These data show a large increase in wildfire intensity in areas that are more dominated by *M. maximum* (open grassland) than forest and that can be directly associated with type conversion of landscape from forest to non-native grassland.

This same study also sought to understand and measure the landscape conversions taking place at the two locations that they quantified invasive fuel loads. In Hawai’i and other parts of the tropics, the commonly accepted

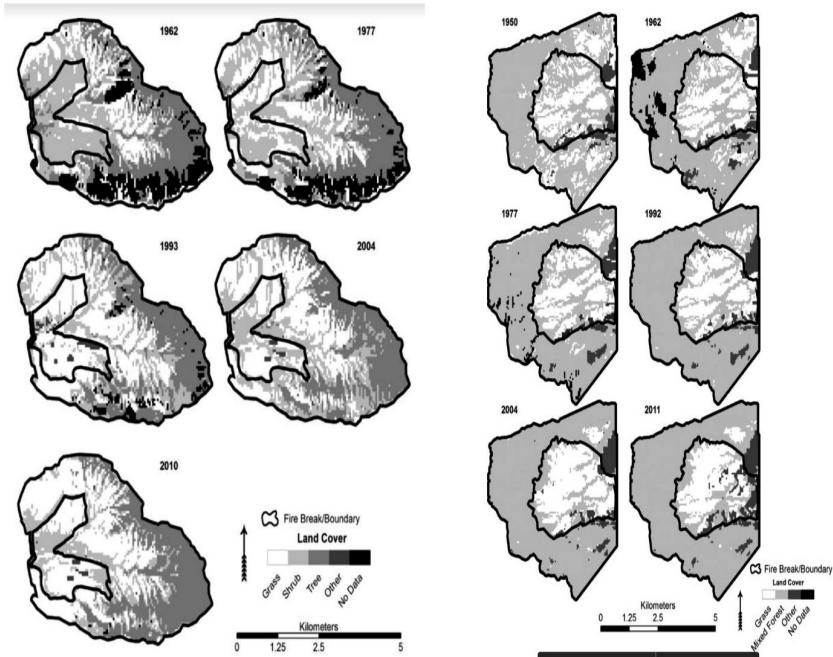


FIGURE 10. (Left) Makua Military Reservation land cover change from 1962 to 2010 and (right) Schofield Barracks land cover change from 1950 to 2011 showing dramatic decrease in native tree cover and increase in grass and shrubs cover. (*Journal of Applied Vegetation Science*, Department of Natural Resources and Environmental Management UHM, 2014.)

paradigm is that “fire shifts composition from woody communities (forest) to non-native grassland, that these changes persist over long time periods, and that the end result is a landscape that is increasingly dominated by non-native invasive grasses that have a much higher fire risk than the forests that they replaced” (Ellsworth et al. 2014). Researchers at UHM used aerial imagery from 1950 to 2011 to track the large-scale landscape conversions taking place at Makua Military Reservation (see Fig. 10, left) and Schofield Barracks (see Fig.10, right) to understand how these places have changed over time. Here we see the native tree cover disappear and become completely overtaken by grasses and shrubs by 2011.

A significant part of the “competitive superiority” is because they are fire adapted, while the majority of native Hawaiian plants are not. When a wildfire occurs in an area, native plants cannot regenerate and grow back. The

non-native grasses that can grow back do so quickly, overtaking the entirety of said space and then converting it to fire-ready grassland. A great example is this of fountain grass. According to the Department of Land and Natural Resources (2010),

During a wildfire, most of the above ground portion of the grass is burned, including a highly flammable seed head. The seeds are dispersed by windy conditions that occur during wildfires. Fountain grass roots, which can easily withstand fire, quickly regenerate during Hawaii's rainy winter season. The ash from the fire nourishes the existing Fountain grass rhizomes and provides nutrients for the newly sprouting seeds.

The grasses therefore infiltrate, dominate, and then eliminate native plants. The relationship between these fires and grasses is symbiotic in nature, each continuously fueling each other, creating a dangerous cycle, and ultimately changing landscapes to become more susceptible to fire.

