



WHALE Environmental Services LLC

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Hawaii Wood Utilization Survey



Aspen Wood Fibers - superior silt-catching ability
Source: www.curlex.com



Albizzia Re-Use Demonstration Project
Source: Joseph Valenti

prepared for:

**DOFAW -
Division of Forestry
and Wildlife**

October 2017

Prepared by:

**WHALE Environmental
Services LLC**

www.whalees.com



Martin and MacArthur Koa Watches
Source: www.martinandmacarthur.com



Executive Summary

The purpose of this report is to provide summary of the background of wood utilization in Hawai'i, methods used to conduct a research survey of the key interest groups in the industry, and present the data collected in the survey. As well, opportunities and challenges to the expansion of more utilization of wood products in Hawai'i, and the priority steps needed to overcome challenges or enhance opportunities is presented.

This Hawai'i Wood Utilization Study was conducted in October 2017, with this final report issued November 19, 2017. In conducting the research, it was clear that in other states, development of the use of wood products is not seen as a diverse effort. Every state researched appeared to focus increased marketing efforts for more wood utilization to a particular use or a particular species. California for example, focuses on plywood for general wood utilization, and redwood for species promotion. Similarly, Oregon focuses on *Douglas Fir* wood studs to compete against steel studs citing lower costs and comparable structural strength for the usage. Maine focuses on pulp from soft pines for pulp and papermaking. From the varied groups surveyed in this Wood Utilization Study, it was clear that there is no common consensus that woods in general or even specific Hawaiian-grown woods can reach into the competitive market that the varied uses that wood can be used for – construction lumber in particular was cited by the Mechanical and Structural Engineers', Architects' and Designers' surveyed parties as non-competitive against steel and cement in construction, while at the same time the Hawaiian wood industry representatives again use the same citation of lower price and acceptable structural strengths such as with roof trusses. There was a common consensus that mainland woods are the best venue to have wood further used in Hawaiian construction since they meet Material Data Sheet requirements most specifiers want and have the varied certifications for structural strength and pesticide review needed. It was further often opinionated that the native Hawaiian woods are restricted to the furniture-making and craft use and has limited application in residential and commercial construction with perhaps the exception of countertops. There was a common expression that increased wood utilization in Hawai'i is limited by far more obstacles than opportunities; strengthen with an apparently shared perception that the obstacles are insurmountable due to economic, certification, and structural reasons.

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Regardless of the perceptions presented by the interest groups, this report also contains what opportunities for increased wood utilization could be seized upon that enhance the use of wood in varied industries in Hawai‘i, and what steps can be taken to overcome some of the obstacles, presented in an outline for implementation sequenced by priority.

WHALE ENVIRONMENTAL SERVICES LLC

Kahuku, HI 96731

INTRODUCTION

The State of Hawai'i, Department of Land and Natural Resources, Division of Forestry and Wildlife (DOFAW) has expressed a desire to fulfill the goal of expanding the use of wood and wood products as the selected material in the varied industry markets of Hawai'i. Key interest groups have been identified that have the potential to shape the future expanding market of wood products and use in the state. This topic has also been the focus of relevant literature.

REPORT GOALS

The purpose of this study was to conduct a survey of key interest groups in Hawai'i, and to develop a set of recommendations for priority and other efforts to increase wood utilization in Hawai'i.

SURVEY QUESTIONS

The DOFAW solicitation and the recommendations from the Hawaii Wood Innovations Steering Committee developed a set of survey questions to be used in the survey portion presented to the key interest groups. The survey questionnaire deployed was presented as follows:

Name: Individual/Firm/Company Name (*inserted here*)

Date:

Questions or considerations to ask:

1. What woods do you currently use in your business?
2. Why do you currently choose to use woods grown outside of Hawai'i?
3. Which woods grown outside of Hawai'i do you use most in your business?
4. What are the top three most important considerations in choosing a wood for a project? E.g.:
 - a. Cost
 - b. Availability in Hawai'i
 - c. Availability for production in Asia
 - d. Performance for the task
 - e. Species of wood
 - f. Color of wood
 - g. Certified as sustainable
 - h. Grown in Hawai'i
 - i. Quantities readily available
 - j. Other: _____

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5. What are the biggest reasons why you do not use more Hawai'i-grown woods in your business?
6. What would motivate you to use more Hawai'i-grown woods in your business?

*** From your perspective, what is the biggest opportunity for Hawai'i-grown woods?

It should be noted that this list appears to have been developed for users of woods in Hawai'i. During the survey, with an initial poor return in emailed delivery to the key interest groups; WHALE Environmental Services LLC turned to verbal connection via phone/in person contact. The final return rate for the survey questions was 66.67% - 32 out of 48 surveys returned – with returns from every interest group. During the survey, it was learned that some of the reasons for the slower returns was the wording of the recommended survey form – architects and engineers for example, do not use wood, but rather specify them. Once we emphasized completing the survey from a particular key interest group's particular point-of-view; return rate of surveys increased, along with more pointed and pertinent answers in our opinion.

KEY INTEREST GROUPS

The development of the key interest groups started with an initial recommendation by DOFAW in the solicitation of nine (9) key interest groups with three contacts each. These groups were:

1. Architects
2. Engineers – structural and mechanical
3. Construction Companies – commercial and residential
4. Interior Designers
5. Retailers
6. Artisans/Craftsmen and Craftswomen
7. Wood Use Consumers
8. Wood Use Contractors
9. Members of Lumber Trade Associations

WHALE Environmental Services LLC initially proposed a 27-item list of suggested key interest contacts. In consultation with Mr. Philipp LaHaela-Walter, project manager and State Resource and Survey Forester; a suggestion to double the list to six (6) contacts for each group was made; to which our firm agreed to insure a decent return rate of

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surveys was achieved. Further consultation with the Hawaii Wood Innovations Steering Committee was made during which four (4) different versions of the contact list for key interest groups matured and developed. Research into product literature also added some other interest groups such as paper/pulp users and utility pole users. The end result was the following list which resulted in the list that was used for contact of key interest groups:

ARCHITECTS	ENGINEERS (Structural and Mechanical)	CONSTRUCTION COMPANIES - Commercial and Residential	INTERIOR DESIGNERS	ARTISANS - CRAFT MEN/WOMEN	WOOD CONSUMERS AND SUPPLIERS	WOOD CONTRACTORS	LUMBER TRADE ASSOCIATIONS AND COMPANIES	RETAILERS	PULP/PAPER/ MULCH	UTILITY POLES
WCIT Architecture	Turtle Bay Resort	D.R. Horton	Mary Philpotts & Associates	Koa Brook Artisan	Hardware Hawaii	Kamehameha Schools	Hawaii Wood Turner's Association	Martin & MacArthur	Hagadone Printing	HECO
G70	SSFM	MEI Construction	Howard Design	Patrick Parker - Artist	Home Depot	OHA - Land Assets	Hawaii Wood Crafts Fair	Pictures Plus	Earth Products	MECO
AHL	HDR	Kiewit Pacific	Universal Interiors	William Wise - Bowl Maker	Lowes	USAG - Hawaii	Forest Solutions	Totally Hawaiian	Hawaiian Earth Products	HELCO
WAT&G				Casey Kamaka - Kamaka Ukelele	Ace Hardware					Kauai Electric
Ferraro Choi				Francisco Clemente - Artist	City Mill					
Mason Architects				Marcus Castaing - Furniture Maker						
Perkins and Will				Mats Fogelvik - Furniture Maker						
WRNS										

And of course in the process conducting a survey, there are a finding that some contacts are invalid, some not accessible or obtained, and some provided a response of no value such as – “you would be better off talking to “X”. Slight changes were made to enhance the value of the survey.

