WE ARE THE WEEDS: THE INTERPLAY OF POLICY AND CULTURE IN THE USE OF INTRODUCED PLANT SPECIES AS MEDICINE IN HAWAI'I

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By

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We call them weeds and pass them by
The Goldenrod and Thistle
The Queen Anne’s Lace and Meadow Rue
These are the weeds
The common people of the Earth
These are the weeds
Unwanted and disdained and trampled underfoot
But Friend of Hummingbird
And Bee and Butterfly.

Abbott (n.d.)
Acknowledgements

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Abstract

Weeds are an important source of medicinal plants (lā'au) to Native Hawaiian practitioners of la'au lapa'au (Hawaiian botanical medicine). In both Hawai'i and abroad, natural resource management has historically and currently been used to colonize and acculturate indigenous peoples. One specific form of this ecocolonialism is the lack of Native Hawaiian cultural practitioner input in the decision making processes that affect the management of these culturally essential natural resources. This thesis aims to develop a genuine resolution to the conflict through an exploration of the various cultural perspectives involved, an examination (and contextualization) of the historic and current patterns of natural resource management in Hawai'i (and abroad), and an evaluation and adaptation of successful co-management and indigenous natural resource management models. It is my deepest hope that this thesis will help begin a dialogue between the parties involved and will lead to a genuine stewardship of the 'āina.
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CHAPTER 1. INTRODUCTION – WHAT IS A WEED?

This thesis explores how overlapping systems of ethnobiological classification can lead to cultural clashes when the social institutions meant to negotiate between them favor only one of them. Through an exploration of the cross-cultural salience of the term “weed”, this thesis seeks to understand how different ethnobiological classification systems interact where they overlap and how problems that arise from these different ethnobiological systems can be resolved.

The key questions of this thesis are: 1. How does culture shape the definition, use, and scope of the term “weed”? 2. Is the term “weed” a relevant concept cross-culturally? 3. If not, what are the implications of using this term in natural resources management? 4. Specifically, how does weed management serve as a medium through which one culture interacts with another, especially in regions where different cultural systems of natural resource management overlap?

Do areas of overlap exist? Indeed they do and Hawai‘i provides one such example. In the State of Hawai‘i, plants perceived as introduced species (weeds)\(^1\) by the State Department of Agriculture, Department of Land and Natural Resources (DLNR), and environmental organizations are not so considered by the Native Hawaiian practitioners of lā‘au lapa‘au (Hawaiian Botanical Medicine) interviewed for this project. In fact, these plants are important resources for these practitioners, serving as the majority of the plants they commonly employ as medicines (74 percent)\(^2\) (Judd 1997: 95-96). The differences in the ethnobiological classification and management of “weeds” has led to a growing conflict between natural resource management

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1. While not all introduced plant species are considered weeds, the majority of weeds in Hawai‘i are introduced (Whistler 1994).
2. This includes Polynesian introductions.
agencies and lā‘au lapa‘au practitioners. At the heart of this conflict is a lack of dialogue between the groups, created by what are perceived by both “sides” to be irreconcilable differences between their ethnobiological classificatory systems. This lack of dialogue is particularly evident in the historic lack of consideration and inclusion of Native Hawaiian concepts of stewardship in the organizations responsible for the management of Hawai‘i’s natural resources. This thesis explores this problem through the lens of ethnobiology. By understanding the perspectives relevant to the various groups involved and their histories, I strive to find a means by which the conflict may be resolved.

This thesis is organized as follows: Chapter 2. A description of the methodology used, Chapter 3. An exploration of the various groups involved in this issue and their perspectives, Chapter 4. A description of the weed laws, their history, and how the various perspectives factor into their creation and implementation, Chapter 5. A description of the impact that these laws (and perspectives) have had and are having on Native Hawaiian cultural practitioners, their rights, and their culture, Chapter 6. A chapter outlining how this problem may be resolved, Chapter 7. Conclusion, Appendix, a glossary of the Hawaiian terms used in this thesis, and a list of references cited.
This research represents a small case study centered on interviews conducted with four practitioners of lā‘au lapa‘au conducted between April 2001 – July 2002. Participants were located using the snowball sampling method (Bernard 2000). This method was selected for it was well suited to the needs of the study, particularly in locating the “difficult-to-find” populations (p.179) such as practitioners of lā‘au lapa‘au.

Two participants were contacted at a local workshop on lā‘au lapa‘au held in Honolulu, Hawai‘i, April 2001. A third practitioner was contacted at a workshop on growing Hawaiian Medicinal Plants held in Honolulu, Hawai‘i, February 2001. The fourth practitioner is an instructor of a course on lā‘au lapa‘au offered through the University of Hawai‘i at Mānoa.

Given the small sample size, this group represents a convenience sample (Bernard 2000). As Bernard notes, such sampling imposes limitations on the conclusions that may be drawn from the data. In the case of the practitioners interviewed for this study, their perspectives should not be considered as representative of all practitioners of lā‘au lapa‘au or other Hawaiian cultural practitioners. Bernard notes that convenience sampling is useful in pilot studies, in exploring what questions are appropriate and/or meaningful. As this thesis demonstrates, convenience samples are also useful in identifying and exploring the issues that are important to the study group.

The interviews conducted for this study were unstructured in order to reflect the local discourse style “Talk Story”, an informal conversational style or:

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3 All research was carried out in accordance with and the approval of the Committee on Human Studies at the University of Hawai‘i at Mānoa.
...transferable communicative routine [in which] ... one of the participants will be lead speaker, who ... will have the final decision on the topic and development of the narrative. (Watson 1975: 53-55)

This interview format was utilized exclusively as it proved to be the most culturally appropriate interview style. As Bernard points out, unstructured interviews are best suited to interviews in which the “lived experience” is of interest (p.193).

In the interviews, the practitioner was the lead speaker. This was done out of a respect for their knowledge and experience and is in line with the customary respect shown for an elder (Kupuna) and teacher (Kumu). As Bernard states, the rule with unstructured interviews is: “Get people on to a topic of interest and get out of the way. Let the informant provide information that he or she thinks is important” (p.195).

This advice is well heeded, for every interview employing this technique provided the most interesting and useful information. For example, the subject of this thesis originated from one of these unstructured interview sessions. Had I limited the interview to only the questions I had wanted answered, I most likely would never have learned of the issue that is the heart of this thesis. In addition, every interview conducted in this manner inevitably answered all of the questions I had originally set out to ask (Appendix 1: Survey Instruments). These general sets of questions were designed to explore how introduced plant species (weeds) are viewed by practitioners and how these plants are employed in their practices as medicines. Attention was also given to how these plants are managed and gathered by practitioners.
CHAPTER 3. WEEDS - A DIVERSITY OF PERSPECTIVES.

Ethnobiological\Ethnobotanical Perspectives

The ethnobiological perspective draws upon several fields, most notably Anthropology and Botany. According to Berlin (1992: 3), ethnobiology in its broadest definition is the study “of the complex set of relationships of plants and animals to present and past human societies.” He contends that there are two primary questions addressed by the discipline: How do human societies make use of nature? How do human societies view nature?

Berlin explains that in the past ethnobiologists emphasized the first question, one that dealt largely with the economic aspects of plant and animal use. Since the publication of Conklin’s 1954 dissertation, however, the importance of people’s relationships to, and their perception of, the natural environment has been recognized. Today, most ethnobiologists recognize both aspects are integral halves of a whole.

One of the key areas of interest in reference to the second question is the acquisition and cross-cultural patterning of plant knowledge (Johns 1994; Browner and Ortiz de Montellano 1988; Negbi 1992). The most relevant aspect of this research involves the reasons why cultures develop plant lexicons and the reasons why the lexicons of one culture differ from another. Logan and Dixon (1994), for example, compare plant lexicons of societies with different subsistence bases. They interpret larger plant lexicons of agricultural based societies to reflect a need for a backup source of food should the efforts of agriculture fail. With regard to the medicinal use of plants and the identification of these properties they state:
Medicinal discoveries often arise from the need to combat newly introduced or increasingly threatening diseases... Growth in botanical lexicons is clearly linked to the relative risk or prevalence of disease. (Logan and Dixon 1994: 29)

Here is where the link exists between ethnobiology and weed management.

New diseases introduced into an area require the discovery of new therapies, whether in the form of new medicinal plants or in the reevaluation and extension of plants already in use medicinally. As Logan and Dixon illustrate, the acquisition of the former is guided by the lessons and patterns developed from the latter.

Hawai‘i provides the perfect example of this relationship between disease and medicinal knowledge acquisition. The influx of new peoples into the Islands in the 1800s brought an onslaught of new diseases, as well as a surge in the influx of new plants. This created both the need and the opportunity to identify new medicines from the new arrivals, based upon the lessons learned from the plants already in use as medicines. Some of these new plants occupied specific environmental niches, namely the backyards, roadsides, irrigation ditches, and pastures of the Islands. In short, these plants became the weeds of Hawai‘i.

This is perhaps the reason why weeds and their management are so important to Native Hawaiian practitioners of lā‘au lapa‘au. Stepp and Moerman (2001) note that these frequently overlooked resources may form one of the most vital and essential sources of medicine for indigenous peoples worldwide.

As will be discussed in the section on Native Hawaiian perspectives of weeds, the essential role of weeds in their medicinal and cultural practices is reflected in the relationships between the healers and these plants and in the larger contexts of the natural world drawn from
these relationships. It is here that the intimate connections between how people view the natural world and the ways in which people use the natural world become clear.

Put simply, the term “weed” conveys the nature of our relationship with certain plant species. This is best illustrated in the human-plant relationship models discussed by authors such as Etkin (1994) and Harris (1989). These authors point out that the differences between the concepts “wild” and “domesticated” are best visualized as ends of a continuum (Etkin 1994; Harris 1989). Along it, humans categorize plants according to the relationships between specific people and specific plants.

Harris’s model sought to better understand the relationships of humans with their environment by splitting these relationships into three primary categories: wild plant-food procurement, wild plant-food production, and cultivation/agriculture (Etkin 1994). This model assumes that people expend energy only in return for plants of high caloric value, thus reducing all human/environmental relationships to one of nutritional currency. It neglects such factors as population pressures, sedentism, and social stratification. Etkin, among others, employs Harris’ model to describe not only the nature of human-plant relationships with regard to food acquisition but also for “other nutrient and pharmacological potential(s)” (Etkin 1994: 3). In this model, the method of acquisition is the distinguishing feature, where foraging for wild plants (termed food procurement) represents one end of the continuum and the cultivation of domesticated species (termed food production) comprises the other. Weeds, however, are not so tidily filed away along Harris’ model. As Etkin points out, this is because weeds are associated with areas of marked human disturbance, such as agricultural fields, but are not managed in the

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4 Agriculture, while grouped with cultivation, is differentiated from the former because of the development of domesticated plant species (Etkin 1994).
same ways as are 'crops'. While weeds are therefore in some sense wild, they are intimately bound to patterns of cultivation and domestication.

To complicate matters further, many of the plants commonly considered weeds are intentionally tolerated and even deliberately cultivated for food and medicine by numerous cultures (Etkin 1994). As Etkin points out, these latter relationships might be the origins of newly domesticated crops. This idea, originally postulated by Edgar Anderson in 1952, has been gaining support from a variety of sources within the past twenty years, including Pearsall (1989). In her study of the relationship of domestication of plants to that of animals, she found many of the pasture weeds associated with the corrals of camelids in South America were the ancestors of several of the staple crops of the region, most notably among them quinoa (*Chenopodium quinoa*).

Many researchers have noted that weeds form an essential part of the nutrition of many cultures (Etkin 1994; Logan and Dixon 1994; Vieyra-Odilon and Vibrans 2001). As Vieyra-Odilon and Vibrans (2001) illustrate, this use of weeds also extends to their use as an essential source of fodder for domesticated animals, resources that have a dramatic economic impact in terms of reducing production costs. These weeds are carefully managed and grown alongside corn, creating a complex balance between crop (as fodder) and weed (as harmful to the corn). The balance that maintains the former relationship is realized through the cultural practices that manage these crops.

An interesting question then arises - if a weed is grown for food and medicine alongside other crops does it remain a weed? Darrell Posey responds thus, "Most of what western agriculturalists would consider 'weeds' in a Kayapo field are, in fact, useful semi-domesticates
for the Indians" (qtd. in Logan and Dixon 1994: 35). Thus the difference between a weed-infested field and a sophisticated intercropping system that utilizes highly disease-resistant, open-pollinating plant species is simply a matter of cultural perspective. As we will see, different cultural perspectives of the same plants can lead to considerable cultural conflict where the differing management practices arising from these cultural perspectives overlap.

Even though many scholars have historically overlooked weeds as an important source of medicine, there is a growing body of literature to support the hypothesis that weeds serve a central role in the medical systems of many cultures (Etkin 2002; Logan and Dixon 1994; Moerman 1994; Stepp and Moerman 2001). This pattern holds true in Hawai‘i, where 74 percent (23 / 31) of the most widely used lā‘au (medicines) are introduced plant species (Judd 1997). 5 Most (if not all) of these of these plants are commonly regarded as weeds. Given this common association, it is useful to consider introduced plant species and weeds as one and the same.

