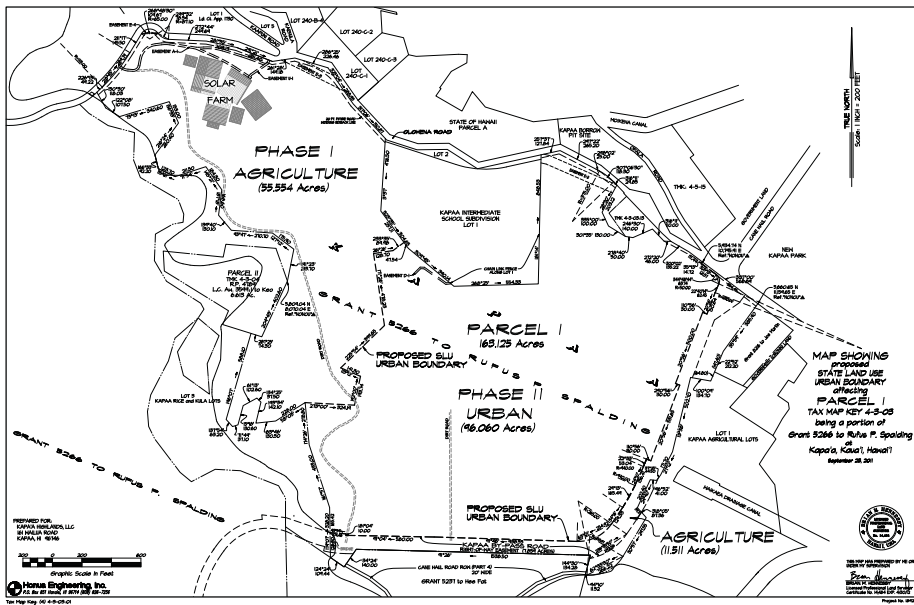


Exhibit J

Botanical Survey
Kapa'a Highlands Phase II
TMK (4) 4-3-003:001
Kaua'i, Hawai'i



Botanical Survey
Kapa`a Highlands Phase II
TMK (4) 4-3-003:001
Kaua`i, Hawai`i
April-May
2012

TABLE OF CONTENTS

Summary.....3

Study Area.....3

Survey Methods.....4

Description of Vegetation.....4

Conclusion.....5

Checklist (Table 1).....6

Survey Area (Figure 1 & 2).....8

References.....9

Prepared by

Kenneth R. Wood¹ / Research Biologist
Megan Kirkpatrick / M.S. Environmental Science
¹P. O. Box 745, `Ele`ele, Kaua`i, Hawai`i, U.S.A. 96705
kwood@ntbg.org

Botanical Survey
Kapa`a Highlands Phase II
TMK (4) 4-3-003:001
Kaua`i, Hawai`i
April 2012

Kenneth R. Wood, Research Biologist, & Megan Kirkpatrick, M.S. Environmental Science
 P.O. Box 745, `Ele`ele, Kaua`i, Hawai`i, U.S.A. 96705, kwood@ntbg.org,

Summary: During April and May of 2012 a botanical survey was conducted on a 97 acre parcel in Kapa`a, Kaua`i, referred to as Kapa`a Highlands Phase II (TMK (4)3-8-003:001). This research documented 44 vascular plant species within the survey area. Forty taxa were non-native plant species, three taxa were very common indigenous native species, and one taxon was a Polynesian introduction (Table 1). NO FEDERALLY LISTED AS THREATENED OR ENDANGERED PLANT SPECIES WERE OBSERVED WITHIN OR NEAR THE SURVEY AREA. This report includes a general description of the study site; the methods of survey; and a vascular plant checklist of all plant species observed.

STUDY AREA. On April 19, 2012 and May 7, 2012, K. R. Wood (Endangered Species Specialist) and assistant Megan D. Kirkpatrick (M.S. Environmental Science) conducted a biological inventory on an undeveloped parcel of property in Kapa`a, Kaua`i (TMK [4]3-8-003:001) (Figures 1 & 2). The survey area is approximately 97 acres of undeveloped land. The primary objectives of this field survey were to:

- a) search for threatened and endangered plant species as well as species of concern;
- b) provide a complete vascular plant checklist of both native and non-native plant taxa observed on property; and
- c) provide a summary concerning the conservation status of all native taxa observed;

SURVEY METHODS. A walk-through survey method was used. Transects included walking/driving around boundaries of property (TMK (4)3-8-003:001) and several transects through the interior portions of property. Plant identifications were made in the field and were recorded by the author (Table 1). Plant names and authors of dicots and monocots follow Wagner et al. (1990) and pteridophytes follow Palmer (2003). Plants of particular interest were collected by the second author (MK) as herbarium specimen vouchers and deposited at the National Tropical Botanical Garden (NTBG) herbarium. Specimens were placed in newspaper sheets and pressed in-between cardboard herbarium presses and dried at the NTBG.