- In the category of interest groups of structural and mechanical engineers, SSFM declined to participate saying they were concrete and steel engineer specifiers only. Our firm turned to Tim Newberry, HART lead architectural designer for the rail stations, and the owner of TN Designs – structural design engineer of residential properties; to gain that unique perspective.
- The US Army Garrison Hawaii directed us to ACTUS LandLease, the IDIQ Army contract holders to build 50 homes a month at Schofield Barracks for Army housing (up to a minimum of 2000 homes from 2011-2017). As the Army construction was entirely of wood for new housing, their contract holder was contacted for the survey information.
- Though we used the survey from Turtle Bay Resort’s Engineering and Development division which gave a valuable construction management and specification perspective; their recommendation was also to speak with their furniture makers and their miller to gain that outside perception. We did so, and

WOOD UTILIZATION STUDY



that survey is found under *Dae Soon - Wood Furniture Maker for TBR* under wood Use Contractors.

- For the Hawaiian Wood Trade Groups, we added the name of Scott Loomer, current HLPAA President (Hawaii Lumber Products Association), and president of Truss Systems Hawaii Inc. This was an interesting and complete conversation that discussed the challenges and issues facing more wood utilization in Hawaii.
- For Retailers, we added Hawaii Lumber - Waialua. At the sugar mill, Dan Moore actively markets his Hawaiian woods on cable TV – featured now on the new Spectrum lead cable channel (Channel 1200). He also has participated in the forest products purchases from DOFAW, buying silky oak in the Waianae Mountains on a trial basis under permit granted with the cooperation of Mr. Ryan Petralta, Oahu district forester. Though Mr. Moore's wife is reluctant to allow him to use a chain saw again, his experience in buying DOFAW Forest Products and Hawaiian wood marketing efforts are valuable information to obtain.
- Under the interest group category of *Wood Consumers and Suppliers*, we added Re-Use Hawaii. Their recycling and sustainability efforts are considered a vital part of the wood utilization movement, and their perspective was valuable.

RESPONDEES' KEY INTEREST GROUP MEMBERS BACKGROUND AND SYNOPSIS OF RESPONSE

The survey responders came from the diverse group so afore-mentioned and shown on the chart on page 3. In each group, WHALE Environmental Services LLC managed to garner at least one response from every interest group, and in many instances, obtained multiple responses within the key interest groups.

The following is the list of the responders, a brief description of their background, and a summary of their response. The responders were:

Architects

AHL Architects – (TAMMY LEE – RESPONDER) Over the past 7 decades, the firm has had the opportunity to plan and design projects that include the Hawai'i State Capitol, Waikiki-Kapahulu Library, Shriner's Hospital, O'ahu Country Club, Restoration of Ali'iolani Hale Judiciary Building, Federated States of Micronesia Capitol, John A. Burns School of Medicine, and numerous residential, commercial, and industrial facilities throughout Hawai'i, the Pacific Rim, Asia, and United States.

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Today, AHL is a multi-disciplinary architectural firm with international experience in architecture, planning, and interior design. Based in Honolulu, the firm has developed a worldwide reputation as one of the most versatile and progressive design firms in the Pacific Region. AHL's staff of over 90 offers a full range of architectural services to clients throughout Hawai'i, the Pacific Rim, Asia, and United States.

Summary of comments

AHL uses a majority of woods sourced outside of Hawai'i woods citing cost, availability, and aesthetics. They prefer using wood over other materials such as steel or concrete. Local woods used are predominantly Koa, Bamboo and Ohia with occasional specification of other species. However, wood products specified are primarily mainland USA and Asian woods. The low citation for sustainability is the restraining factor for Hawaiian grown woods that is cited as well as the higher costs. They suggested the exploration of species such as albizia for construction lumber and the creation of hardwood plantations would assist in increasing the use of wood in Hawaiian industry.

WAT&G Architects – (JANICE LEE – RESPONDER) WAT&G originated in 1945 as Wimberly and Cook and undertook its first project as the redesign of the Royal Hawaiian Hotel in Waikiki. In the 1960s, the firm expanded its services to the South Pacific, which was followed by an expansion in the 1970s to Asia. Expansion continued in following decades to mainland USA, England, Europe, the Middle East, Africa, and today in every region in the world.

Summary of comments

The firm does not use Hawaiian woods in its designs working mainly in urban designs of steel and concrete. Birch plywood is mostly the only wood they use in designs due to Weyerhaeuser's advanced certification program and the appeal of birch as an upscale wood. They cite that the Hawaiian-grown woods of both natives and other non-native grown species are too costly, non-sustainable, and limited in availability. Until Hawaiian-grown woods can meet budget constraints, use of such would continue to be limited.

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Mason Architects – (SHANNON HINES – RESPONDER) Mason Architects, Inc. is a full-spectrum architectural design firm founded in 1998 and located in Honolulu. Their staff of twenty-one architects, architectural historians and designers works on projects throughout Hawai'i and the Pacific. Their goal is to preserve the architectural heritage of the region and create new buildings that respect the client, the environment, and the cultural context.

Summary of comments

The firm only uses woods in designs where the project contains historical woods in need of preservation. Woods are only used when new wood product is needed to match the damaged historical woods in a project, and Hawaiian woods are seldom encountered.

Structural and Mechanical Engineers

Turtle Bay Resort – (PHILLIP CADIZ – MECHANICAL ENGINEER; SAMANTHA CARON – CONSTRUCTION MANAGER) – Turtle Bay Resort is a 1200 acre resort on the North Shore of Oahu. The hotel underwent renovation in 2015 and 2016. Containing lands with native milo and kamani forests, the hotel staff used as much local woods as possible – Norfolk pines for fence posts, milo, monkeypod and ironwood.

Summary of Comments

Northshore Ironwood (Eucalyptus) was used for the construction framing of Ola's Restaurant in the late 1990s– which is now Roy's Beach House. It was granted an exception for the use of the locally harvested ironwood by local building inspectors. The installed ironwood product (used mainly for column supports) did not last twenty years structurally, and rotted out at the base of the columns and had to be replaced in 2014. Consequently, new and additional structural components for the 2015-2016 Turtle Bay Resort \$18 million dollar renovation was mostly Douglas Fir with some milo and monkey pod used for furniture and decorative trim only. Durability of native woods is a concern due to the saline environment and high wear and tear from customer use.

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TN Design – (TIM NEWBERRY – ARCHITECTURAL AND STRUCTURAL ENGINEER– CONSTRUCTION MANAGER) – TN Design is an Architectural Engineer firm whose principal, Tim Newberry, is also the Lead Architect for Station Design Group of the HART rail system.

Summary of Comments

Due to price considerations in using woods for construction, Douglas Fir is preferred for its cost and certifiable strength, whereas comparable Hawaiian pines are not structurally sound or certified and often more expensive. As well, to his knowledge, he is not aware are no Hawaiian woods certified with by the Forest Stewardship Council (FSC), or carrying a certified Chromate Copper Arsenate (CCA) herbicide treated and certified tag. As well, he is not aware of any Hawaiian woods grown under the Sustainable Forest Initiative (SFI). Without these certifications, the use of Hawaiian-grown woods is very limited since they do not meet local building codes without exceptions. As the lead Station Group designer for the HART rail project, he tried to get HART management to use Hawaiian-grown woods for rail station construction at the stations, but could not overcome the “steel-on-steel” mentality that HART’s senior management was advocating. He cited steel lobbying groups at being more effective in determining steel product use for all rail components than using the local recommendations for Hawaiian-based woods. He mentioned that he researched the firms that do apply herbicide treatment, who cannot certify the end product since no Hawaiian-grown woods have been studied for density, termite testing, of herbicide penetration. Topical applications current done on Sand Island or at the Kapolei Campbell Industrial Park do not meet codes. This was confirmed in a later survey with the Kapolei firm.

HDR Engineers – (HENRY WENDT – STRUCTURAL ENGINEER– CIVIL ENGINEER) – HDR Engineering is a Fortune 500 top engineering firm. Henry Wendt is licensed both as a structural engineering and civil engineer and has worked on the design of most of the aviation location in Hawaii.