### **Conclusions**

In the past two centuries, Hawai'i has undergone an immense societal, economic, and environmental transformation that has resulted in a devastating wildfire problem. On examination of Hawaii's history, we can see exactly how this development has occurred. In 1848, a feudal system of watershed-based land stewardship was replaced with an allodial system of land tenure that opened up the privatization of land.

From 1848 to 1937, over half of the land in Hawaii was transformed into pasture grazing land and plantation agriculture land. From 1937 to 2015, that amount of land decreased by over 62 percent, and over 90 percent of the remaining land suitable for ranching agriculture lands turned fallow and unmanaged. This land perfectly welcomed invasive grass and shrub plant species that have dominated and transformed Hawaiian ecosystems into fire-prone environments. These grasses and shrubs are the perfect fuel for fires and cover one-quarter of all Hawaiian lands. These grasses fuel a wildfire and fuel cycle with the help of high temperatures, dry climates, and human error.

The issue of wildfires demands immediate attention due to its destructive nature and devastating effects on native species, ecosystems, natural resources, and human lives. Hawaii was once free of frequent wildfires and has since become one of the most wildfire-frequented US states, with over 1,000 ignitions annually burning up to 20,000 to 40,000 acres each year. Putting out

the flames of this fire requires assessment, preparation, and planned action at the state, military, academic, and community levels. This has not gone unrecognized, as there are numerous professionals and people dedicating time, research, and effort to fight this problem on all levels. On an academic level, there are countless professors and faculty from the University of Hawai'i and other institutions dedicating research, time, and effort in spreading awareness and combating this problem. On a community level, there are countless men and women belonging to county fire departments, the Hawai'i Division of Forestry and Wildlife, and the US armed forces that have boots on the ground and are risking their lives fighting these wildfires. These contributions to understanding and combating the wildfire crisis in Hawaii are critical to mitigation efforts toward reducing the destruction of lands and opportunities for livable places for Hawaiians.

### NOTES

1. Seaward, or toward the ocean.
2. Upland, toward the mountain.
3. Transition zone between wilderness and land developed by humans.
4. Chief.
5. A special class of Ali'i that managed and stewarded over land, water, and human resources.
6. Any kind of typical hoofed animal that grazes or eats grass.

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# THE DOCTRINE AND LEGEND OF CREATION: COMPARING RELIGIOUS NARRATIVES TO THE PALAU CREATION STORY

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Across the globe, there are unique histories, cultures, and beliefs that often will exist harmoniously with religious beliefs. The influence of religion can be seen in all aspects of life, whether in personal beliefs, morals, political status, and even cultural stories. Understanding the impact of religious ideologies can help navigate and identify connections among seemingly unrelated topics. Christianity is the source of influence over Palau’s religious beliefs, and the Palauan culture blends both cultural and religious beliefs together in daily activities. Christian scriptures and religious texts are oftentimes the blueprint for the functionality of active religious organizations or lifestyles. Muslims, Jews, and Christians are known to share similar beliefs and scriptures. This paper examines the complementary ideologies of the creation stories recorded in the Holy Qur’an, the Torah, the Old Testament, and the legends of the Creation told in the Palauan culture.

## Introduction

Palau is located in the subregion of Micronesia with an estimated population of 20,000 people. There are nearly 30,000 islands, encompassing hundreds of languages, dialects, and many political jurisdictions in the Pacific. Foreign naval captains stumbled across the Pacific waters and renamed the subregions of the Pacific: Melanesia (east), Micronesia (north), and Polynesia (west). Palau, a Micronesian

country, has a folk history based upon creation legends that establish connections to the past, present, and future. Palau's creation legends are orally passed down through families and communities; this is how I became aware of the creation of the universe from the belief system of Palau. The story of the creation of earth and life may be a common belief, but it is interpreted very differently from religious and secular standpoints. Many accounts of the creation can be found in religious texts or teachings with differing sets of beliefs or practices. Common beliefs are what unite people, especially those of religious background. In these groups of people, bonds are formed based on similarities. In regional culture, beliefs are set apart by etiquette and interpretation of the history or belief system of the area. The different interpretations of the cosmogonic stories that exist in different cultures and beliefs may often be seen as something that sets groups apart from one another, but more so, it can bring people together. Although interpreted differently, there are underlying elements in different religious narratives of the creation story that may have similarities to other creation ideologies. In studying three religious diverse creation stories in comparison to the Palauan creation story, are there influences of cosmogonic belief systems upon the Palauan culture?

