Jumping the Fence: Ways of Dealing with Invasive Plants in Landscaping

October 27, 2006

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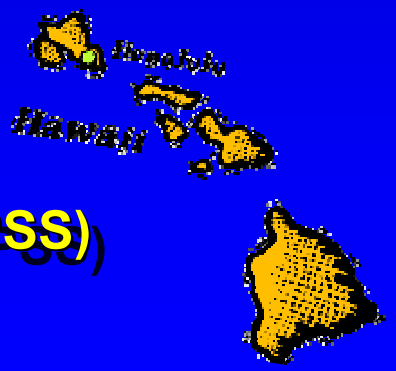
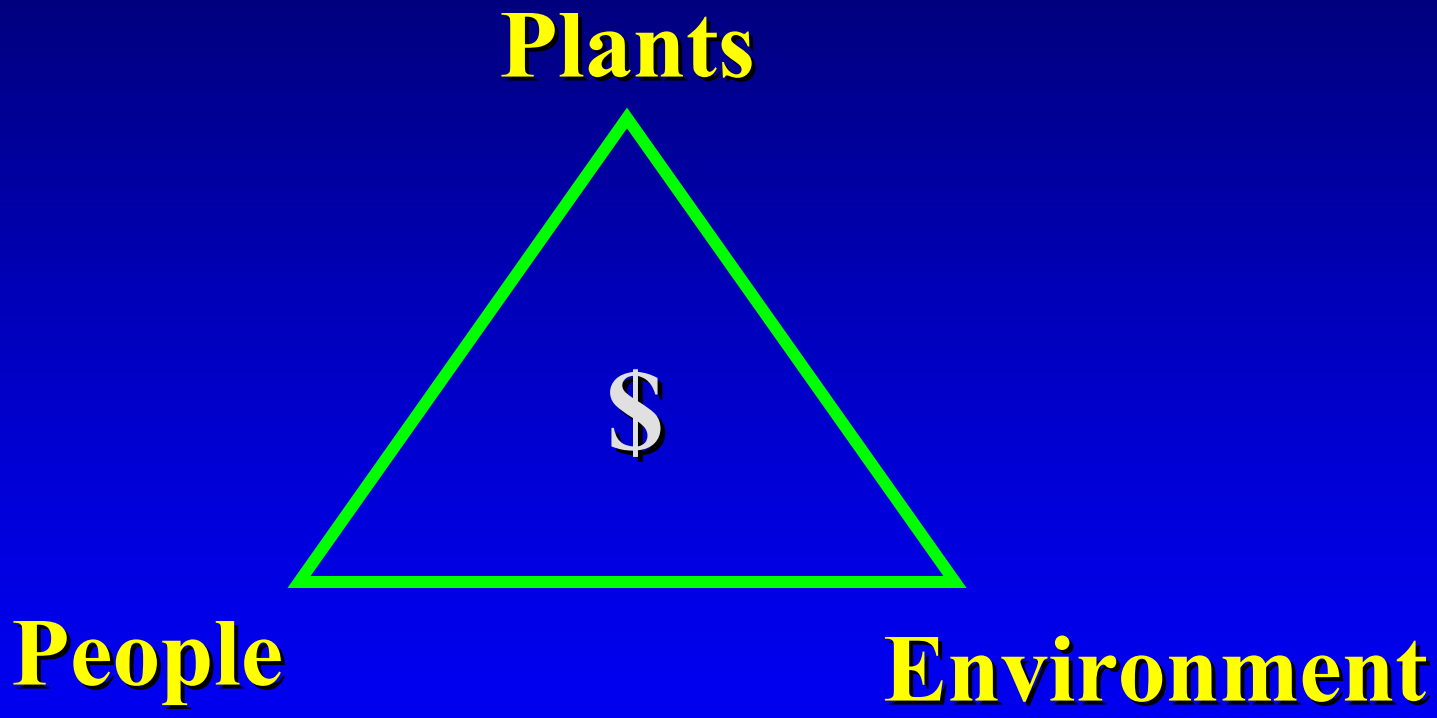


Special Thanks to:

- Dr. Ken Leonhardt,
- Christy Martin,
- Jody Smith


Plants
$
People
Environment

Who's All Involved…

Research

General Public

University

Landscape Architect

Extension Agent

Landscape Maintenance

Nature

Landscape Industry

Wholesale Nursery

Landscape Specialist

Garden centers

Environmentalists

Master Gardner

Landscape contractors

Plants: Invasive Species, Exotics, Development, Environment,

$$$

Design on the Land

“Only design can rebuild a world that will be healthy for both people and nature; the function of design is to work out the relationships and resolve the contradictions, between ecology and culture…”

-Garrett Eckbo

So what do we mean by “design”, and how do we do this…

This is something that we are all doing everyday…

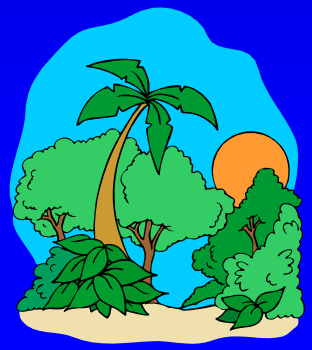
How we look at our environment,

How we think about it,

How we interact with it,

What is really the core of all of this…

To create and maintain a
"Hawaiian Sense of Place"
for the environment and society



We Begin with Some Terms…

Native: Plants or animals that arrived at a location through non-human means, or ones that have evolved into new species from those ancestors.