Summary of Comments

Most of the large corporate engineering firms like HDR – also AECOM, URS, CH2M Hill and others – do not use Hawaiian woods or most other grown-outside-Hawaii woods.

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Steel, concrete, and asphalt are the main components specified for cost, availability, and code compliance. Hawaiian woods would require certified material data sheets, and preferably the FSC certification and the CCA certified past application to increase its usage. Mr. Wendt said that the trend in engineering is to avoid wood as a construction material mainly due to the ease of using steel or cement in meeting building codes. He does feel that given the chance that wood local or otherwise can get the needed certifications; price would be the only obstacle.

Commercial and Residential Construction Companies

MEI Construction – (SALOSI ULUAVE – CONSTRUCTION MANAGER) – MEI Construction is a medium sized construction firm that conducts residential and commercial building for the US Army and private firms. The bulk of their construction is with wood.

Summary of Comments

They largely used pesticide - treated Douglas Fir since it is certified and meets local building codes and they are not aware of other local or Hawaiian-grown woods that may carry that potential. As a medium-sized contractor, wood is their preferred materials as steel or concrete requires a larger investment for projects. Their suppliers (Hawaiian-based) do not carry local or Hawaiian-grown woods since they cannot meet the performance requirements for the tasks in their opinion or gain local building inspector approval. Cost of woods is also a huge factor, especially on government projects where bid price is a dominant factor, which is approximately 55% of their business. The firm feels that the local building inspectors offer flexibility in allowing non-normal materials (*as seen in the Ola experience at Turtle Bay*) and feel that simple CCA tagging, FSA certification, and structural certification would allow them to use more wood sourced here in Hawaii – either local or imported. For the huge price variation, the Douglas fir is often sold by suppliers at under \$2/bf, while local or Hawaiian-grown woods are in the \$3-5 range. Incentives of other efforts to lower local or Hawaiian-grown woods prices to meet price of Douglas Fir currently enjoyed by MEI.



Interior Designers

Howard Design Group – (LIZ HOWARD – FIRM OWNER) – Liz is a former national president of the esteemed American Society of Interior Designers. She holds a degree from Briarcliff College, and continued her education at the Parsons School of Design in both New York City and Paris. The Honolulu native founded Liz Howard Designs in 1975.

Summary of Comments

Ms. Howard cited that her designs only use woods that are specially requested by her clients which are almost always grown-outside-of Hawaii woods such as teak from Bali or redwood from California. She feels that there needs to be stronger promotion of local and Hawaiian - grown woods for client awareness as most architects are client-preference driven in specifications.

Universal Interiors LLC – (NANCY SCHNUR – FIRM OWNER) – Nancy’s design mantra is “to make your home work for you, not the cover of a magazine.” She is a past president of the Hawaii chapter of the American Society of Interior Designers. Certified for aging in place design, Nancy believes in quality furniture and proper ergonomics for the young and not so young.

Summary of Comments

Ms. Schnur cited that her designs only use woods that are specially requested by her clients which are almost always grown-outside-of Hawai‘i woods such as teak from Bali or redwood from California. She feels that there needs to be stronger promotion of Hawaiian woods for client awareness as koa or kamani are beautiful woods she feels should be in her designs, but not requested by clients. She feels she is also limited by what is readily available and stocked in inventory. Teak is her most used wood due to a heavy influence of Asian clientele in Hawai‘i (*Japan, China, Polynesia, Philippines*), for which that wood is a stated preference.



Artisans and Craft Men/Women

KoaBrook Wood Artisan – (MARK HOWLAND – HOBBYIST) – Mark is the author of this wood utilization survey report and the co-owner of WHALE Environmental Services LLC. His hobby is woodworking, but his experience also lays with recent DOFAW awards for forest products price analysis, and its role as Turtle Bay Resort’s forest management consultant needs. As well, the Howlands’ predecessor firms – Environmental Research Corps and BioMass Farms –routinely used wood products for the manufacture of erosion control products.

Summary of Comments

Mr. Howland feels the lack of increased usage of woods of Hawaii is based on missed cross-linkage and miscommunications. Though woodworking has been his hobby for years and in Hawaii for the last 12+ years he has resided here full-time; it was until his firm won the water management contract at Waimea Valley, he was unaware that milled Hawaiian wood was available. And conducting a forest inventory at Turtle Bay Resort with its massive 100+ year old milo forests placed him in contact with millers around the island for the milling of the milo. The stated lack of availability issue is one that he feels is not a cause of lack of inventory in Hawaiian locations, but more a lack of local promotion to wood users and suppliers; and that cross-linkage between the key interest groups in this survey is a vital need to demonstrate that plentiful product has been witnessed in the mills visited for the Forest Products Price Analysis and would correct the mis-perception of lack of availability of product.

And, as discussed later in the recommendations sections, there are several missed opportunities for the use of Hawaiian woods.

Patrick Parker – (PATRICK PARKER – ARTIST) – Patrick Parker is a world-renowned artist and photographer. His work can be seen at www.PatrickParkerArt.com. The bulk of wood usage is for framing purposes.

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Summary of Comments

Mr. Parker's use of wood for frames for picture framing has centered on using reclaimed wood that he garners from old house demolition, demolished decks and/or old fences; because he feels that it helps the environment to recycle. He finds Hawaiian woods far too costly and does not like the idea that most of them do not appear to be harvested in a sustainable manner and does not like the woods because they harm the 'aina. Pine is the most used reclaimed wood he uses for frames because it appears most often in the sources he uses. He feels Hawaiian woods are the most beautiful in the world, but until the harvests are proven sustainable, he hesitates to use them.

William Wise – Bowl Artisan – (WILLIAM WISE) – William is an award-winning Hawaiian bowl maker. He has won several awards at the Hawaiian Craft Fair. His preferred wood is milo, but also uses koa a lot due to customer demand.

Summary of Comments

As his son, Kawena Wise is the owner of Waihee Farms in Wahiawa – miller of Hawaiian woods, availability is not an issue Mr. Wise cites. His primary comment was that complete usage of Hawaiian woods is lacking as bowl makers commonly use stumps and root structures after the tree is harvested and sellers of woods grown in Hawaii often only sell stumpage logs that eliminate the roots used by bowl makers. The many knots and branching roots make for interesting and attractive patterns in bowls and the wood is denser, this creating more waterproof bowls and platters. He uses the ancient Hawaiian method of hand carving – not using lathes or carving machinery.

Marcus Castaing – (MARCUS CASTAING – AWARD WINNING FURNITURE MAKER) – Marcus has won many awards including top of class for furniture making and joinery. He is considered one of the country's best furniture makers and tries to use Hawaiian woods.

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Summary of Comments

Marcus tends to use the wood what every one of his client seems to want – koa. But he also uses old growth Douglas Fir and Western Red Cedar as supports for Hawaiian koa wood veneers as it lowers costs and provides a hidden support structure that eliminates using koa for all components of furniture. He cites the underlying woods' certified structural strength as the reason for support selection and is unsure if a Hawaiian wood possesses the same structural strength to support the koa veneer. He also would like to see locally grown/harvested/replanted for sustainability. And price is the consideration (Douglas Fir versus Koa) and the reason why use of the Hawaiian woods are often limited to veneers. He is currently planting several acres of Hawaiian hardwoods despite the 25-50 year growth cycle to provide support for sustainability efforts.

Mats Fogelvik – (MATS FOGELVIK – ARTISAN) – Mat's specialty is custom made handcrafted furniture and interior woodwork. He also creates studio furniture for sale and display in galleries. His main medium is Koa wood, endemic to Hawaii. He also uses other local and exotic high quality hardwoods. He is the co-founder of the Maui Woodworker's Guild.