DESCRIPTION OF VEGETATION.

The study area represents a lowland non-native mesic plant community dominated by secondary vegetation of trees, shrubs, and grasses, many of which are considered invasive. The land is vacant and currently undeveloped and has a past history of grazing and sugarcane cultivation.

The non-native grass *Panicum maximum* (Poaceae – Guinea grass) and non-native shrub or small tree *Leucaena leucocephala* (Fabaceae – koa haole) are by far the dominant species found at the site. Additional common non-native trees and shrubs include: *Lantana camara* (Verbenaceae – lākana), *Indigofera suffruticosa* (Fabaceae – indigo), *Syzygium cumini* (Myrtaceae – Java plum), *Psidium guajava* (Myrtaceae – guava), *Spathodea campanulata* (Bignoniaceae – African tulip), and *Senna surattensis* (Fabaceae – kolomona). Several less common non-native trees and shrubs include: *Clidemia hirta* (Melastomataceae – Koster's curse), *Cinnamomum camphora* (Lauraceae – camphor tree), *Falcataria moluccana* (Fabaceae – albezia), *Ficus microcarpa* (Moraceae – Chinese banyan), and *Schefflera actinophylla* (Araliaceae – octopus tree). No Hawaiian endemic species (i.e., restricted to only Hawai`i) were observed. One Polynesian introduction was observed, namely *Aleurites moluccana* (Euphorbiaceae – kukui tree) which is common throughout the Hawaiian islands. The three indigenous species found at the site are quite common and include: *Hibiscus tiliaceus* (Malvaceae – hau) which is also often an invasive tree species, the fern species *Psilotum nudum* (Psilotaceae – moa), and *Waltheria indica* (Sterculiaceae - `uhaloa). For complete checklist of species see Table 1 which also includes the common names and status (i.e., indigenous/naturalized) category of each taxon.

CONCLUSION.

NO THREATENED OR ENDANGERED PLANT SPECIES WERE OBSERVED WITHIN OR ANYWHERE NEAR THE SURVEY AREA DURING RESEARCH -and therefore there are no concerns about possible impacts to rare plant species at the Kapa`a Highlands Phase II project. The current conditions of this study site indicate that the area has been dominated by non-native weedy species for a very long time. The senior author certifies his expertise with more than 25 years conducting biological inventories within the Hawaiian Islands and has specialized in the conservation of Hawai`i's *Federally Listed as Endangered* plant species, including those considered *Candidates* for listing, *Species of Concern*, or *Federally Listed as Threatened* (USFWS 1999a, 1999b, 2004, 2010).

TABLE 1. Checklist of Vascular Plants Observed in Kapa`a Highlands Phase II Survey Area (TMK (4) 4-3-003:001)

Status Symbols: ind=Indigenous (naturally occurring in Hawai`i, yet found in other areas of the world), nat=Naturalized (non-native), pol=Polynesian introduction. Note: Checklist alphabetical by genus. Flowering plants follow Wagner et al. 1990; pteridophytes follow Palmer 2003.