Terms…

Alien species: **plants or animals that were brought to a place by humans or through human activity.**

Alien = exotic = introduced = non-native

Terms…

Invasive species: Alien plants or animals that don't stay put; they reproduce quickly, spread easily, take over.

Invasive = pest = nuisance species

Some Invasive Species in Hawaii

Australian tree fern

Butterfly bush

Rubbervine

Glorybush

Pampas grass

Some Invasive Species in Hawaii

Hedychium gardnerianum

Lantana camara

Psidium cattleianum

Miconia calvescens

The Use of Native Hawaiian Plants?

The road ahead my not be clear, and may have some pot holes along the way, but the possibilities are endless for Hawaii…

Natives?

- Guaranteed against invasion
- Set Hawaii Landscapes apart
- Environmentally friendly
- Unusual
- Many native plants tell a story
- Natives are adapted to their environment

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Public Awareness

KITV TV 4

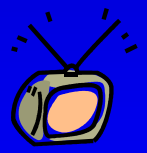
- Brochures
- Television public service announcements

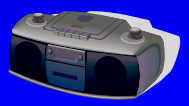
KHNL TV 8

KQMQ-FM

KGMB TV 9

KINE- FM





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Growing Palms in Kona

Welcome to our About Palms Page, a source of useful information about palms for landscapers, home owners, designers and palm enthusiasts. Check back to this page in the future to see what has been added.

Growing Palms in Kona: An article that appeared in West Hawaii Today in 2005, written by Garrett Webb, giving general information about palms and encouraging the use of new varieties in Kona gardens

Growing Palms in Kona: An article that appeared in West Hawaii Today in 2005, written by Garrett Webb, giving general information about palms and encouraging the use of new varieties in Kona gardens.

Salt Tolerant and Shade Tolerant Palms: lists of palms that do well planted close to the ocean or in deep shade.

Common Names: lists palms by their common names and gives the botanical name for each.

Palms and the Weed Risk Assessment: Hawaii is in the process of rating plants for their potential for invasiveness or ability to naturalize to the detriment of native flora. This list shows the palms that have been tested so far and the rating they have received. Washingtonia robusta, the Mexican Desert Palm, has received a high rating as Invasive. For that reason, we discourage the planting of this palm and do not carry it in our nursery.

Codes of Conduct Project

A groundbreaking workshop held between conservation & plant industry groups in 2001 at the Missouri Botanical Garden.

Workshop produced…

- **St. Louis Declaration:**
  - **Acknowledges that people are responsible for the introduction & movement of invasive plants.**
  - **Plant introductions should acknowledge and minimize unintended harm.**

Codes of Conduct Project

Voluntary Codes of Conduct were drafted:

- For plant industry groups to provide guidelines how the industry can minimize the introduction & spread of invasive plants.

So What's happening a our local level?

- The Kaulunani Urban Forestry Program organized a meeting between plant industry & conservation groups also in 2001.

Codes of Conduct Project

The Kaulunani Urban Forestry Program:

- Discussed ways to stem the influx & spread of invasive plants.
- Recognition that the plant industry is also responsible for the majority of invasive plant introductions.
- A result of the workshop was agreement to look at adapting and testing the Hawaii Pacific Weed Risk Assessment system (WRA).

Codes of Conduct Project

Oahu Nursery Growers Association (ONGA) has agreed to implement Voluntary Codes of Conduct.

1. **They will use the Hawaii Pacific Weed Risk Assessment system to screen new plant introductions,**
2. **Agreed to start identifying non-invasive alternatives,**
3. **Agreed to discontinue growing/use/sale of the following species:**

Australian tree fern (*Cyathea cooperi*)
Rubbervine (*Cryptostegia grandiflora* and *C. madagascariensis*)
Smokebush (*Buddleja madagascariensis*)
Butterfly bush (*Buddleja davidii*)
Pampas grass (*Cortaderia selloana* and *C. jubata)**
Mule's foot fern (*Angiopteris evecta*)
Glorybush (*Tibouchina urvilleana)**

(*these plants are State Noxious Weeds but are occasionally sold)

Codes of Conduct Project

CGAPS has also presented draft Codes to:

- **Kauai Landscape Industry Council**
- **Maui Association of Landscape Professionals**
- **Hawaii Island Landscape Association**
- **Participants of the Hawaii Landscape Industry Council (LICH) 2006 annual conference**
- **ASLA Hawaii**

Research…

Dr. *Ken Leonhardt*

One potential solution good for industry and the environment…

- **Create seedless versions of invasive and potentially invasive species for use in Hawaiian landscapes.**
- **Naturally occurring sterile plants result from a malfunction of reproductive organs.**

Liquidambar styraceflua "Rotundioloba" **(sweetgum)**

Sources of Seedlessness

Wide hybridization

In Rainbow Shower Tree, a hybrid of *Cassia fistula* x *Cassia javanica*, is sterile due to dissimilarities of the chromosomes resulting meiotic failure.