Summary of Comments

Mats feels that lack of availability of wood in general in Hawaii with woods that are not appropriate for fine furniture making; and a lack of appreciation for the Hawaiian woods' beauty limits its use. Standard mainland pines, spruces, and firs do not work for him in fine furniture making. He mainly works with koa from Hawaii and mahogany from other sources and out of the region. He also uses rosewood and orange for their availability and customer demand. He feels the lack of promotion of the Hawaiian woods' beauty is the largest factor holding back more use of those woods in furniture building.

Wood Contractors

Kamehameha Schools – (GIORGIO CALDERONE – LAND ASSETS MANAGER) – Giorgio manages the large acreage of Kamehameha Schools/Bishop Estates (KSBE) holdings including many acres of forest lands.



Summary of Comments

Giorgio comments that while KSBE preserves and protects its forests and lands with Conservation Management Plans (SUCH AS THE KSBE UKOA WETLANDS MANAGEMENT PLAN THAT WHALE WAS CONTRACT FOR IN 2010), there are restraints in other areas. The recent \$25 million dollar Haleiwa Historic District rehab for example required KSBE's contractors to use certified woods (carrying FSC codes, CCA tags, and structural certifications) for the re-construction, mainly FSC, CoC; CCA-treated Douglas Fir that met building codes easily and not requiring building inspector exemptions. Despite large stands of Hawaiian hardwoods on its lands, easily meeting building codes without requesting exemptions limited the use of those woods in the Haleiwa project.

OHA – (NILES NISHIMURA – ARTISAN) – The Office of Hawaiian Affairs (OHA) manages Hawaiian interests in the State. The only local woods they use are for their main office wall panel trims which is mainly koa from ancient sources. The Gentry Building which houses OHA, is largely a cement structure where wood is only used for cosmetic appeal. But OHA also manage large tracts of forests on Oahu and the Big Island and both properties are currently under Planning Processes which include Forest Management Plans which would encourage the sustainable harvest of local Hawaiian woods.

Summary of Comments

Miles feels that there is a lack of consideration for the use of Hawaiian woods outside of craft or aesthetic use. Though Norfolk Pine has been used for coffee farm windbreaks, or Australian Eucalyptus planted for land stabilization; he equally feels that there can be an advanced use of Hawaiian grown trees such as koa in the uplands, milo on the coastlands, kamani, ohia and others could replace invasive import and provide equal and superior watershed restoration, re-forestation and sustainable harvest plantations.

U.S. Army – Actus LandLease – (ANDREW SEVILLE – DEVELOPMENT MANAGER) – Actus LandLease built over 2000 homes on Schofield Barracks between 2010 and 2015 for soldier families. Solar, wood construction and duplex construction were the main features. Andy is the Development Manager for Actus.

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Summary of Comments

Andy explained that all DoD projects get wood supplies through National Procurement contracts issued by Washington D.C Pentagon DoD agencies. The Schofield Homes construction using wood as the main procurement for construction was issued as a contract to a national procurement vendor in Nashville TN – the identity of whom he couldn't reveal. The bulk of Schofield's buildings were built from certified Georgia Southern Pine obtained and shipped from Nashville, TN. He cannot see a way how Hawaiian - grown woods could be used even if a Hawaiian vendor won the supply contract due to the lack of certain certifications and meeting DoD standards.

Dae Soon Woods Inc. – (DAE SOON – OWNER) – Dae Soon is the furniture maker for Turtle Bay Resort and others. He used mainly monkey pod and mango for TBR's needs as they were the most readily available. The conversation was held with him and his miller Eric.

Summary of Comments

Dae Soon and Eric feel that if they got better notice of tree removal in state forests by DOWFA of Hawaiian hardwoods, availability would perhaps not be such an issue. They also feel that since Hawaiian woods are more costly, that there should be some kind of incentive program (tax credits mentioned?) to use Hawaiian-grown woods; exemplified by koa costing more than teak, Asian mahogany less than Cuban Mahogany, etc...

Members of Trade Groups

Scott Loomer – (SCOTT LOOMER – HAWAII LUMBER PRODUCTS ASSOCIATION) –

Scott Loomer is the President of Truss Systems Hawaii, Inc., and the 2017 HPLA President. He has been building trusses in Hawaii for over 33 years on all Islands. In 1994, he started Truss Systems Hawaii, Inc., located on Maui in Puunene. His firm manufactures building components, roof and floor trusses, wall panels and storage sheds.

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Summary of Comments

Scott cited several times it is the lack of the varied certifications FSC, CoC, CCA, etc...) that limits the use of local or Hawaiian-grown woods. Without the structural tests, density tests, termite inspections, proper pest certifications, material data sheets, truss builders and other lumber users can only have local or Hawaiian-grown woods used for non-building code lumber use such as furniture, trims, etc... Even local or Hawaiian-grown woods use for floors is limited in his opinion due to higher cost and unknown durability. He also laments the fact that he disposes 2.5 - 3 containers a week of leftover truss woods (MIS-SHAPED END CUTS, TRIMS, ETC...), which he feels could be purchased from him for shavings creation for packing materials and mulch, or as starter fuel for Waste-to-Energy biomass plants.

Hawaii Wood Turner's Association. – (BARRY WHEELER – PRESIDENT) – Mr. Wheeler was on vacation. The conversation was held with his son-in-law Kevin who felt he could answer the questions.

Summary of Comments

Kevin said that Barry's work in pens and craft is driven by client demand. He felt there was equal demand for local or Hawaiian-grown woods like koa, but equally for pen stock of woods like Bethlehem Olivewood. It is client driven, similar to what architects stated. Cost is a factor and well as the perception that there is a large demand for local or Hawaiian-grown woods but small supply; which Barry finds not to be true, and needs refutation in the marketplace to enhance wood usage..

Forest Solutions – (NICK KOCH – Forester) – Though Forest Solutions is a competitor to WHALE; we are friendly competitors who have considered some co-bids. We thought another consultant's viewpoint would be valuable, especially one that concentrates its work in forest activities.

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Summary of Comments

Nick feels that koa and sandalwood from high elevations are local or Hawaiian-grown woods' most needed hardwoods. The mahogany that comes from outside Hawaii are the main competitors to local or Hawaiian-grown woods. He doesn't feel that cost is a factor, that it is the availability from Hawaii or Asia and the performance for the task that is the driving force for non-use of local or Hawaiian-grown woods. He feels to increase availability that DOFAW needs to work more with forest or plantation landowners and just not think about sales from DOFAW FR(s). *(Please note – this is the East Coast model of state's developing pricing structures for forest products as exhibited in the 2017 Forest Products Price Analysis where the varied New England States support private landowner efforts).* He also feels that a marketing and promotional feature for emphasizing the artistic element of local or Hawaiian-grown woods for furniture and flooring is vital and a shift from the focus on Koa only as the only Hawaiian wood is also needed.

Retailers

Pictures Plus! – (KALANI – REPRESENTATIVE) – Pictures Plus! Is a premier picture framer with a variety of framing options for photos. With several locations, frames of woods for clients results in a large movement of wood products.

Summary of Comments

These picture and painting framers cite that primarily pine and maple from mainland sources is used for framing, but koa has been requested occasionally – but often mostly as a veneer due to cost. Also, for liability reasons of selling a finished product free of pests, they prefer pesticide - treated woods. They also have sustainability concerns about local or Hawaiian-grown woods because they like to advertise their frames as “green” – a tree planted for each one harvested and am unsure if local or Hawaiian-grown woods sources meet criteria. They feel a promotion effort to emphasize the beauty of local or Hawaiian-grown woods should be undertaken.

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Hawaii Hardwoods – (DAN MOORE – OWNER) – Dan operates the mill – Hawaii Hardwoods at the Waialua Sugar mill. He mainly deals with monkeypod, koa, silk oak and mango. He finds the raw stumpage high in price, especially for koa, and has tried the DOFAW forest Products sales for silk oak from the Waianae.