### **Cosmogonic Stories**

There are three monotheistic religions that share similar views and beliefs within the sacred texts used in denominational practice, more specifically, the origin of humans and their standing with God (Inati and Kavanaugh 2004). Islam, Judaism, and Christianity have multiple religious organizations, and each adheres to its own ideology that is traditionally found in and structured upon religious texts. In this analysis, the religious texts studied were the Muslim Holy Qur'an, the Jewish Torah, and the Christian Holy Bible. Both human and Earth's creation were studied, as it marks the viewpoint of the beginning of man's relationship with a higher power.

### **Creation Addressed in the Holy Qur'an**

The Holy Qur'an is a book of scriptures that "lays down for them [Muslims] the law and commandments, codes for their social and moral behavior, and contains a comprehensive religious philosophy" (Ahlul Bayt Digital Islamic Library Project). A description from Al Islam, the official website of the Ahmadiyya Muslim Community, states this scripture is a record of the teachings of the prophet Muhammad; it contains 114 chapters (Arabic: Surahs) and has not been changed in the last 1,500 years.

The English-translated Qur'an provided reference to the creation of the Earth in 7:54, as the timeline of the creation (Al-A'raf:54-55):

Surely, your Lord is Allah Who created the heavens and the earth in six periods; then He settled Himself on the Throne. He makes the night cover the day, which pursues it swiftly. And *He created* the sun and the moon and the stars, *all* made subservient by His command. Verily, His is the creation and the command. Blessed is Allah, the Lord of the worlds.

Allah, otherwise known as the God of Islam, is considered to be the higher deity or almighty being in this monotheistic religious system who is responsible for the creation of the Earth and man in a six-day period.

### **Creation Addressed in the Torah**

Maryanne Saunders, professor of Religious Studies at King's College London, explains that Hebrew teachings or law, "constitutes the first five books of the Hebrew Bible" (Saunders 2019). The books included in the Torah were originally titled Bereshit, Shemot, Vayikra, Bemidbar, and Devarim, translated to English being Genesis, Exodus, Leviticus, Numbers, and Deuteronomy. These books are also contained in the Holy Bible.

The Baltimore Jewish Times explains there are two versions of the creation story within the Torah. The first is found at the end of chapter one in Genesis, where God creates male and female in his image. Neither is over the other, and they are both responsible for the creatures created alongside them. The second is found in the second chapter of Genesis. In this translation, God creates one male along with the other creatures on Earth. God then decides the man should not be alone, so He takes a rib from Adam and creates a woman to complement him (Abusch-Magder 2021:15–17).

In these versions, we see that male and female were created in God's image, and it is suggested that the Earth was created in stages, as humans were created and given responsibility over everything God had previously created. In an article highlighting the creation, it states, "The Torah tells us that the first human was created on the sixth day of creation: And the Lord God formed man (ha'adam) of dust from the ground (adama), and He breathed into his nostrils the soul of life, and man became a living soul" (Gen. 2:7; Rabinowitz 2021).

### **The Creation Addressed in the Holy Bible**

The creation story in the Old Testament is divided into seven days or what is termed dispensations: (one) light and darkness; (two) waters and heavens; (three) oceans and earth; (four) sun, moon and seasons; (five) living creatures; (six) Adam and Eve; and (seven) rest and observance (Gen. 1–2:2). Amid the Garden of Eden where Adam and Eve walked with God, there were two trees.

One was the tree of life and the other was the tree of knowledge of good and evil. These two components play a pivotal role in the transition from the Creation to the Fall of man. Eve partook of fruit from the tree of knowledge of good and evil, which changed both herself and Adam into mortal beings with agency and the ability to discern. To right her wrongdoing, Eve could have tried to partake of fruit from the tree of life, which would grant them eternal life. God placed a cherubim over the tree to guard it. If Adam and Eve had partaken of that fruit, they would have lived an eternal life in sin, with no redeemer to save them (Gen. 2:15–3:24). They were cast out of the Garden to “multiply and replenish the earth” (Gen. 1:28). They had many children, but the most referenced are Cain, Abel, and Seth. Cain killed his brother Abel out of jealousy, and their family grew to populate the earth (Gen. 4).

