

Little Fire Ant  
*Wasmannia auropunctata*

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Its Presence on Kauai



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Administered by the Research Corporation of the University of Hawaii (RCUH)  
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William Null  
Pest Survey and Response Technician  
Keren Gundersen  
Project Manager  
Kauai Invasive Species Committee  
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## INTRODUCTION

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The little fire ant, *Wasmannia auropunctata* (hereafter referred to as LFA) has been determined an invasive pest not only on Kauai but in many of the places it occurs. It is believed to be native in the Neotropical lowland forests, and has been recorded as far south as subtropical Argentina and as far north as subtropical Mexico as well as the insular Caribbean. Exotic populations have been reported from West Africa, the Atlantic islands of the Bahamas and Bermuda, Florida, and the Pacific islands of Melanesia, Polynesia and the Galapagos.

LFA has been called other names but it received this moniker because of its very small 1/16 inch (1.5 mm) size and its long lasting fire-like burning sting; a sting that is far out of proportion to its minute size. It is an agricultural pest in that it not only bothers orchard workers but also nurtures populations of Homoptera (sucking) insects that cause damage to economic plants. They also are known to have negative impacts on many animals including vertebrates and invertebrates. House cats *Felis catus* along with their larger wild relatives in Gabon have developed corneal clouding and blindness from the effects of LFA (S. Joe, pers. comm.). Walsh *et al.* (2004) documented corneal scarring on a leopard *Panthera pardus* in Gabon, and reported that vertebrate eyes are particularly vulnerable to LFA stings. Wetterer and Porter (2003) reported that researchers have found where LFA exists, populations of many insects including beetles, flies, and other ants were reduced. Their invasiveness, therefore, comes from having generalist feeding and nesting habits that allows them to invade new areas and succeed. They are not a subterranean species but nest most anywhere it is convenient at or above the surface. These nests can be under fallen leaves, branches, rocks, and in the crotches of trees. Also, unlike most other ant colonies with only one queen, colonies of LFA have multiple queens. Should a fragmented transported colony have at least one queen, it can establish a new population at its new destination.

Just when LFA became established in Florida is uncertain but Wetterer and Porter (2003) cite a paper by Wheeler (1929) who reported that the earliest record were specimens collected from Coconut Grove, near Miami in 1924. Counting the work of several other researchers, Wetterer and Sanford (*idem*) reported that by year 2002, LFA was known to occur in 28 counties that constitute most of the southern three-fourths of peninsular Florida. In Hawaii, plant quarantine inspectors have reported it being intercepted as far back as the early 1930s (*ibid* and Sewezy, 1945). But it was not until March of 1999 that LFA was reported to HDOA (HDOA, 1999). It is believed that the ant may have been on the Big Island for at least six years. During a Biological Survey in 2000, LFA established in Hawaiian Paradise Park south of Hilo on the Island of Hawaii was confirmed (Bishop Museum Press, 2000). It is assumed that the population arrived there on plant material from an unknown origin (i.e. southern Florida, New Caledonia, Tahiti, Solomon isles, etc.).

Sometime later in 1999 a container of ornamental plants (assorted palms and fruit trees) was shipped to Kauai for landscaping a private estate. When it was learned that the container had some palms from an infested Big Island nursery, personnel

from HDOA conducted a survey of the property on October 6, 1999. The survey resulted in documenting the presence of LFA on Kauai. On October 14, 1999, personnel from both HDOA and the Hawaii Department of Health's Vector Control Branch on Kauai initiated an eradication project by applying the proprietary pesticide Amdro at the infested site (Anonymous, 1999 and Sommer 1999). The HDOA's Annual Report for Fiscal Year 2000 reported that a 100 square foot infestation was eradicated after treating the entire 20-acre site (HDOA, 2001).

Subsequent to the 1999 discovery and treatment of LFA, HDOA and Kauai Invasive Species Committee (KISC) personnel returned to the site on September 22, 2003 to resurvey the area previously infested. This survey reconfirmed the presence of LFA and, when performing surveys beyond the initial infestation during the first week of October, 2003, it was found that the population of LFA had spread to an adjacent property. Because of inclement weather, treatment was not done until February 3, 2004 when 10.25 pounds of Amdro were applied to about five acres on both residential properties. Since then, biannual surveys have been conducted with the latest occurring on May 31, 2006. Following each survey, the area is treated with Amdro. Although unsure about complete eradication of LFA at this site, and because it has not spread beyond the treated area of 2004, it is believed that the population is contained and thus controlled from further spreading. Eradication has proven to be difficult due to the difficulty in determining if population density has reached undetectable levels (as in 1999) or complete eradication has been achieved.

Because of its noxious and invasive characteristics, plus preying on the larvae of insects on which the depauperate avifauna of Kauai feed, LFA has become a target species for control and eradication by the Kauai Invasive Species Committee (KISC), assisting the Hawaii Department of Agriculture (HDOA).

## METHODOLOGY/PROTOCOL

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LFA is only known to have arrived on Kauai via plant material from Big Island nurseries. Therefore, their targeting by KISC was to contact all nurseries on Kauai to ascertain whether or not any of their plants had been purchased from nurseries within the infested area of the Big Island. Every known nursery on Kauai was visited by the Pest Survey and Response Technician who introduced himself, presented the LFA problem along with an Insect Pest Alert flyer (Appendix 1), sought the whereabouts of their plants and, if Big Island plants had been purchased, requested permission to survey their nursery at a future date. In addition to nurseries, hotels, resorts, golf courses, and new developments were also approached to learn the origin of plants used for landscaping their grounds. Several of these entities have plant holding areas where they are maintained either for decorative purposes or future landscaping. Island landscapers were similarly contacted to learn whether or not they purchase plants from the Big Island to have shipped directly to projects. Green waste is another potential source for harboring LFA, so each of the county's

transfer stations and landfill were surveyed along with four areas belonging to three private enterprises (Appendix 2).



Various baits can be used to attract ants, and it has been demonstrated that luncheon meat and any premixed smooth peanut butter work well for LFA. The HDOA use bits of Spam placed in small clear plastic vials which can be quickly capped, frozen, and sent away for identification. KISC, however, employs the use of peanut butter spread lightly on chop sticks. The chop sticks are cut in half (to about four inches in length) and painted with florescent orange so they can easily be seen.

The protocol is to place baited chop sticks at intervals of ten to 15 feet at the base of plants when rooted in soil. If they are potted in containers that are sitting on plastic or canvas sheeting, the sticks are placed in the container. If the containers are sitting on bare soil or cinders, the sticks are placed at the base of the containers. Inasmuch as LFA has been known to nest above ground, in the crotches of trees and the bases of palm fronds, additional sticks are placed accordingly whenever such plants appear. The minimal time interval between placing the baited sticks and returning to inspect them is one hour with one and one-half hours being better.



Should LFA be encountered, the point is flagged, located with a GPS Receiver, and reported to the property owner as well as HDOA. A more thorough inspection would then be conducted around the point to determine the extent of the infestation. After notifying the owner/person-in-charge of the affected area and showing its location, instructions on treatment are given along with the notification of a forthcoming inspection.

## DATA MANAGEMENT

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All field data, including GPS Points, has been entered into an Access Data Base. This data can then be linked to an ArcGIS information system to generate maps. Appendix 3 has an example of such a map showing surveyed portions of an infested property. This system also provides spatial information so that acreage can be obtained for each surveyed site.

When surveying with HDOA at Kauai's one infestation site, detailed data is recorded into a log (Appendix 4), entered into Access and ArcGIS, and submitted with any questionable specimens to HDOA in Honolulu.

## OUTREACH

Educating the public and raising awareness played an integral part of the island-wide survey. Hours spent at fairs, developing outreach products, and giving presentations were all part of the survey.

Many other outreach products have been developed for *Wasmannia auropunctata* for the State of Hawaii and several that are Kauai Specific. As mentioned earlier, the University of Hawaii College of Tropical Agriculture and Human Resources (CTAHR) developed a Pest Alert (Appendix 1) that was specific to Kauai that not only aids in the identification of LFA, but also shows the location of the one known infestation site and lists contact numbers of local entities on Kauai to report sightings. This flyer was also made into a laminated 2 ½' x 4' poster that is displayed at fairs and community gatherings island-wide. This product has been the most utilized outreach product as it was handed out throughout the course of the island-wide survey as well as at every public event that KISC takes part in.

For a Science Fair held in Kilauea, March of 2005, an "Inspection Kit" was put together to use as a tool for surveying private properties. These kits were demonstrated first-hand at the fair and "surveys" were performed at the site. This tool served as a "talking point" for fair-goers and approximately 50 kits were handed out to the public. No reports of LFA followed this event. Stickers were also available for interested youngsters.



Table 1: Outreach Efforts and Events

| Event                              | Pest Alert | Inspection Kit | Certificate | Stickers | Present-ation | Coloring Sheet | Display |
|------------------------------------|------------|----------------|-------------|----------|---------------|----------------|---------|
| Banana Poka Roundup                | X          |                |             | X        |               | X              | X       |
| Garden Fair                        | X          | X              |             | X        | X             | X              | X       |
| Kauai County Fair                  | X          | X              |             | X        | X             | X              | X       |
| Kauai Farm Bureau Meeting          | X          |                |             |          | X             |                |         |
| Kauai Landscaping Industry Council | X          |                |             |          | X             |                |         |
| Kawamura Farm Expo                 | X          | X              |             | X        |               | X              | X       |
| KCC Library                        | X          |                |             |          |               |                | X       |
| Kilauea Science Fair               | X          | X              |             | X        |               | X              | X       |
| KISC Quarterly Meetings            | X          |                |             |          | X             |                |         |
| Landscapers                        | X          |                | X           |          |               |                |         |
| Nurseries                          | X          |                | X           |          |               |                |         |
| Ocean Fest                         | X          |                |             | X        |               | X              | X       |
| Princeville Library                | x          |                |             |          | X             |                | X       |
| Resorts                            | X          |                | X           |          |               |                |         |
| Rotary Club                        | X          |                |             | X        | X             |                |         |
| Sierra Club                        | X          |                |             |          | X             |                |         |

|                           |   |  |  |  |   |  |   |
|---------------------------|---|--|--|--|---|--|---|
| SuperFerry Advisory Board | X |  |  |  | X |  |   |
| Waimea Library            | X |  |  |  |   |  | X |

To reach a younger target audience at fairs, a coloring book was designed including a page about LFA with simple facts (Appendix 5). All of these outreach products remain an integral part of KISC's Outreach program and are currently being used at various events.

## RESULTS

Beginning in September, 2004 through the end of June, 2005 six nurseries were surveyed by former KISC personnel. Eight months later, beginning in late February, 2006 and using a database of nurseries established by the former KISC Pest Survey and Response Technician, the present technician began nursery visitations as well as hotels, resorts, and golf courses. Due to the very wet month of March and early April, surveys did not begin until April 11, 2006. As of June 27, 2006 every island nursery that had purchased plants from the Big Island within the last ten years has been surveyed and/or inspected as well as retail outlets which sell potted plants, hotel/resorts which have plant holding areas, green waste areas of the four county transfer stations, the Kekaha Land Fill, and green waste areas of three private enterprises (Table 2).