It is clear that the commonly held western assumptions and definitions of weeds do not hold true cross-culturally. For what reason then do these plants pose such a problem for human-plant relationship models such as the one offered by Harris? This may be best understood through a similar model, such as the one offered by Logan and Dixon (1994). According to their definition, the term “wild” applies to any habitat that has not been disturbed by human management practices. Logan and Dixon consider any plant that is subject to human management as “controlled”. This includes weeds and cultivated and domesticated plants. Thus,

5 It is important to note that this data was drawn from interviews with ten practitioners of lā‘au lapa‘au and should not be mistaken as representative of all practitioners. Until more studies are conducted, it is not certain how representative these practitioner perspectives are of the whole. The fact that Judd's interview group was comprised of practitioners from five of the seven Hawaiian Islands does at the very least provide a broad range of perspectives given the small sample size.
according to their definition, a weedy plant is one that occurs within an area of human management. However, they point out that if the same plant species occurs outside of the disturbed areas (i.e.- “in the wild”) then the plant can be also considered “wild”. This definition of “weed” therefore relies on a differentiation between lands managed by humans and those free of such management. What then constitutes human intervention? Specifically, what degree of human control separates the “disturbed” areas from those that remain “wild”? Furthermore, if the “wild” must be completely free of human activity do we consider National Parks wilderness? What does it tell us that we do indeed regard these areas so? Can there be wilderness anywhere on the planet according to this definition? Answering these questions is essential, for they not only explain why weeds are so problematic to these models but they also lead to an understanding of the root of the conflict between Native Hawaiian practitioners and weed management agencies. This will have a profound impact on the way weeds and other natural resources are managed both here in Hawai‘i and, indeed, worldwide.

The characteristics that define a pristine environment (and that we regard so highly) are actually the result of specific natural resource management practices and thereby certain relationships between humans and their environment. There is a growing body of literature that supports this hypothesis (Anderson 1999, De Lacy and Lawson 1997, Gómez-Pompa and Kaus 1992, Posey 1997, Posey 1992). Anderson (1999), for instance, points to an extensive management of natural resources used in basketry in Southeastern California. She clearly indicates that most of the landscapes frequently referred to as “wild” and “pristine” are in fact carefully managed ecosystems. She adds:

...such areas no longer fit the definition of pristine, virtually unmodified wilderness, but rather were partially engendered by centuries or millennia of indigenous fire management. (p.109)
Anderson also indicates that evidence of such large scale environmental and natural resource management was the rule for many different Native American nations and may parallel other traditional systems of natural resource management in the world.

Sneed (1997), who works in the subarctic landscapes of Kluane and Wrangell-St. Elias in Alaska and the Yukon, corroborates this hypothesis by stating:

These landscapes have been created by long-term human-nature interactions, including past and present subsistence ways of life that long have utilized the area’s diverse natural resources. (p.139)

While recent research has begun to shed light on the true nature of the relationship between natural resource management and wilderness, there remains a larger body of literature that still assumes that the definitive quality of wilderness lies in its pristine nature. This is best illustrated in an example provided by Baines (1992). In describing the island of Marovo in the Solomon Islands, he comments, “the environment of Marovo has been little disturbed by human activity, and many areas still have near-pristine quality” (p.93). This is striking, as the same natural resource base provides the inhabitants of Marovo with all of their daily needs, and has done so for generations. This example is not an isolated case, for the assumption that prevents many western scientists from seeing the forest for the people living among the trees is a cultural bias, one that is rooted in the belief that humans are separate from nature, and one that results in the belief that human impact on the environment can only be detrimental in nature (Gómez-Pompa and Kaus 1992).

This cultural bias extends to weeds as well, for weeds belong to a group of plants termed non-domesticated resources (NDRs) (Posey 1997). As Posey discusses:
NDRs have systematically been undervalued and overlooked by scientists, yet provide a vast treasury of useful species for food, medicines, shelter, building materials, dyes, colourings, repellents, fertilizers, and pesticides. (Posey 1997: 121)

The systematic neglect of weeds and other NDRs is a logical continuation of the cultural bias, for if humans have no role in the cultivation and management of the wilderness or "pristine" environments, then the plants that disprove this assumption by bridging the transition between agriculture and wilderness cannot likewise exist and are therefore ignored. The systematic neglect of NDRs importance in traditional systems of natural resource management thereby represents a see-no-evil, hear-no-evil mentality that prevents many western researchers from discovering the very data that would expose the cultural biases inherent in their scientific endeavors and mandate revision.

Another consequence of this cultural bias resides in the perceived relationship between wilderness and ownership. Because wilderness is assumed to be devoid of human impact and management it is likewise assumed to be unowned (Posey 1997). The impact of this association is visible in the colonization of both North America and Hawai‘i. The cumulative effects of this bias on the indigenous ethnobiological system are best summarized by Gómez-Pompa and Kaus (1992):

Often backed by powerful government or corporate business interests, conflicting perceptions of how the land and resources should be used have led to the replacement or collapse of previous resource management systems and subsequent unrestricted or uneducated use of the region. (p.273)

Western researchers play a pivotal role in the perpetuation of this pattern of colonization for how they represent indigenous peoples (and their natural resource management systems) has a critical effect in the design and implementation of the policies meant to interact and manage the
relationships of western society with these cultures. Frequently, these representations are distortions of indigenous resource management systems (Balée 1992, Gómez-Pompa and Kaus 1992). The heart of the problem is that what is said by the informants is filtered through the cultural biases of the researcher, biases that are reflected and embodied in the terms used to describe the indigenous systems. For instance, terms such as ‘hunting and gathering’ and ‘subsistence’ both convey images of a way of life that exploits and thereby only takes from the land. Both terms also connote a lack of understanding (on the part of indigenous people) of how to properly cultivate the landscape (i.e., through agriculture). Furthermore these terms do not reflect the ways in which these indigenous cultures view their relationships. While these terms seek to describe the human/environment relationships of other cultures, what they truly reveal are our own cultural biases and relationships with these cultures and with our environment (Posey 1992). If we are to properly (and accurately) describe what the actual relationships are between a culture and its environment and how an ethnobiological system of natural resource management works, we must redefine what constitutes (natural resource) management.

Anthropologists, such as William Balée, have taken issue with ambiguous use of the term management and have redefined it according to the more specific criteria of the effects of human activities on biodiversity. Balée defines the term thus:

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6 This representation of indigenous peoples actually reflects the researchers’ relationships with the land.

7 For an excellent discussion on the differences between the different cognitive realities of both the researcher and the informant see Posey (1992).
Management is the human manipulation of inorganic and organic components of the environment that brings about a net environmental diversity greater than that of so-called pristine conditions, with no human presence.8 (Balée 1994: 116)

In the sense that Balée uses the term, management refers to activities that promote biodiversity. One can infer from this definition that any practice (or set of practices) that does not promote biodiversity (and therefore the long-term supply of a natural resource) is to be considered mismanagement.

The power of Balée’s redefinition of management is most evident as it applies to Logan and Dixon’s (1994) framework for understanding weeds. If we apply Balée’s definition to their concept of “disturbed areas” we realize that within this one category, there are actually two distinct categories: managed landscapes and mismanaged landscapes. Any human disturbance that results in an increase in biodiversity would be considered “managed” whereas areas where human disturbance has led to a reduction and loss of biodiversity would be considered “mismanaged”. Accordingly to this application of Balée’s definition to Logan and Dixon’s model, then what is “wild” falls into the managed category, along with any of the more overtly human-shaped landscapes that increase biodiversity. The caveat, of course, is this is true only if these former regions are also under some form of human management. As the mounting evidence illustrates, this is indeed the case.

Here is one reason why weeds prove so problematic to the human-plant relationship models of both Harris and Logan and Dixon: these relationships are culture specific. As such, the position of any specific plant species will vary considerably from one continuum to another. Therefore, Harris’ model can be used to construct a set of continua for each culture, which could

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8 Balée’s definition of management is very similar to that of Hames (1987), however where Hames’ definition only applies to (game) animals, Balée expands the definition to include all natural resources and, in particular, plants.
then be used in a cross-cultural analysis of these data sets. An even more revealing use of the continuum model of human plant relationships might be the construction of continua that utilizes the conceptual-framework of the culture being studied, such as the one discussed by Posey (1997). By comparing these continua cross-culturally, we might begin to get a better understanding not only of human-plant relationships but also human-human relationships, especially where these concern one culture interacting with another culture through the medium of plants and especially through the negotiation of defining what is a weed.

**Weed Science Perspectives**

How do weed scientists define weeds? It would be reasonable to assert that weed scientists hold weeds to be plants that have no intrinsic value. In fact, it is quite clear that they perceive weeds as inherently detrimental to the health and well-being of other living organisms, whether they be domesticated plants and animals or native ecosystems. This is reflected in the way weed scientists characterize weeds, especially with regard to their (detrimental) effects on agricultural production. Take for example the following passage, drawn from a recent publication on applied weed science:

...weeds are better described as plants that interfere with the growth of desirable plants and that are unusually persistent and pernicious. They negatively impact human activities and as such are undesirable. (Ross and Lembi 1999: 1)

Here we can see where the weed science perspective differs considerably from that of ethnobiology and, as we will see, from Native Hawaiian perspectives of weeds.

To better understand the reasons for this characterization it is appropriate to explore another question: How does weed science define itself? According to Mercado, weed science is "the study of weeds and their control, whether it be manual, mechanical, cultural, biological,
chemical, or ecological” (1979: 1). She states that the main goal of the discipline is to find the most effective and economical methods of controlling weeds. This is reflected in the predominance of articles within the weed science literature that refer to this primary focus. An overwhelming majority of these articles emphasize the control of weeds through the application of herbicides; so much so, it would seem that the main goal of the discipline is fundamentally its sole goal. Lost in the shuffle are the other areas of study within weed science that are stated by Mercado (1979), chief among these the cultural and ecological aspects of the field.

Does this mean that weed scientists have completely turned a blind eye to these other aspects? Historically, the ecological and cultural areas of study were neglected almost completely, that is until the publication of Silent Spring by Rachel Carson in 1962 (Russell 2001). Since Silent Spring, there has been a growing concern among weed scientists over the extremely narrow focus of the discipline and its effects on the health of the environment. This is indicative of the critical junction at which the discipline of weed science finds itself, one in which the focus of the discipline has begun to shift towards a more holistic study of weeds (Duke 1997). Perhaps the best example of this struggle can be found in two weed science textbooks: Fundamentals of Weed Science (second edition) by Robert L. Zimdahl (1999) and Principles of Weed Science (second edition) by V. S. Rao (2000). Textbooks perhaps provide the best gauge of what the future of any discipline will be, after all, they are the primary instruments that will shape the ideas and foci of the next generation of weed scientists.

The first textbook reflects the shift within weed science to bring a more holistic awareness to the discipline through the inclusion of an entire chapter on the use of weeds cross-culturally (ethnobotany). This is one of the first real attempts to incorporate interdisciplinary insights into the discipline and to provide students of weed science with an understanding of weeds beyond
the usual panacea of herbicides. This text offers a solid beginning to achieving this goal. With the continued inclusion of interdisciplinary literature concerning the cross-cultural use and management of weeds, weed science may indeed realize the goals of agriculture set down by Aiken. This text illustrates that weed science has begun to realize to truly positive change.

The second textbook, *Principles of Weed Science*, illustrates that while weed science has begun along its new holistic path, its remains to be decided if it will continue along it. This text’s orientation remains firmly in accord with the original “main” goal of the discipline - the control and eradication of weeds for agricultural purposes. It reflects almost no awareness of agricultural ethics and is completely lacking in any consideration of the aforementioned ethnobotanical insights. This text, published a full year after Zimdahl’s, also illustrates that weed science’s mantra of herbicides is far from being completely abandoned. The fact that over half of this book is dedicated to their use only confirms the claims that weed science is still running strong on the “chemical treadmill” (Burnside 1993: 517).

Another indicator of this critical junction is the effort to make ethics a central consideration in regulating the direction of the discipline. This is most evident in the revision of the weed science’s goals by Aiken (1998). In this revision, he outlines the four main goals of agriculture that he maintains should be adopted by weed scientists and other agricultural specialists alike. These are: 1. Profitable production, 2. Sustainable production, 3. Environmentally safe production, 4. A socially just means of production.

Central to Aiken’s revision is the inclusion of a system of checks and balances, in which each goal serves to regulate and balance the direction of the others. To Aiken, “a goal shapes human

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9 See also Zimdahl 1998a, 1998b.
activity performed to accomplish it, and it serves as a norm or standard by which to judge the
success of that activity (p.640).” The need for such a system of norms is imperative, for the two
major sources of environmental damage caused by agriculture are the two most widely used
the recent trend in the decline of weed species in more intensive cultivation systems (the current
main goal of the discipline) is actually indicative of instability within the ecosystem.

