



## **2012 Koa Symposium ‘Growing Koa in Hawai’i Nei’, November 16<sup>th</sup> & 17<sup>th</sup> Volcanoes National Park, HI: Koa Grower & Land Manager Survey Results.**

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The Hawaii Forest Industry Association (HFIA) sponsored and organized the 2012 Koa Symposium ‘Growing Koa in Hawai’i Nei’, which took place on November 16<sup>th</sup> and 17<sup>th</sup>, 2012 on Hawai’i Island. The intended audience of the symposium was farmers, land managers, community groups, educators, government agencies, students and the general public. Leading experts presented the latest koa research, management strategies, and local case studies on November 16<sup>th</sup> in the Ohia Room at Kilauea Military Camp (KMC) in Volcanoes National Park. Over 100 people attended the 2012 Koa Symposium, which included 16 guest speakers including keynote Dr. Charles Michler, Director of the Hardwood Tree Improvement and Regeneration Center (HTIRC). A field trip with 40 participants to Keauhou Ranch, Kā’u took place on November 17<sup>th</sup> and included site visits to: a 1987 koa thinning trial; a 1978 koa stand crop tree thinning; a 7 year and younger koa plantation; a spacing trial; and a 3 to 6 year old koa plantation.

A main goal of the Koa Symposium was to create a baseline of who is currently growing koa and how many acres are being managed. Julie Gaertner, a UH-Hilo graduate student conducted surveys and reported the results at the 2012 Koa Symposium. The 2012 Koa Grower and Land Manager Survey was created for Hawaii Forest Industry Association by Nick Koch, Mike Robinson and Julie Gaertner. At the time of the Symposium, 26 completed surveys were analyzed and reported. Since the Koa Symposium, an additional 11 surveys were completed and the results from these 37 completed surveys are included in this report. During the Symposium, there was a workshop with a large topographic map of Hawaii Island encouraging participants to identify areas on the map where they were currently growing or managing koa trees. These areas were marked identifying acreage and elevation. These data collected during the workshop were then added to the 2005 State of Hawaii GIS GAP Analysis Project data (fig. 1, table 1.) which includes *Acacia koa* dominant forest types to create an updated geographical information system (GIS) map of all current koa grower and land manager data as of 2012. Total acres reported from workshop were 30,517 acres (fig. 2).

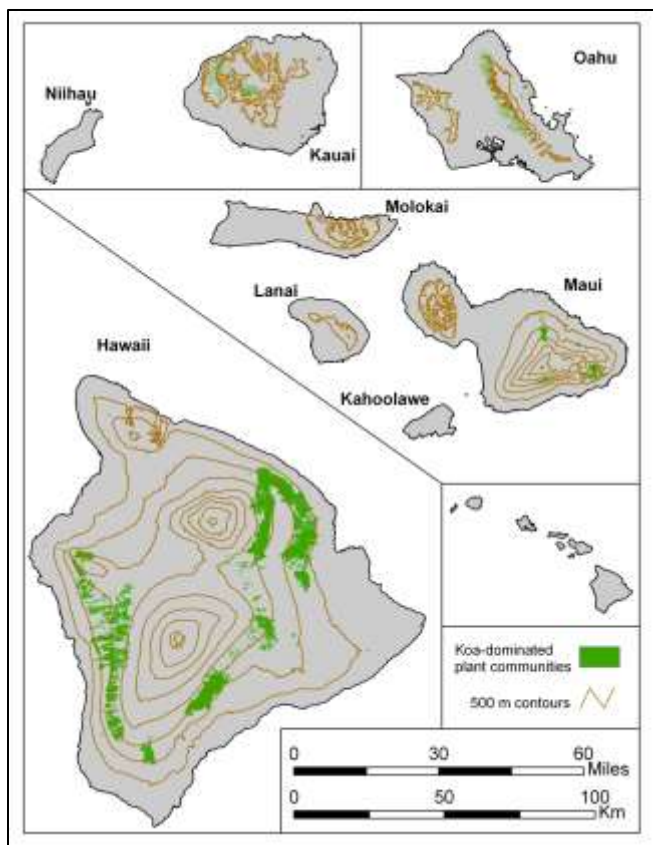


Figure 1. Distribution of *Acacia koa* across the Hawaiian Islands. Map compiled from Gon 2006 and Jacobi 1990. Figure 1. and Table 1. taken from: Baker, P. J.; Scowcroft P. G.; Ewel J. J. 2009. *Koa (Acacia koa) Ecology and Silviculture*. Gen. Tech. Rep. PSW-GTR-211. Albany, CA: USDA, Forest Service, Pacific Southwest Research Station 129 p.