Table 2: Nurseries, plant holding areas, green waste sites, which were surveyed in 2006.

| Nurseries                       | Site Location            | City        | LFA Present |
|---------------------------------|--------------------------|-------------|-------------|
| De Mello Pond Nursery           | Off Ehiku Road           | Lihue       | No          |
| Growing Greens Nursery          | 6660B Kawaihau Road      | Kapa'a      | No          |
| Hawaiian Paradise Flowers       | 4574 Kahilihoholo Road   | Kilauea     | No          |
| Kalama Gardens Plant Nursery    | 6510 Kalama Road         | Kapa'a      | No          |
| Kauai Neem                      | 4300 Hokualele Road      | Anahola     | No          |
| Kauai Nursery & Landscaping     | 3-1550 Kaunualii Highway | Puhi        | No          |
| Kauai Orchids                   | 4643C Waiakalua Road     | Kilauea     | No          |
| Kauai Seascapes Nursery Inc.    | 4741-A Kahilihoholo Road | Kilauea     | No          |
| K-mart Store's Garden Section   | Kukui Grove Mall         | Lihue       | No          |
| Nurseries                       | Site Location            | City        | LFA Present |
| Lawai Foliage & Contracting     | East end of Aka Road     | Lawai       | No          |
| Lawai Valley Nursery            | 4951 Kau Road            | Lawai       | No          |
| Martin Bryan Nursery            | Off Kapaka Road          | Princeville | No          |
| No ka oi Nursery                | South end of Kona Road   | Hanapepe    | No          |
| Pepperwood Plantation           | 4770 Kahilihoholo Road   | Kilauea     | No          |
| Seahouse Nursery                | Pu'u Pane Road           | Kilauea     | No          |
| Wailapa Farm & Tropical Nursery | Off Pu'u Pane Road       | Kilauea     | No          |
| Yamada's Nursery                | 5087-A Kawaihau Road     | Kapa'a      | No          |
| Plant Holding Areas             | Site Location            | City        | LFA Present |

|                               |                              |             |                    |
|-------------------------------|------------------------------|-------------|--------------------|
| Hyatt Regency                 | Po'ipu                       | Koloa       | No                 |
| Kiahuna Plantation Resort     | Po'ipu                       | Koloa       | No                 |
| Lawai Beach Resort            | Kukuiula                     | Koloa       | No                 |
| Marriot Kauai Resort          | Kalapaki Beach               | Lihue       | No                 |
| Princeville Makai Golf Course | Off Kapaka Road              | Princeville | No                 |
| <b>Green Waste Sites</b>      |                              | <b>City</b> | <b>LFA Present</b> |
| Hanapepe Transfer Station     | Salt Pond Road               | Hanapepe    | No                 |
| Hanalei Transfer Station      | Kuhio Highway                | Princeville | No                 |
| Heart & Soul Organics         | 6020 Koolau Road             | Moloka'a    | No                 |
| Kapa'a Transfer Station       | West end of Kahi Road        | Kapa'a      | No                 |
| Kauai Lagoons Golf Course     | Along Nimini Point Road      | Lihue       | No                 |
| Kauai Nursery & Landscaping   | East of Hyatt Regency Resort | Po'ipo      | No                 |
| Kekaha Landfill               | 6900D Kaumualii Hwy.         | Kekaha      | No                 |
| Lihue Transfer Station        | East Ahukini Road            | Lihue       | No                 |
| <b>Little Fire Ant Site</b>   |                              | <b>City</b> | <b>LFA Present</b> |
| Earhart & Stiller             | Off Kalihiwai Road 1         | Kilauea     | Yes                |

The total area surveyed for all of the entities in the above table amounted to 105.26 acres (see Table 4 in Appendix 2). To date, some six-plus years after being initially identified in the one Kalihiwai area (Earhart/Stiller Estates), LFA has not been encountered or reported anywhere else on Kauai.

## DISCUSSION

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Each of the nurseries in Table 2 has been issued a certification, by KISC (Appendix 6), that they are free of LFA. This certification will remain in effect until they purchase/import any plant material from nurseries on the east side of the Big Island. Should this happen, another survey and inspection will be required to be re-certified. (LFA has not yet been reported from the west or Kona side of the Big Island {P. Conant, pers. comm.}.)

Table 3 has a list of island nurseries that were visited and informed about LFA, but not surveyed during 2006 because they had either been certified free of LFA by HDOA and KISC at an earlier date or never imported any plant material from eastside Big Island nurseries.

Table 3: Nurseries not surveyed by KISC in 2006.

| <b>Nurseries</b>             | <b>City</b> | <b>Plants from Big Island</b> | <b>Date of Survey by</b> |
|------------------------------|-------------|-------------------------------|--------------------------|
| Alexander's Nursery          | Kapa'a      | Yes                           | KISC, 2005               |
| Anahola Homesteaders Council | Anahola     | No                            |                          |
| Boucher Orchids              | Koloa       | No                            |                          |
| Esona's Nursery              | Kapa'a      | No                            |                          |
| Family Flowers Farms         | Kapa'a      | Yes                           | HDOA, 2006               |



|                            |          |                  |            |
|----------------------------|----------|------------------|------------|
| Flowers Kauai              | Kilauea  | Yes              | KISC, 2005 |
| Flowers West Nursery, Inc. | Hanapepe | No               |            |
| Garden Ponds               | Kilauea  | No               |            |
| Grinpas Farm               | Lihu'e   | No               |            |
| Home Depot                 | Lihue    | Yes <sup>1</sup> |            |
| Javellana Farms            | Kilauea  | No               |            |
| Kalani Tropicals           | Kapa'a   | No               |            |
| Kauai Community College    | Lihue    | No               |            |
| Kauai Earthscapes          | Kapa'a   | No               |            |
| Kawaikini Farm Nursery     | Kapa'a   | No               |            |
| Kipapa Nursery             | Kapa'a   | No               |            |
| Koloa Plant Service        | Kapa'a   | No               |            |
| Kupono Farms               | Kapa'a   | No               |            |
| Lemn's Luau & Flowers      | Anahola  | Yes <sup>2</sup> |            |
| Orchid Alley               | Kapa'a   | No               |            |
| Permaculture Kauai Nursery | Moloa'a  | No               |            |
| Rowney Bamboo Nursery      | Kapa'a   | No               |            |
| Shimonishi Orchids         | Hanapepe | No               |            |
| Tropical Flowers Nursery   | Anahola  | No               |            |
| Wailua Plant Nursery       | Kapa'a   | No               |            |
| Waimea Plantation Cottages | Waimea   | Yes              | KISC, 2004 |

Four new developments are currently being constructed which will entail extensive landscaping. Three of the four have indicated they will contract local landscapers who are aware of LFA and its problems. The landscape designer for the fourth development is similarly aware of LFA, so there should not be any problems when these developments are completed. Another development has been permitted but presently waiting for financial matters to clear. It will likely begin construction in the near future. Two additional coastal resorts are proposed for east Kauai but have not yet been permitted. However, for assurance purposes when completed, KISC will request permission to conduct LFA surveys for each development.

## CONCLUSION

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Currently, surveys on the West side of the Island of Hawaii have determined that they are LFA-free (M. Walsh, pers. comm.). However, as East Hawaii becomes increasingly infested, the eventual spread of *Wasmannia* to Kona and then on to Kauai will be likely. Furthermore, with the above mentioned developments as well as the possibility of individuals procuring infested Big Island plants or even some plants coming in inadvertently via the impending Super Ferry, it appears that the Pest Survey and Response Technician will continue to have work for sometime in the future. By routinely scheduling re-surveys of high-risk sites importing from infested Big Island nurseries, and implementing an early detection and rapid

<sup>1</sup> The only Big Island purchases are from Westside nurseries considered to be free of LFA.

<sup>2</sup> The only Big Island purchases are bare-rooted orchids which are considered to be risk free.

response plan, Kaua`i can prevent establishment of *Wasmannia auropunctata*. KISC will also assist HDOA in quarterly surveys and treatments of Kaua`i's one infestation site in Kalihiwai to ensure complete eradication of LFA.

HDOA is presently working on disinfestations treatment procedures to limit inter-island, as well as intra-island transportation of this pest. Stopping movement of this invasive pest will be imperative in preventing establishment of this species State-wide and potentially saving agriculture from incurring future economic losses.

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- Wheeler, W.M. 1929. Two neotropical ants established in the United States. *Psyche*. 36:90-90.

### PERSONAL COMMUNICATIONS

- Stephanie Joe, while working in Gabon during July of 2005, reported seeing house cats with sclerotized corneas to the author. February 2006.
- Patrick Conant, Entomologist, HDOA, Island of Hawaii. March, 2006
- Merritt Walsh, Pest Survey and Response Technician, Big Island Invasive Species Committee, Kealahou, Island of Hawaii, September 2006.



**Cooperative Extension Service**  
College of Tropical Agriculture and Human Resources  
University of Hawaii at Manoa

*Insect Pests*  
May 2004  
IP-16



## Identifying the Little Fire Ant A New Invasive Species on Kaua'i

Hawai'i Ant Group; U.S. Fish and Wildlife Service; Hawai'i Department of Agriculture (HDOA), Plant Pest Control Branch; University of Hawai'i, Pacific Cooperative Studies Unit and Department of Plant and Environmental Protection Sciences, College of Tropical Agriculture and Human Resources; Kaua'i Invasive Species Committee (KISC)

We are in the process of eradicating an infestation of the **little fire ant (LFA)** in the Kalihiwai area of Kaua'i. We need the help of everyone on Kaua'i to report any ants they find that match this ant's description. *With your help, we can keep Kaua'i LFA-free.*

### Background

Since 1999 when it was first collected at Hawaiian Paradise Park in the Puna area on Hawai'i, over 30 LFA infestations have been found on the Big Island. Containment actions are being taken, but limited resources and personnel, and pesticide label use restrictions, have made it difficult to eradicate all the infestations there.

Beginning in 1999, HDOA has enforced quarantine regulations to prevent shipment of infested potted plants from the Big Island. However, at least one infestation at Kalihiwai on Kaua'i apparently was started from such a shipment before the quarantine, and there may be others that have yet to be reported. No infestations are known on any other islands in the state.

### Identification and distribution

Little fire ant's scientific name is *Wasmannia auropunctata* (Roger) (Hymenoptera: Formicidae).

- Little fire ants are tiny— $\frac{1}{16}$  inch long—pale orange, and slow moving.
- They are found in South America, the West Indies, warmer regions of Mexico, West Africa, Galapagos Islands, New Caledonia, and the Solomon Islands.
- In the USA, in addition to its presence in Hawai'i, the little fire ant is common in southern Florida.



- Its sting produces large, painful, raised, red welts.
- Irritation from the sting lasts several days, aching painfully at first and later itching intensely in spells.
- Although not quick to sting when handled, the LFA will do so if trapped beneath clothing.
- LFA may also sting animals (livestock, pets, wildlife).

### Not to be confused with the tropical fire ant

The tropical fire ant, *Solenopsis geminata*, is a stinging red ant common in Hawai'i.

- Tropical fire ants are 2–3 times longer than LFA:  $\frac{1}{8}$ – $\frac{1}{4}$  inch (3–6 mm).
- Tropical fire ants will have a few larger workers with large, square-shaped heads.
- LFA workers are all the same size, about as long as a penny is thick.

### Tropical fire ant ("red ant")



Little fire ant

## Help keep Kaua'i free of little fire ants!

**If you think you have LFA on your property on Kaua'i,** please call HDOA in Lihue at 274-3069. **Do not apply** any toxic baits or insecticides until HDOA or KISC personnel survey the infestation. They can advise you on how best to control or eradicate the ant infestation. Hydramethylnon-based granular ant bait has been successfully used to contain or eradicate some LFA infestations on the Big Island.

### Checking for presence of the little fire ant

**1.** Smear a very *thin* coat of peanut butter on one end of a wooden chopstick (which can be painted day-glo orange for ease of locating).



**2.** Place the chopstick with peanut butter in an area where you see ants, preferably in the shade, at the base of a tree, etc.; leave it out for about 1 hour.



In a pot



Near a shadehouse

**3.** Pick up the chopstick very carefully to avoid dislodging ants, and examine the ants on the peanut butter.

- Are they orange or red?
- Are they no bigger than  $\frac{1}{16}$  inch?

If you can answer Yes to *both* questions, then you *may* have little fire ants.



Put the chopstick with the ants into a zip-top bag. Write your name, location, and phone number on the bag. Place the bag into the freezer overnight to kill the ants.

**4.** Drop off or mail the ants for identification to: Hawai'i Dept. of Agriculture Plant Pest Control Branch (Attn: Craig Kaneshige) 4398A Pua Loke St. Lihue, HI 96766-1673 Phone number: 274-3069.



**5.** It is *very important* that you do not apply any toxic ant bait or spray at the site until the location is mapped and the ant is identified by HDOA. Doing so will suppress the ants and make it more difficult to map them before control efforts are started.