The transformation of weed science into a more holistic discipline has meant a rethinking of
the methods used to control weeds, especially the reduction of herbicide use and the
development of new weed control methods that will take their place. These new methods must
provide farmers with a diverse and more flexible weed management tool kit which will help
them live and work within the framework of new goals set down by Aiken (Buhler 1999,
Reinhardt 2000). It is because of this new interest (and funding) that many new approaches to
weed management are being developed and that do in fact meet these new goals. Among these
are precision agriculture, integrated pest management, computer-aided decision making, high-
unit activity herbicides, biocontrol, no-till agriculture, transgenic crops, and cultural methods of

It is the final category that is the most pertinent to the discussion at hand. Cultural methods
include many different methods that were used prior to the advent of herbicides. They have
experienced a resurgence in the current reevaluation of weed science because they are better
suited to the revised goals of the discipline, goals that reflect a more balanced and sustainable
approach to weed management (Aiken 1998). For an overview of some of these methods see
All of these examples indicate that the discipline of weed science is at a critical junction. If the current trends of recent years continue, then we will see the growth of weed science into a more holistic and interdisciplinary discipline, one that concerns itself not only with profit but also with the health of the environment and the open minded exploration and inclusion of other cultures' methods of weed control. In the new weed science, weeds are seen as an integral part of agriculture, one that needs to be controlled in ways that are as environmentally sound as they are profitable. If weed science falls off the wagon, however, it will return to its views of weeds as both useless and harmful to both human agriculture and native ecosystems. And as the history of weed science has illustrated this view of weeds has led to a discipline whose sole aim is not to manage weeds but to eradicate them in the most profitable and expedient manner possible.

**Native Hawaiian Perspectives**

An understanding of Native Hawaiian perspectives on weeds requires an understanding of what it means for a particular practice to be termed 'traditional'. According to the Four Directions Council:

> What is ‘traditional’ about traditional knowledge is not its antiquity, but the way it is acquired and used. In other words, the social process of learning and sharing knowledge, which is unique to each indigenous culture, lies at the very heart of its ‘traditionality’. Much of this knowledge is actually quite new, but it has a social meaning, and legal character, entirely unlike the knowledge indigenous peoples acquire from settlers and industrialized societies. This is why we believe that protecting indigenous knowledge necessarily involves the recognition of each peoples’ own laws and their own processes of discovery and teaching. (qtd. in Posey 1997:120)

In this defining of what constitutes traditional, change becomes a central part of the processes by which cultures incorporate new ideas and technologies into their existing frameworks. With regard to Native Hawaiian gathering practices, while the tools of gathering have changed, the practices themselves remain ‘traditional’ for they are guided by the same
“traditional knowledge and values in conducting these activities and are motivated by purposes related to traditional subsistence, religion, or culture” (McGregor 1996 p.18). It is this traditional knowledge that is really the subject of this section, knowledge that has ensured the conservation and stewardship of Hawai‘i’s natural resources since the first voyagers made it to her shores.

Many Hawaiian families rely on subsistence practices for a primary part of their diet (PASH/Kohanaiki Study Group 1998). On some islands, this is as high as 38 percent (First Friday 1998). For this reason, these families respect and care for their surrounding natural resources. McGregor (1996) notes that:

The quality and abundance of the natural resources of these rural Hawaiian communities can be attributed to the persistence of ‘ohana values and practices in the conduct of subsistence activities. (p.15)

This knowledge is passed on from one generation to the next by working alongside their kūpuna (elders). As an integral component of gathering practices, conservation (of these natural resources) is practiced, “to ensure the availability of natural resources for present and future generations” (PASH/Kohanaiki Study Group 1998: 14).

Conservation of natural resources and the role of the practitioner as steward of these resources are the two unifying principles underlying all traditional Hawaiian subsistence activities. This is immediately evident in the original name for tenants of an ahupua’a: hoa ‘āina. Translated, the name hoa ‘āina refers to a “caretaker” or “tenant” of the land (Pukui and Elbert 1986). It is not surprising then that the principles passed down from pre-contact Hawai‘i are comprised of protocols that carefully manage all natural resources, ensuring their continued availability and abundance for future generations. Table 1 outlines the primary principles that guide subsistence practices among some Native Hawaiians.
This sense of conservation and the role of each practitioner as steward of these resources are also evident in the two phrases *Aloha ʻĀina / Kai* (Cherish the Land and Sea) and *Mālama ʻĀina / Kai* (Care for the Land and Sea). In these phrases we get a sense that the role of the practitioner is not only to gather what they need for survival but also to ensure that each resource is available for all those who will follow, including subsequent generations. Thus, practitioners, as stewards, are essential in the conservation and health of the natural resources.

The reasons for this are readily obvious: Hawaiian culture relies upon these resources for survival; therefore healthy resources ensure a healthy culture. Because the two are symbiotically intertwined, the converse is equally true: healthy natural resources depend upon a healthy Hawaiian culture. The understanding and renewal of this relationship is passed on through the protocols employed by Hawaiian cultural practitioners in their gathering practices. Since subsistence practices are the medium through which this relationship is renewed and realized, the continuation of the traditional subsistence practices are essential both to the health of Hawaiian culture and to the ʻĀina.

These guiding principles are most certainly embodied in the gathering practices utilized by practitioners of *lāʻau lapaʻau*. Kupuna Butch Richards explained to me that when gathering *lāʻau* (medicinal plant(s)) one must always remember that there will be someone who will come to the same place looking for the same *lāʻau*. For this reason, he explained, one must always ensure that there will be enough for this person. This is accomplished through several principles that guide practice (Table 1).

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10 This use of the term differs somewhat from the Pukui and Elbert (1986) definition of the same word. According to Pukui and Elbert, the term *lāʻau lapaʻau* is a "medicinal plant." Despite the discrepancy, the fact remains that the contemporary use of the term *lāʻau* includes any material (plant, mineral, or otherwise) that has medicinal properties. Every contemporary practitioner I spoke with used the term *lāʻau* only when discussing a medicinal plant or material. (See Hawaiian Glossary).
The most important of these principles is one should only take what one needs. If there is not enough of a certain lāʻau, one must first propagate it, either through cuttings or seeds. One must also care for the lāʻau - by watering, fertilizing, etc. These practices are not specific to lāʻau lapaʻau but are drawn from the beliefs and practices of conservation and stewardship that underlie all Hawaiian subsistence practices.

Most importantly, it also illustrates that many of the resources frequently regarded as “wild” are, in fact, culturally managed resources. In the case of lāʻau, plants are not simply “gathered” but in many cases are actively cultivated in their natural environment. In this regard, Native Hawaiian concepts of stewardship and natural resource management are akin to Balee’s definition of “management” for they recognize the integral role of human action in maintaining and increasing the health and diversity of the natural resources. In a nutshell, Native Hawaiian natural resource management ensures the conservation of natural resources through the sustainable management of these resources.

This also pertains to the use of introduced plant species as lāʻau. These plants are referred to by practitioners as hanai - the same term that describes any individual that is adopted into an ʻohana (Auwae n.d.). In a very real sense then, these plants are part of their families. Including a plant into one’s family geneology helps convey the practitioners’ perspectives of these plants. Such an inclusion is the discernable recognition that one has an intimate relationship with these plants - one that is not reflected by the use of the term weed.
1. Take only what is needed.
2. Do not waste natural resources.
3. Gather according to the life cycle of the resources. Allow resources to reproduce.
4. Alternate areas to gather, fish, and hunt. Don’t keep going back to the same place. Allow the resource to replenish itself.
5. If an area has a declining resource, observe a kapu on harvesting until it comes back. Replant if appropriate.
6. Resources are always abundant and accessible to those who possess the knowledge about their location and have the skill to obtain them. There is no need to overuse a more accessible area. Reserve the easily accessible areas for the Kupuna (who may have a difficult time gathering elsewhere).
7. Respect and protect the knowledge which has been passed down from one generation to the next. Do not carelessly give it away to outsiders.
8. Respect each other’s areas. If you need to go to an area outside the one your ancestors used, then go with people from that area.
9. Throughout the expedition keep focused on the original purpose or goal.
10. Be aware of natural elements and of natural (danger) signs.
11. Share what is gathered with family and neighbors
12. Take care of the Kūpuna who passed on the knowledge and experience of what to do and are now too old to go out on their own.
13. Do not talk openly about plans to go subsistence hunt, gather, or fish.
14. Respect the resources. Respect the spirits of the land, forest, ocean. Remain calm and quiet.
15. Respect family ‘aumakua. Do not gather the resources sacred to them.

Table 1: Principle concepts of stewardship that underly subsistence practices. (McGregor 1996; PASH/Kohanaiki Study Group 1998)
This may be in part why the term weed made all the practitioners I spoke with upset. To these practitioners, the term weed does not describe plants - it describes us. We are the weeds. The practitioners interviewed recognize that all plants are medicinal and have uses. The term you use to describe a plant imparts your relationship with that plant. When one uses the term weed to describe a plant, it tells the practitioner that this person does not know who this plant really is. Put another way, it tells the practitioner that these persons do not have a relationship with these plants that allows them to recognize its sacredness, a quality embodied in its ability to heal. Therefore, to the practitioners of lāʻau lapaʻau that were interviewed, the term weed is a reflection of ourselves, of our relationships with certain plants. This reasoning also extends to other terms that are used to classify plants: alien, introduced, native, endemic, indigenous, noxious, etc. Each of these terms conveys a certain relationship with a plant, based on a continuum of what belongs (good) and what does not (evil). These categories reflect our relationships with specific groups of plants, groups that are based upon a specific ethnobiological classification system (i.e. - Science).

This is true for the term lāʻau, which is used to refer to any material (plant, mineral, or otherwise) that is medicinal. But it is more than that, for it imparts a deeper understanding of the relationship between practitioner and plant. This meaning-beyond-the-meaning is an important part of Hawaiian language and culture. And it is with an understanding of this kaona (hidden and deeper meaning) that the nuances of the relationship between practitioner and plant become clear. Laʻa can be translated as ‘sacred’ or ‘holy’ (Pukui and Elbert 1986). ʻAu was explained as meaning ‘oneself’ by one of the interviewed practitioners. Putting the two together, lāʻau can be translated as to ‘sanctify oneself’ or ‘that which sanctifies oneself.’ Thus, the relationship between practitioner and plant (and between practitioner and patient) is one of sanctification.
This contrasts greatly with the other ethnobiological system’s (weed science) perspective of plants and, especially, weeds. It is from this perspective that the term ‘weed’ loses its old meaning (an unwanted or detrimental plant) and gains a new one (people who do not know plants). Put a different way, the practitioner’s perspective removes the surface meaning and reveals its *kaona*. This is the perspective held by most of the practitioners I spoke with.

Expanding upon this idea, the heart of *lā‘au lapa‘au* could be said to be the repair and maintenance of the sacredness created by certain human-plant relationships. This is reflected not only in how practitioners regard the plants they use but also the methods they utilize to manage and interact with these plants. Kupuna Butch Richards stated that plants were here before us, yet we (humans) place them “on a low pedestal” (Richards 2002). He maintains that this is the real problem and the one that people need to address. To him, as well as every other practitioner I spoke with, plants are both their teachers and (as part of the *ʻāina*) are seen as the foundation of all culture (PASH/Kohanaiki Study Group 1998). Indeed they are, for as Kupuna Butch Richards put it, “I don’t care what part of Hawaiian culture you look at, all of it begins with a plant.”

Because sacredness is reflected in practice as well as in word, the *lā‘au lapa‘au* practitioner’s role is also that of stewardship. The interviews with practitioners of *lā‘au lapa‘au* have made it clear that they are the living *hoaʻāina*, the current stewards of the *ʻāina*, who live by and are guided by the principles of their forbearers. The traditions and practices of ancient Hawai‘i are very much alive and are carried on by these elders.

As we will see in the next chapter, the preservation of the environment relies on the preservation of culture. In the Hawaiian case, it relies on protecting the traditional gathering
rights of Native Hawaiians, through which the health of both Hawaiian culture and the `āina are ensured.
CHAPTER 4. WEED LAWS – A CULTURAL PERSPECTIVE.

Laws should reflect a nation’s cultural diversity for only when they do take into consideration the diversity of its citizens can they truly treat them in a just and equal manner. Weed Laws should do likewise. The reality is that they do not. In fact, weed laws are mono-cultural, reflecting the beliefs and practices of only one culture’s perspective. In fact, they represent the views of a small segment of the populace. As such, they are tools of a cultural elite. In places where there is overlap between ethnobiological systems, this creates problems for those whose beliefs and practices are not represented within these laws. Frequently, these underrepresented systems of natural resource management are those of the indigenous peoples who inhabited the region prior to the arrival of colonizers. In order to understand what accounts for this disparity it is essential to first have an understanding of the origins and history of weed laws.

Old World Origins

Weed Laws were first enacted to regulate plants perceived to be harmful to agriculture (Rappaport 1993). This was largely a result of the way weeds were characterized during the British Industrial Revolution. Perhaps the first author to put it into writing was Jethro Tull (Evans 2002). In 1733, he wrote that weeds were “hurtful”, “uninvited guests”, “robbing Legitimate plants (Sown crops) of their Nourishment” (qtd. in Evans 2002: 9). He also characterized them as “unprofitable”, clearly showing his view of agriculture as a primarily capitalistic undertaking.