Summary of Comments

Dan thinks that more exports to the West Coast of local or Hawaiian-grown woods could increase the markets if transportation costs could be managed and the State offers some type of export incentive to help cover costs. He also feels that eucalyptus and ironwood could be strong enough for certification as a building product. He is also the producer of the Spectrum Hawaii channel at 1012 which is the startup channel for most Hawaiian cable boxes and is routinely running an ad promoting Hawaiian hardwoods.

Pulp/Paper/Mulch

Hagadone Printing – (ED KOBAYOSHI - REPRESENTATIVE) – Hagadone is the largest printing firm and user of paper in Hawaii. Pulp and Paper Making is a large driving force for wood use in many other states.

Summary of Comments

Ed felt that the fact that no low-grade local or Hawaiian-grown softwoods such as the invasive strawberry guava, kiawe, or haole koa is not turned into pulp and laments that there is no pulp mill in Hawaii. His firm brings in more than 5 containers a week of paper from pulp mills in China and the Mainland. He also feels that since the most popular paper sold is the 5% recycled version, that the supply of local or Hawaiian-grown woods waste woods could fill that void thus reducing shipping costs and availability if a pulp mill existed. He said that if incentives to organizations like Legacy Hardwoods on the Big island could entice them to go beyond planting a tree for the equal tree need for the volume of paper it creates and try a trial pulp mill, that the state would be greatly rewarded by the incentive.

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Earth Products – (BLANE - REPRESENTATIVE) – Earth Products of Wahiawa is a waste-to-compost manufacturer.

Summary of Comments

Earth Products does not pay for any materials brought to them. They turn whatever delivered to compost for land projects. They do like the non - pesticide treated factor of local or Hawaiian-grown woods as not to worry about the pesticides or chemicals being in the compost. Their wood slash comes mostly from local farmers and homeowners who bring mango branches, kiawe wood, and haole koa wood from residences or farms that they have cut down to limit invasion, for disposal.

Hawaiian Earth Products – (TRACY – REPRESENTATIVE) – Hawaiian Earth Products of Kapolei is a waste to mulch manufacturer.

Summary of Comments

Hawaiian Earth Products does not pay for any materials brought to them. They turn whatever delivered to mulch for land projects. They do like the un-treated factor of Hawaiian woods as not to worry about the pesticides or chemicals in the mulch. Their slash comes mostly from local farmers and homeowners who bring mango branches, kiawe woods, haole wood that they have cut down to limit invasion for disposal. They prefer the large volumes of waste Douglas Fir or other major framing lumbers because of the consistency in the look of the mulch.

Wood Consumers and Suppliers

City Mill. – (TIM HATFIELD – REPRESENTATIVE) – City Mill is a large hardwood supplier in the islands carrying a variety of woods.

Summary of Comments

Tim cites that availability of local or Hawaiian-grown woods, and cost limits local or Hawaiian-grown woods being featured in the stores. Pine, Asian Mahogany, Birch,

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Redwood and Poplar are the most popular in their stores. Customer demand for species types is also a driving force as is proper certification of the woods they sell. He feels local or Hawaiian-grown woods are limited to crafts and until large scale demand from customer occurs, City Mill will likely not start stocking local or Hawaiian-grown woods.

Ace Hardware. – (JESUS – REPRESENTATIVE) – Ace hardware is a medium sized lumber supplier in the islands carrying a variety of woods.

Summary of Comments

Jesus cites that lack of proper pesticide certification and tagging along with perceived limited availability and cost limits local or Hawaiian-grown woods from being featured in the stores. Douglas Fir is the wood they stock most often. Customer demand for the type of wood species needed is the driving force as is proper certification for meeting building codes in the customer's projects. He feels local or Hawaiian-grown woods are limited to crafts and until large scale demand from customer occurs, and structural certification is exhibited on the product which would reduce Ace's liability in selling the product; that they will likely not start stocking local or Hawaiian-grown woods.

Re-Use Hawaii. – (CAROLYN – REPRESENTATIVE) – Re-Use Hawaii is a large reclaimed wood supplier in the islands carrying a variety of woods.

Summary of Comments

Carolyn cites that availability of local or Hawaiian-grown woods and lack of donations of those woods limits local or Hawaiian-grown woods from being featured in the stores. Their woods come from abandoned building products where wood is turned over for recycling. Customer demand is also a driving force as is the turn-in factor where most donated woods to Re-Use Hawaii are oaks, Asian mahogany, redwood, cedar and Douglas Fir recycled. She feels local or Hawaiian-grown woods are limited to crafts and until there is more consumer awareness of local or Hawaiian-grown woods. Sustainability evidence is also valuable for marketing.

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Hardware Hawaii. – (DAN HIASHI – REPRESENTATIVE) – Hardware Hawaii is a large hardwood supplier in the islands carrying a variety of woods.

Summary of Comments

Tim cites that perception of availability or actual lack of knowledge of sourcing such products along with cost limits local or Hawaiian-grown woods from being featured in the stores. Pine, Asian Mahogany, Birch, Redwood and Poplar are the most popular items sold. Customer demand is also a driving force as is certification. He feels Hawaiian woods are limited to crafts and until large scale demand from customer occurs, and as well, he has trouble identifying a reliable source of Hawaiian woods. The uniqueness of local or Hawaiian-grown woods is something he feels he could market, but he feels he can't get a decent or reliable inventory of the woods at a lower cost that allows re-sell.

Utility Poles

MECO. – (KYLE – ENGINEERING) – Maui Electric Company is a division of HECO and the supplier of electricity on utility poles on Maui

Summary of Comments

Kyle cites that utility poles are held to even greater standards than building lumber. He gave us the Material Data Sheet to demonstrate those standards:

Poles are typically made from three species: Douglas Fir, Western Red Cedar and Southern Pine. Logs that have the potential to become wood poles are selected in the forest, often while the trees are still standing.

Trees are judged for length, straightness, taper and other characteristics that may impact the load-carrying abilities. In a typical stand of timber, only 7 percent of the trees have the qualities needed to make a utility pole. They are then harvested and transported to manufacturing with trailers specifically designed to accommodate the longer timber.

Once at the yard, the bark is removed from the full length of the tree and the pole is shaped to make it straight as possible. Each pole is reviewed, graded and assigned a class as defined in the ANSI standards. The characteristics reviewed include grain orientation, presence of decay, knots and splits.

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Next, the poles may be incised, bored or conditioned to prepare the wood to receive the preservative. Other holes for hardware on the pole are bored, maintaining the protective envelope by allowing treatment to penetrate all openings. Each pole is then branded and tagged, then stacked for treating.

Kyle also stated that that while Norfolk Pines is the only local or Hawaiian-grown wood species to have the height, the strength and availability to become utility poles; they as well, have limitations. Poles require at least seven (7) feet of knot-free run of the log – Norfolk Pine has many knots throughout its length. There has been no herbicide penetration tests or density tests for Norfolk Pine, making the treatment process of pesticides non-certifiable. Thus Hawaiian utilities cannot use local or Hawaiian-grown woods for utility poles.

SURVEY SPREADSHEET SUMMARY RESULTS

WHALE Environmental Services LLC has provided the Survey Spreadsheet summarizing the results collected on the next pages.