Table 1. Total forested area and koa-associated forest across the Hawaiian Islands.

	Acres				
	<u>Total Land</u>	<u>Total Forest</u>	<u>Koa Forest</u>	<u>% Forest</u>	<u>% Koa</u>
<b>Hawaii</b>	2,498,979	776,125	<b>195,000</b>	<b>31</b>	<b>25</b>
<b>Maui</b>	468,262	196,584	<b>8,990</b>	<b>42</b>	<b>5</b>
<b>Oahu</b>	384,335	165,996	<b>7,104</b>	<b>43</b>	<b>4</b>
<b>Kauai</b>	356,019	175,287	<b>5,916</b>	<b>49</b>	<b>3</b>
<b>Molokai</b>	166,453	59,557	<b>0</b>	<b>36</b>	<b>0</b>
<b>Totals</b>	<b>3,874,048</b>	<b>1,373,549</b>	<b>217,010</b>	<b>35</b>	<b>16</b>

Data Source: State of Hawaii GAP Analysis Project. GAP data produced in 2005. Gon 2006.

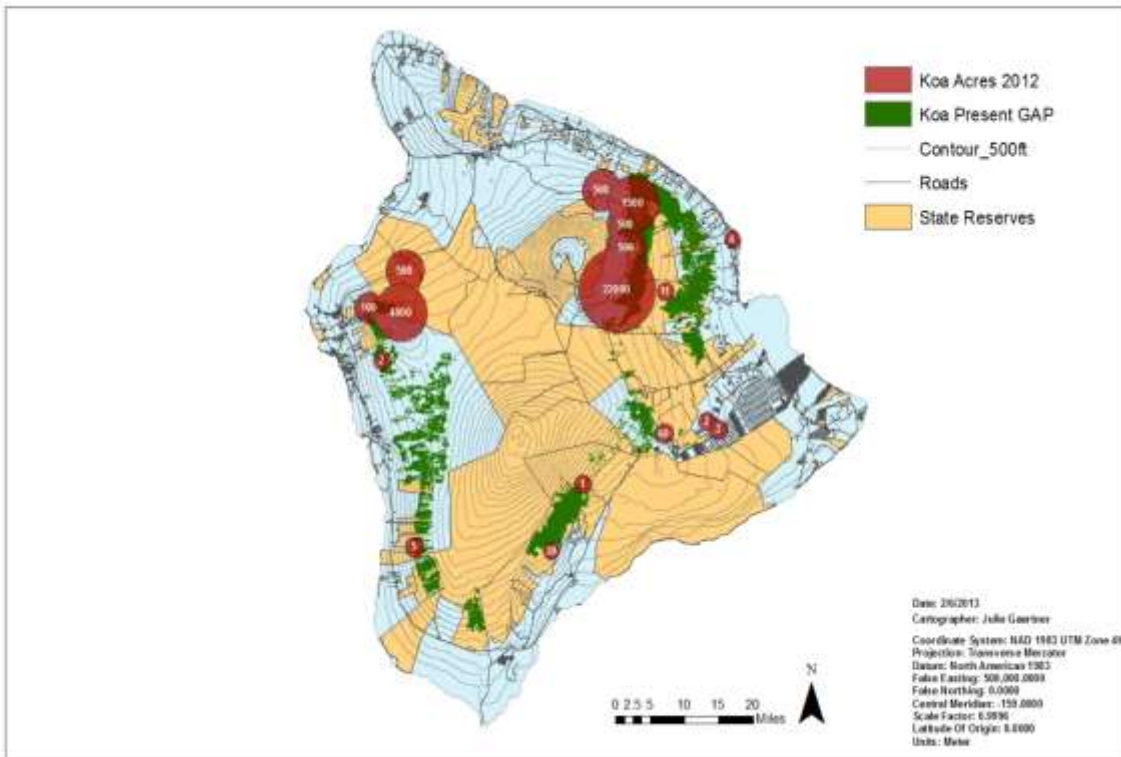


Figure 2. Red circles represent approximately 30,517 acres of koa grower and land manager data collected during the 2012 Koa Symposium workshop. These data were added to the 2005 State of Hawaii GAP Project data, which includes *Acacia koa* forest types and Hawaii State managed lands to create an updated GIS map of koa grower and land manager data as of 2012.