In Tull’s assessment, weeds were worse than useless, they were both a threat to agriculture and an affront to those who were civilized. Weeds therefore were the Enemy. This
characterization of weeds became the presiding view among Tull’s contemporaries and was readily adopted by his successors. This is exemplified by Francis Home and Adam Dickinson, who contended that weeds were “all such vegetables, as, being of no use to the farmer,” and were “not only useless; they are also noxious” (qtd. in Evans 2002: 9). To properly understand the social contexts that perpetuated this view of weeds, it is important to first understand who the authors of agricultural texts were, who comprised the audience they wrote for, and what was the dynamic between the two.

According to Evans, the authors of agriculture improvement texts were from a mixture of different backgrounds (2002). Some were actual farmers and wrote from their own experiences. Others, however, (in true colonialist style) were armchair farmers, having never setting foot on the very soil they wrote about. While their backgrounds were mixed, they were nonetheless united in their membership in the growing scientific elite of British society and in their hatred of weeds.

The agricultural reformers of the 18th century wrote almost exclusively for the growing number of rural elites who had begun farming their own lands (Evans 2002). Prior to this time period, landowners would lease the land to tenant farmers on long-term leases. Evans notes that with the dawning of the 18th century, this long held system came to an end. Landowners were interested in cutting costs and increasing profits by farming the land themselves. The result was a growing market in agriculture instruction manuals for these would-be-farmers, who could both read and write, and who could afford to buy books. These books, and therefore the negative perspective of weeds contained within these books, were written by a (would-be) wealthy cultural elite for a wealthy cultural elite. If the agricultural reformist perspective belonged to only a small percentage of the entire British populace, what was the predominant view of weeds
in British society during this time? In addition, what does this tell us about how weeds are represented in literature, both historically and currently?

Most certainly there existed other perspectives concerning what it meant to be a weed, perspectives that held weeds as anything but useless or harmful. These alternative perspectives, however, were all but left out of the written record entirely. In fact, they are only remembered in passing by a handful the scholars of the day. This is evident in the passage from William Ellis’s book Chiltern and Vale Farming Explained (1733). Commenting on the problem of the weed “Mustard Seed”, he added that this same plant “is annually gathered as a most valuable Thing by the poor People” (qtd. in Evans 2002:2). Here is the reason why any perspectives other than those of the agricultural reformers (and their landed audience) are so poorly remembered: they were the perspectives of the poor, for whom the ability to read, write, and to afford a book on agricultural reform were luxuries that were simply beyond their means. The only records we have of these perspectives are therefore those that were recorded by the scholars of the day, these scholars being the agricultural reformers themselves.

Why then did these scholars neglect to record these perspectives? The reason for this neglect was due to the contempt and prejudice held by the upper classes (including the scholars) towards the lower classes (the people who depended upon weeds). This class prejudice is blatant in Tull’s writings, thus providing a clear understanding of the link between his view of weeds and the people who depended upon them (Evans 2002). As such, the agricultural reformers’ perspective of weeds and the written record as a whole must be recognized for what it is: the class-oriented and prejudiced views of a small cultural elite. As these authors are the fathers of modern industrialized agriculture, disciplines within these sciences, such as weed science, are clearly part of this legacy of hegemony and, indeed, imperialism. It is this legacy
that still haunts the halls of academia today and has perpetuated the cultural conflict that exists between practitioners of lā‘au lapa‘au and natural resource management organizations. Furthermore, because weed laws are one of the agricultural reformers’ primary contributions to agricultural reform, they are part of this legacy as well.

**Weed Laws in North America**

The First Weed Law in North America was the 1865 Canada Thistle Act of Upper Canada. Its sole purpose was to eradicate the scourge of Canada thistle (Cirsium arvense) (Evans 2002). The most interesting aspects of the Act, however, are the social, economic, and even political relationships that led to the creation and passage of this legislation.

Evans notes that the system of agriculture developed in Britain was ill-suited to the environmental, social, and economic conditions in the New World. The clearing of forests yielded fields full of rocks and stumps, a far cry from the well-tilled soils of Mother England. The cultivation of crops was therefore carried out in the most rudimentary and expedient sense.

These difficult growing conditions, were furthered hampered by the lack of well-maintained roads and other types of infrastructure vital to this system of agriculture. These added burdens meant that farmers had to grow a crop that could reach the markets of Europe without it spoiling in transit. Well suited to meet these requirements, wheat (Triticum sp.) rapidly became the dominant crop of the New World. However, economic hardships further contributed to the social strain imposed upon the colonists. The lack of adequate labor coupled with the economic imperative to produce a cash crop as soon as possible, led many farmers to abandon the sustainable farming practices of their British forbearers and turn to what came to be aptly described as “wheat mining” - the continuous growing of a single crop (monoculture) on the
same land until the soil was exhausted. Not only did this abandoning of sustainable agricultural practices drain the soil of its fertility, it also was responsible for the incredible proliferation of weeds. The root of this problem was therefore an agricultural system that depended upon specific social and environmental conditions, all of which were lacking in the New World. And it was in this climate that the Canada Thistle Act of Upper Canada was born.

Prior to its passage, however, two other statutes regulating weeds were on the books (1793 and 1849, respectively). Both dealt with the elimination of weeds that were perceived as hurtful to husbandry (Evans 2002). Both were also equally ineffective, to the extent that they are not even recognized as the first weed laws in North America. The previous discussion, however, may provide some insight into the reasons underlying their inadequacy. Perhaps the reason why weeds were able to proliferate so incredibly was because they were allowed to, not only because of the conditions previously described but because they were useful to farmers, particularly as fodder for livestock. In 1744, William Ellis recorded the following account:

A Neighbour of mine... mistook his Road, which obliged him to arrive late at a single Public-house, near this Village of Newton, where he put up his Horse; and when the Landlord came to rack up the Horse for the Night, he brought a parcel of Hay, to my Neighbour's Suprize, made of Thistles, and other Weeds. (qtd. in Evans 2002: 42)

When Europeans immigrated to North America, they brought with them both these plants and their uses. This indeed seems to be the case, for as Evans notes in discussing the introduction of Russian thistle (Salsola kali) into North America, this weed was commonly used by Russian Mennonites as fodder for pigs in both their native and adopted lands (Evans 2002).

It is therefore highly likely that these weeds were managed in ways that promoted their growth, albeit different from the methods used to cultivate the settlers' domesticated "crops."
When these traditional techniques were applied in the New World, the weeds found ideal
growing conditions. And as the Mennonite example suggests, the traditional cultivation of
weeds contributed directly to their explosive growth in the New World. None of the current
literature seems to consider this specific possibility as the primary reason for European weeds’
rapid success.

The literature does, however, suggest that the proliferation of weeds in the New World
was a direct result of the social, economic, and resulting environmental conditions created by
European culture. This is most apparent in the seemingly contradictory nature of the Canada
Thistle Act of Upper Canada itself. Canada thistle (Cirsium arvense) is considered to be a weed
of wheat and grain fields, yet the Act forbids the officials responsible for enforcing the law from
entering any such field and removing the offending weed, even should the field be more thistle
than grain. In effect, the ecological niches that are the haven of these problematic plants are the
only ones off-limits to enforcement. Such absurd and blatant stupidity is evidence that weed
laws, right from the start, were influenced by those interested in concerns other than the effective
control and management of Canada thistle (Cirsium arvense) and other weeds.

Crosby (1986) outlines the primary reasons how weeds and European culture were
adapted in ways that allowed Old World weeds to rapidly and unequivocally spread across the
New World. In a nutshell, he proposed that because Old World weeds coevolved with European
agricultural practices that this readied them for their future dominance in the areas where these
"Europeanized" conditions were replicated: i.e.- the European Colonies. As Evans (2002) notes:
"[Most farmers] practiced a style of farming that was, in many respects, more favorable to
culturing weeds than to culturing crops" (p.71).
It is therefore clear that European culture was the real culprit behind the success of weeds in the New World and the problems colonists experienced with them. And as the Canada Thistle Act of Upper Canada ironically illustrates, culture through all its tools, including law, is responsible for creating the continued social and environmental conditions that weeds thrive in. Weed Laws therefore are designed to neither regulate nor manage weeds; they are in fact a means by which the cultural practices that promote weed growth are controlled. In this regard, it is visible how weed laws can be used as a tool of colonization. The question then is: If culture (embodied in the form of Law) is responsible for this problem, can these same cultural tools be used to manage weeds effectively without their simultaneous employment as tools of colonialism?

Cultures are intimately bound to their environments. To change the physical environment, is to therefore change the culture to which it is bound. Wherever Europeans went, they altered the environment in ways that replicated the conditions favorable to their plants and animals (and thereby the cultural practices) and the human-plant/human-animal relationships formed the foundations of their cultures. In so doing, they simultaneously and systematically removed the conditions that nurtured and underpinned the indigenous cultures in the regions they colonized. By controlling these changes in the natural resources and thereby the natural resources themselves, European colonizers were able to gain dominance over the indigenous cultures.

This is the reason why any colonizer has to control the resource base, for without it the environment cannot be reshaped to favor the culture of the conquerors. By regulating (and thereby restricting access to) the resource base the indigenous culture depended upon, this elite
was able to exert and maintain control over native people. For this reason, the regulation and control of the natural resources (including weeds) are cornerstones of colonialis
t policy.

This is the legacy of colonialism. It is true of most if not all former (and present) European (and American) colonies, including Hawai‘i.

**Weed Laws in the United States**

In the United States, the first state to enact a law regulating weeds was Minnesota in 1872 (Hort 481 2001). This was followed a few decades later with the passage of the first seed laws to prevent the spread of certain weeds. The first federal law to regulate weeds was the Federal Seed Importation Act in 1912. Table 2 lists the major developments in the history of weed legislation and regulation.

Plants deemed especially harmful (to agriculture) were placed onto noxious weed lists, which were largely developed by State Departments of Agriculture. Many cities also enacted weed laws at the local level and were intended to protect the public “from neglectful landowners whose littered yards could attract rats, mosquitoes, or present a fire hazard” (Rappaport 1993). Just like the Canada Thistle Act of Upper Canada, weed laws in the United States were more about protecting European agriculture than about managing weeds. This is evident in such examples as the definition of noxious weeds from the *Federal Plant Protection Act*:

The term “noxious weed” means any plant or plant product that can directly or indirectly injure or cause damage to crops (including nursery stock or plant products), livestock, poultry, or other interests of agriculture, irrigation, navigation, the natural resources of the United States, the public health, or the environment. (2000: H3784)
<table>
<thead>
<tr>
<th>Year or Period</th>
<th>Law Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1872-1957</td>
<td>First state weed laws: Minnesota (1872), North Dakota (1899), California (1903), Washington (1907), Idaho (1911), other western states (1915-57). One western state has no weed law.</td>
</tr>
<tr>
<td>1909-53</td>
<td>First state seed laws: Idaho and North Dakota (1911), Colorado (1917), Washington (1919), other Western States (1921-53).</td>
</tr>
<tr>
<td>1899</td>
<td>River and Harbor Act provided for U.S. Army Corps of Engineers to remove water hyacinth from navigation channels in Florida and other Gulf Coast States.</td>
</tr>
<tr>
<td>1926</td>
<td>Seed Importation Act amended to cover weed seeds in interstate commerce.</td>
</tr>
<tr>
<td>1947</td>
<td>Federal Insecticide, Fungicide and Rodenticide Act including herbicides as pesticides.</td>
</tr>
<tr>
<td>1961</td>
<td>Federal Pesticide Act amended to make herbicides apply to any alga or other aquatic weed.</td>
</tr>
<tr>
<td>1962</td>
<td>Roots or other plant parts growing where not wanted declared as pests under the Federal Act.</td>
</tr>
</tbody>
</table>

Table 2: List of legislation and regulatory developments regarding weeds in the United States (Evans 2002, Hort 481 2001).
In this definition we can see the influence (and survival) of Tull's perspective of weeds. This legacy is also evident in the definition of biological control organisms taken from the same document: "The term 'biological control organism' means any enemy, antagonist, or competitor used to control a plant pest or noxious weed" (H3784). In this latter definition, we can see the legacy of Tull's perspective of weeds as well as its codification in law.

Weed laws have therefore continuously served the purpose of reinforcing a monocultural relationship with the land (through agriculture). As such, they represent one method by which a colonizer can gain control over the natural resources that a people (indigenous or otherwise) depends upon.

This is true for Hawai'i and almost certainly wherever colonial empires set up shop. As the next chapter will illustrate, this monocultural approach to weed management and natural resource management has had disastrous effects on the indigenous cultures in areas where this approach has been applied. As such, it reveals itself as part of the legacy of colonialism and hegemony that continues to survive even today.

**Weed Laws in Hawai'i**

In the state of Hawai'i, the laws that directly apply to the management of weeds include:

- Hawai'i Revised Statutes Title 11: Chapter 141: Department of Agriculture, Chapter 152: Noxious Weed Control, Hawai'i Administrative Rules Title 4 Section 6 Chapter 67, 68, and 69A, and Chapter 91 of HRS Title 11, which applies to weeds indirectly (Michie's Hawaii Revised Statutes Annotated 2001). These statutes outline the responsibilities of and methods by which the Department of Agriculture designate, identify, and control those plants (and animals) deemed
harmful to the agriculture and natural resources of the state. They also delineate the protocols by which the agency may work with private individuals or groups accomplishing the effective management and control of weeds.