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Key Interest Group Name	Q1 - What woods do you currently use in your business?	Q2 - Why do you currently choose to use woods grown outside of Hawaii?	Q3 - Which woods grown outside of Hawaii do you use most in your business?	Q4 - What are the top 3 most important considerations in choosing a wood for a project?	Q5 - What are the biggest reasons why you do not use more Hawaii-grown woods in your business?	Q6 - what would motivate you to use more Hawaii-grown woods in your business?	Q7 - From your perspective, what is the biggest opportunity for Hawaii-grown woods?
Architects							
WCIT/DTL Studio	no response	no response	no response	no response	no response	no response	no response
G70	no response	no response	no response	no response	no response	no response	no response
AHL	Ipe, Doug fir, White Cedar, Red Cedar, Pine, birch, Oak, Poplar, Cherry, Eucalyptus, Maple, African Mahogany Sapele, Redwood, Teak, Monkey Pod, Ohia, Koa, Bamboo, Mango, Banyan, Milo, Kamain, Acacia, and Cocunut	Aesthetics, cost and availability	IPE, Douglas Fir, Oak, Maple and Teak	Performance for the task, species of wood, certification	High Cost, low availability, low sustainability	More readily available and lower cost along with certification as sustainable	Albiza for construction, natural termite resistant wood
WAT&G	Birch and Birch Plywood	Cost and Availability	Birch	Cost, Performance for Task, Availability	Cost and Limited Supply	If it can meet budget and can be obtained easily	lowering costs
Ferraro Choi	no response	no response	no response	no response	no response	no response	no response
Mason Architects	70% of wood is preservation, so we match existing woods on site	Standard lumber is certied	Douglas Fir	Cost, Performance for Task, Availability	Nature of our business is to match current woods in a project	FSC Certificate, CoC for LEED certification	Federal funding of certification lab
Perkins and Will	no response	no response	no response	no response	no response	no response	no response

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WOOD UTILIZATION STUDY

Key Interest Group Name	Q1 - What woods do you currently use in your business?	Q2 - Why do you currently choose to use woods grown outside of Hawaii?	Q3 - Which woods grown outside of Hawaii do you use most in your business?	Q4 - What are the top 3 most important considerations in choosing a wood for a project?	Q5 - What are the biggest reasons why you do not use more Hawaii-grown woods in your business?	Q6 - what would motivate you to use more Hawaii-grown woods in your business?	Q7 - From your perspective, what is the biggest opportunity for Hawaii-grown woods?
<u>Structural & Mechanical Engineers</u>							
Turtle Bay Resort	Redwood, Ipe, Monkey Pod, Ironwood, Milo	Wood needs to be able to hold up to elements and structurally certified	Redwood, Ipe	Cost, Performance for the task, Availability in Hawaii	Purchases are made from outside vendors with large inventories not seen in Hawaii	Cost and Availability	Finding a firm that can mill in quantity and match mainland pricing
TN Design	All Northwest woods such as Doug Fir, FSC and COC certified	Certifications	Treated Douglas Fir	Strength, Availability, Performance for Task	Does not meet design code specification for projects	Availability and Certification	Crafts
HDR Engineers	None - specify concrete, asphalt and steel	Our client base is large commercial buildings and structure that use mostly steel and concrete	Douglas fir, Pine and Oak	Cost, Performance for the task, Species of wood	Does not meet design code specification for projects	Cost, Material Property Data Sheets, and availability	Local supply chain stores for non-structural projects
<u>Commercial and Residential Construction Companies</u>							
D.R. Horton	no response	no response	no response	no response	no response	no response	no response
MEI Construction	Treated Douglas Fir	They are woods used by the lumber supplier we use	Don't know where our suppliers (Home Depot, Hardware Hawaii, Honsador Lumber) get their supplies from	Cost, Performance for Task, and Quantities Available in that order	Not carried by suppliers	Woods need to meet submittal specifications	Not sure
Kiewit Pacific	no response	no response	no response	no response	no response	no response	no response

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WOOD UTILIZATION STUDY

Key Interest Group Name	Q1 - What woods do you currently use in your business?	Q2 - Why do you currently choose to use woods grown outside of Hawaii?	Q3 - Which woods grown outside of Hawaii do you use most in your business?	Q4 - What are the top 3 most important considerations in choosing a wood for a project?	Q5 - What are the biggest reasons why you do not use more Hawaii-grown woods in your business?	Q6 - what would motivate you to use more Hawaii-grown woods in your business?	Q7 - From your perspective, what is the biggest opportunity for Hawaii-grown woods?
Interior Designers							
Mary Philpotts & Associates	no response	no response	no response	no response	no response	no response	no response
Howard Design Group	oak, teak	client's choice	oak, teak	Cost, Species, Color of Wood	Not requested from clients	Client Directives	More Promotion for client Awareness
Universal Interiors LLC	Teak, Maple, Cherry, Bamboo, Oak, and Mahogany	Client's preference and requests	Structurally certified	Performance for task, color of wood, quantities readily available	The Hawaiian woods do not fit the purpose of a project. Lack of certification and supply limited	Trees growing sustainability ways and creating local jobs would be an incentive	Crafts and Furniture

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WOOD UTILIZATION STUDY

Key Interest Group Name	Q1 - What woods do you currently use in your business?	Q2 - Why do you currently choose to use woods grown outside of Hawaii?	Q3 - Which woods grown outside of Hawaii do you use most in your business?	Q4 - What are the top 3 most important considerations in choosing a wood for a project?	Q5 - What are the biggest reasons why you do not use more Hawaii-grown woods in your business?	Q6 - what would motivate you to use more Hawaii-grown woods in your business?	Q7 - From your perspective, what is the biggest opportunity for Hawaii-grown woods?
Artisans							
KoaBrook	Cuban Mahogany, Milo, Kamani, Mango, Doug fir, and assrd pen woods like ovlivewood	Client requests for items like Olivewood, Cinnamon and others	Doug Fir for framing	Availability, Species of Wood, Color of Wood	Avaialability	More inventory to purchase - certification for framing materials	Promotion
Patrick Parker	Cedar, Redwood, Pine and Maple	lower cost and often recycled	Pine	Cost, Performance for the Task, Quantities available	Cost and Availability - love kao but too costly	Hesitate to use them until sustainability is proven	Promoting their beauty
William Wise	koa, cuban mahogany, kamani	n/a	n/a	Cost, Performance for the Task, Quantities available	Customer demand	Recognition	Crafts
Casey Kamaka	no response	no response	no response	no response	no response	no response	no response
Francisco Clemente	no response	no response	no response	no response	no response	no response	no response
Marcus Castaing	Koa predominantly, Milo, Pheasant Wood, Kamani, Eucalyptus Robusta, SandalWood, Ohia	For particular qualities and characteristics	Old Growth Douglas Fir and Western Red Cedar if recycled; mostly used as support for veneers of Hawaiian woods due to stability	Species of Wood, Color of Wood, Cost	Would love to see more quantities available - and sustainable hardwood forests	Prices are high due to lack of availability. I am currently planting several acres of hardwoods. Price would come down if more available	Growing high value hardwoods in plantations and gear for slower harvest cycles to insure quality and characteristics
Mats Fogelvik	Koa, Mahogany	do not use other woods, mainly koa	n/a	Avaialability, Species of Wood, Color of Wood	Availability	Reliable Supply	Promoting their beauty

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WOOD UTILIZATION STUDY

Key Interest Group Name	Q1 - What woods do you currently use in your business?	Q2 - Why do you currently choose to use woods grown outside of Hawaii?	Q3 - Which woods grown outside of Hawaii do you use most in your business?	Q4 - What are the top 3 most important considerations in choosing a wood for a project?	Q5 - What are the biggest reasons why you do not use more Hawaii-grown woods in your business?	Q6 - what would motivate you to use more Hawaii-grown woods in your business?	Q7 - From your perspective, what is the biggest opportunity for Hawaii-grown woods?
<u>Wood Use Contractors</u>							
Kamehameha School	Douglas Fir, Hemlock, Oak, Koa	Structurally certified	Douglas Fir	Cost, Performance for task, Quantities	Certification limits use for framing, koa used for furniture or trim	Certification - FSC, COC at a minimum	Decorative wood use
OHA - Land Assets	koa	not currently using any	n/a	Performance for task, cost, color of wood	limited need	Comprehensive Beneficiary Support	Reforestation, watershed restoration and traditional crafts
US Army - Actus Land Lease	Douglas Fir	Supplier is National Procurement of Nashville TN - US Army supplier	Douglas Fir	Meeting Army requirement from contracted sources	Not in vendor's list of products	n/a	furniture
Dae Soon Wood - TBR furniture maker	Monkeypod and Mango	n/a	n/a	Availability, Species of Wood, Color of Wood	Exclusively use Hawaain woods	More tree removal	Incentives for builders