FAMILY	GENUS / SPECIES	COMMON NAME	STATUS
Asparagaceae	<i>Agave sisalana</i> Perrine	sisal, sisal hemp, century plant, malina	nat
Asteraceae	<i>Ageratum conyzoides</i> L.	maile hohono, maile honohono, maile kula	nat
Euphorbiaceae	<i>Aleurites moluccana</i> (L.) Willd.	kukui, kukui, candlenut	pol
Blechnaceae	<i>Blechnum appendiculatum</i> Willd.		nat
Poaceae	<i>Bracharia mutica</i> (Forssk.) Stapf	California grass, Para grass	nat
Fabaceae	<i>Canavalia cathartica</i> Thouars	maunaloa	nat
Fabaceae	<i>Chamaecrista nictitans</i> (L.) Moench var. <i>glabrata</i> (Vogel) H. S. Irwin & Barneby	partridge pea, laukī	nat
Poaceae	<i>Chloris barbata</i> (L.) Sw.	swollen fingergrass, mau`u lei	nat
Lauraceae	<i>Cinnamomum camphora</i> (L.) J.Presl	camphor tree	nat
Melastomataceae	<i>Clidemia hirta</i> (L.) D.Don	Koster's curse	nat
Asteraceae	<i>Cyanthillium cinereum</i> (L.) H.Rob.	little ironweed	nat
Thelypteridaceae	<i>Cyclosorus dentatus</i> (Forssk.) Ching	pa'i'ihā	nat
Poaceae	<i>Cynodon dactylon</i> (L.) Pers.	Bermuda grass, mānienie	nat
Cyperaceae	<i>Cyperus pilosus</i> Vahl		nat
Poaceae	<i>Eragrostis brownii</i> (Kunth) Nees ex Steud.	sheepgrass	nat
Fabaceae	<i>Falcataria moluccana</i> (Miq.) Barneby & J.W.Grimes		nat
Moraceae	<i>Ficus microcarpa</i> L.f.	Chinese banyan, Malayan banyan	nat
Cyperaceae	<i>Fimbristylis miliacea</i> (L.) Vahl		nat
Malvaceae	<i>Hibiscus tiliaceus</i> L.	hau	ind
Lamiaceae	<i>Hyptis pectinata</i> (L.) Poit.	comb hyptis	nat
Fabaceae	<i>Indigofera suffruticosa</i> Mill.	indigo, 'inikō, 'inikoa, kotū	nat
Verbenaceae	<i>Lantana camara</i> L.	lākana, lā`au kalakala, lanakana (Ni`ihau),	nat

FAMILY	GENUS / SPECIES	COMMON NAME	STATUS
Fabaceae	<i>Leucaena leucocephala</i> (Lam.) de Wit	koa haole, ēkoa, liliikoa	nat
Malvaceae	<i>Malvastrum coromandelianum</i> (L.) Garcke	false mallow	nat
Poaceae	<i>Melinis repens</i> (Willd.) Zizka	Natal redbop, Natal grass	nat
Fabaceae	<i>Mimosa pudica</i> L.	sensitive plant, sleeping grass, pua hilahila	nat
Fabaceae	<i>Neonotonia wightii</i> (Wight & Arn.) Verdc.		nat
Lomariopsidaceae	<i>Nephrolepis brownii</i> (Desv.) Hovenkamp & Miyam.		nat
Poaceae	<i>Panicum maximum</i> Jacq.	Guinea grass	nat
Asteraceae	<i>Parthenium hysterophorus</i> L.	false ragweed, Santa Maria	nat
Asteraceae	<i>Pluchea carolinensis</i> (Jacq.) G.Don	sourbush, marsh fleabane	nat
Myrtaceae	<i>Psidium guajava</i> L.	common guava, kuawa,	nat
Psilotaceae	<i>Psilotum nudum</i> (L.) P.Beauv.	moa, moa nahele	ind
Euphorbiaceae	<i>Ricinus communis</i> L.	castor bean, pā`aiaia	nat
Araliaceae	<i>Schefflera actinophylla</i> (Endl.) Harms	octopus tree, umbrella tree	nat
Poaceae	<i>Schizostachyum</i> sp.	'ohe	nat
Fabaceae	<i>Senna surattensis</i> (Burm.f.) H.S.Irwin & Barneby	kolomona, kalamona	nat
Malvaceae	<i>Sida spinosa</i> L.	prickly sida	nat
Bignoniaceae	<i>Spathodea campanulata</i> P.Beauv.	African tulip tree, fountain tree	nat
Asteraceae	<i>Sphagneticola trilobata</i> (L.) Pruski	wedelia	nat
Verbenaceae	<i>Stachytarpheta jamaicensis</i> (L.) Vahl	Jamaica vervain, ōwī	nat
Myrtaceae	<i>Syzygium cumini</i> (L.) Skeels	Java plum, jambolan plum	nat
Acanthaceae	<i>Thunbergia fragrans</i> Roxb.	white thunbergia, sweet clock-vine	nat
Sterculiaceae	<i>Waltheria indica</i> L.	'uhaloa, 'ala'ala pū loa	ind



Figure 1. Aerial Image of Kapa`a Highlands Project Area.



Figure 2. Kapa`a Highlands Phase II concept plan.