Interestingly, there existed another law that regulated weeds. In fact it was entitled Weed Control (Title 11 Chapter 151). Repealed in 1972, this law did not actually regulate weeds, in fact, its sole purpose was to regulate the use of pesticides. This is most likely the reason why the law was repealed and reborn as Act 58: Hawai‘i Pesticides Law (enacted in 1972). What is most striking about this law is how closely pesticides were correlated with weed control. As the next chapter will demonstrate, this correlation was to have devastating effects on Native Hawaiian practitioners of lā‘au lapa‘au and invariably on all cultural practitioners in Hawai‘i. This chapter also demonstrates how this law and other weed laws were integral parts of the past and current assault on Native Hawaiian culture through the plants that Native Hawaiian cultural practitioners depend upon.

In Hawai‘i, there are two government offices that regulate and manage weeds for the State. These are the Department of Agriculture and the Department of Land and Natural Resources (DLNR).

In the private sector there are a number of national and local groups and organizations that are also involved in weed management, especially in connection to the restoration of native ecosystems. Organizations such as the Nature Conservancy and the Sierra Club were founded with the intention to help conserve our natural resources. They have also been instrumental in helping Native Hawaiians and other native groups protect and assert their traditional rights. The
most evident example of this cultural conservation is the PASH decision, in which the Sierra
Club Defense Fund was integral to its unprecedented victory.

Nonetheless, the weed management practices and policies of these organizations remain
intertwined with the same colonial biases that plague almost all weed management efforts. For
example, in the Nature Conservancy publication: Weed Control Methods Handbook: Tools &
Techniques for Use in Natural Areas, almost half of the manual is dedicated to herbicides and
their use. In addition there is no mention of cultural methods of weed management, let alone
traditional Native Hawaiian natural resource management practices. This blind spot is not
apparent as the document is veiled in wording that implies its comprehensiveness when, in
actuality, it is not:

This book provides you with detailed information about the tools and techniques
available for controlling invasive plants, or weeds, in natural areas. (Tu, Hurd, and
Randall 2001: 1)

Here is the evidence that the bias and prejudice of the agricultural reformers against the
traditional knowledge of the common people is still present even in the most enlightened and
current weed management programs. The same is true for the Department of Agriculture and the
weed laws they abide by. Nowhere in any of the available documentation on weed/pest
management is there any mention or inclusion of other systems of natural resource management.

This needs to change. Indigenous natural resource management practices (including
weeds) need to be made part of the toolkit from which land and natural resource managers can
depend upon. Moreover, Native Hawaiian cultural practitioners must be given an equal say in
how natural resources such as weeds are managed. This must be reflected in the policies and laws that manage weeds and other natural resources. The next chapter sadly demonstrates what happens when this inclusion does not take place.
CHAPTER 5. THE IMPACT OF WEED LAWS ON NATIVE HAWAIIANS.

Native Hawaiian Traditional Rights

The removal of the Native Hawaiian perspective from the laws and organizations responsible for natural resource management is a central unifying theme of Hawaiian history since Cook’s arrival in 1778. Understanding this history is imperative, for it contextualizes the negative impact such a history has had on Native Hawaiian cultural practitioners and Native Hawaiian culture as a whole.

A History of Legislation Impacting Native Hawaiian Rights

Since the arrival of Europeans to Hawai‘i and the inception of the English system of land tenure (private property) under the *Mahele* (The Land Distribution) of 1848, Native Hawaiians have watched as their rights and culture have been eroded and replaced by the cultural ideas of colonial Europe and the political-economic agendas of foreigners. This was not the way it was meant to be. In fact, private property rights were originally adopted to help preserve the sovereignty of the Kingdom of Hawai‘i (Forman and Knight 1998). Accordingly, when King Kamehameha III adopted this system, he did so without mention of any intention to do so “at the expense of customary rights held by native tenants” (p.12). In fact, according to the Third Act of King Kamehameha III in 1847, the Judiciary was to adopt and cite common law principles “not in conflict with the laws and usages of this kingdom” (qtd. in Foreman and Knight 1998: 12). This indicates that with the adoption of the English system of land tenure the traditional land tenure system of Hawai‘i, including all of the rights according customary and traditional practices, were retained. Therefore land tenure in Hawai‘i is a culturally plural one, with both systems mandated to coexist alongside one another equally. This, however, was not the case.
historically, which observed the rights of the Native Hawaiians being supplanted by those of private property owners, most of whom were (and presently are) foreigners.

The evidence of this intended cultural plural land tenure system is first observed in written legislation in the 1846 act that created the Board of Commissioners to Quiet Land Titles. In the section outlining the principles adopted by the commission, the rights of the hoa’āina were protected to the extent that “the rights of the tenants and sub-tenants must still remain unaffected” (qtd. in McGregor 1996: 11). This establishes the precedent that the rights of the hoa’āina, including gathering rights, are to be unaffected by any legislation to follow. As we will see, however, this was not to be the case.

In 1848, the Mahele was passed. Three years prior to this decision, foreigners were allowed naturalization rights and the right to serve in public office. One year before the Mahele, foreigners were given the right to own land. In both cases, these rights were afforded to these new “citizens” under the auspices of international gunboats sitting dutifully offshore (McGregor 1989). When the Mahele was enacted it redistributed land under the European system, affirming the right to private ownership (McGregor 1996). In the redistribution, 99.2 percent of the lands were given to the chiefs, the crown, and the government, which constituted only 28 percent of the population. Over 72 percent of the population, consisting of the hoa’āina (the caretakers of the land) were left landless (McGregor 1996).

This “displacement of Hawaiians from their lands separated them from access to their traditional means of subsistence and steered them to seek jobs on a wage basis...” (McGregor 1989: 80). McGregor further notes that many Hawaiians were forced to hire on with the same sugar plantations that had stolen their lands. As will be discussed in next section, sugar
plantations and other similar, large scale, foreign owned plantations were to play a central role in the colonization, oppression, and assault against the Native Hawaiians and their culture.

In 1850, the Kuleana Act was passed which mandated that those who wished to exercise their gathering rights had to first gain the permission of the landlord. Many examples of grievances made to the government illustrate that this clause effectively cut off many Native Hawaiians from essential materials such as firewood, construction materials, and (no-doubt) medicines. The act was revised the following year to remove the permission requirement. Under the revised Kuleana Act (HRS 7-1), gathering rights were reaffirmed but only for construction materials, cooking materials (firewood, ti leaf, etc.), and water access (Mueller 1995). This act, meant to directly address the needs of the people, effectively further limited gathering rights under the law to only those materials listed. This and other similar imposed limitations were to have far reaching effects on Native Hawaiian gathering rights, effects that are still evident even in the most recent court decisions concerning these rights.

Native Hawaiian gathering rights were somewhat protected in law, as reflected in Section 1-1 Common Law and Usage, which survives as HRS 1-1 (1892) (Mueller 1995). The statute states:

The common law of England, as ascertained by English and American decisions, is declared to be the common law of the State of Hawai‘i in all cases, except as otherwise expressly provided by the Constitution or laws of the United States, or fixed by Hawaiian judicial precedent, or established by Hawaiian usage... (qtd. in Mueller 1995: 184)
According to Mueller, HRS 1-1 differs from HRS 7-1 (derived from the revised Kuleana Act) in that it reaffirmed customary gathering rights as practiced before the Mahele and Kuleana Act. An actual guarantee expressly reaffirming and protecting Native Hawaiian gathering rights, however, would take another 86 years.

In 1978, the Constitution of the State of Hawai‘i was amended to include Article XII Section 7, which states:

The State reaffirms and shall protect all rights, customarily and traditionally exercised for subsistence, cultural and religious purposes and possessed by ahupua‘a tenants who are descendants of native Hawaiians who inhabited the Hawaiian Islands prior to 1778, subject to the right of the State to regulate such rights. (qtd. in PASH/Kohanaiki Study Group 1998: 1)

With the adoption of this amendment, Native Hawaiian gathering rights were finally restored and protected to the extent intended under the Quiet Lands Act of 1846. It took over 132 years to pass this legislation. The effects of this amendment have been profound in its leveling of the playing field between the two land tenure systems. It has thus provided the legal foundation for challenging the historical limitations of these rights.

The most important effect of the amendment was to state plainly that land tenure in the State of Hawai‘i is unique, that it is comprised of two, equally relevant cultural systems. Cultural pluralism in land tenure is therefore the rule in Hawai‘i. This is best summarized in Hawai‘i Circuit Judge Vitousek’s dissenting opinion to the State v. Zimring:

The position occupied by Hawaiian custom and usage in the jurisprudence of this State is far higher than that of the traditional common law custom and usage. Hawaiian usage is law derived from our island’s history and is of equal dignity with laws derived from our legislature and courts. (qtd. in Mueller 1995: 187)
Thus, the implication is that both systems are to treated equally under the law and that the Hawaiian customary and traditional rights are to be afforded complete protection under the (English system of) law, even after the adoption of the English land tenure system (Mueller 1995).

The final important milestone was Section 174C-101 of the Native Hawaiian water rights. This law reaffirms the continued right of Native Hawaiians to exert their traditional and customary rights as protected under the State Constitution. Most importantly, this section explicitly states that “medical plants for subsistence, cultural, and religious purposes” are protected under these rights (PASH/Kohanaiki Study Group 1998).

Under this legislation, the right to gather all lā‘au is protected, including the hanai herbs most commonly referred to as weeds. The implications of this law are profound, for it provides a foundation on which Native Hawaiian practitioners of lā‘au lapa‘au can insist parity in the decision making affecting these resources. In so doing the cultural conflict that exists between Native Hawaiian practitioners and natural resource organizations may be resolved.

The next two sections outline and discuss the recent gains made in further protecting Native Hawaiian rights and as well as the most recent efforts to reverse this progress.
1846 Principles Adopted by the Board of Commissioners to Quiet Land Titles in Their Adjudication of Claims Presented to Them.

1850 Mahele Awards and the Kuleana Act.

1851 Section 7 of the Amended Kuleana Act (Now known as HRS 7-1).

1892 Section 1-1 Common Law & Hawaiian Usage.

1978 Article XII, Section 7 of the Hawaii State Constitution.


Table 3: Chronological list of Laws that impact Native Hawaiian gathering rights (PASH/Kohanaiki Study Group 1998).

Court Decisions that Reaffirm Native Hawaiian Rights


In all three cases, the Hawai‘i Supreme Court unquestionably reaffirmed that Native Hawaiian Gathering Rights are a Constitutional right under Article XII section 7 of the Hawai‘i State Constitution. In fact, in the PASH decision the court ruled that:

Although access is only guaranteed in conjunction with undeveloped lands, and article XII does not require the preservation of such lands, the State does not have the unfettered discretion to regulate the rights of ahupua‘a tenants out of existence. (qtd. in PASH/Kohanaiki Study Group 1998: 1-2)
Thus, the PASH decision not only reaffirmed that Native Hawaiians had a right to gather but it was the first decision to include consideration of how development in the Islands has affected the ability of Native Hawaiians to gather these resources. In effect, the PASH decision is a major step in “reconciling Native Hawaiian rights with the introduced Anglo-American legal system” (Egan 1999: 1).

Current Attempts to Restrict Native Hawaiian Rights

After the PASH ruling three bills were proposed in the state house and senate that would effectively nullify the PASH decision and terminate Native Hawaiian gathering rights altogether (First Friday 1997 and 1998). Each of these bills [Senate Bills 8 (1997) and 2351 (1998) and House Bill 2542] sought to regulate traditional gathering practices out of existence by making the permitting process impossible to comply with. In effect, these bills sought to turn a right into a privilege. While all three measures were defeated, it is still very troubling that they were proposed at all.

Opponents to the PASH decision all had one major underlying reason in creating and supporting these bills: money. Many developers feared that the ruling would increase title insurance costs and drive away investors, although they have not provided any evidence to support these claims (Forman and Knight 1998). Some even predicted that PASH would precipitate a complete halt to all development in the Hawaiian Islands (Island Issues 1995, Forman and Knight 1998). One commentator remarked, “If our elected officials don’t get to work on this problem very soon, outside investment will diminish or even dry up completely (Kupchak qtd. in Forman and Knight 1998: 2). Lawmakers did just that.
At the behest of developers and their supporters, legislators in both the State House of Representatives and the Senate proposed legislation that sought to deny Native Hawaiians of their Constitutional rights in favor of possible economic gains. As Forman and Knight (1998) note, this Doomsday portrayal of the PASH decision was far from the actual nature of the decision. It is characteristic of partisan groups that do not favor the sustainable economic development that would be better attuned with incorporating and protecting customary and traditional rights.

It has also been noted that these concerns over the ‘loss’ of property rights and economic Armageddon is very similar to the rhetoric underlying the Mahele of 1848, in which many Native Hawaiians were stripped of their lands (First Friday 1997). For a more in depth discussion of this issue please refer to Egan (1999).

**Methods Used to Limit, Restrict, and Eradicate Native Hawaiian Rights**

Within the previous sections of this chapter, there emerges a consistent pattern to limit, suppress, and outright eradicate Native Hawaiian rights. This pattern illustrates that while the law states that land tenure in Hawai‘i is culturally plural, the reality is there are those who have both historically sought and remain currently determined to push out the Hawaiian system of land tenure altogether. Underlying these efforts are specific methods that isolate and suppress aspects of Hawaiian culture. By examining the above cases, certain patterns become discernable which constitute the methods use to colonize the Kingdom of Hawai‘i.