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<u>Members of Trade Groups</u>							
Scott Loomer - Hawaii Forest Products Association	Douglas Fir	Structural Certification	Douglas Fir	Cost, Sustainability, and Perforcement for the task	Certification	Sustainability	If Certified, future lumber certification would increase use
Barry Wheeler - Hawaii Wood Turner's Association	Many woods for pen making and crafting	Client Demand	Pen Populars, Olivewood, Bobala, Specialty Composites	Cost, Availability, Spieces	Availability and Supply - large demand, little response	Availability	My market - artisan crafts
Bart Potter - Hawaii Wood Craft Fair	Promotion of Hawaiian Woods	n/a	n/a	Cost, Availability, Spieces	Availability and Supply - large demand, little response	Availability	Crafts and Furniture
Nick Koch - Forest Solutions	koa and sandalwood	reliability of sources	pine, phillipine mahogany	Availability, Asian Availability, Color of Wood	Availability and Supply - large demand, little response	Developing an interest in landowners marketing their woods	Artistic Element - furniture and crafts

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WOOD UTILIZATION STUDY

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<u>Retailers</u>							
Martin and MacArthur	no response	no response	no response	no response	no response	no response	no response
Pictures Plus	Pine, Maple, Koa as veneer	woods are treated	pine	Cost, Availability, Certification as Sustainable	not readily available	Proven Sustainability	Promote beauty of the woods
Totally Hawaiian	no response	no response	no response	no response	no response	no response	no response
Hawaiian Lumber	koa, silky oak, mango	do not use outside woods	n/a	accessibility, cost, species type	Cost	tax incentives	Export to West Coast, reduced container costs

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WOOD UTILIZATION STUDY

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<u>Pulp/Paper</u>							
Hagadone Printing	brings in 5-6 containers a week from China and mainland pulp mills	recycled certification	soft woods for bleached paper	Availability	Availability and unsuited for end use	Creation of a pulp factory	not sure
Earth Products	Whatever scrap woods are brought to us for disposal	Only accept local product, not always sure what type of wood it is	n/a	Cost	Type of Wood do not matter for mulch	client demand	not sure
Hawaiian Earth Products	Whatever scrap woods are brought to us for disposal	Only accept local product, not always sure what type of wood it is	n/a	Cost	Type of Wood do not matter for compost	client demand	not sure

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WOOD UTILIZATION STUDY

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<u>Lumber Suppliers</u>							
Home Depot	no response	no response	no response	no response	no response	no response	no response
Lowes	no response	no response	no response	no response	no response	no response	no response
City Mill	Pine, Mahogany, Birch, Redwood and Poplar	Availability, Selection and Cost	Pine	Cost, Availability in Hawaii, Customer Demand	Lack of Customer Demand	Large Scale Consumer Demand	Hawaiian woods for specialty markets like crafts, not items we sell
Ace Hardware	Douglas Fir	Certification and pest certification	Douglas Fir	Cost, Certification, Availability	Not structurally certified	Incentives and Certifications	Furniture and Crafts
Re-Use Hawaii	recycled local woods	Hawaii only	Douglas fir	Cost, no control over choice	Availability from donated sources	Availability from donated sources	sustainability
Hardware Hawaii	woods from all over the world	structural certification	mahogany, birch, douglas fir	Cost, Availability, Color of Wood	Can't obtain it	availability	promoting uniqueness

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<u>Utility Poles</u>							
HECO	no response	no response	no response	no response	no response	no response	no response
MECO	Douglas Fir	meets all specifications	Douglas Fir	Meeting Standards	Not Certified for Pole Use	Meeting Standards	crafts
HELCO	no response	no response	no response	no response	no response	no response	no response
Kauai Electric	no response	no response	no response	no response	no response	no response	no response
32 responses							
16 non-responses	66.67%						



Recommendations

The purpose of this report was to provide a research survey of the key interest groups in the industry for their perspectives on wood utilization of Hawaiian wood products; and present the data collected in the survey. As well, opportunities and challenges to the expansion of the utilization of wood products in Hawai'i derived from the interpretation of the survey results is desired; and identification of the priority steps needed to overcome challenges or enhance opportunities is presented in this section.

It should be noted that survey responses came from thirty-two (32) key interest individual returned survey responders from the identified eleven (11) key interest groups, out of forty-eight (48) attempted survey contacts to key interest individual responders (66.67% RETURN RATE). It should be obvious that there are competing interests, divergent viewpoints and parochial recommendations from the responders. As well, this survey relies on the competence of WHALE Environmental Services LLC to compile the data, analyze it, and develop recommendations based on the interpretation of the data obtained. Our firm feels we have done this to the best of our ability based on experience, heritage, skill sets, knowledge and research.

The goal of the Hawai'i Wood Utilization Survey and Study was to produce a series of priority recommendations to increase wood utilization in Hawaii; and to develop recommendations to overcome challenges or to seize upon opportunities. We have listed the top opportunities and challenges for wood utilization in Hawai'i. Our presentation for the recommendations is as follows:

Perceived Opportunities

- Local and Hawaiian-grown woods are considered having a great market interest for its beauty and uniqueness with value inherent for wood usage,
- Cost versus Availability differs among interest groups, but there is a common consensus that great availability of Local and Hawaiian-grown woods will lower prices while promoting sales,
- Local and Hawaiian-grown woods are considered superior for crafts, instruments, furniture, decorative trims such as veneers or furniture accoutrements,

WOOD UTILIZATION STUDY



- Local and Hawaiian-grown woods have many opportunities for non-realized or undeveloped opportunities in specialty markets such as erosion control, building materials, veneers and more...

Perceived Challenges

These are the perceived challenges that the survey responders cited:

- Missed Cross-Links, Faulty or Mis-Perceived Communications about Local and Hawaiian-grown woods,
- Certification Deficiencies of Local and Hawaiian-grown woods,
- Lack of suitability of Local and Hawaiian-grown woods for performance of tasks,
- Cost of Local and Hawaiian-grown woods,
- Lack of Market Promotion and Penetration of Local and Hawaiian-grown woods,
- Sustainability Issue related to Local and Hawaiian-grown woods, and
- Non-competiveness in the Global Marketplace of Local and Hawaiian-grown woods.

From these perceived opportunities and challenges, WHALE Environmental Services LLC offers the following recommendations.

1. Hawaiian woods are consider beautiful with value inherent for wood usage,

The first commercial product extracted from Hawaii was the many endemic species of *iliahī*, or sandalwood (*Santalum spp.*). Sandalwood was prized for its fragrant wood and was a valuable commodity for the international trade that immediately took hold in Hawaii after 1778. But *iliahī* is a slow-growing species found generally in dry forests. Sandalwood harvesting boomed for 40 years, until the supply of fragrant old trees was exhausted and the genus was driven to the brink of extinction in Hawaii.

Hawaii's other native tree species for the most part do not possess good woodworking qualities, and although several timber mills have successfully operated since the early 1800's, a sustainable export market has not yet been developed because less expensive wood-based building materials have been available from overseas sources such as the Pacific Northwest and Southeast Asia (Strategy, 2010).

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(WHALE) – *Hawaiian woods are considered beautiful as seen in early days in the 18th century and continuing today in the 21st century. Many responders commented that the beauty of Hawaiian woods was not promoted enough, cross-linked across industries enough, or advertised enough. Some cited that their sales are driven by client demand, yet those clients had no idea of the uniqueness of Hawaiian woods.*

DOFAW can have two (2) methods to take advantage of the opportunity to utilize the Hawaiian wood beauty.