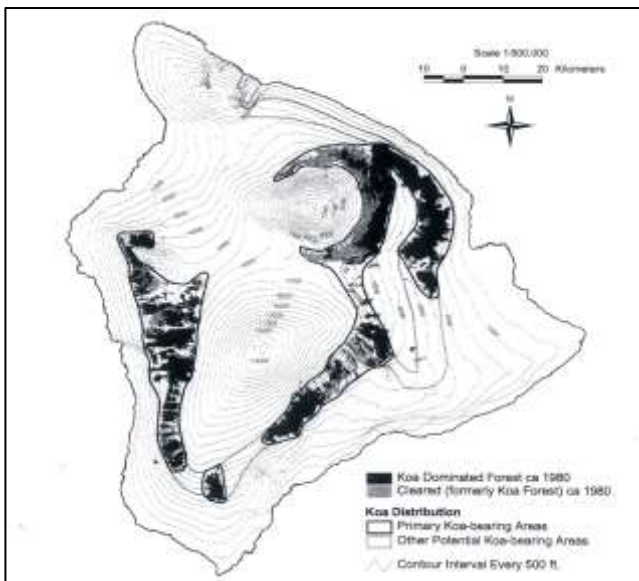


Figure 3. Current, former, and potential distribution of *Acacia koa* on Hawaii. Map courtesy of Dwight Matsuwaki. Image from: *Koa (Acacia koa) Ecology and Silviculture*. 2009.

## 2012 Koa Grower & Land Manager Survey Results

Survey Monkey was used to collect the following data. Every effort was made to include all known land managers and koa growers, but this is not a complete inventory of all koa across all Hawaiian Islands. Only active growers or land managers were allowed to complete the survey. The State of Hawaii 2005 GAP Analysis Project provides the most comprehensive baseline of known koa-dominated forests across all islands (fig.1). The total acreage for koa forest for Hawai'i Island is 195,000 acres; Maui is 8,990 acres; O'ahu is 7,104 acres; and Kaua'i is 5,916 acres (see table 1). Data from survey monkey was input into Microsoft Word and pie charts were created to display the data. 37 completed surveys are included in this report. The raw data will be included as an attachment.

### 1. What are your goals for growing Koa (circle all that apply)?

- a. Timber investment
- b. Wildlife habitat
- c. Water quality / stream bank reforestation
- d. Land beautification
- e. It's the right thing to do
- f. Other: **Seed production, native plant restoration, cultural significance, erosion control, regeneration on residential lots, watershed conservation, foundation species for mixed-mesic and cloud forest ecosystems, bird habitat, propagation methods, and hybrid testing and investment.**

**Goals for Growing Koa**



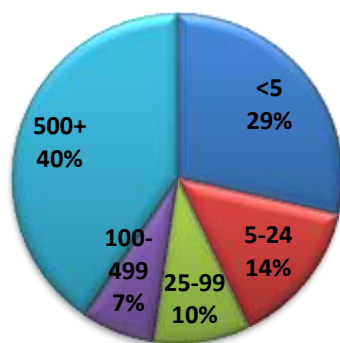
Figure 4. Pie chart representing goals for growing koa from 2012 Koa Survey.