**For more information, please visit these websites:**

Hawai'i Department of Agriculture—<http://www.hawaiiag.org/hdoa/npa/npa99-02-lfireant.pdf>

Hawai'i Ant Group—<http://hbs.bishopmuseum.org/ants>

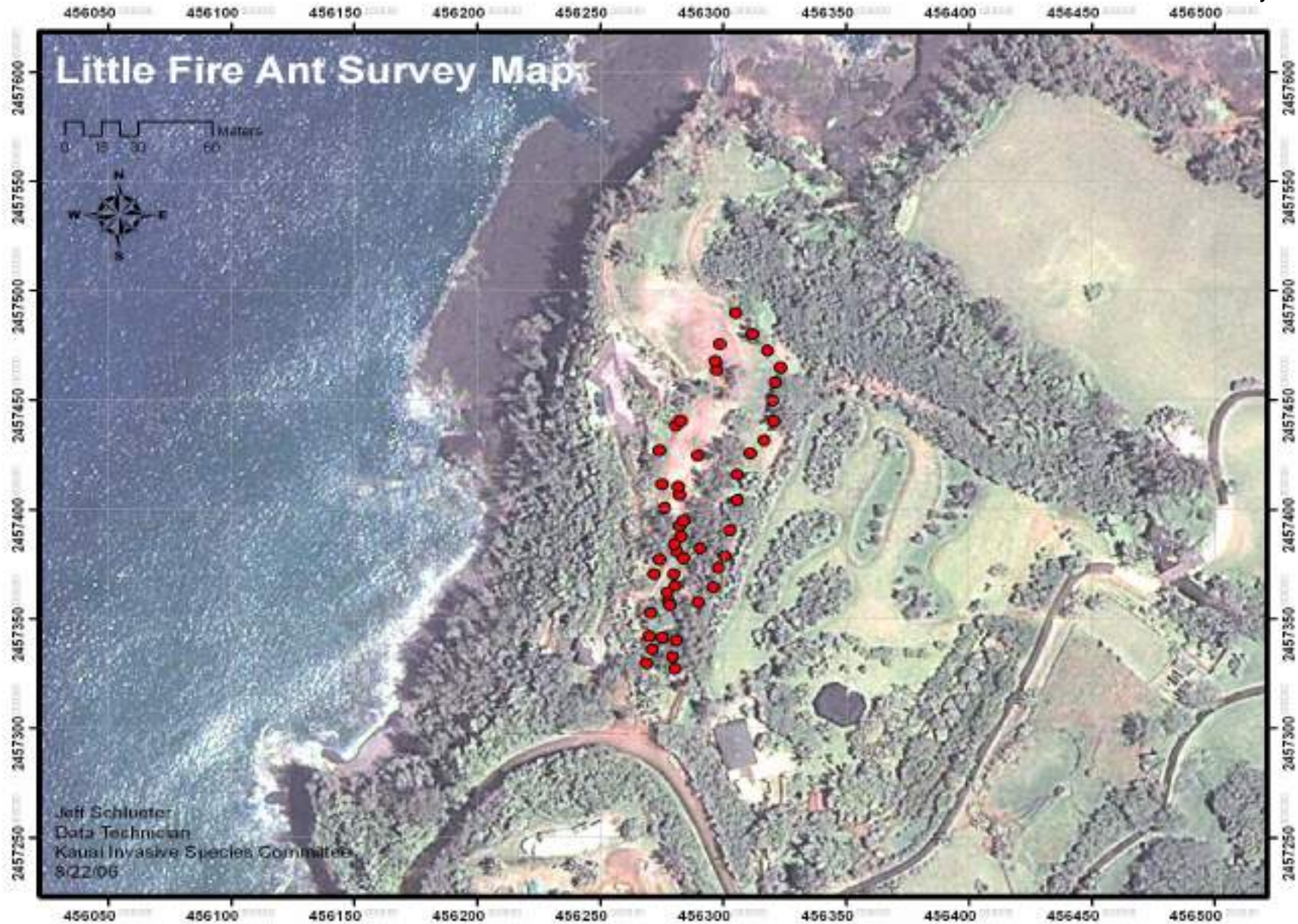
Kaua'i Invasive Species Committee—<http://www.hear.org/KISC/index.html>

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2: Table 4 - Entities surveyed with Date and Acres

Table 4: Area, in acres, of each nursery and other entities surveyed.

| Nurseries                       | City        | Surveyed     |        |
|---------------------------------|-------------|--------------|--------|
|                                 |             | Date         | Acres  |
| Coconut Coast P.S. Nursery      | Lihue       | 27/Jun/06    | 2.63   |
| De Mello Pond Nursery           | Lihue       | 27/Jun/06    | 3.37   |
| Growing Greens Nursery          | Kapa'a      | 06/Apr/06    | 1.09   |
| Hawaiian Paradise Flowers       | Kilauea     | 26/Apr/06    | 0.09   |
| Kalama Gardens Plant Nursery    | Kapa'a      | 14/Apr/06    | 0.39   |
| Kauai Neem                      | Anahola     | 26/Apr/06    | 0.89   |
| Kauai Nursery & Landscaping     | Puhi        | 24-30/May/06 | 45.97  |
| Kauai Orchids                   | Kilauea     | 28/Apr/06    | 0.36   |
| Kauai Seascapes Nursery Inc.    | Kilauea     | 18/Apr/06    | 4.00   |
| K-mart Store's Garden Section   | Lihue       | 24/Apr/06    | 0.07   |
| Lawai Foliage & Contracting     | Lawai       | 12/Apr/06    | 1.69   |
| Lawai Valley Nursery            | Lawai       | 25/Apr/06    | 0.78   |
| Martin Bryan Nursery            | Princeville | 18/May/06    | 5.60   |
| No ka oi Nursery                | Hanapepe    | 03/May/06    | 2.00   |
| Pepperwood Plantation           | Kilauea     | 08-09/Jun/06 | 13.23  |
| Seahouse Nursery                | Kilauea     | 17/May/06    | 2.14   |
| Wailapa Farm & Tropical Nursery | Kilauea     | 17/May/06    | 2.85   |
| Yamada's Nursery                | Kapa'a      | 15/May/06    | 0.17   |
| <b>Plant Holding Areas</b>      |             |              |        |
| Hyatt Regency                   | Koloa       | 02/May/06    | 0.09   |
| Kiahuna Plantation Resort       | Koloa       | 14/Jun/06    | 0.15   |
| Lawai Beach Resort              | Koloa       | 14/Jun/06    | 0.07   |
| Marriot Kauai Resort            | Lihue       | 06/Jun/06    | 0.27   |
| Princeville Makai Golf Course   | Princeville | 28/Apr/06    | 0.41   |
| <b>Green Waste Sites</b>        |             |              |        |
| Hanalei Transfer Station        | Princeville | 10/May/06    | 0.06   |
| Hanapepe Transfer Station       | Hanapepe    | 09/May/06    | 0.57   |
| Heart & Soul Organics           | Moloa"a     | 27/Jun/06    | 1.44   |
| Kapa'a Transfer Station         | Kapa'a      | 15/May/06    | 0.17   |
| Kauai Lagoons Golf Course       | Lihue       | 06/Jun/06    | 2.74   |
| Kauai Nursery & Landscaping     | Po'ipo      | 07/Jun/06    | 7.35   |
| Kekaha Landfill                 | Kekaha      | 09/May/06    | 0.77   |
| Lihue Transfer Station          | Lihue       | 24/May/06    | 0.05   |
| <b>Little Fire Ant Site</b>     |             |              |        |
| Earhart & Stiller               | Kilauea     | 31/May/06    | 3.79   |
| <b>Total</b>                    |             |              | 105.26 |



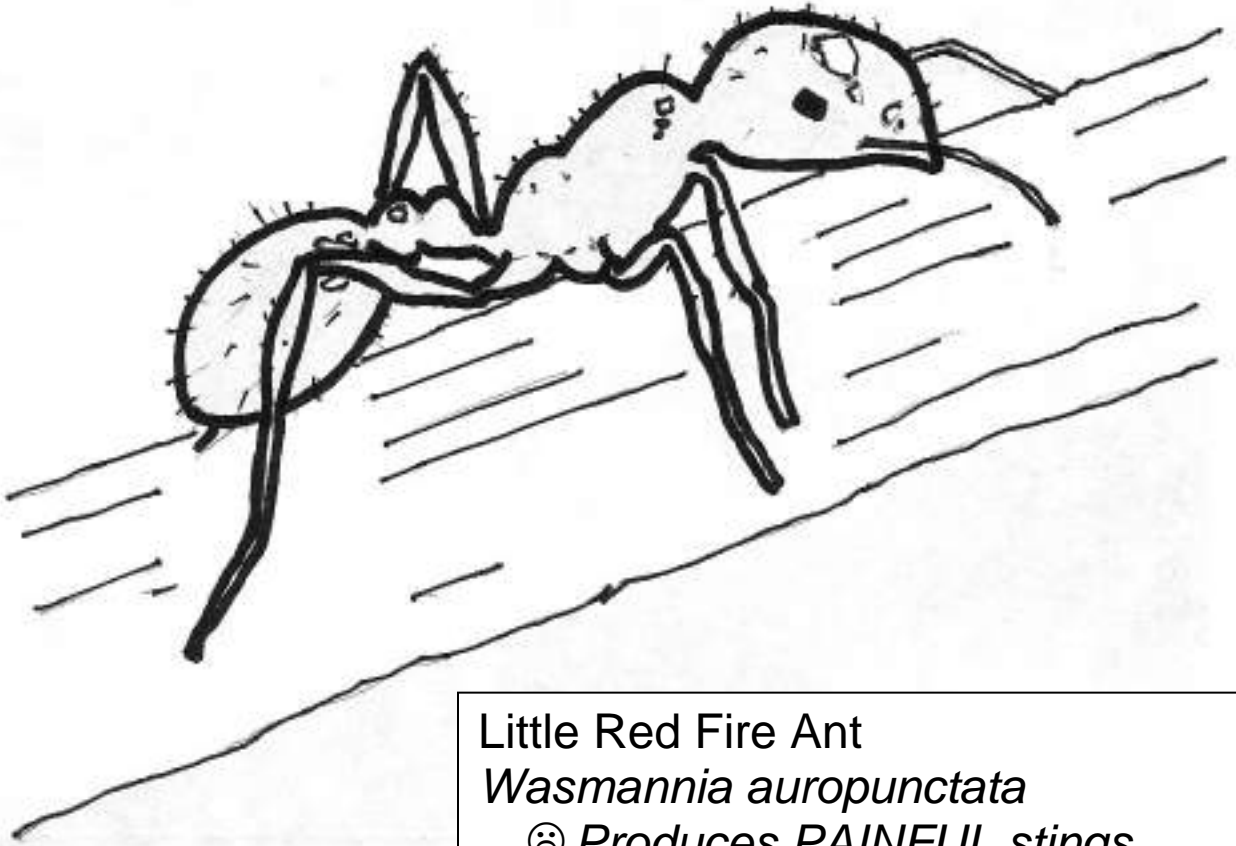
Little Fire Ant Detection Survey 2006  
 State of Hawaii  
 1/12/2008

No. Series: 400  
 Surveyors: JAK, Eric G.  
 GPS Unit: gps4, WP 1-27

| Time set out | Time picked up | Area      | Site or address | x        | y         | Vial # | Nearby plants      | Ant ID  | LFA |
|--------------|----------------|-----------|-----------------|----------|-----------|--------|--------------------|---------|-----|
| 9:25         | 10:35          | Kalihiwal | Stillers        | 458248.8 | 2457317.7 | 401    | pine               | unknown |     |
| 9:26         | 10:35          | Kalihiwal | Stillers        | 458244.4 | 2457308.3 | 402    | pine               | unknown |     |
| 9:27         | 10:36          | Kalihiwal | Stillers        | 458241.1 | 2457317.8 | 403    | lawn               | none    |     |
| 9:28         | 10:37          | Kalihiwal | Stillers        | 458237.2 | 2457326.1 | 404    | lawn               | none    |     |
| 9:30         | 10:37          | Kalihiwal | Stillers        | 458235.0 | 2457332.8 | 405    | rocks              | none    |     |
| 9:31         | 10:38          | Kalihiwal | Stillers        | 458230.1 | 2457330.9 | 406    | hibiscus           | unknown |     |
| 9:32         | 10:39          | Kalihiwal | Stillers        | 458231.7 | 2457338.0 | 407    | mllo               | unknown |     |
| 9:34         | 10:40          | Kalihiwal | Stillers        | 458232.9 | 2457346.9 | 408    | bare dirt          | unknown |     |
| 9:36         | 10:41          | Kalihiwal | Stillers        | 458228.5 | 2457355.8 | 409    | steep slope / dirt | unknown |     |
| 9:38         | 10:42          | Kalihiwal | Stillers        | 458232.9 | 2457352.8 | 410    | leaves             | none    |     |
| 9:39         | 10:42          | Kalihiwal | Stillers        | 458231.8 | 2457362.9 | 411    | leaves             | unknown |     |
| 9:39         | 10:42          | Kalihiwal | Stillers        | 458242.3 | 2457368.2 | 412    | leaves             | none    |     |
| 9:41         | 10:43          | Kalihiwal | Stillers        | 458242.9 | 2457376.5 | 413    | leaves             | none    |     |
| 9:42         | 10:44          | Kalihiwal | Stillers        | 458244.0 | 2457383.1 | 414    | leaves             | unknown |     |
| 9:43         | 10:44          | Kalihiwal | Stillers        | 458246.3 | 2457390.2 | 415    | leaves             | unknown |     |
| 9:44         | 10:46          | Kalihiwal | Stillers        | 458245.2 | 2457397.9 | 416    | leaves             | unknown |     |
| 9:45         | 10:46          | Kalihiwal | Stillers        | 458246.9 | 2457409.8 | 417    | leaves             | none    |     |
| 9:47         | 10:47          | Kalihiwal | Stillers        | 458243.6 | 2457414.8 | 418    | leaves             | none    |     |
| 9:48         | 10:48          | Kalihiwal | Stillers        | 458237.5 | 2457411.8 | 419    | leaves             | unknown |     |
| 9:49         | 10:49          | Kalihiwal | Stillers        | 458230.3 | 2457408.7 | 420    | leaves             | none    |     |
| 9:50         | 10:50          | Kalihiwal | Stillers        | 458229.1 | 2457400.9 | 421    | trall              | unknown |     |
| 9:52         | 10:51          | Kalihiwal | Stillers        | 458223.6 | 2457406.9 | 422    | trall              | unknown |     |
| 9:52         | 10:52          | Kalihiwal | Stillers        | 458231.3 | 2457398.8 | 423    | trall              | unknown |     |
| 9:53         | 10:54          | Kalihiwal | Stillers        | 458234.1 | 2457396.2 | 424    | trall              | unknown |     |
| 9:54         | 10:55          | Kalihiwal | Stillers        | 458240.7 | 2457394.4 | 425    | trall              | none    |     |
| 9:55         | 10:56          | Kalihiwal | Stillers        | 458240.2 | 2457384.3 | 426    | trall              | unknown |     |
| 9:56         | 10:56          | Kalihiwal | Stillers        | 458233.5 | 2457372.4 | 427    | trall              | unknown |     |