- a. Develop and use a social media structure and visual media campaign to promote Local and Hawaiian-grown woods' beauty. This would respond to the Architects' claims that the client-driven sales and usage of wood needs more promotion of Hawaiian woods to develop requests for usage. It would develop a market need for Local and Hawaiian-grown woods species in stores like City Mill or Hardware Hawaii who say sales are driven by client demand. And it would support efforts such as those at the Hawaii Lumber mill in Waialua on cable news promoting the uniqueness and beauty of Hawaiian woods,*
- b. Hire and/or contract for a Forest Products Coordinator to develop this social media structure and visual media campaign to promote Local and Hawaiian-grown woods. This also would address a perceived challenge identified in the survey - Missed Cross-Links, Faulty or Mis-Perceived Communications. From the survey, it is apparent that end wood users are unaware that large inventory of Hawaiian Wood products are found in mills and suppliers across the state. And it is unclear that forest products use is fully utilized with many surveys reporting wastage of woods, and under-utilization. A Forest Product Coordinator would have the following duties that address both opportunities and challenges:*
 - i. Identify, develop and communicate innovations in product, process, marketing, and business practices that will lead to improved value recovery, enhanced productivity and reduced manufacturing cost.*
 - ii. Explore opportunities for the development of new wood-based industries.*
 - iii. Develop science and research knowledge through basic discoveries that will create potential for future competitive advantage.*

iv. *Communicate effective technology and practices to potential users.*
(USDA, 2011)

2. Cost versus Availability differs among interest groups, but there is a common consensus that great availability of Local and Hawaiian-grown woods will lower prices while promoting sales.

WHALE) – *From the UH CTAHR program at UH- Manoa. This excerpt was extracted:*

“For those interested in a brief evaluation of the 16 wood species described in this report, the following broad observations are offered:

Most plentiful: ohia, robusta, koa
Most attractive in figure or grain: koa, mango, monkey-pod
Most dense: ohia, bluegum, brushbox
Least dense: Molucca albizzia, redwood, Australian toon
Most stable: Monkey-pod, redwood, mango
Strongest in mechanical properties: ohia, bluegum, Brushbox
Most easily workable: redwood, Norfolk-Island-pine, sugi
Least susceptible to degrade in seasoning: redwood, sugi, monkey-pod
Most useful for flooring: ohia, blackbutt, brushbox
Cabinet work: koa, mango, tropical ash
Wood turning and carving: monkey-pod, koa, milo
Pallets and crating: robusta, saligna, bluegum
Wood chips and fiber products: bluegum, saligna.”

It is clear that an update of available information on Local and Hawaiian-grown woods is needed because price perceptions are created by classifications. “Least susceptible to degrade in seasoning: redwood, sugi, monkey-pod” needs to be upgraded since new discoveries have found that UH Scientist, J. Valenti, has advocated albizzia as a structural wood, fine for creating structural housing frames from a wood that is naturally termite resistant. Or promoting a statement that milo is not easily workable is untrue since most woodworkers say it is carve-able, sand-able and easily workable, coupled with perceptions that invasives like strawberry guava or haole koa cannot be used for wood chips while our earth products survey responders differed. It is clear that a DOFAW program that truly outlines all the properties of Local and Hawaiian-grown woods is needed that addresses the opportunities and challenges – cost, availability, usage, properties, and correct perspectives on Hawaiian woods which would address architects, engineers, wood users, artisans and retailers’ perspectives (CTAHR, 2000).

3. Here is what appears to be contradictory statements between challenges and opportunities:

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- Lack of suitability for performance of tasks, costs,
- Hawaiian woods are considered superior for crafts, instruments, furniture, decorative trims.

Here within lies the center of the problem – almost every end user cited cost of Local and Hawaiian-grown woods as the limiting factor for non-utilization. Others cited wood product superiority and a need for tax incentives or usage credits to promote more wood usage of Local and Hawaiian-grown woods despite pricing. Some survey responders indicate limited supply means higher prices – “higher demand, low supply”; yet every mill our firm visited had ample inventory of Local and Hawaiian-grown woods. Again, there needs to be a way to overcome the “perception” issue – clear identification of supply, potential uses, superiority, and an outline of suitable task users.

Lastly, for example, from a paper titled – Wood Utilization – Past and Future, we have this comment:

“Wood residuals by definition are what is left after valuable products have been removed by harvesting or manufacturing processes. It has been called slash, un-merchantable stem and branch wood, cull logs, foliage, and roots by the logger, and slabs, edgings, chips, sawdust, bark, and hogfuel by the mill manager. By its nature it has been viewed more as a problem to be dealt with than as an opportunity to be exploited” (Corrick, 1981).

In the survey, there are constant references to under-utilization. Scott Loomer’s lament for disposal of trim woods from truss making – suitable for mulch or packing materials if shredded, our firm’s desire to see Hawaiian softwoods used for shredded erosion control fibers for erosion blankets and related products – items currently imported from Sri Lanka and India or bowl makers’ lament for roots and stumps left in the ground after tree harvesting for those sought base woods for bowl turning. There are markets missed, markets underutilized, markets mis-understood. This survey should be considered an eye-opener, because the responders while differing from comments showed that superiority versus lack of performance for the task needs to be more clearly defined, which brings us to our next observation – certification.

4. Certification

This is an excerpt from a PowerPoint from the Alaskan Forest Service (Maisch, 2006)



What Are The Potential Products And Markets For These Species?

Hardwood Lumber
Veneer
Engineer Wood Products
Chip Based Products, MDF, OSB, Pulp etc.
Specialty Products
Wood Energy, Heat and/or Electrical Generation

It is clear from the surveys and from the excerpt above that almost every traditional use of wood requires certifications. Our firm is not aware of any mechanism how Hawaii State Government can overcome this obstacle. No certification labs for structural strength, termite resistance, herbicide penetration, material data sheet standards, or building code compliance for Hawaiian woods exist; nor could be expected to be created for any reasonable cost. Price alone of woods like koa, or milo defies the justification for certification of Hawaiian woods for structurally certified lumber. And Local and Hawaiian-grown woods often cannot meet standards needed, such as utility poles where standard demand seven (7) clear run of wood free of knots, structural strength, density studies, and correct herbicide penetration. No Local and Hawaiian-grown woods can meet those standards. The pulp industry has standards, chip based products has standards, biomass usage has some standards; and there is no current or planned certification processes for those uses. It makes some of the survey responders correct that the usage of Local and Hawaiian-grown woods is limited to crafts and/or furniture making. But it also misses the result that the woods can go into niche industries such as the erosion control industry, biomass or pulp generation.

5. Sustainability

The remaining issue that DOFAW can overcome both as an opportunity and challenge resistance is addressing the sustainability issue. Many current users of Local and Hawaiian-grown woods cite how being “green” or insuring that woods come from sustainable sources is important. DOFAW could insure that all harvests of Local and Hawaiian-grown woods are sustainable. At Turtle Bay Resort, management plants 100 milo seeding for every dead or diseased milo tree harvested in future impact zones. The seedlings are planted in deeded conservation zones to insure protection. Hagadone

WOOD UTILIZATION STUDY



Printing cited the Legacy hardwoods firm on the Big Island which plants trees in a sustainable forest equal to the amount of paper extracted from a tree.

It is apparent that a Forest Products Coordinator could work with harvesters, mills, farms, landowners, and more to develop a FSC classification and work on the perception issue. Structural certification would be difficult, but a Sustainability classification is reachable and should be pursued.

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Works Cited

Corrick, E. (1981). Wood utilization - past and present.

CTAHR. (2000, June). Some woods of Hawaii. Honolulu, HI, USA.

Maisch, J. (2006). Hardwood Mangement and Utilization. Wasilla, Alaska.

Strategy, H. A. (2010). 206.

USDA. (2011). Wood Utilization Study. CSREES.