2. How many acres are you growing (check one), and at what elevation? (check all that apply)

<5 acres;  5-24 acres;  25-99 acres;  100-499 acres;  500+ acres

<2,000 ft;  2001-4,000 ft;  4,001-6,000 ft;  >6,000 ft

**Hawai'i Acres**



**Hawaii Elevation (ft)**

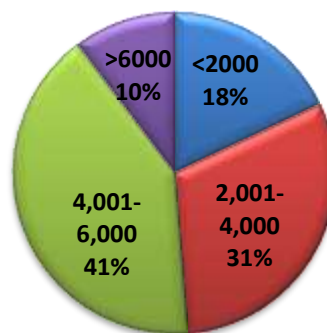
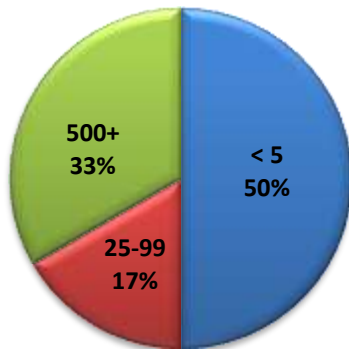


Figure 5. Pie chart representing 37 responses for Hawaii Island acres and elevation from 2012 Koa Survey.

Table 2. Number of responses and koa acres from 2012 Koa Survey across all islands						
	<5	5-24	25-99	100-499	500+	Total Acres
<b>Mean</b>	(2.5)	(14.5)	(62)	(299.5)	(500)	
<b># Responses</b>	<b>12</b>	<b>6</b>	<b>4</b>	<b>3</b>	<b>17</b>	
<b>Hawai'i Acres</b>	30	87	248	898.5	8500	<b>9,764</b>
<b># Responses</b>	3	0	1	0	2	
<b>Maui Acres</b>	7.5	0	62	0	1000	<b>1,070</b>
<b># Responses</b>	1	0	0	0	2	
<b>O'ahu Acres</b>	2.5	0	0	0	1000	<b>1,003</b>
<b># Responses</b>	1	0	0	0	1	
<b>Kaua'i Acres</b>	2.5	0	0	0	500	<b>503</b>
<b># Responses</b>	0	0	0	0	1	
<b>Moloka'i Acres</b>	0	0	0	0	500	<b>500</b>
				<b>Total Acres</b>		<b>12,838</b>

**Maui Acres**



**Maui Elevation (ft)**

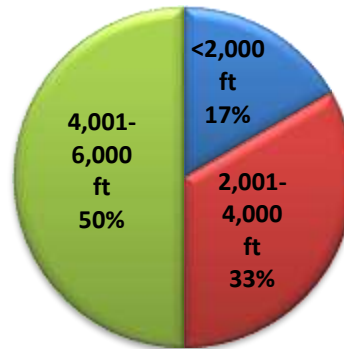
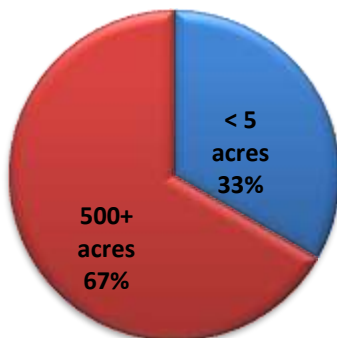


Figure 6. Pie chart representing 6 survey responses for Maui acres and elevation from 2012 Koa Survey.

	<u>Total Land</u>	<u>Total Forest</u>	<u>Koa Forest</u>	<u>% Forest</u>	<u>% Koa</u>
<b>Maui</b>	468,262	196,584	8,990	<b>42</b>	<b>5</b>

Data Source: State of Hawaii GAP Analysis Project. GAP data produced in 2005.

**O'ahu Acres**



**O'ahu Elevation (ft)**

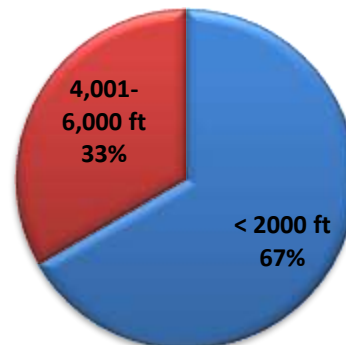


Figure 7. Pie chart representing 3 responses for O'ahu acres and elevation from 2012 Koa Survey.

	<u>Total Land</u>	<u>Total Forest</u>	<u>Koa Forest</u>	<u>% Forest</u>	<u>% Koa</u>
<b>Oahu</b>	384,335	165,996	7,104	<b>43</b>	<b>4</b>

Data Source: State of Hawaii GAP Analysis Project. GAP data produced in 2005.