# OUCH! FIRE ANTS!



Little Red Fire Ant

*Wasmannia auropunctata*

- ☹ *Produces PAINFUL stings with silver dollar sized welts!*
- ☹ *Was discovered in two north shore locations.*
- ☹ *Report fire ants to KISC!*



To report sightings or for more information call 246-0684.

**CERTIFICATE OF INSPECTION**

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This certificate is awarded to

**KAUAI NURSERY & LANDSCAPING**

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Recognizing that they have been inspected and found to be  
Little Fire Ant-Free\*

|           |   |      |
|-----------|---|------|
| Signature | William Null, Pest Survey & Response Technician | Date |
| Signature | Keren Gundersen, Project Manager                | Date |



KISC

KAUAI INVASIVE SPECIES COMMITTEE

\* Certificate valid only until new plant importation from the Island of Hawaii

Nursery Visitations - 1

01/Mar/06

Points from GPS Unit #5

1. Pepperwood Farms in Kilauea: Met Dan Shook who said that they are very much aware of the LFA as they were present when it was discovered in Kalihiwai. He said that he no longer buys plants from the Big Island but rather sells to them.
2. Kauai Seascapes Nursery, Inc.: Met Steve Roush who said that he hasn't procured anything from the Big Island for the past couple of years, but plans to purchase some palms in the foreseeable future. He has had some problems with black ants and a scale insect.
3. Kahili Farms Nursery: Now defunct.
4. Kauai Orchids: Met Sachi Shinoda who said that they do buy potted orchids from the Big Island, and they've never found ants of any kind on the incoming plants. She has our stickers posted all around her sales area, and is aware of the LFA.
5. Anahola Homesteaders Council: Met a nephew of the person in charge who said that they haven't operated the nursery for a long time, but may in the future. The place is in disarray.
6. Faford's Farm: The gate is locked, and place appears to have had no business for a long time.
7. Kauai Neem: Met Mark Comstock, Owner who rarely buys from the Big Island. He is more into shrubs and trees for biochemical purposes, and is aware of the LFA.
8. Permaculture Kauai Nursery: Drove onto the property which has many shrubs, saplings, and piles of mulch and compost. Did not meet the owner/manager.
9. Growing Greens Nursery: Met Jeanna Kreytak who is very much aware of the LFA. They do buy from the Big Island and inspect every item that comes in. They sell vegetable plants, fruit trees, ornamentals, and cut flowers.
10. Robert A. Rowney: Met Robert who deals mostly with the sale of bamboo. He hasn't bought anything from the Big Island for a long time.
11. Kupono Farms: Sign on gate reads "By Appointment Only," so did not make a contact.
12. Kauai Earthscapes: Met Matthew Honjo who wasn't too verbal about their operation which looked mostly like a landscape operation with trees and shrubs. Said that they don't order from the Big Island.
13. Kalama Gardens Plant Nursery: Sign on gate reads "By Appointment Only," so did not make a contact.
14. Koloa Plant Service: Met the mother of owners who didn't say anything other than she would give the LFA flyer and my card to her son.

## Nursery Visitations - 2

02/Mar/06

Points from GPS Unit #5

1. Garden Ponds Nursery: Met Starla Landon who gave us a quick tour of the nursery which is devoted to aquatic plants. They have purchased a few items from the Big Island but only aquatics. She was aware of the LFA problem.
2. All Island Tropicals: Met with Chris \_ \_ \_ who said that he is just in the initial stages of nursery production. I told him about the LFA, and left him a flyer and my card.
3. Yamada's Orchid Nursery: No one was available so left a LFA flyer and my card. It looks like orchids are their only product.
4. Family Flowers Farm: Met Lynn Muramoto who is aware of the LFA, and said that they do purchase from the Big Island it is only orchids.
5. Orchid Alley: Met the lady proprietor Feli Sams??? who is aware of the LFA, and mentioned that they recently reopened the shop. Her husband is the one who grows the orchids and prepares them for sale in the shop. She took my card plus a flyer and said that she'd have her husband give me a call to see their operation which is elsewhere than the shop in town.
6. Kawaikini Farm Nursery: Sign at closed gate named Robert Soares as a contact but no one was present.
7. Just a GPS point and should be ignored.
8. Alexander's Nursery: Walked way in from the road to find a very untidy place. After several "hellos" and awaking chickens, pigs, and a dog, I met Richard Beach who is a son-in-law of the deceased owner. He said that Paki conducted a survey on the property and found no LFA. It appears that very little is being cared for on the property. I left a flyer and my card. The place could be an interesting place to visit if cleaned of all the rubbish.
9. Wailua Plant Nursery: No one around, and no good place to leave the flyer and my card. Should call for an appointment.
10. Kauai Agricultural Research Center (University of Hawaii): Met Dr. Jeri Ooka who is well aware of the LFA. For possible future ant contacts, he suggested a Richard Ibsen at HDOA in Lihue (who has been working with controlling ants in the coffee plantation) and Glenn Taniguchi, Entomologist on the Manoa Campus.
11. Grinpas Farm: Found what we think was the right place, but no one was present so left a flyer and my card.

## Nursery Visitations - 3

03/Mar/06

Points from GPS Unit #5

12. Flowers Kauai: Had a problem with the GPS Unit.
13. Flowers Kauai: " " " " " " " "
14. Flowers Kauai: " " " " " " " ", but met Aukai and Suzy Lee who are aware of the LFA, and said that Paki conducted a survey of their property and found it to be devoid of LFA. They have a number of trees but said their main sales are cut flowers. Aukai was concerned about the condition of his

columnar wiliwili trees which were severely defoliated by the gall wasp. I told him that researchers are actively working on a biocontrol.

15. Ace Hardware, Rice Street, Lihue: Spoke with "Phil" who is in charge of the nursery section. He said that they do not order from the Big Island ... only local and some from Oahu. Material from Growing Greens Nursery is their main source of plant material. He was not aware of the LFA, so gave him a flyer and my card.
16. Walmart: Met Morris Kaneshiro, Manager of the Nursery who said that they only buy potted palms from a source in Kona. Everything else is from Oahu but thinks that some of the Oahu material could come from the Big Island. He was unaware of the LFA, so informed him and left a flyer and my card.

07/Mar/06

17. Met Mr. Alfred Kupo near Kekaha to look at an area, where he pastures his horse, and encountered red fire ants last week. The area was inundated by several inches of water, and the ants were swimming on the surface. While wading in to fetch his tethered horse, he was "bitten" several times. I did a cursory survey but saw no any hills nor any red fire ants
18. Kauai Nursery and Landscaping, Inc.: Met Roger \_\_\_ one of the field managers and also Leland Nishek both of whom are aware of the LFA. Roger informed me that a HDOA official from Hilo, by the name of Van Kashiwamura recently surveyed the nusery and certified it free of LFA.

### Nursery Visitations - 4

09/Mar/06

Points from GPS Unit #5

19. K-Mart Garden: Kukui Grove Village; met Gdn. Mgr. Donna who was unaware of the LFA, and said that they purchase a substantial number of plants from the Big Island. All are potted except the "air" plants.
20. Javellana Farms: Met the owner Ted Javellana who was unaware of LFA. He grows and sells tomatoes, onions, and assorted fruits. Gets very little from the Big Island, but wants to buy some rambutan seedlings, and thinks that they will come from the Big Island. He buys a lot of his material from one of the Lawai Nurseries. (I can't remember which one of the two he told me.)
21. Kilauea Agronomics LLC. (Guava Kai Plantation): Met Wayne Katayama, President, and informed him of the LFA. They bring in nothing from the Big Island.
22. Native Plant Propagators (On the road leading to Guava Kai Plantation): Owner Janet Graves is off island and will return in mid-April.
23. Permaculture Kauai Nursery: Met Ray Maki who is aware of the LFA, and hasn't purchased anything from the Big Island for a long time. The nursery has foliage plants, shrubs, trees, mulch, and compost for sale.
24. Heart and Soul Organics: Called several times and left my cell number but never heard from anyone. The voice mail message states that they have the best assortment of plants, mulches, and compost available. I went to their site

address at 6020 Ko'olau Road and found the gate closed. Will check on them the next time I'm in the area.

25. Kauai Organic Farms (across the highway from Kilauea Farms on what used to be Pilaa Farms just off N. Waiakalua Road): The workers were harvesting ginger corms, and spoke to a field supervisor who said the owner, Phil Green (Cell number is 651-8843) was gone and didn't know when he'd return. He also didn't think that they purchased anything from the Big Island.

10/Mar/06

Points from GPS Unit #1

1. Shimonishi Orchids: The nursery gate was padlocked, and appeared to be unattended for some time. It also had more than orchids. Will check back when next in Hanapepe.
2. Flowers West Nursery: Met Mrs. Ishikawa who informed us that her husband Ralph had died. She said that they order very little from the Big Island, and deal mainly with orchids, foliage plants, and plants for rental. She seemed aware of the LFA, and said that Ed Pickop did some checking for insects in her little garden in Hanapepe Heights. Couldn't remember as to what insect was being checked.

### Nursery Visitations - 5

28/Mar/06

Points from GPS Unit #2

1. Kalama Gardens, Inc.: Met owner Sam Caliendo who gave me a tour of his nursery which is about one-half acre in size. All plants are potted and sitting on thick canvas. He doesn't use fertilizer and says that his use of insecticides is minimal and diluted when applied. He purchases from the Big Island are mostly seedling flats in starting containers which he repots. I saw several of these flats awaiting repotting. He is new to the nursery business (five years), and said that we can schedule a survey any time.
2. Kola Plant Service: Met owners Rick and Kathy Haupt who showed me their nursery, and said that they have not purchased anything from the Big Island in recent years. Most of their operation is ornamentals for rent but they do sell plants. They have a problem with a weedy vine which appears to be a species of Ipomoea sp. They also mentioned that miconia had once been on their property but it has been eradicated.

29/Mar/06

In the office all day, and with Jackie in the afternoon who introduced me to some of the island's landscapers at their monthly meeting.

30/Mar/06

Points from GPS Unit #5

1. Princeville Hotel: Inquired with one of the engineers who said they have no plant holding area, and that Kuponu Landscapers do all of their grounds beautification and maintenance. He then said to check with the workers in the purple shirts who informed Johnny and me that Stuart Hollinger is the owner, and that they have a small holding nursery off of Kapaka Road.
2. Kuponu Landscapers Holding Nursery: Not easy to access over a severely eroded dirt road. No one was present but saw the small plant holding area which appeared neglected. Called Stuart Hollinger on 31/Mar/06 and spoke with his wife who said that they purchase 99% of the plants they need from on-island and most from Kauai Nursery and Landscapers. The one percent that is purchased off-island is from nurseries on Oahu.
3. Lemn's Luau & Flowers in Anahola:
4. " " " " " : The nursery was closed, and looks to be primarily orchids. I had called earlier and was asked to visit when the area dries out, but wanted to see its location.
5. Pono Kai Resort: Met Robert Egan, Maintenance Mgr. who said they have a small plant holding area. They purchase everything from Kauai Nursery, and contract with Mokihana Landscapers to maintain their grounds.
6. Kapaa Shore Condominium Resort: Met Cindy Plemer, Resort Mgr. who said that they have no plant holding area. When needed, they buy from Growing Greens Nursery and then plant forthwith.
7. Kauai Coast Resort: They have a very small plant holding area, and buy only from on-island sources.
8. Lawai Foliage & Contracting: Having no street address, and never been to the site, I asked Johnny if he would show me their nursery as wanted to know its location.