The first method used to restrict and revoke Native Hawaiian gathering rights is to increasingly restrict the criteria that determine who can claim these rights. This can be done through enforcing a certain blood quantum that makes one a ‘real’ Hawaiian or via several other
more subtle routes. These are evident in the decision rendered in *Robinson v. Ariyoshi*, which challenged the decision in *McBryde Sugar Co v. Robinson*. In this decision the U.S. District Court stated that HRS 7-1:

...was never meant to apply to the general public or to general land owners rights! ...The statute was never intended to apply to the general public or reserve anything for the ‘people’ of the Kingdom. It was solely aimed at giving the *hoaainas*, as former tenants at sufferance but now owners in fee of a *kuleana* within an *ahupuaa*, the right to [the items enumerated in the statute] on all lands granted in fee simple. (qtd. in Forman and Knight 1998: 183)

What can be gleaned from the above quote is that this interpretation of the HRS 7-1 (the revised Kuleana act) limits traditional rights only to landowners. As the *Mahele* dispossessed almost three quarters of the Hawaiian people, to limit Native Hawaiian rights to only those who own land is to neglect the history of this most horrendous act and only furthers the colonization of the Hawaiian people through a suppression of their rights, rights that protect the cultural practices that nourish and define their culture.

This same pattern was repeated in *Kalipi vs. Hawaiian Trust Co, LTD* (1982) (cited in Mueller 1995). The decision, while clearly reaffirming the rights of *ahupua‘a* tenants to gather, also limited these rights in stating that Native Hawaiians could only claim gathering rights in the *ahupua‘a* in which they lived. Such a restriction neglects to consider the complete history of these rights, particularly in reference to documented cases in which tenants did historically have rights to gather in *ahupua‘a* other than the ones in which they lived.

This was the cornerstone of the *Pele Defense Fund vs. Paty* decision (1992) (cited in Mueller 1995), which overturned the previous court’s requirement that tenants live within the *ahupua‘a* where they gather. While Mueller noted that this decision rested on shaky ground, he
does not, however, consider that the decision of the court in the *Pele* case reflects an inclusion of the larger issues involving the colonization of the Hawaiian people. This is perhaps why the court’s decision was intended to protect the “broadest possible spectrum of native rights” (qtd. in Mueller 1995: 189).

The *Robinson* decision (cited in Mueller 1995) also serves as an illustration of the second method by which Native Hawaiian rights have been restricted and suppressed - by restricting what can be gathered. This method of assault takes two forms. The first form involves a two-step process:

1. A list of items is created, outlining the details of a specific grievance. As the list only discusses specific points of conflict, it is far from comprehensive.

2. The list is then ruled to be, in fact, comprehensive and that the items on this list are the only ones protected under gathering rights.

The employment of this method is evident in the previous quote from the *Robinson* decision. This was also the principle form of rights restriction method that is evident in the *Kuleana Act* and its revision, which, like the *Robinson* decision, was meant to address a specific grievance concerning the restriction of gathering rights (McGregor 1996). This is also the precise method that was employed to deny the Pai ‘Ohana their traditional lands and rights in *Pai ‘Ohana v. United States* (cited in Forman and Knight 1998).

The second form of this method (limiting Native Hawaiian rights on the basis of what can be gathered) is to define what constitutes a ‘traditional practice’. In the *State of Hawai‘i v. Zimring* (1977), the court decided that to qualify as a traditional practice, a Native Hawaiian had to prove that the practice had been established between 1848 and 1893 (the dates demarcating...
the inception of private property rights under the *Mahele* and the overthrow of the Constitutional Government of the Hawaiian Kingdom, respectively).

Such a restriction to Native Hawaiian gathering rights completely lacks any understanding that change is an essential part of any culture. In the Native Hawaiian Perspectives section of the third chapter, the (literal) adoption of introduced plant species as *lāʻau*, termed *hanai* herbs by practitioners, exemplifies this very point. Cultures evolve according to their own concepts and principles. As such, any attempt to define what constitutes "traditional" imposes both a static and foreign view of that culture. Legal definitions of what constitutes "traditional" would therefore limit practitioners to a set number of activities, in the very same way that the *Kuleana Act* limited gathering to only construction materials. Hawaiian culture would suffocate under the weight of these restrictions, restrictions that are based on the criteria of a different culture. In short, any attempt to define what is "traditional" constitutes a modern colonial effort to impose foreign restrictions on another culture's growth and therefore health.

Both forms of this method are unified by one basic theme - each restricts Native Hawaiian gathering rights to the point at which they do not interfere with the English land tenure system introduced under the *Mahele* in 1848. This stripping away of Native Hawaiian rights is apparent in the *Kalipi* decision when it states that Native Hawaiians rights “may be modified so as not to interfere with the privileges of fee simple ownership” (Mueller 1995: 171). Such actions are in accord neither with the original intentions of the King nor with the current laws of
the State of Hawai‘i. As such, these efforts should be recognized for what they are - the continuation of the suppression and colonization of the Hawaiian People. These racist attitudes cannot and must not be tolerated.

The opposition to the PASH decision exemplifies a third method with which Native Hawaiian rights were stolen: by creating Fear amongst citizens that the protection of Native Hawaiian rights would threaten both the economic prosperity and security of the state. This is illustrated in the rhetoric of the opponents to PASH, doomsday prophets who relied on such predictions in order to generate public support for the legislation introduced into the state congress that would effectively reverse the PASH decision.

Keep in mind that this legislation would have refused Native Hawaiians their Constitutional rights via the establishment of a bureaucratic process so adversarial that it would lead to the eradication and termination of customary and traditional gathering practices (Forman and Knight 1998). Keep in mind also that this violation of their Constitutional rights would be done for the sake of money. In these bills we can see the same motives that were the root of the overthrow of the government of Hawai‘i in 1893.

This brings us to a final consideration of the methods that have historically been used (and are still being used) to restrict, limit, and eradicate Native Hawaiian rights; it also being the medium through which the colonization and oppression of the Hawaiian people has been legitimated: Law.

Law is a tool. And just like every tool, it is the product of a specific culture and is utilized by this culture for its own purposes. Just as weed laws represent a cultural method of
plant control, the above laws have been similarly fabricated in order to serve one culture’s need; this need being colonization. In every example discussed above, law has served as the principle tool by which Native Hawaiian rights have been systematically eroded.

Forman and Knight (1998) have very aptly termed this use of law as a “piece-meal” attack on Hawaiian culture, one executed by assaulting the cultural practices and resources that sustain Hawaiian culture. Weed laws can therefore be viewed as another prong of this piece-meal assault on Hawaiian culture, an assault borne of the colonization of past two centuries and continued through law to the present day.

It is most appropriate that the nature of this assault against Native Hawaiian rights be termed ‘piece-meal’ for quite literary, the removal of these rights removes food (and medicine) from the tables of Native Hawaiian families. Only by mandating and enforcing equal treatment of the two land tenure systems in law and practice will the tensions created by the culturally plural system of land tenure in Hawai‘i be resolved.

The Direct Impact of Weed Laws on Native Hawaiians, Their Rights, and Their Culture

Poisoning the Land, Poisoning the People

The term, ‘āina is most commonly glossed as the land. In truth, its meaning is much more significant and subtle, being more properly defined as “that which feeds us” (Cocquio, qtd. in Nā Maka o Ka ‘Āina 1994). Therefore, ‘āina refers not only to the land but also to all who dwell there, be they plants, soil, water, animals, or people. Accordingly what one does to the land, one does equally to all who live there, including the people. Because of this, this section
could be retitled Poisoning Native Hawaiians, for in a very real way, this is exactly the effect weed management policies have had on Native Hawaiian culture, both historically and currently.

In my interviews, I discussed the history of weed management and its effects on gathering practices, most notably of lāʻau, with my informants. I was struck by what I learned. Bula Logan had just returned from a gathering of elder practitioners who remembered when pesticides and herbicides were first introduced into the sugarcane and pineapple plantations. To put it succinctly, when pesticides use began, all gathering of lāʻau ceased. This was because when the crops in the fields were sprayed, so too were the lāʻau that grew in and around these fields (not to mention the ‘alaea, medicinal earth, which is the foundation of these fields).

Practitioners did not know how these poisons would affect their patients. Consequently, they had no choice but to stop practicing lest they hurt or injure one of the people who had come to them for help. In short, weed (and pest) management practices were directly responsible for smothering out most lāʻau lapaʻau practitioners. This example illustrates with crystal clarity how weed management practices are, at their root, part of the continued attack on Native Hawaiian culture, via the plants that constitute an essential resource to their cultural practices.

Were the plantation owners aware of this problem? Did they even care? The answer to these questions can be inferred from the past actions of this foreign cultural elite. As these men were responsible for the theft of the land, the overthrow of the Hawaiian Nation, and the poisoning of the very plants Native Hawaiians depended upon, it is clear that the only thing these people cared about was their profit margin, made from the sweat and suffering of their workers.

Consequently, the use of pesticides in the war against weeds constituted a war that extended beyond the boundaries of problematic plant control. The war against weeds became, in
a very real sense, a war against the native people themselves, through the medium of the plants these people depended upon. And Native Hawaiians most assuredly depended upon these plants. Moreover, these plants were the wealth of the Native Hawaiians. Samuel Kamakau in 1870, stated it best:

*Ke po‘e e kahiko* (the people of old) were rich in possessions; they found their riches and provisions in the natural resources of the land. Their skill and knowledge are proven by their works. (Kamakau 1976: 123)

This contrasts sharply from his characterization of the Hawaiian people under plantation rule:

The people of today are destitute, their clothing and provisions come from foreign lands, and they do not work as their ancestors did. Some women sell their bodies for coverings and fine clothing and to buy “food” and “fish” to relieve hunger and poverty. (Kamakau 1976: 123-124)

The heart of these passages, namely the effects of the theft of the lands of the *hoa ‘āina* on the *hoa ‘āina*, reveals that the war against weeds is part of the continued piece-meal war against Native Hawaiians and, indeed, native peoples everywhere.

This is the true legacy of Jethro Tull’s most heinous characterization of weeds and the reforms of the British agricultural reformers. It demonstrates very tangibly how weeds are viewed and treated is one and the same as the way the common people are viewed and treated. Any war against weeds is therefore also a war against the people who depend upon them. The complete annihilation of weeds that characterized post-World War II weed management therefore represents a parallel escalation in the war against Native Hawaiians. In short, the war on weeds constitutes genocide. This is the legacy of Tull’s agricultural revolution. This is the
legacy of colonialism. As pesticides are the progeny of chemical weapons research, the association between pesticides and genocide should be of no surprise.

The destructive effects of pesticide use on lā‘au lapa‘au practitioners and Hawaiian culture as a whole, was only one of many attacks faced by these cultural practitioners and is characteristic of the historical pattern of oppression and persecution suffered by this group of Hawaiian cultural practitioners. For example, their predecessors, the Kahuna Lā‘au Lapa‘au were condemned as

...the deadly enemy of Christianity and civilization... They cannot think reasonably nor entertain sound opinions. (qtd. in Judd 1997: 241)

The kahuna were blamed for interfering and preventing the (European) physicians from treating the Hawaiian people, who were suffering from the plethora of diseases introduced by Europeans (and no doubt from malnutrition induced by the virtual elimination of their customary gathering practices).

This is typical of colonial governments, who create policies that do not work with local conditions and thereby create the very problems that are then blamed on the local population. Authors such as Etkin (2002) have noted several instances of this pattern. In this regard, the kahuna are just like weeds, “unwanted and disdained and trampled underfoot” (Abbott n.d.). And as the previous example illustrates, the way weeds are treated is one and the same as the way those who depend upon these plants are treated.
The Current Situation

This thesis grew from several conversations with practitioners of lā‘au lapa‘au. Kupuna Alapai‘i Kahu‘ena mentioned that she frequently would go out to gather lā‘au in certain places only to find that the plant or field it was growing in had either been mowed or poisoned with herbicides meant to control certain “pest” species. Any examination of the most recent manuals published by the Tropical Agriculture Department at the University of Hawai‘i for controlling weeds in Hawai‘i illustrates that this and other similar observations are accurate (Brennan et al. 2002, Motooka et al. 2003). In these texts, weed control in all aspects of natural resource management, including in conservation area management, relies almost exclusively upon the use of herbicides. An exploration of these publications further reveals that their understanding of other methods of weed control is cursory at best. For example, in Right of Way Weed Control: A Guide for Commercial Pesticide Applicators (Brennan et al. 2002), it includes under Cultural Controls the use of asphalt and cement a “weed-control-barriers” (p.15). No real effort is made to provide weed managers with effective methods of weed control based on other systems of natural resource management, such as methods utilized by Native Hawaiian cultural practitioners or by organic farmers and permaculturalists (Cebenko and Martin 2001, Coleman 1995, Ekarius 1999, Fukuoka 1978, Holmgren 2002, Mollison 1992, Mollison 1999, Mollison and Slay 2002, Reich 2001, Schwenke 1991). The lack of such alternatives to pesticides (and the exclusive promotion of herbicides) in these manuals indicates that weed management in Hawai‘i has yet to expand its perspective beyond the outdated and incorrect paradigms of the British agricultural reformers. An essential part of this modernization must include consideration of how others are affected by the methods of weed management that are promoted and used by State and private weed managers.
As it stands, the current methods of weed control mean one thing to the kupuna I spoke with - they destroy valuable sources of the lāʻau they depend on for their practices. This is most troubling, for in a legal sense, these methods also effectively destroy the ability of Native Hawaiian practitioners to exercise their constitutional right to gather the lāʻau vital to their cultural practices. All of the kupuna I spoke with have had to turn to other sources of lāʻau.