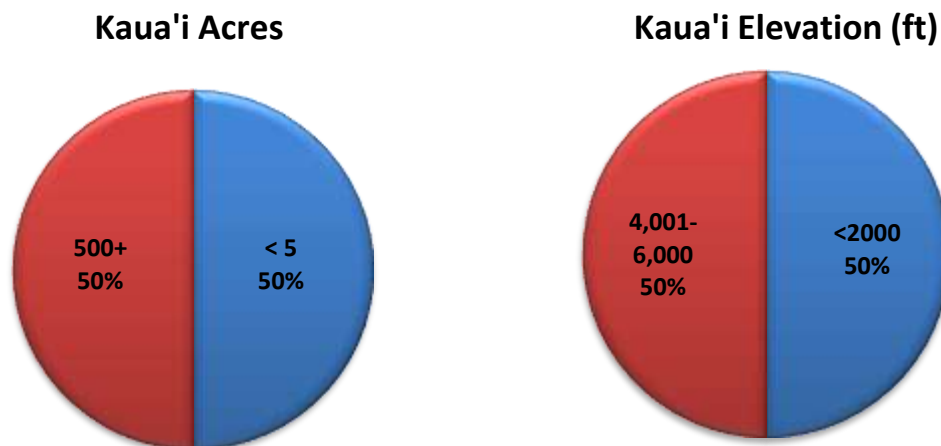


Figure 8. Pie chart representing 2 responses for Kauai acres and elevation from 2012 Koa Survey.

	<u>Total Land</u>	<u>Total Forest</u>	<u>Koa Forest</u>	<u>% Forest</u>	<u>% Koa</u>
<b>Kauai</b>	356,019	175,287	5,916	<b>49</b>	<b>3</b>

Data Source: State of Hawaii GAP Analysis Project. GAP data produced in 2005.

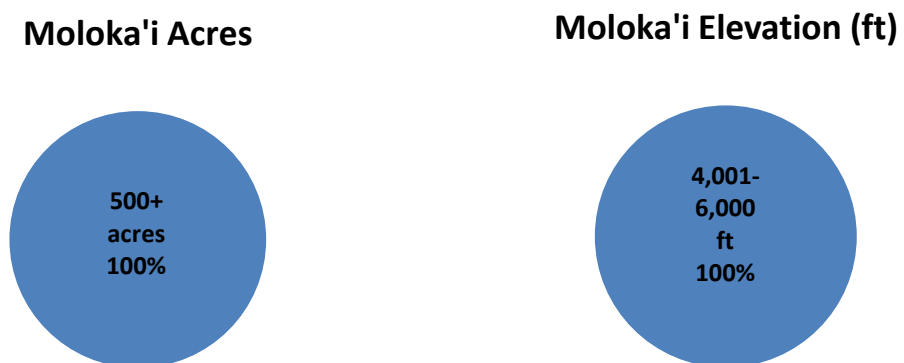


Figure 9. Pie chart representing 1 response for Molokai acres and elevation from 2012 Koa Survey.

	<u>Total Land</u>	<u>Total Forest</u>	<u>Koa Forest</u>	<u>% Forest</u>	<u>% Koa</u>
<b>Molokai</b>	166,453	59,557	0	<b>36</b>	<b>0</b>

Data Source: State of Hawaii GAP Analysis Project. GAP data produced in 2005.



3. Did you plant your koa or allow it to regenerate naturally?

planted;  natural regeneration;  both

### Planted or Natural Regeneration ?

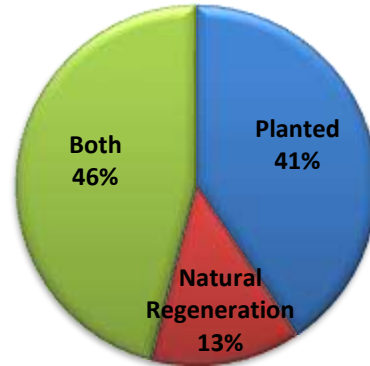


Figure 10. Pie chart representing whether koa was planted or naturally regenerated from 2012 Koa Survey.

4. How did you get your koa seedlings – e.g. seed source? (circle all that apply)

- a. Picked seeds myself
- b. Friend(s) gave them to me
- c. Purchased seedlings
- d. Purchased seed
- e. Does not apply – used scarification
- f. Other: **Natural regeneration, volunteers, Mauna Kea, refuge staff provided seed.**

### Seed Source



Figure 11. Pie chart representing various koa seed sources from 2012 Koa Survey.