### Nursery Visitations - 6

03/Apr/06

Points from GPS Unit #5

3. NoKa'Oi Plants Nursery: Met Abby Santos, Owner; who said that she hasn't purchased from the Big Island for more than ten years ... like 15 or so. She would not mind us conducting a survey once the site dries up as water was standing all around.
4. National Tropical Botanical Garden: Conferred with Bob Nishek, Nursery Supervisor who said they don't purchase any plants from the B.I. ... only seed and/or seedlings for research purposes only.
5. Kukuioolono Golf Course: Met Richard Brun, Course Mgr. who said they do not purchase any off-island plants. When needed, they buy from Kauai Nursery and then plant forthwith. (Also met Donna Fujikawa who once did inspections with you.)

6. Growing Greens Nursery: Wanted to speak with the owner about conducting a survey in the very near future, and learned, through the assistant mgr., that HDOA conducted one about three weeks ago, and found no LFA. (We need to find out which Kauai nurseries were surveyed by HDOA since the first of January.)
7. Home Depot's Garden Division: Requested a sales person to show me the plants they buy from the B.I., and all were from a nursery in Kona. Should we be concerned about these?

### Nursery Visitations - 7

06/Apr/06

Points from GPS Unit #2

8. Saw sign on Kawaihau Road that read Tropical Flowers Express so stopped to check it out. Met the owner's wife who said that they grow everything from seeds and cuttings, and do not import from the other islands. Also said that her husband works at the UH College of Tropical Agriculture's Research Station.
9. Called on Growing Greens Nursery to check about conducting a LFA survey along the perimeter of their nursery. Spoke with the owner's daughter, Merrit, who said to come any time
10. Kalani Tropicals Nursery on Olohena Road. Met Mr. Sendan, the father of Jothi who is the owner/manager, and was told that they haven't purchased anything from the Big Island for a long time. An e-mail from Jothi follows below:

-----Original Message-----

From: Kalani Tropicals [<mailto:flowers@ktropicals.com>]

Sent: Thursday, April 13, 2006 10:20 AM

To: bill Null

Subject: From the Contact Form

Aloha Bill,

I think the only things I got from the Big Island in the last 10 years was some compots of orchids. They were from a certified nursery though and grown in sterile controlled conditions. I also got some Anthurium tops (not potted) probably 8 years ago.

Jothi

My response was that their nursery is not likely to have any LFA.

I then wanted to make a more thorough search of the Makai Farms Orchids and Bed & Breakfast that is listed to be in Kilauea on Paki's database. The phone number is non working, and there is no listing in the phone book but wanted to check with the Kilauea Post Office. The route driver there said that they have gone out of business.



On my return, I stopped at the Heart and Soul Organics operation on Koolau Road, but the gate was locked. I've called the owner, Mark Freeman and left message to call me several times to no avail. Will keep checking when in the area.

10/Apr/06

Points from GPS Unit #4

1. Not sure where this point is ... maybe at the Base Station.
2. Hawaiian Paradise Flowers at 4574 Kahiliholo Road in Kilauea. Gate was locked and posted Keep Out Beware of Dog. The place appears well maintained but couldn't see the nursery. Will check again when in the area.
3. Pepperwood Plantation: Spoke with Dan Shook again, and got his approval to conduct a survey. Just need to let him know a couple of days in advance. He has 17 acres of planted material. Also told me that Gary Pacheco owns Hawaiian Paradise Flowers, so called but no answer. Called again and spoke with Mrs. Pacheco who said that she has bought only orchids from the Big Island. She also said that someone called her about a month ago to do a survey with peanut butter sticks. This must have been HDOA, so I'm trying to contact Val Kashiwamura to ascertain exactly which nurseries he surveyed.

On my return, I stopped at Heart and Soul Organics to find a locked gate. Called the owner, Mark Freeman and left a message for him to return my call ... nothing yet but will keep trying.

Called the Aloha Tropical Nursery at 822-9413, and for the first time was given a new number, 639-1868 to call, so did and left a message to return my call ... nothing yet but will keep trying.

11/Apr/06

Points from GPS Unit #3

1. Points 001 through 004 were taken at the corners of the Growing Greens Nursery during the survey for LFA along the nursery's perimeter. **No LFA were encountered** during the survey.
2. Not sure if a point was taken at the Wailua Plant Nursery at 481 Kamalu Road. I did, however, finally meet the owner, Alan Copeland who informed me that he has not purchased anything from the Big Island. All of his palms and woody plants are from seed as are most of the herbaceous plants. He said that a trip to the Big Island was being planned, so I told him about the LFA infestation there, and he said that he may cancel going. His nursery is very well maintained.

12/Apr/06

Points from GPS Unit #1

1. Points 001 through 004 were taken at the corners of the Lawai Foliage and Contracting Nursery during the survey for LFA along the nursery's perimeter. **No LFA were encountered** during the survey.
2. Point 005 was taken at Kalaheo Flowers and Gardens Nursery where I met owner/manager Carol Kimura who said that they are in the cut flower business, and have not purchased from the Big Island.

Drove out to Waimea to check on a nursery of which Amos knows. It appeared abandoned but Amos thinks it will reopen later for growing poinsettias.

Returned to Hanapepe to check on the Shimonishi Orchid Nursery and the Mackie Orchid Nursery. We learned, from a neighbor, that the Shimonishi Nursery has been closed for at least eight years, and that the aged owner comes only to water the few orchids that remain. We then drove by the address for Mackie Orchids, and found it to be devoid of any plants. (Amos remembers when orchids used to be sold at the site.)

13/Apr/06

Mongoose Tracking with Amos.

14/Apr/06

I believe that I inspected the Kalama Gardens Plant Nursery. **No LFAs were encountered.**  
(Check with Jeff to make sure.)

17/Apr/06

Mongoose Tracking with Amos.

18/Apr/06

Points from GPS Unit #2

1. through 4: were taken at the corners of the Kauai Seascapes Nursery during a survey for LFA along the nursery's perimeter. **No LFA were encountered** during the survey. A certificate should be sent to Mr. Steve Roush; Kauai Seascapes Nursery Inc.; 4741-A Kahilihoho Road; Kilauea, HI 96754. (Amos accompanied me during the survey and got to see some interesting plants.)

19/Apr/06

Points from GPS Unit #2

5. Lawai Valley Nursery: Met with the owner, Mr. Richard (Dick) Coffman who gave Dave and me a tour of his nursery. He has an array of plants including

Australian tree fern, and hasn't purchased from the Big Island for several years. He said that we can come any time to conduct a survey.

6. I've never been to the LFA site in Kalihiwai, so Dave showed me, and we walked down the path to a point where he said they had encountered LFA and also pointed to where the ants had spread to the Stillers property. We found what initially looked like a LFA on a leaflet of a palm frond but on inspection with a hand lens saw that it was not. It looked to be a species of *Tetramorium*, and most probably *T. simillimum*.
7. Kauai Orchids Nursery: Met with Sachi Shinoda who quickly regaled David about growing certain orchids. She does buy from the Big Island, and emphasized "from only certified nurseries" but said that we can conduct a survey any time from Wednesday through Sunday ... just let her know at least a day in advance.
8. Lemn's Luau & Flowers Nursery at 4230 Maia Road in Anahola: Met with owner William Lemn who only buys bare rooted orchids from the Big Island. He's a very cordial gentleman who showed us the material he recently purchased.

20/Apr/06

In the office preparing this report, painting chop sticks, and setting up a new spreadsheet.

21/Apr/06

Went to K-Mart for authorization to conduct a survey in their garden section as they had purchased some palms, including fish-tails, from the Big Island. Manager Jarett Chytka approved for the following Monday.

24/Apr/06

Points from GPS Unit #5

1. through 4: are from the Garden Section of K-Mart which was surveyed from 09:45 through 11:30 a.m.. **No little fire ants were encountered.** We should send them a certificate.

Called Yamada Orchids Nursery only to learn that Mr. Yamada was out, and the best time to call him would be after 03:00 p.m. or 07:30 a.m.

5. Went to Kauai Nursery and Landscaping where I met with Nursery Manager Roger \_ \_ \_ who said that we could come anytime to conduct our survey. I asked to be shown where HDOA did their "Certified" survey so we would not duplicate their effort, and Roger showed me. He said their nursery covers about

90 acres, so I spent more than an hour walking around to see what and where everything is placed.

25/Apr/06

Points from GPS Unit #5:

6. Called the Yamada Orchid Nursery today at 07:30 but no one answered and there was no voice mail so drove out the nursery arriving there at 07:50 to find the gate locked with a sign that reads "By Appointment Only" so will call again.
7. through 15: Lawai Valley Nursery where I met Mr. Coffman and his son Spencer. Weather was sunny at 10:00 when I started placing the peanut butter sticks but it began to drizzle around 10:20 then stopped at 10:30. I finished placing the sticks at 10:45. I returned at 11:45 to check for LFA, and none were found when I finished at 12:45. I did learn that they were receiving a shipment of potted fruit trees from a nursery in the Hilo area, so told them I couldn't give a certificate until those incoming seedlings were inspected by us. They had no problem with me coming again, so told them I would come on Thursday afternoon (27/Apr/06).

I called Mark Comstock of Kauai Neem Nursery, Mrs. Pacheco of Hawaiian Paradise Flowers, and Sachi Shinoda of Kauai Orchids to make appointments for conducting surveys.

Also called Janet Graves of the Nature Corporation of Hawaii to learn about their operation. She informed me that she only propagates native Kauaian plants at her small nursery in Kilauea.

26/Apr/06

Points from GPS Unit #5:

16. Garden Tech Landscapers on 7166 Aina Pono Street off upper Kuamoo Road. No one was home and there was no area for holding plants.
17. All Pacific Tree Landscapers on Kaloloku Street off Kuhio Hwy. in Kapaa. There is no holding area for plants.
18. through 21: At Kauai Neem Nursery where I met owner Mark Comstock and began placing P.B. Sticks at 10:00, finishing at 10:25. I returned at noon, and **found no LFAs** after checking all the sticks. We should send him a certificate.
22. through 25: At Hawaiian Paradise Flowers Nursery where I met owner Gary Pacheco and learned that they deal mostly with orchids and foliage plants placed on raised shelves within a screened enclosure. The enclosure has a concrete and gravel base of approximately 20 x 60 feet, and I began placing P.B. Sticks around its base at 11:00. Upon checking back at 1:00, I **found the nursery to be free of LFA.**

26. & 27. Heart and Soul Organics on Koolau Road: Owner Mark Freeman wasn't in, and one of his workers said that he rarely returns phone calls, so one has to catch him on site and best is early in the morning or at quitting time. The worker said that they haven't bought plants from the Big Island in several years as their main efforts are making and selling both mulch and compost.

28. Windward Yard & Building Maintenance; 5344 Luana Street, Kapaa: No plant holding area seen on the property.

27/Apr/06

29. Need Something Done Landscapers; 304 Kamokila Road, Wailua Houselots: No plant holding area seen on the property.

30. RYLO Excavation & Landscaping; 7010 Kahuna Road, Kapaa: No plant holding area seen on the property.

31. Kamaaina Lawn Care; 5818 Kawaihau Road, Kapaa: No plant holding area seen on the property.

32. South Shore Landscaping Design; 3611 Lilikoi Place; Lawai: No plant holding area seen on the property.

33. Paradise Bloom Landscaping on Koloa Road: Spoke with the owner's wife who said that they have never purchased plants from off island. If needed they buy from local nurseries, and the plants in their holding area are from transplants. I gave her a flyer and business card.

34. Southside Landscaping & Maintenance; 4071 Piko Road, Lawai: Spoke with the owner's wife who said they only purchase from on island nurseries. I gave her a flyer and business card.