In the context of natural resource management, the implications are even more troubling, for the pesticides and herbicides that were once limited to the cane and pineapple fields are now being used over the whole ʻāina, including in the most remote areas of the Islands. Locating safe lāʻau is becoming an increasingly difficult task. Here is where the rights of Native Hawaiians and weed management laws collide. Here is also where weed laws reveal themselves as the latest incarnation of the continued piece meal war against Native Hawaiian rights and culture. In the next chapter, I explore how this conflict may be resolved and with it the legacy of colonialism in weed laws dissolved.

11 One of the lāʻau most seriously affected by pesticide use is ʻalaea, the medicinal clays that are central to the practices of lāʻau lapaʻau practitioners. Manuals on weed control discuss how clay soils are particularly well suited to holding and binding herbicides in their structure, (thus delivering them to the roots of the targeted weeds) (Brennan et al 2002). Nowhere in these manuals (or any others) do they discuss the need for caution in applying these herbicides in areas where ʻalaea is gathered (most likely because they do not realize it is both culturally significant and gathered for medicine). These manuals, in fact, are completely lacking in any information regarding how to minimize the effects of these poisons on the people who depend upon these plants. It is unclear how exposure to these poisons will affect the efficacy of these lāʻau and the health of the patients who consume them. It is also unclear what the long-term effects of pesticide exposure to the ʻalaea will be.
CHAPTER 6. DISCUSSION AND CONCLUSION

At the heart of the conflict between Native Hawaiian practitioners and weed management agencies is an assumption, one that is imbedded in the definitions and connotations associated with the term weed. Because weeds are neither wild nor domesticated they belong to a category of plants termed non-domesticated resources (NDRs), a category that Posey (1997: 121) describes as "systematically undervalued". At its root, this undervaluing is a cornerstone of the current western ethnobiological classificatory and management system.

Because of its integral nature within the current ethnobiological system, this culturally held belief has prevented weed managers (as members of this culture) from seeing the usefulness of these plants. Moreover, this cultural assumption has prevented natural resource managers, weed scientists, and some conservationists from seeing the importance of these plants to indigenous peoples. Thereby, it has likewise prevented these same groups from seeing the need for indigenous involvement in the management of these natural resources.

This pattern is indicative of the larger problem of ethnocentrism that exists within western social institutions, including western natural resource management (Cox and Elmqvist 1997). The continued existence of ethnocentric paradigms within western institutions is no clearer than in the lack of Native Hawaiian practitioner involvement in the management of weeds in Hawai‘i. This ethnocentrism, centered around the control of natural resources through their conservation and management, is also evident in numerous other examples from around the

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12 Cox and Elmqvist (1997) describe the problem thus:

If we can define "ethnocentrism" as the deep-seated belief that the western way of doing things, the western world view, the western paradigm is inherently superior to indigenous paradigms, then we must reluctantly admit that the spirit of colonialism is still with us, even though its political infrastructure is gradually being disassembled. (p.87)
world (Cox and Elmqvist 1997). This pattern has been termed ecocolonialism and is defined as "the imposition of western conservation paradigms and power structures on indigenous peoples..." (Cox and Elmqvist 1997: 84)

The conflict between the Native Hawaiian ethnobotanical management system and that of the west is rooted in this paradigm, one that assumes the superiority of western natural management theories and methods over those of the Native Hawaiian natural resource management system. This assumption, however, is refuted by the mounting evidence that demonstrates the anthropogenic nature of these landscapes and the essential role indigenous cultures have in the historic and current management\(^\text{13}\) of these resources (Anderson 1999, Anderson and Posey 1989, Balée and Gély 1989, Bielawski 1996, Cox and Elmqvist 1997, Daniggelis 1997, De Lacy and Lawson 1997, Gómez-Pompa and Kaus 1992, Hecht and Posey 1989, Johnson 1992, Posey 1997, Posey 1992)

The clearest of example of this point is discussed by Anderson and Posey (1989). The Kayapó Indians of the village of Gorotire in the southern Pará State, Brazil utilize a sophisticated system of natural resource management that actually creates diverse forest islands (apête) in the middle of the savanna they call home. Plants are transplanted from other apête as well as from other forests\(^\text{14}\) in other regions of Amazonia, an area so vast in size it is equivalent to all of western Europe (Anderson and Posey 1989). The Kayapó are keenly aware of the different ecological zones within the apête and are equally as adept in transplanting different plant species into the particular ecological zone that is best suited to their growth. Soils are prepared using equally sophisticated management techniques, from selective burning to the inclusion of organic

\(^{13}\) Management in this case pertains to the definition offered by Balée (1994). (See p. 14 for actual definition)

\(^{14}\) Anderson and Posey (1989) indicate that this transfer is reciprocal, with plants from the apête being transported to other regions of the Amazon via raiding parties from neighboring and distant cultural groups.
matter from both termite \((\text{Nasutitermes}\ sp.)\) and ant \((\text{Azteca}\ sp.)\) mounds (Hecht and Posey 1989).

The Kayapó of Gorotire village demonstrate quite clearly that many indigenous natural resource management actually creates forests and ensures the health and dispersal of different species. If indigenous natural resource management systems, such as that of the Kayapó, create rain forests, then it is probable that most of the Amazonian rain forest is actually an anthropogenic landscape, one that resulted from the managed transformation from garden plots to forests during a time transition from high population densities to their current settlement patterns. The sophistication and complexity of Kayapó soil management techniques coupled with the wide spread occurrence of \(\text{terra preta do indio}\) (Indian black earths) and other cultural artifacts support this very possibility (Hecht and Posey 1989, Roosevelt 1989).

While this evidence illustrates that most wilderness is anthropogenic in nature the question remains whether the concept of conservation is integral to traditional natural resource management systems. Posey (1997: 125) confirms that this is indeed the case:

The Kayapó resource management system is, therefore, based on the conservation and use of transitional forests in which agriculture is only a useful (albeit critical) phase in the long-term process....The degree to which genetic material are transferred between similar micro-zones of different ecological types points to how the Kayapó exploit ecotones that host the highest diversity of plants. Management over time can be thought of as management of chronological ecotones, since management cycles aim to maintain the maximum amount of diversity and the greatest number of ecotones.

This connection between conservation and biodiversity is essential for it reveals that the principle of conservation is inherent to Balée’s definition of management.\(^\text{15}\) Within this connection we also begin to understand the commensal relationship that exists between many

\(^{15}\) See p.14 for Balée’s definition.
indigenous cultures and their environment, a relationship that is cultivated and perpetuated through the traditional natural resource management practices of indigenous cultural practitioners. And it is essential that the relationship between indigenous cultures and their environment as commensal in nature for evidence is mounting to support the hypothesis that environmental health depends as much on indigenous cultural management systems as do indigenous cultures depend on their environment (Cox and Elmqvist 1997).

This should be of no surprise as the majority of wild or gathered natural resources actually are non-domesticated resources (NDRs) that have evolved in the presence of human selection pressures for at least thousands of years. The point here is simple, the wildernesses that western natural resource managers seek to conserve and protect are actually the gardens of the indigenous cultures that flourished in these regions prior to the arrival of European colonizers.

Including indigenous cultural practitioners into western natural resource management systems is therefore not only important for the sake and well-being of indigenous rights and culture but is imperative to the long-term health (and survival) of the very resources natural resource managers are charged with protecting. However, involving indigenous cultural practitioners in western natural resource management systems is not the answer for what is truly needed is a synthesis of the two systems.

As Alcorn (1992) discusses many indigenous peoples follow scripts that direct the cultural practitioner in the use of different natural processes to their advantage. These scripts, however, do not necessarily imply that cultural practitioners understand the exact mechanisms by

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16 The key to seeing this garden is based upon one's cultural lenses. If you are a part of the culture and have planted these species before then you will more readily recognize other gardens that use the same species and planting techniques. You will note I referred to cultural lenses, for indeed, each of carries with us the cumulative perspectives of all cultures we encounter.
which these processes function. Nevertheless, western natural resource managers have much to learn from the traditional environmental knowledge (TEK) of native peoples, no matter how acculturated they may appear to be (Posey 1992). In these regions of cultural overlap (and of acculturation) the need to integrate western natural resource management systems with indigenous natural resource management systems is all the more important as:

...the predictive abilities of science are limited either because there is inherent complexity or unpredictable behavior in the population and ecosystem [as in invasive species in Hawai’i] or because relative ignorance of the ecosystem will remain significant for the foreseeable future (as in many tropical forests) and ...practical knowledge can be obtained from communities with long (i.e., several generations and therefore, arguably, sustainable to some degree) traditions of natural resource use. (Freese 1998:133)

While Freese does not discuss the nature of this integration, a number of authors (Caulfield 1988, Clark 2001, Cox 2000, Cox and Elmqvist 1997, Dudley 1992, Nakashima 1993, Osherenko 1988, Sneed 1997, Usher 1993) have discussed the nature of genuine (and not-so-genuine) integrated management systems. These authors all point to two primary models as offering the greatest possibility of effective and fair natural resource management: indigenous management and co-management.

Examples of indigenous management models are described by several authors: (Cox 2000, Cox and Elmqvist 1997, De Lacy and Dawson 1997, Eaton 1997, Nietschmann 1997, Salick 1992). Indigenous natural resource management represents “the ultimate expression of community-based conservation” (Nietschmann 1997: 189) for in the establishment of these formalized management systems, the sovereignty of the indigenous people that manage the resources is recognized. The key factor in the success of these models lies in the direct control of the decision-making process by the indigenous peoples themselves. Such control allows indigenous peoples to create and implement management policies that are culturally appropriate
and attuned to the needs of cultural practitioners. The danger in these models comes primarily from outside interests (be they commercial, government, or conservationist) who still adhere to either ecocolonialist paradigms\textsuperscript{17} or more straightforward colonialist paradigms.\textsuperscript{18} Nietschmann (1997) provides a good example of the dynamics and multiple worldviews (ethnobiological systems) that strive for control over the marine resources of the Miskito Coast.

Co-management models present a slippery slope for indigenous practitioners, for a Stevens (1997: 131) notes:

\begin{quote}
Co-management arrangements ...are often compromises, and very often ones that are weighted on the side of governments. Governments may be less interested in true partnerships than in maintaining a strong level of central policy-making, planning, and enforcement. Co-management can nevertheless be a means for indigenous peoples to gain greater recognition of their land rights, legal recognition of their systems of customary tenure... and their local resource management institutions and practices, and a level of involvement in protected area management that goes beyond mere consultation.
\end{quote}

Sneed (1997) presents two examples of co-management, one in Alaska’s Wrangell-St. Elias National Park and Preserve and the other in the neighboring Kluane National Park in the Yukon Territory. In the Wrangell-St. Elias case, indigenous involvement in natural resource management decision making is largely ineffectual, due primarily to the lack of a indigenous minority in the advisory board and to the lack of direct membership in the natural resource management board. In the Kluane example, indigenous people have equal representation in the membership of the board directly responsible for management of the park’s natural resources. The relationship between equal representation in natural resource management boards and the success of these boards is discussed by Usher (1993), who clearly advocates for an indigenous

\textsuperscript{17} These being natural resources must be saved for the good of all by excluding the very people who have cared for them

\textsuperscript{18} These being to control natural resources in order to exploit them for short-term profit (and at the expense of the long-term health of the resources and the people who depend upon them)
majority on such management boards. Usher (1993) also makes it clear that the real danger of boards in which indigenous peoples do not have equitable representation is:

...that instead of building bridges between [ethnobiological natural resource] systems, boards become arenas for proselytizing and conversion with the management biologist in the role of the missionary. (p.118)

The creation of a natural resource management board that provides for genuine indigenous cultural practitioner involvement is one possible solution to the current conflict between Native Hawaiian practitioners of lāʻau lapaʻau and western natural resource managers. Such a board might utilize the frameworks put forward by authors such as Sneed (1997) and described by authors such as De Lacy and Lawson (1997).

Another possible solution is for the recognition of Native Hawaiian sovereignty and the establishment of Native Hawaiian managed preserves and natural areas, similar to the successful Aboriginal owned and managed National Parks of Australia (De Lacy and Dawson 1997). The recent court decisions upholding Native Hawaiian gathering rights as well as the Constitution of the State of Hawai‘i all set the precedent for the creation of this type of natural resource management area.