5. What is being done to enhance your koa beyond the establishment phase? (circle all that apply)
- a. Fertilize
  - b. Pruning / shaping
  - c. Manual weed control (including weed mats)
  - d. Chemical weed control
  - e. None of the above

### Koa Enhancement

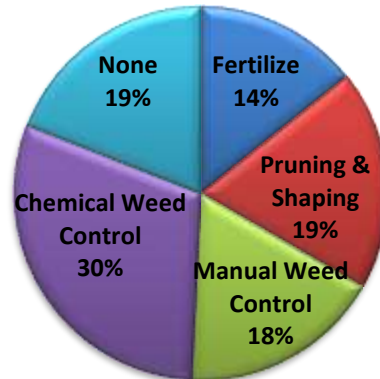


Figure 12. Pie chart representing what is being done beyond the establishment phase from 2012 Koa Survey.

6. How long have you been planting koa trees?

### Years Growing Koa

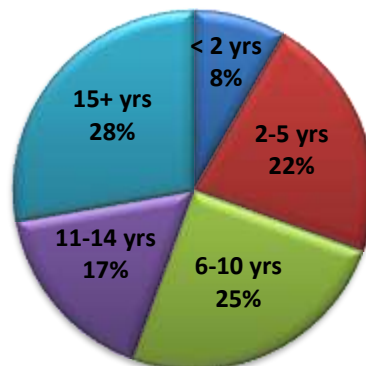


Figure 13. Pie chart representing years spent growing koa from 2012 Koa Survey.

7. Is it easy to get seeds/seedlings and technical assistance for your project?  YES  NO

### Easy to get seedlings/technical assistance

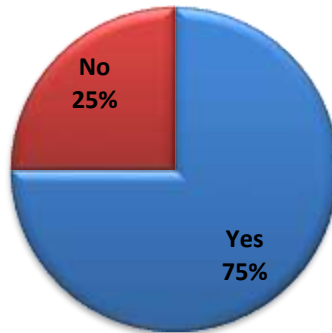


Figure 14. Pie chart representing accessibility of seedlings and technical assistance from 2012 Koa Survey.

8. What are your constraints/limitations of growing koa? (circle all that apply)

- a. Seed supply
- b. Overall cost
- c. Unknown outcome
- d. Legal questions
- e. Diseases

Other: **Difficulty collecting seed from canopy, endangered species safe harbor, Pests (moth, black twig borer), Drought conditions, Lack of genetic and BMP research, Time & distance, Lack of political support for koa, restoration in State Forest Reserves.**

### Constraints

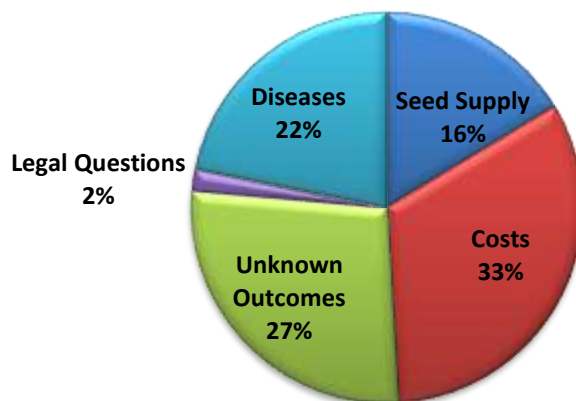


Figure 15. Pie chart representing constraints in growing koa from 2012 Koa Survey.

9. Do you market/sell your koa wood or wood products?  YES  NO

### Market Wood Products

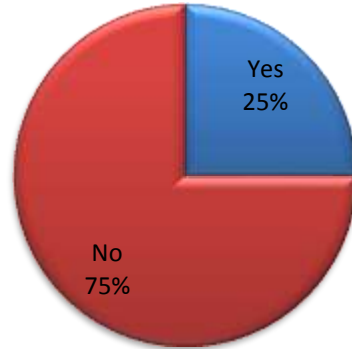


Figure 16. Pie chart representing percentage of people marketing wood products from 2012 Koa Survey.

### Acknowledgments

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