### **The Story of Miagel Latmikaik**

When I was growing up, my dad would tell his children the story of the creation in Palau; he told us that in one village, there was a giant. The giant demanded food from the people, and soon he grew too big. They burned him, and when he fell, his body became the scattered islands. The people that lived on his head were smart, those living on the legs were fast, and in the abdominopelvic region, it rained a lot. This was his interpretation of it that I grew up hearing, but the more commonly told story has several different parts. The stories of Palau depict polytheistic beliefs; many different gods with different objectives are mentioned in legends. The most commonly told version of the creation is titled “The Story of Miagel Latmikaik” (Aoyama 1996:113–25). The world began as only darkness until the chief god, Ucheleanged, decided it was time for land and life to be created. The other gods agreed, so the ocean and land were created. The mother clam named Miagel Latmikaik rested on top of a mountain and continually grew, but her jaws never opened. The gods heard the worried whispers of the spirits that life would not exist because of the clam and not even the massive waves of the sea could pry her open. Ucheleanged grew frustrated and created a sea serpent of water that coiled and flew up the mountain to strike the mother clam. Latmikaik shuddered, and her jaws opened, bringing forth all forms of life. The final three forms that emerged from the mother clam’s mouth were three demigods: Chuab, Uchererak, and Tellebuu. In continued stories, Chuab has a large appetite, and the people of the village work day and night to meet his needs. They decided to burn Chuab to free themselves from the labor, and when he was burnt, his body fell and scattered across the ocean as the islands of Palau. Those living near his mouth tend to talk too much, those on his legs are very fast, and

those near his stomach eat seven times a day. In some narratives, one sibling dwelled on earth, and the other was taken to heaven.

### Analysis of the Four Accounts

There are two prominent similarities between the three religious texts and the Palauan legends. The first similarity in all four of the texts was the order of the creation. The second, also present in each text, was the first inhabitants of the earth. The similarities of the order and first people on the earth suggest a similar perception of the beginnings of man and earth. The narratives are interpreted differently in time and elements, such as the first humans or the first creations, but they relay the same message and belief. These multiple connections advocate for the idea of cosmogonic influence on the Palauan creation legend.

#### *Order of the Creation*

It is written in the Holy Bible, the Torah, and the Qur'an that the world was created over the span of six days or dispensations. Culturally, the stories pertaining to the creation of Palau are told in three eras (see Table 1); the first era is the era of darkness (*mikoik*) in which only gods existed, the second is the era of gods and humans (*chelid* and *chad*), and the third is the present era in which humans dominate (Aoyama 1996:113–25). Upon comparing the dispensations and the eras, Palau's creation story also showcases similarities in eras.

In the Holy Bible, the six-day creation period is referenced in Genesis 1:5–31. In Genesis 2:2, it is written, “And on the seventh day God ended his work which he had <sup>a</sup>made; and he <sup>b</sup>rested on the seventh day from all his <sup>c</sup>work which he had made” (Gen. 2:2). In the Torah, the creation period is found in Genesis,

**TABLE 1. Division of Dispensations into the Eras of the Creation Story from Palau.**

Era	Day
1: Era of darkness	1: Heavens, darkness, light
	2: Water
	3: Earth, seas, plants
2: Era of gods and humans	4: Seasons, moon, sun
	5: Creatures and fowls
	6: Beast, man, woman
3: Present era	7: Rest, observance

or the Book of Bereishit, in the same place as the Holy Bible (Genesis 1–2:2), as this section of scriptures is the first several books from the Holy Bible. It is not located in the same place in the Qur’an, but the timeline is the same; it is mentioned in Surah Al-‘Araf, meaning the seventh chapter of the Holy Qur’an. Verse 54 testifies that the Lord “created the heavens and the earth in six days” (Al-‘Araf:54-55).