35. Lawai Valley Nursery on Kau Road, Lawai: They received 60 potted fruit tree seedlings from a Hilo area nursery, so placed P.B. sticks in one-third of the of the stock. One and one-half hours later, I **found that they were free of LFA.**

28/Apr/06

Points from GPS Unit #5:

1. Martin A. Bryan Landscaping, Inc. 4875-G Kapaka Road, Princeville: Spoke with the Mrs. Alice Bryan who is the company's "plant lady," and was told that most of their plants were self propagated. When needed, they buy from local nurseries. She said that we could survey their holdings anytime, just let them know.
2. through 5: Princeville Golf Course's holding area: (When speaking with Grounds Foreman Damian Baptiste earlier this year, he said that they had purchased plants from the Big Island a few years ago, and some were being held in their nursery at another location.) At 11:00 on this date, Amos and I met

Damian who led us to the nursery which was lacking proper care and maintenance. They have two shade clothed enclosures, one of which is locked containing small potted floral & foliage plants on raised benches over a cinder/gravel substrate. The other unlocked enclosure has large potted plants of various palms and sapling sized trees, some of which have roots breaking through the pots and into the cinder/gravel substrate. After placing P.B. Sticks at the base of benches as well as in and around the large pots, and then eating lunch to allow for at least one hour to pass, I **encountered no LFA**. We should send them a certificate.

6. through 9: Kauai Orchids: Met both owners Sachi Shinoda and Noel Brooks who take great care in maintaining their nursery which is mostly orchids with a few other potted plants on raised benches in shaded enclosures. Because they have purchased from the Big Island, I wanted to conduct a survey around the base of each enclosure as well as the rooted cycads. I began placing the P.B. Sticks at 10:00, and departed for the Princeville Golf Course nursery at 10:40. We returned to check the sticks around 1:00, and **found there to be no LFA**. We need to send them a certificate.

01/May/06

In the office all morning working on this report and updating data on a new spreadsheet.

## Field Work – 8

### Checking on Landscapers as well as Nurseries

02/May/06

Points from GPS Unit #2

171. Ali'i Landscaping Maintenance at 361 Kaima Place, and saw no plant holding area. Spoke with a worker who said to call Talbert at 822-6704 which I did and had to leave a message. Then his secretary drove in so asked her about a nursery or plant holding site, and she said that they deal mostly with plumeria and when plants are needed they purchase from on-island nurseries and sometimes from Honolulu.

Began calling the landscapers on Paki's list that had no street address to ascertain whether or not they import plants and, if so, the location of their holding areas.

Messages had to be left at several of those which follow below:

- i) Alakai Landscaping: Had to leave a message.
- ii) Custom Landscaping & Maintenance: Had to leave a message.
- iii) Garden Island Shrub and Lawn Care: Not a working number.
- iv) Garden Island Tree Care: Spoke with owner Jim Campbell who said he does not buy nor import any plants.

- v) Mowtown Grounds Care: Spoke with owner Brad Balonick who said they do not import plants.
- vi) Premiere Landscape Consultants: Spoke with a Dan \_ \_ \_ who said that he is affiliated with Kauai Nursery and Landscaping, and that they do import plants and hold them in quarantine for USDA inspection. I will check this out when we conduct our LFA survey in the near future.
- vii) Sandwich Isle Landscaping: Had to leave a message.
- viii) Pua Pama Landscape Design: Had to leave a message, and later the owner called back to say that she does not import plants as only does design.
- ix) A Blade of Grass: Spoke with Bryce Linder who said they do not import plants.
- x) Forrest Services: Busy signal after several tries.
- xi) Island Yard Service: Had to leave a message.
- xii) Kalalea Landscape Maintenance: Had to leave a message.
- xiii) Kauai Hedge & Ground Covers: No answer after leaving it ring for many times ... also no message device or voice mail.
- xiv) Landscapes Kauai: Had to leave a message.
- xv) Sweeping Beauty Home Care (now changed to Island Home Care): Had to leave a message. Issac called back to say he had never imported plants and has changed the business to that of roofing only.
- xvi) Tropic Yard Care: Had to leave a message.
- xvii) Kevin's Yard Care: Had to leave a message.

I called Bruce Horka of Custom Landscaping & Maintenance around 5:00 p.m., and inquired about importing plants. He said that they only buy from on-island sources, and they do not have a nursery or plant holding area. His statement of plant purchases doesn't correspond with what Joe and Amos saw on one of his trucks. Also will attempt to contact those companies above which didn't return my call or had busy signals.

172. Poipu Bay Golf Course: Spoke with Charles Rebb, Golf Course Superintendent who said they don't have a nursery or plant holding area and, if needed, they buy from local nurseries. I left a flyer and business card.

173. Through 176. Corners of Hyatt Regency's Nursery/Holding Area which is a screened enclosure of about 25' x 40' containing assorted palms, figs, ferns, orchids, and other foliage plants. I started placing P.B. Sticks at 11:45 in containers and also at their bases when sitting on gravel. Finished at 12:15 ate lunch then visited item 172. Returned to check the sticks at 01:15, and found the site to be **free of LFA**.

177. Kauai Hydroseed & Landscape at 1786 Haleukana Street in Puhi: Spoke with Bo who said to call the owner Glenn Bargamento at 482-0159. I did, and was informed that he does not import plants. When needed, they buy from Kauai Nursery & Landscaping.

03/May/06

Points from GPS Unit #5

1. through 10: No Ka Oi Plants Nursery: Met Abby Santos, Operation Manager, and began placing P.B. Sticks at 10:15. Finished placing the sticks at 11:15, did some paper work in the truck, ate lunch, and then began examining the sticks at 12:15. I finished the survey and GPS-ing of perimeter points at 13:45. The nursery is free of LFA, and we should send them a certificate.

05/May/06

Points from GPS Unit #1

1. Heart and Soul Organics on Koolau Rd, in Moloaa: Finally met owner Mark Freeman who said that he has never purchased plants from the Big Island but has considered buying some palms. I informed him of the LFA and its occurrence on the Hilo side of Hawaii as well as here in Kalihiwai. He was surprised to learn of it here on Ben Stiller and his neighbor's property as he resides in Kalihiwai. He deals primarily with compost and mulch, and says that he doesn't like chemicals. I gave him a LFA flyer and business card, and asked him to call us if he decides to buy any plants from the Big Island. He said that he would.

My next stop was Kauai Seascapes Nursery to hand deliver the mail-returned certificate to owner Steve Roush. While there he mentioned a colony of biting ants he encountered at a job site on Wailapa Road, and would show me the site if I cared to have a look. I did, so followed him there.

2. Little biting black ant colony with a nest in a mixture of gravel and sand. They didn't bite me but the colony has winged queens, workers, and larger members which I presume are soldiers. I have some frozen specimens.
3. Yamada Orchid Nursery in Kapaa: From an appointment made earlier, I finally met the owner, Mr. Alan Yamada who showed me around his nursery. He is certified to ship only orchids but has other foliage and floral plants in the nursery. I gave him a LFA flyer plus my card, and asked if it would be alright to conduct a survey around the nursery perimeter and all non orchid plants. He said any time, just let him know in advance, and the best time to call is after 3:00 p.m.

United Condominium (Under construction across from Safeway in Kapaa): Spoke with a site foreman who thought the landscaping will be performed by Kauai Nursery & Landscaping but to be sure, I should contact the Chief Engineer and Senior Project Manager, Phil who was on Oahu. He told me to call 823-9298 on Monday which I just did, and it will be Kauai Nursery who does the landscaping. So will check with them as this project progresses.

4. Called Carolyn O'Connell for information concerning who will be the landscape architect for the Kukuiula Development Project. She said that PBR & Associates on Oahu are the firm. Will send them an e-mail requesting that we be informed if they plan to import plants from the Big Island.



5. Both this point and 05 were taken at 120 Lihau Street in Wailua Houselots, the residence of Bruce Horka, owner of Custom Landscaping & Maintenance. There is no visible nursery or plant holding area at the address.

Went to Kauai Nursery & Landscaping to inquire about Bruce Horka and his landscaping business. Was told that we should take Bruce for his word about not importing plants nor having a nursery or holding area. This statement, however, does not clear him of doing so. It was also suggested that I go to Young Brothers at Nawiliwili Harbor to see if they would give me a list of people who had plants shipped to them.

6. Young Brothers Yard at Nawiliwili Harbor: Spoke with a shipping agent, and was told that I'd need a warrant to get the information I sought.

08/May/06

All morning in the office preparing this report.

### Field Work – 9

09/May/06

Points from GPS Unit #5

Hand delivered a certificate to Mr. Richard Coffman of Lawai Valley Nursery.

1. through 17: Kekaha Landfill
18. through 21: Hanapepe Transfer Station

Drove to the Hanapepe Transfer Station and, after conferring with the personnel there, I began placing peanut butter sticks around the green waste site at 09:30. After finishing around 10:00, I drove to the Kekaha Land Fill and met Duellane Rita, Landfill Operations Manager, who showed me where Paki surveyed last year. They have two sites for green waste sites ... a small one near the office referred to as the Mauka Site and the much larger one on the opposite of the landfill called the Makai Site. I began placing sticks at the mauka site at 10:30 then drove to the makai site and began placing sticks, at 11:00, around piles of green waste deposited since Paki's inspection. This makai site has two areas separated by a roadway but still close to one another. After lunch, and around 12:45, I began inspecting the sticks at the makai site and found both areas to be free of LFA. I then proceeded to inspect the mauka site where no LFAs were found. Prior to leaving, I informed Ms. Rita that **both sites were free of LFA**. Points taken here were from 001 through 017. Sketch maps of each sites, showing the points, accompanied the data sheet.

I returned to the Hanapepe Transfer Station at 02:00 and began inspecting the sticks. **No LFAs were encountered**, and the GPS points were 018 to 021.

10/May/06

Points from GPS Unit #3

1. While driving to the Princeville Transfer Station, Amos and I saw a large area of cleared land with personnel working, so stopped to inquire if they knew who they would be doing the landscaping. We were told that Sandwich Isle Landscaping has the contract. I will attempt contacting them about this project. (I've called and left messages three different times to no avail, but will keep trying.)
2. to 05. Princeville Transfer Station: After conferring with the station master, we began placing peanut butter sticks around 10:00 and returned at 12:00 to inspect the sticks. **No LFAs were encountered.**
6. Saw a sign which read Wialapa Farm and Tropical Nursery, so drove in to make a contact. The only person there was a repairman who wouldn't provide any information other than saying the owners were out. I took a GPS point and made a note to come back.
7. Upon leaving the above, we saw people working, on adjacent property in what appeared to be a nursery, so thinking it to be the Wailapa Farm and Tropical Nursery, I drove around to find an entrance point. Seeing a gate, I parked and walked in to introduce myself and leave a flyer and card. I met co-owner Kevin who told me that it was not the Wailapa Farm and Tropical Nursery but rather the Seahouse Nursery. He and co-owner Mark \_\_\_\_, along with hired help, are in the process of establishing the nursery by consolidating plants from several other on-island growing sites. They are transplanting numerous shrubs and trees into containers as well as the soil. Kevin said that they are not yet open for sales, that none of the plants are from the Big Island, and that I could conduct an inspection. Their contact numbers follow below:  
Kevin's cell is 635-9888 and home is 826-6535  
Mark's cell is 635-4052

Checked the location of the Kapa'a Transfer Station, and inquired about doing an inspection. The station master said to come any time.

8. Lagoons Golf Course: Checked with the Assistant Manager about importing plants for landscaping, and was told to contact Victor Nemeth, Course Superintendent or Mike Leaver, Landscaping Manager. When driving to the Grounds Maintenance Building, we learned that both men were unavailable, and to check back earlier on another day.
9. Puakea Golf Course: Met Paul Ito, Director of Golf who informed me that they do not import plants. Any that are needed come from on-island nurseries.

11/May/06

Mongoose tracking with Amos.

12/May/06

Attended the Kauai Conservation Conference.

15/May/06

Points from GPS Unit #3

Drove directly to the Lagoons Golf Course Maintenance Building where we met Assistant Superintendent Fred Wong who said both of the men I was looking for were in the field. Just before departing, we saw men working and the chief landscaper, Mike Leaver was there. He informed us that most of the plant material they use is from their own nursery near Kona, and that nothing comes from the Hilo area. If unavailable from their Kona nursery, they buy from Kauai nurseries.

1. through 4: Kapa'a Transfer Station: Met with a different station master and began placing peanut butter sticks at 08:00. Returned at 09:30 to do the inspection, and found to green waste area to be **free of LFAs**.
  
5. through 11: Yamada's Nursery: The nursery is certified for orchids only, but does have assorted foliage plants and some palms for sale. I had earlier made an appointment for 10:00, so introduced Amos, then began placing peanut butter sticks around the perimeter of each orchid shade house, and then in and around the containers of the non-orchid plants. We returned at 12:00 to inspect the sticks and found the **nursery to be free of LFAs**. We need to send Mr. Yamada a certificate.
  