Before any solution can take place, however, western natural resource managers must be willing to confront their implicit assumptions about both wilderness and weeds. The need for resolution of this conflict is tantamount, for not only is the future of Native Hawaiian culture at stake, but with it the health of the entire ‘āina and all who call her home, including weeds.
Appendix: Survey Instruments

Survey Instrument 1

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Honolulu, HI 96816
(808)734-0585

Dr.Nina Etkin (Thesis Advisor)
(808) 956-7726

Kupuna Lā‘au Lapa‘au

Informed Consent Form

Description of Project

Hello,
My name is Jon Webster Abbott. I am a graduate student at UH-Manoa and I am interested in studying the common lā‘au you use in your practice. Specifically, I am studying which introduced plant species you use, especially those considered “weeds.” I am also interested in learning who trained you to use these particular plants and how you use them.

To accomplish this I am asking for your participation in several 1-2 hour interviews to be conducted at your convenience. It will consist of open-ended discussion as well as several questionnaires to help in the data gathering process.

The research is in part cross-cultural as I will then compare the uses of these plants to the uses of the indigenous cultures in the region where the plant is originally from. The result of this research will be my thesis, to complete my master’s degree in Medical Anthropology.

The following explains how confidentiality for this research will be conducted. Please ask at any time if you have any questions about the research, it’s goals, confidentiality, your involvement in the project, etc.
Confidentiality

Would using your name in the research be acceptable?  Yes _____  No ______

If you respond “No”, your name will be coded and the data that is gathered and used for the project will be analyzed in aggregate. You will not be identifiable in any journal, the thesis, or in any other product of the research (published, articles, pamphlets, etc).

If you respond “Yes”, your name may be included in research data included in my thesis or other publications resulting from this work.

Participation is voluntary. You may skip any question that makes you uncomfortable and should you wish at any time to discontinue the discussion, the interview will be terminated immediately. You may withdraw at any time without penalty.

Data Analysis

Prior to publication of the thesis or any other product resulting from this research, I will provide you with a copy of the thesis or other product and ask you to review it to ensure that all that is stated therein is accurate and that you are comfortable with the result. In this way, you are assured your privacy is maintained.

As some portion of the interviews may be recorded via audio or video means, the resulting recordings will be kept secure with the research and will only be copied or made available to other parties with your (the participant’s) prior oral or written consent. Data may be withdrawn and deleted at any time at your request.

If you would like to participate in this research please sign below. If not, thank you very much for your time. Aloha.

Signature __________________________________________ Date _____________

Name (Printed) __________________________________________

Contact Information

If you believe you are being unfairly treated by the researcher please contact the Committee on Human Studies at the following number:

Committee on Human Studies
Compliance Officer: Bill Dendle
dendle@hawaii.edu
Office Manager: Betty Look
blook@hawaii.edu
Office: Spalding Hall, Room 252.
Phone: (808) 956-5007
http://www.hawaii.edu/irb
Survey Instrument 2

Healer: ____________________________
Date: ____________________________

Kupuna Lā‘au Lapa‘au
Interview with Healer

Objectives: Introduce self and state Purpose of study
Set up trust
Explain confidentiality- develop a coding system to protect
confidentiality
(Key kept elsewhere to protect names of healers/consumers)
Collect demographic data
Understand how each healer was trained and by whom

1. Demographic Information

   Name ____________________________________________

   Place of Birth ____________________________________

   Ethnicity (Self Description) _________________________

   Sex ___________       Age ________

   Religion _________________________________________

   Address _________________________________________

   __________________________________________________

   __________________________________________________

   __________________________________________________

2. Please tell me about your Kūpuna/ Kumu [Teacher(s)].

   Who taught you? __________________________________
How were you selected for the training?

Where did your training take place/Where did you grow up?

At what age did you begin?

How many years was the training?

What do you feel were the most important lessons taught to you?
How were you taught? __________________________________________

___________________________________________________________

___________________________________________________________

___________________________________________________________

___________________________________________________________

Is there anything else you would like to comment on? ________________

___________________________________________________________

___________________________________________________________
Survey Instrument 3

Healer: __________________________________________
Date: __________________________________________

Kupuna Lā‘au Lapa‘au
Interview with Healer

Objective: To identify common medicinal plants or remedies used, their reported effects, and how healers learned to use each plant.

1. What are the most common lā‘au or medicinal plants you use?

   List the names (Hawaiian, English, etc) of common plants and describe their uses.

   How is efficacy measured?

   How did you learn to use this plant?
Survey Instrument 4

Healer: ____________________________
Date: ____________________________

Kupuna Lā‘au Lapa‘au
Interview with Healer

Objective: To understand how plants are selected and the general spread of distribution of the plants used.

In what general areas are these plants found?

When you harvest, how do you know which plant is good for medicine?
Survey Instrument 5

Practitioner: ____________________________________________
Date: ________________________________________________
Place: _______________________________________________

Kupuna Lā‘au Lapa‘au: The Weed Interviews

Questions:

What is a weed?

What did your Tutu tell you about “weeds”?

How has this shaped your la‘au practices?

Have you ever gone to gather lā‘au in a certain area only to find the area had been sprayed (poisoned) or cut?
Are there certain areas where this occurs regularly?

Are there specific lā'au which are affected? Which ones?

Would you like to change the way these areas were managed? How would you change them and why?
Glossary of Hawaiian Terms

All definitions from Pukui and Elbert (1986) unless otherwise stated.

ahupua'a – 1. Land division usually extending from the uplands to the sea, so called because the boundary was marked by a heap (ahu) of stones surmounted by an image of a pig (pua'a), or because a pig or other tribute was laid on the altar as tax to the chief. The landlord or owner of an ahupua'a might be a konohiki. 2. The altar on which the pig was laid as payment to the chief for use of the ahupua'a land.

'āina - Land, earth.
- That which feeds you (Cocquio, qtd. in Nā Maka o Ka 'Āina 1994).

Akua – God (Christian).

'alaea – 1. Water-soluble colloidal ocherous earth, used for coloring salt, for medicine, for dye, and formerly in the purification ceremony called hi‘uwai; any red coloring matter; according to Dr. Frank Tabrah (Kam. 76:149), brick red soil containing hematite.

aloha – love, affection, compassion, mercy, sympathy, pity, kindness, sentiment, grace, charity; greeting, salutation, regards; sweetheart, lover, loved one; beloved, loving, kind, compassionate, charitable, lovable; to love, be fond of; to show kindness, mercy, pity, charity, affection; to venerate; to remember with affection; to greet, hail. Greetings! Hello! Good-by! Farewell! Alas!

'aumākua – 1. Family or personal gods, deified ancestors who might assume the shape of sharks (all islands except Kaua‘i), owls (as at Mānoa, O‘ahu and Ka‘ū and Puna, Hawai‘i), hawks (Hawai‘i), ‘elepaio, ‘iwi, mudhens, octopuses, eels, mice, rats, dogs, caterpillars, rocks, cowries, clouds, or plants. A symbiotic relationship existed; mortals did not harm or eat ‘aumākua (they fed sharks), and ‘aumākua warned and reprimanded mortals in dreams, visions, and calls.

'elepaio – A species of flycatcher with subspecies on Hawai‘i (Chasiempis sandwichensis sandwichensis), Kaua‘i (C. sandwichensis sclateri), and O‘ahu (C. sandwichensis gayi).

ha‘aha‘a – low, lowly, minimum, humble, degraded, meek, unpretentious, modest, unassuming, unobtrusive; lowness, humility.

hālau – Long house, as for canoes or hula instruction; meeting house.

hānai – 1. Foster child, adopted child; foster, adopted. 2. To raise, rear, feed, nourish, sustain; provider, caretaker.

hoa‘āina – Tenant, caretaker, as on a kuleana.
hoa – 1. Companion, friend, associate, colleague, comrade, partner, mate, peer, fellow. 2. To tie, bind, secure, rig; rigging, lashing.

hoʻoponopono – To put to rights; to put in order or shape, correct, revise, adjust, amend, regulate, arrange, rectify, tidy up, make orderly or neat, administer, superintend, supervise, manage, edit, work carefully and neatly; to make ready, as canoemen preparing to catch a wave.

ʻiwi – 1. Var. of ʻiʻiwi, a bird (Vestiaria coccinea); considered by some an ʻaumākua. 2. Reddish

kahuna – Priest, sorcerer, magician, wizard, minister, expert in any profession (whether male or female); in the 1845 laws doctors, surgeons, and dentists were called kahuna.

kahuna lapaʻau – Medical doctor, medical practitioner, healer. Lit., curing expert.

kahuna lāʻau lapaʻau – Medical doctors who specialized in identifying, preparing and administering medicinal plants along with the prayers associated with the treatment. In addition, unlike other kahuna, kahuna lāʻau lapaʻau were makaʻāinana (Abbott 1992: 98).

kai – 1. Sea, sea water; area near the sea, seaside, lowlands; tide, current in the sea; insipid, brackish, tasteless. 2. Gravy, sauce, dressing, soup, broth. 3. Interj. Similar to keu. My, how much! How very! How terrific!

kaona – 1. Hidden meaning, as in Hawaiian poetry; concealed reference, as to a person, thing or place; words with double meanings that might bring good or bad fortune.

kapu – 1. Taboo, prohibition; special privilege or exemption from ordinary taboo; sacredness; prohibited, forbidden; sacred, holy, consecrated; no trespassing, keep out.

Kapu System – Social system of restrictions (taboo) that dictated the pattern of Hawaiian life prior to the arrival of Europeans [See Abbott (1992) for more descriptive synopsis and their connection to natural resources].

keu – Remaining, excessive, additional, spare, surplus, extra, more, too much (often followed by an ā).
konohiki – Headman of an *ahupuaʻa* land division under the chief; land or fishing rights under the control of the konohiki; such rights are sometimes called konohiki rights.

kuleana – Right, privilege, concern, responsibility, title, business, property, estate, portion, jurisdiction, authority, liability, interest, claim, ownership, tenure, affair, province; reason, cause, function, justification; small piece of property, as within an *ahupuaʻa*; blood relative through whom a relationship to less close relatives is traced, as to in-laws.

kumu – 1. Bottom, base, foundation, basis, title (as to land), main stalk of a tree, trunk, handle, root (in arithmetic); Basic; hereditary, fundamental. 2. Teacher, tutor, manual, primer, model, pattern. 3. Beginning, source, origin; starting point of plaiting.

kupono – Upright, perpendicular, honest, decent, proper, appropriate, satisfactory, rightful, reliable, right, just, fair, qualified, suitable, advisable, advantageous, convenient, seemly, fit, natural, applicable, nearby; worth, merit, excellence.

kupuna – 1. Grandparent, ancestor, relative or close friend of the grandparent’s generation, grandaunt, granduncle. 2. Starting point, source; growing.

laʻa – 1. Sacred, holy, devoted, consecrated, set apart or reserved as for sacred purposes, dedicated.

lāʻau – 1. Tree, plant, wood, timber, forest, stick, pole, rod, splinter, thicket, club; blow or stroke of a club; strength, rigidness, hardness; male erection; to have formed mature wood, as of a seedling; wooden, woody; stiff, as wood. 2. Medicinal plant, mineral, or other material with medicinal properties. (From Interviews)¹⁹

lāʻau lapaʻau – Medicine. Lit., curing medicine.

lōkahi – Unity, agreement, accord, unison, harmony; agreed, in unity.

maʻa – 1. Accustomed, used to, knowing thoroughly, habituated, familiar, experienced; to adapt; custom, habit. 2. Sling, as made of coconut fiber, human hair, or aerial pandanus roots; to cast a stone in such a sling; string of a musical instrument (rare).

¹⁹ See Footnote 10.
mahele – Portion, division, section, zone, lot, piece, quota, installment, bureau, department, precinct, category, scene or act in a play; share, as of stocks; measure in music; land division of 1848 (the great Mahele); part or organ, as of the body; section or wing (military, see mokuna); denominator, in fractions; to divide, apportion, cut into parts, deal.

makaʻāinana – Commoner, populace, people in general; citizen, subject. Lit., people that attend the land.

mālama – 1. To take care of, tend, attend, care for, preserve, protect, beware, save, maintain; to keep or observe, as a taboo; to conduct, as a service; to serve, honor, as God; care, preservation, support, fidelity, loyalty; custodian, caretaker, keeper.

manaʻo – Thought, idea, belief, opinion, theory, thesis, intention, meaning, suggestion, mind (Mat. 22.37), desire, want; to think, estimate, anticipate, expect, suppose, mediate, deem, consider (not the intellectual process of no‘ono‘o).

no‘ono‘o – Thought, reflection, thinking, meditation; to think, reflect, meditate, concentrate; to consider, as a case at law; thoughtful, mental.

ˋohana – 1. Family, relative, kin group; related. 2. To gather for family prayers (short for pule ˋohana).

pono – 1. Goodness, uprightness, morality, moral qualities, correct or proper procedure, excellence, well-being, prosperity, welfare, benefit, behalf, equity, sake, true condition or nature, duty; moral, fitting, proper, righteous, right, upright, just, virtuous, fair, beneficial, successful, in perfect order, accurate, correct, eased, relieved; should, ought, must, necessary.

pule – 1. Prayer, magic spell, incantation, blessing, grace, church service, church; to pray, worship, say grace, ask a blessing, cast a spell.
Literature Cited

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