In the second era, humans and gods both existed; this initiates the necessity to create both man and woman whose posterity would number the earth. The first humans created were Adam and Eve. It is during this period of time in the religious accounts and the legend that the earth became inhabited by beasts and humans. The biblical account of Adam’s creation is found in Genesis 2:7, where “God “formed <sup>h</sup>man of the ‘dust of the ground” (Gen. 2:7). Eve’s creation is found in verses 18–23, “And the rib, which the Lord God had taken from man, made he a “woman, and brought her unto the man” (Gen. 2:18–23). Both Adam and Eve’s creation in the Torah is found in the Book of Bereishit 1:27, stating God created the two in His image (Gen. 1:27). Adam is addressed in the Qur’an in As-Sajdah, or Surah 32, verse 7, where it is set forth that God created humankind from clay. I feel it is important to mention the footnote found with the word “clay” which makes a reference to Adam (As-Sajdah:54–55).

This final era is called the present era, which can be related to mortality. A defining characteristic of this period of time in Palauan legend is that humans dominate and the gods no longer reside on earth. The seventh day is when the Lord rested. Chapter 2 verse 2 of both the Book of Genesis (Gen. 2:2, 4) and the Book of Bereshit (Gen. 2:2) both state that God rested on the seventh day. The Qur’an does not specifically state that God or Allah rested, rather it explains that God “established Himself on the Throne” in Surah 7, verse 54. God established the idea of rest to be redirecting His divine attention to other holy matters (Al-‘Araf:54–55). Sequential order is one pattern that is observed in many stories and doctrines across religious texts.

### *The First Families*

In Genesis, after being cast out of the Garden of Eden, Adam and Eve followed the Lord’s command to multiply and replenish the earth. They had multiple children, but the three that are most often referred to are Cain, Abel, and Seth. The Book of Bereishit 4:1–2 contains the scripture of Cain and Abel, the two sons of Adam and Eve. Cain is rejected by God and walks in darkness (Gen. 4:1–2). In Al’Ma’idah, or Surah 5, Cain and Abel are introduced in verse 27; furthermore, in verse 30, Cain kills Abel and becomes “regretful” expressing guilt for his action. It specifies that he did



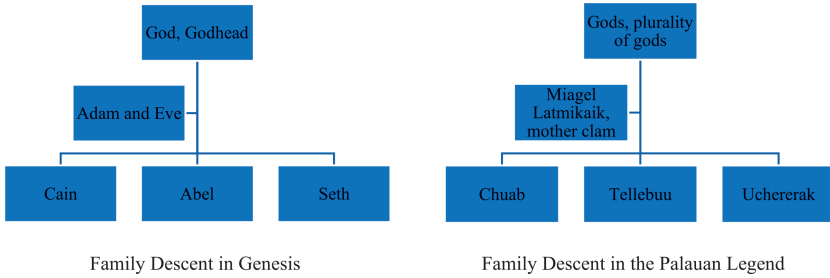


FIGURE 1. **Descendancy of Earth's First Inhabitants from Genesis in the Bible and Miagel Latmikaik.**

not feel guilty for murdering Abel, but rather for failing to bury the corpse (Al-Ma'idah:27, 30). Cain's offering was rejected, while his brother, Abel, was praised for his. He killed Abel out of jealousy and walked in unrighteousness (Gen. 4).

In the creation story from Palau, the mother clam creates three offspring: Chuab, Uchererak, and Tellebuu (see Fig. 1). The story of Chuab tells that the people burned him (Aoyama 1996:113–125). All four accounts mention the first sons of earth, but the Holy Bible and the Palauan legend make reference to three sons rather than two.

Both Chuab and Cain were rejected and cast off from the presence of God because of their selfish endeavors. Seth is known in the Holy Bible as a prophetic and faithful leader. It is not clearly stated, but one of the other offspring of the mother clam was highly regarded on earth and taken to heaven to live with the gods. There is a relation between each account, but the Holy Bible and the Palauan legend are more congruent than the other two in relation to familial descendancy.