12. Wialapa Farm and Tropical Nursery: Drove out to this nursery in hopes of meeting the owner. We were fortunate, and able to meet Mr. Perry Reighi who gave me a quick tour of the farm/nursery. They did purchase some plants (several kou and ohia saplings) from a nursery in Puna about five years ago. After informing him of LFA and the Big Island problem, he was very obliging to us conducting a survey. Their cell phone # is 639-8446.

Failed to take a point at the junction of Kuhio Hwy. and Ma'ilihuna Road where we met Scott \_\_\_ owner of Kipapa Nursery. He informed us that the nursery is to support his landscaping business which is deals primarily with palms, ti, and ginger. All of the plants are grown from seed and cuttings on leased pasture land off upper Kawaihau Road. He cautioned us to be very much aware of off-island plants coming in for the Kukuiola Development Project. He even suggested that we should establish an inspection site at Nawiliwili Harbor to ensure that all plants coming in are clean.

16/May/06

In the Office writing this report, making calls for inspection appointments, and checking ant identification.

Field Work – 10

17/May/06

Points from GPS Unit #2

1. Ka'iulani of Princeville; P.O. Box 223382; Princeville, HI 96722: Stopped by to find out who would be the Landscape Architect for this new development. The sales office was closed, so will contact the next time in the area. (My reason for checking is that Carl Rosen of Sandwich Isle Landscaping finally returned my call to say that all his firm was contracted for was putting in lawns.)
2. through 6: Seahouse Nursery on Pu'u Pane Road, Kilauea, HI. Owners are Mark Soppland and Kevin \_\_\_\_\_. This nursery is being established by consolidating plants from several holding areas the co-owners had scattered around the north shore. The only plants they imported from the Big Island were bamboo a few years ago, and crotons from Home Depot on Oahu. I began placing peanut butter sticks (PBS) at 10:00 and finished at 10:45. At 12:15, I started my inspection finishing around 1:30, and **encountered no little fire ants (LFA)**.
7. through 13: Wailapa Farm & Tropical Nursery off Pu'u Pane Road adjacent to Seahouse Nursery: Owners are Perry and Sue Reghi. The owners purchased several ohio, kou, and hapu'u from the Big Island a few years ago, and have them planted mostly for landscape purposes. Their tropical plants are mostly red ti and gingers along with other assorted herbs and forbs that appear neglected. (It is for sale, and they had a realtor showing the property while I was there.) I began placing PBS at 11:00 and finished my inspection at 2:15. **No LFAs were encountered on the property.**

18/May/06

Points from GPS Unit #2

14. Prince Golf Course at Princeville: I just learned that this golf course is separate from the Makai Princeville Golf Course, so stopped to see if they have a nursery or plant holding area. I met Grounds Supervisor, Philbert Kelekoma who informed me that both golf courses are owned by the same company, and the holding nursery that I inspected for Damien Baptiste is the same one they use as well as Kauai Nursery and Landscaping for anything they don't have.
15. Ka'iulani of Princeville Luxury Resort Development, inside the Prince Golf Course: Met Donald M. Schultz, Principal of the development, who informed me that no landscape architect has yet been selected. He believes that they will choose an Oahu based one as feels Kauai Nursery is far too expensive. The earliest we're to check back is a month from now, and not to be surprised if they haven't made their selection by that time ... as it may take them longer.
16. through 23: Martin Bryan Nursery off Kapaka Road: Met owner's wife Alice who pointed out the property which is landscaped like a botanical garden. Most everything is potted in containers and placed in, around, and under existing trees. The husband runs a landscaping business and the wife runs the nursery

which has assorted palms, cycads, crotons, bamboo, ginger, heliconia, traveler's palm, shade, floral, and fruit trees plus many assorted herbs and aquatics in large pots. I began placing PBSs at 10:15, began inspecting at 11:45, and finished at 01:00. **No LFAs were encountered.**

17. Heidi Scholl's nursery on Kupuna Road: I met a worker who informed me of the owner name, and that she wasn't on-site. Her main interest is the sale of hedge plants, but a number of other containers with potted plants were arranged in beds. I left a flyer and business card.

19/May/06

Leave without Pay

22/May/06

Worked with David and Lehua on the control of Arundo and ivory gourd.

23/May/06

Worked at the Base Station all day.

24/May/06

Points from GPS Unit #3:

1. Green waste and compost site between the Lihue Airport and Lagoons Golf Course. It is believed to belong to Kauai Nursery and Landscaping (hereafter abbreviated KNL). Now known to be Kauai Lagoons Golf Course's Green Waste Area.
2. through 5: Lihue Transfer Station: Conducted a thorough inspection and **found no little fire ants**. After the green waste is deposited into large trailers, it is then taken to Mark Freeman's compost site in Moloa'a where it is ultimately ground into finer material and converted to compost.
6. through 15: KNL in Puhī: I chose to start with the west site which has assorted palms, tree ferns, trees of both fruit and ornamental types, and assorted ornamental shrubs. At 1045, I began placing peanut butter sticks along the periphery of the site and also down several rows of the interior. Ate lunch and then began inspecting at 1300 hrs, finishing at 1450 hrs. **No LFAs were encountered.**

25/May/06

Points from GPS Unit #3:

16 through 20: KNL in Puhī. I began placing the peanut butter sticks at 0800 hrs. in the Sales Area of the nursery where all plants are in containers placed on plastic or canvas sheeting. I finished at 0845 hrs. and then proceeded to the Green Waste Area (Area #2) where I began placing the sticks at 0900 hrs. I finished here at 0950 hrs. and returned to Area #1 to begin my inspection. **No LFAs were encountered.** I then proceeded to Area #3, which is east of Area #2 and began placing sticks at 1105 hrs. Upon finishing here at 1145 hrs, I ate lunch, and proceeded to Area #4 where I began placing the sticks at 1210 hrs, and finished at 1230 hrs.

21 through 25: KNL in Puhī: Area #2 (Green Waste Area): Began the inspection at 1235 and finished at 1320 hrs. **No LFAs were encountered.**

26 through 29: KNL in Puhī: Area #3 (Mostly trees in very large containers of which some have broken their container and are rooted in the soil.): Began inspecting the sticks at 1325 and finished at 1350 hrs. **No LFAs were encountered.**

30 through 33: KNL in Puhī: Area #4 (Assorted plants in containers.): Began inspection at 1355 and finished at 1420 hrs. **No LFAs were encountered.**

26/May/06

Points from GPS Unit #1:

1. through 6: KNL in Puhī. Area #5 (A narrow strip of young fan palms and assorted ground cover all of which are in containers sitting on plastic sheeting.): Began placing peanut butter sticks at 0815 hours and finished inspecting the area at 1120 hrs. **No LFAs were encountered.**

7. through 20: KNL in Puhī. Area #6 (An area with assorted palms in containers, some old and huge royal palms along with several different broadleaf trees.). Began placing sticks at 0900 hrs. and finished inspecting the area at 1200 hrs. **No LFAs were encountered.**

21. through 36: KNL in Puhī. Area #7 (An area with mostly potted palms in containers.). Began placing sticks at 1000 hrs. Inspection began at 1230 and finished at 1345 hrs. **No LFAs were encountered.**

29/May/06

Celebrated Memorial Day

30/May/06

Points from GPS Unit #5:

1. through 9: KNL in Puhi. Area #8 (An area covered with plastic sheeting on which containers of assorted hibiscus, mussaenda, Manila palm, Bougainvillea, ferns, red milo, and other floral and ground covers.): Began placing sticks at 0930, and finished inspecting them at 1130. **No LFAs were encountered.**
- 10 through 18: KNL in Puhi. Area #9 (Another area with assorted plants mostly in containers but with some rooted in the soil.) Began placing sticks at 1005 hrs, and finished inspecting them at 1350 hrs. **No LFAs were encountered.**
- 19 through 26: KNL in Puhi. Area #10 (A long narrow strip with potted palms, cycads, and assorted floral trees.) Began placing sticks at 1200, and finished inspecting them at 1430 hrs. **No LFAs were encountered.**

We need to send Kauai Nursery and Landscaping a Certificate.

31/May/06

Little Fire Ant survey in Kalihiwai with the field crew and HDOA's Craig Kaneshige utilizing spam inside of small vials. **(Results from HDOA Honolulu showed we had eight vials or points with LFA.)**

01/Jun/06

Spread Amdro bait throughout the area surveyed on the 31<sup>st</sup>, and then followed with a cursory survey utilizing peanut butter sticks. We got two points with ants looking like LFA but I think they are species of *Leptothorax* or *Tetramorium*. **(As of June 6 or 7 we learned that the *Leptothroax* was in fact LFA.)**

02/Jun/06

Worked at the Base Station all day.

05/Jun/06

Worked at the Base Station and in the Office.

## Field Work – 11

06/Jun/06

Points from GPS Unit #2

1. Esona Nursery in Kapahi off Kaapuni Road: Spoke with the owners who have a small nursery which they propagate from collected seeds and cuttings. Their stock is mostly potted palms and assorted floral plants. They have never imported any plant material, and their main operation now is landscaping.

2. Pepperwood Plantation: I had phoned Dan Shook earlier about conducting a survey on his property but he never returned my call, so tried to catch him at home. Unfortunately, he was not in, so left a note on his clip board along with my calling card.
3. Heidi Scholl's Nursery on Kapuna Road near Moloa'a: Neither Ms. Scholl nor her employee were in, so will try contacting again when in the area.
4. through 9: Marriot Kauai Resort: Inspected their nursery/plant holding area which consists solely of potted material and mostly assorted palms. Began placing peanut butter sticks at 1100 hrs., and returned to inspect them at 1300 hrs. **No LFAs were encountered.**
10. through 14: Kauai Lagoons Golf Course Green Waste Area: The area has a lot of green waste in various stages of decomposition, as well as piles of fine and coarse mulch. Their tub grinder was not in operation due to missing parts. I began placing peanut butter sticks at 1205 hrs. and returned to inspect them at 1400 hrs. **No LFAs were encountered.**

07/Jun/06

Points from GPS Unit #2

1. through 13. Kauai Nursery and Landscaping Green Waste Area east of the Hyatt Regency in Poi'pu: Like Kauai Lagoons green waste area, this area has a considerable amount of waste in various stages of decomposition as more than one resort uses this site for disposing their green waste. Began placing peanut butter sticks at 0820 hrs., and began inspecting at 1015 hrs. I finished at 1145 hrs., with **no signs of LFAs.**

Called Dan Shook and got the approval to do a survey.

Returned to Base Station for Staff Meeting at 1300 hrs.

08/Jun/06

Points from GPS Unit #1

1. through 15: Pepperwood Plantation on Kahiliholo Road in Kilauea: A large (17 acres) establishment planted with numerous species of palms, and several types of fruit and floral and shade trees. Began placing peanut butter sticks at 0830 hrs around the periphery of the plantation. I began inspecting at 1040 hrs and finished at 1315 hrs. **No LFAs were encountered.**

09/Jun/06

Points from GPS Unit #1



1. through 5: Pepperwood Plantation. A portion within the plantation has been set aside for propagating assorted plants including palms, broadleaf trees, shrubs, and herbs such as gingers. Most of these plants are in containers and in the open sitting on plastic canvas while some are planted and some are under shade cloth. I began placing peanut butter sticks at 0835 hrs, and began inspecting at 1015 hrs. **No LFAs were encountered** when I finished at 1120 hrs.

Stopped at Heidi Scholl's Nursery on my return but no one was present, so called and received a recording that she's off island for an extended leave. I left a message for someone to return me call it she buys plants from the Big Island.

12/Jun/06

King Kamehameha Day- Holiday

13/Jun/06

In Base Station most of the day. Laura called about ants so went to HDOA to look under the scope, did some shopping for supplies, and painted chop sticks.

14/Jun/06

- Went to the Office of Kauai County Clerk to get a list of names of civic or community organizations for outreach purposes. They don't have such a list and suggested I check with the State Department of Taxation.
- Went next door to the State Building and the taxation office where I learned that they also do not have such a list but suggested I check with the State Department of Commerce and Consumer Affairs upstairs.
- Went to their office upstairs and was told the same but to check with the Kauai Chamber of Commerce.
- At the Kauai Chamber of Commerce, I spoke with Carol Texeira who said that they have a list but it may well be outdated. I told her that wouldn't matter too much, so she said that she would e-mail a list by this Friday. She also suggested that I check with the Garden Island Newspaper.
- Went to the newspaper where the best they could do was provide me with a copy of the Kauai Business Report. I then proceeded to Koloa/Poipu area.
- Stopped at a realtor in Koloa to find out who is the contact person for the proposed Kola Marketplace. I was told that Stacy Wong who works for the Knudsen Trust is the person to contact.

Points from GPS Unit #1

1. Drove out to the Kukuiula Development office and met Carolyn O'Connell. Told her about my e-mails and conversation with a PBR representative. She was surprised, so asked me to forward her the e-mail I sent, and she would sent it to the proper person.
2. through 4: Kiahuna Plantation's plant holding area: Met Grounds Supervisor Harris Nishikawa who said that it was okay to conduct a LFA survey. Began the

survey at 1100 hrs. by placing peanut butter sticks in and around mostly potted palms and ferns. Also placed them around rooted palms, oleander, hala, and a panax hedge. Returned for inspection at 1300 hrs., and **encountered no LFAs.**

5. through 8: Lawai Beach Resort's plant holding area: Landscaper Chris Souza was on leave but another grounds person gave approval to do the survey. All plants in the holding area are in containers sitting on gravel and some are on pallets. There are a mixture of palms, ferns, and herbaceous foliage plants. Began placing peanut butter sticks at 1220 hrs. and returned at 1400 hrs. for the inspection. **No LFAs were encountered.**

As a point of interest, the chemical/pest control person at Kiahuna Plantation inquired about coqui frogs chirping at night around buildings near the tennis courts on Nalo Road. I tried to sound a coqui call, and he wasn't sure but said that the area has a lot of noise at night. I mentioned it to the crew, and Ronson thinks the noise may be from greenhouse frogs.

## Field Work – 12

19/Jun/06

Points from GPS Unit #5

Met with Jeff Rivera of Kealia Kai Development, at the Kealia Kai Post Office. He said they do not import plants from the Big Island as have a nursery of their own where they propagate plants for beautification of the Kealia Kai properties. I informed him of the LFA as well as other invasive species we are targeting, and told him to call us if he has any questions. I then drove up to Kealia Kai to see the development.

6. Taken at the entrance of Lots 1 and 2 at the south end of the development.
7. At the entrance of Lot 14 near the middle of the development.
8. Taken at the entrance of Lots 26 and 27 near the north end of the development.
9. A plant holding area in Kealia Kai which workers said belongs to Mowtown Landscapers. All plants were in containers placed on canvas sheeting, and included palms, plumeria, cerbera, hibiscus, and ferns. (I called Mowtown Grounds Care, and spoke with Brad \_\_\_ who said that most of those plants are locally propagated and grown except for a few hibiscus which he purchased from Oahu.)
10. Kilauea Point National Wildlife Refuge: Met manager Mike Hawkes who informed me that they use native plants in all of their restoration and erosion control work, and have a program for eradicating the invasive plants. He was aware of our LFA program, and said to pass on his regards.
11. A homesite on Kauapea Road: Saw lawn mowing and tree trimming being carried out so stopped to introduce myself and inquire if they knew of anyone

bring in plants from the Big Island. Neither the yard service man nor the tree trimmers knew of such people. The yard service man, Mr. Adam Kaye would like to have some bumper stickers.

12. Hale Akai on Kauapea Road: This is a new development nearing completion of the buildings (which may become vacation rentals). I spoke with the owner's representative, Andrew about their future landscaping, and gave him a flyer and card. He said that they have worked closely with the folks at Kilauea Point National Wildlife Refuge, and plan to have KNL do the eventual landscaping.
13. Home on Anini Vista Road: Saw landscaping being done, so stopped to make an introduction and inquire about imported plants. They suggested that KNL may be bringing in exotics. One worker saw clidemia and thought it to be Miconia.
14. Nursery/plant holding area on the Cane Road just north of our base station: The site has many palms and shrubs in containers plus plots of what appears to be sod production. The gate is locked, so will check back.

20/Jun/06

Points from GPS Unit #1

1. Returned to GPS Point 09 of yesterday, the nursery on Cane Road near our base station: Met with co-owner Uli Ramos who said that it was okay to survey for LFA, and I scheduled it for Tuesday, 27/Jun/06 at 0730 hrs.

Drove to Lauri Ho's office to see if I could meet her as she had not returned an earlier phone call of mine. No one was available.

Drove to HDOA as wanted to check with Laura about the ant specimens she sent to Pat Conant. She was out but met with Craig who said that the translucent ant from Pepperwood Plantation was an unknown species of *Solenopsis*, and that Laura didn't send the three ant specimens to Pat Conant but to someone on Oahu. They also have not heard any results from our survey in Kalihiwai.

2. Po'ipu Beach Resort: This resort is being renovated, and I wanted to speak with someone about their future landscaping. Took the point on the makai side as didn't have a hard hat to gain entrance. Called Master Guard Security about who to contact, and was told Cliff at Ledcor Construction 808-479-0937. I called and left a message but no one has called back. I found their web site and sent an e-mail requesting information on the future landscaping.

Drove back to Lihue and met with Laurie Ho who suggested that I contact Sue Keller of the Kauai Farm Bureau about speaking to island farmers' groups. I call both of Sue's phone numbers and left messages to call me at her earliest convenience. (She returned my calls while we were at Limahuli, and sent you and Jackie e-mails about the possibility of me talking to the Farm Bureau on Wednesday, June 28, and some sort of event on July 28.)

Also called Project Faith, and was told to call Jimmy Torreo the following morning at 0700 hrs.

21/Jun/06

Points from GPS Unit #5

Called Project Faith, and scheduled an appointment with Jimmy Torreo at 1300 hrs.

1. Kauai Beach Hotel and Resort: My initial visit was on 22/Mar/06 when I spoke with grounds manager Mel \_ \_ \_ who informed me that they had neither a nursery nor a plant holding area and the management was seeking a new contractor for the landscaping. I've forgotten, but when seeing workers cutting the grass at the highway, I drove in to find out with whom they contracted. The contractor is Paradise Grounds which I've called twice leaving both my cell and office phone numbers to no avail as of yet.
2. Residence at 1141A Kamalu Road: Stopped to introduce myself when I saw a man working amongst gingers and heliconas. I met the son-in-law of Mr. Yasuo Moribe who owns the small farm and planted assorted fruit trees as well as the herbaceous plants. Everything planted by the 92 year old Mr. Yasuo was from seed or material grafted here on-island. I left a flyer and card with Herb, the son-in-law.
3. Near Adam Kaye's residence at 4797-B Iiwi Road in Kapa'a: I was going to drop off some bumper stickers but failed to locate his home ... saw the mail box but not the residence. So will mail him three of each.
4. Heart and Soul Organics: They have a large green waste area that I want to survey (some of Ben Stiller's waste was taken there). The gate was locked so called Mark Freeman, but have received no reply as of yet.
5. Anahola Homesteaders Council: Met with Jimmy Torio about his Project Faith, and learned that when the time comes for landscaping, they will endeavor to use only Kauai native plants.

22/Jun/06

At Limahuli Tropical Botanical Gardens with the whole crew.

23/Jun/06

At the base station.

Field Work – 13

26/Jun/06

## Points from GPS Unit #1

1. Kaiulani of Princeville Development: Met with Donald Schultz about the landscaping of their development. He said that most probably they would contract with Brandon Miranda. I asked about the recently planted tall coconut trees, and was told that Dan Shook of Pepperwood Plantation had installed them, and would be doing all the large tree work.
2. Princeville Greens: Another new development being laid out by KOGO Construction. I inquired with a field supervisor as to who would be the person to contact about the future landscaping, and was told to call Mike Loo at the KOGO Construction Office at 826-3310. I did and talked with Emma who said that Kauai Nursery and Landscaping would get the contract. Sandwich Island Landscapers will be doing the lawns.
3. New Home at 4131 Aloali'i Street, Princeville: Saw potted plants being installed, so stopped to inquire as to what landscaping company was working. Met the owner ... Brandon Miranda who said the plants they were installing came from Kauai Seascapes Nursery, and that he uses plants only from Kauai nurseries.
4. through 5: Path between the properties of Earhart and Stiller: Placed peanut butter sticks, along the Earhart fenceline, from the steps down to and within the strip of hau trees. (Even placed some on palms that I could reach.) Returning to inspect nearly two hours later, none of the sticks along the fenceline had any ants. It wasn't until reaching the hau tree that any ants were encountered. It appears that the Amdro we applied on 01/Jun/06 was effective in this area.
6. through 7: Palm trees along Stiller's driveway: Placed peanut butter sticks at the bases of several trees where ants, including LFAs, were observed following the application of Amdro on 01/Jun/06. As with the path/fenceline above, no ants of any kind were attracted to the sticks. It appears that Amdro was effective in this instance as well.

27/Jun/06

## Points from GPS Unit #1

1. through 8: De Mello Pond Nursery (Uli Ramos' Section): Began placing peanut butter sticks along the nursery's periphery and also its interior at 0730 hrs. In addition to assorted shrubs and trees in containers, the nursery has a large area devoted to sod production. Returned at 0905 hrs. to begin inspecting, and **encountered no LFAs.**
9. through 12: De Mello Pond Nursery (Butch Buddingh's Section): These two sections are separated by an irrigation ditch which empties into De Mello Reservoir. The same was performed on this section as with that above. Many of the potted plants appear older at this site as several have broken their containers and became rooted in the soil. **No LFAs were encountered** during the inspection.

13. Butch Buddingh's Residence at the end of Moana Road: He informed me that three of his bonsai plants were purchased from east Big Island nurseries, so I asked if I could check them with peanut butter sticks. He was amenable, so I did, and found them to be **free of LFA**.
14. through 17: Section 1 of Mark Freeman's Green Waste site at 6020 Ko'olau Road in Moloa'a where the waste is in various stages of decomposition: Began placing peanut butter sticks around the site's periphery at 1105 hrs. Returned to inspect around 1300 hrs., and **found no LFAs**.
18. through 22: Section 2 of the above green waste site: (Current site of the county's transfer stations green waste.) This site immediately followed Section 1, respectively, with the placement of peanut butter sticks and inspection. **No LFAs were encountered** here as well.

While waiting for the bait to attract ants, I drove to Mark Freeman's residence as both he and his son mentioned that "little" red ants are all over their property as well as in their house. I wanted to see what they were calling "little," so I visited their place at the end of Kalihiwai Road (First): Placed some PBSs around the concrete pad and along its edge. The "little" red ants were not little but rather tall and slender with long legs and very fast moving when excited. These ants were not attracted to the peanut butter but smaller black ants along one edge of the pad were.

28/Jun/06

Worked at the Base Station, and prepared for a short presentation at a monthly meeting for the Kauai Farm Bureau.

29/Jun/06

Conducted a LFA survey at Kalihiwai (Earhart's property) with HDOA personnel. Also talked with Bruce Layman of Paradise Lawn Care who said his purchases are mainly from KNL and other on-island nurseries. He has purchased from Oahu but never from the Big Island.

30/Jun/06

Worked at the Base Station preparing this report, updating the spreadsheet of surveyed nurseries, and washing the blue truck.

#### Field Work – 14

03-18/Jul/06

Most of the time was spent in the office working on the Little Fire Ant report.

19/July/06

Went to the Hyatt Regency Resort to survey its grounds for LFA. Did not finish the survey, so would have to return.

20/July/06

Returned to the Hyatt Regency Resort, and finished just before noon. **No little LFAs were encountered**, but saw several mice. Used GPS Unit # 5, and had points 001 through 006. Gave Jeff the data sheet.

21/July/06

Accompanied the field crew to clear brush along the Kalalau Trail.

24/July/06

Spent the day with Ronson and Amos attacking long thorn kiawe. Quite an experience.

25/July/06

Had a photo op at KNL with Lehua, then took her to Lawai for coqui eradication, and returned to the office. Called Jerry Ornellas and Judith Huber to find out where they purchased their fruit tree seedlings. Jerry buys from the Big Island's Plant It Hawaii Nursery, and Judith said she and husband propagate their own from stock that has long existed on Kauai. I called Pat Conant to find out if Plant It Hawaii, Inc. is LFA free. Pat said that it was free of LFA the last time they conducted a survey, so there is no need to survey Jerry Ornellas' orchard nor that of the Huber's.

26/July/06

Spent the day with Amos learning where his mongoose tracking units and traps are located.

27/July/06

Spent the day replenishing the mongoose tracking units and traps. Used GPS Unit # 4, and put all data sheets in Jeff's basket.

28/July/06

Worked at the base station and office all day ... washed the blue Federal truck and Amos's truck plus cleaned up my emails.