### Finding Connections

These scrutinized comparisons present similarities, shared beliefs between people, cultures, and origins that support the convergence of lineage to a single family or way of life. There are cultural connections beyond the establishment of written records because oral traditions create a united sense of connection to one's personal and ancestral beliefs. Could there exist foreign religious influence in the Palau creation story given the existence of similarities? To research the possible connections linguistically, there could be language genealogical ancestry. Each language tree depicted very different origins. Early versions of the Bible were written in the Greek, Hebrew, and Aramaic languages. Most versions



FIGURE 2. Language maps of the Hebrew, Aramaic, Greek, and Palauan. (Martin W. Lewis, *GeoCurrents*, [https://www.geocurrents.info/gc-maps/geocurrents-maps-by-topic/geocurrents-maps-of-languages-language-families/.](https://www.geocurrents.info/gc-maps/geocurrents-maps-by-topic/geocurrents-maps-of-languages-language-families/))

used now are English translations. The Torah was originally written in Hebrew. Greek is an Indo-European language, and both Aramaic and Hebrew are Afro-Asiatic languages. Palauan is an Austronesian language. Although some of the areas of the different languages may be in the same general region, none overlap or coincide, but both have similar stories with very similar elements (see Fig. 2).

While looking into other possible connections of the language, two other stories told in Palauan history have strong similarities to narrations in the Holy Bible and the Torah. The first is a short story called “The Bird that Exhibited Everlasting Life,” which takes place prior to the creation. The gods were discussing what attributes humans should have, and the god Obechad suggested they have eternal life (Aoyama 1996:113–25). The bird god Terriid opposed the notion and upset Obechad. He, in turn, threw a stick at Terriid and injured him, casting him out. He was disgusted by the bird god’s opposition to the gift of immortality.

The second story is called “Ngibtal” or the story of the breadfruit tree. A demigod living on earth named Dirrachedebsungel was gifted a magical breadfruit tree for teaching the Palauan people to plant taro (Aoyama 1996:113–25). The tree would produce large amounts of fish, but one day, a jealous villager chopped down the tree, causing a giant flood to engulf the island as punishment. As recorded in Genesis 2:9, while in the Garden of Eden, there was the tree of life, and the tree of knowledge of good and evil. The three trees from these accounts were gifts from celestial beings that were established with rules and consequences for violation of those agreements (Gen. 2:9). When the tree given to Dirrachedebsungel was chopped down, the island flooded, and the people on the island were punished for their ignorance and jealousy. When Eve partook of the fruit, she knew good from evil and could no longer reside in the garden or with God; this resulted in the Fall. Literally speaking, both stories embody a descension; Adam and Eve descended to earth and the island of Ngibtal descended below the sea. These stories suggest the idea of the second hypothesis that foreign influence over traditional cultural

ideologies may cause differences in interpretation and the recitation of indigenous ancestral traditions and beliefs.

### **Conclusions and Continued Research**

It was captivating to research the stories of Palau, my ancestral homeland, and further investigate the religious stories and scriptures that are taught internationally. Viewing history holistically, it is interesting to think of missing or misinterpreted accounts of culture, people, and beliefs. Many religious teachings are supported by sermons, scholars, and prophetic revelation throughout centuries. Creation is essential to identity and existence before and after the human existence. There are unfamiliar shared beliefs or ideas across all people, cultures, and origins that support the convergence of lineage to a single family or way of life. Religious teachings can have great effects on culture and beliefs, which can, in turn, make it difficult to identify the original story in communities that practice oral traditions.

Anthropologist Tevita Ka'ili's theories of *tā* and *vā* in continued research of the connections of Pacific stories and religious accounts encourages out-of-the-box thinking by observing the beliefs of Palauans through an emic, or insider perspective, rather than etic or outside views (Ka'ili 2018). In his anthropological work, Ka'ili discusses the different perceptions of time and space in Tongan and Western realities. This theory can help express and further investigate the similar ideas in differing cultures, despite limited historical connections by idealizing the observance of a universal history that has been interpreted uniquely by every culture, region, and people, specifically between Tongan and Western culture. If this theory can be applied more in general study, observation connections are able to be realized that connect cultures, peoples, and belief systems.

The similarities between creation stories of the order of the creation and the first families allude to the influence of religious cosmogenic narratives on the interpretation of the Palauan creation legend. In analyzing the three religious texts alongside the Palauan creation, it was clear to see that there were strong similarities between all four narratives, but they are interpreted differently due to regional beliefs, culture, or interpretations suggested by religious leadership. The Palauan creation story has existed for generations and is orally passed down. Thus, it is reasonable to conclude that over time, there was a cosmogenic religious influence on Palauan stories. These religious elements were taken and intertwined in Palauan culture and legends and are continued to be passed on to the upcoming generations.

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