Double flowered varieties

Many plant varieties are sterile because their reproductive organs (stamens and carpels) become flower petals.

Punica granatum 'Ato Shibori'

Sources of Seedlessness

Natural and artificial triploids

Leucaena K1000, a UH bred seedless variety!

Narcissus tazetta var. chinensis, a naturally occurred triploid

A triploid floribunda rose variety

Benefits of Seedless Triploids

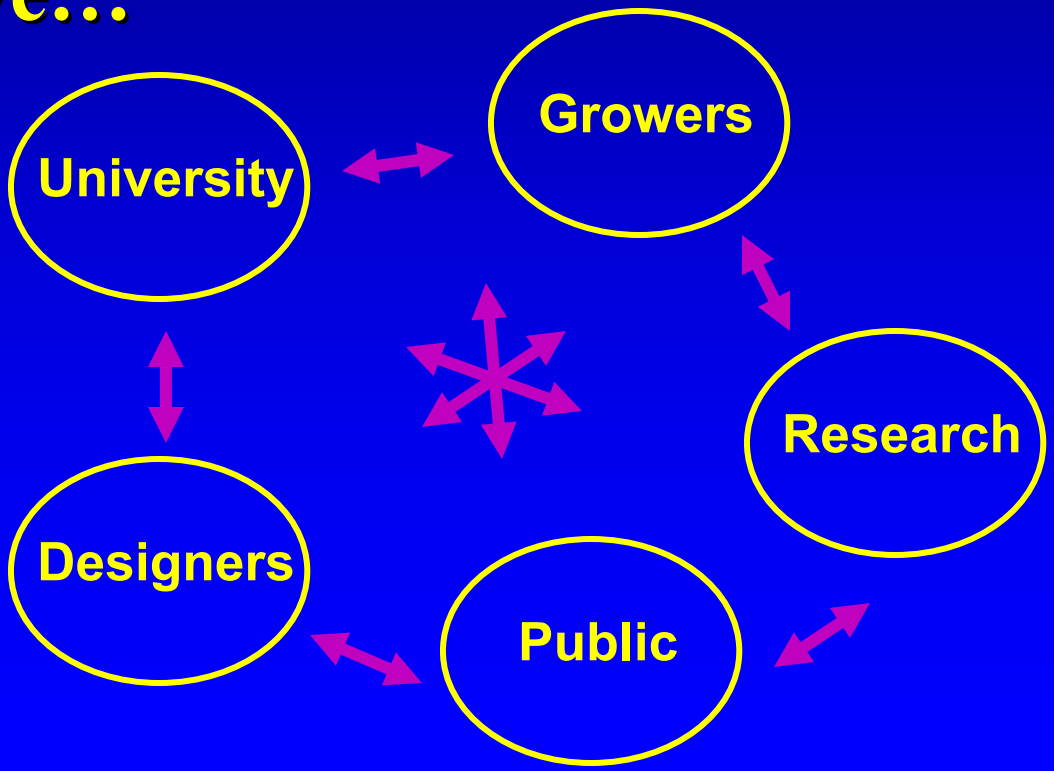
- **Do not produce seeds** (not always 100% seedless, few seeds produced by triploids are usually not viable).
- **Seedless means less littering of seeds, and much less invasiveness; safe for environments.**
- **Seedless plants are usually more vigorous and grow faster.**
- **Seedless plants have longer flower period.**

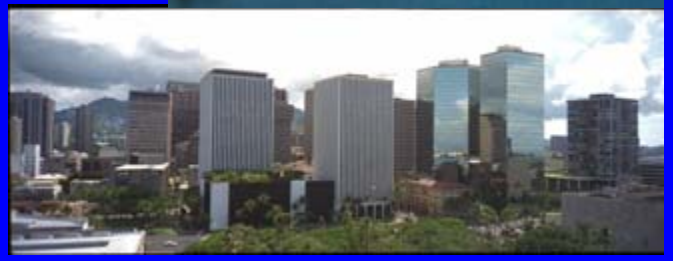
Possible Species to be Looked at…

Species	Family	Common Name	Chromosome Number (2n)
Thevetia peruviana	*Apocynaceae*	be-still tree	18, 20
Lantana camara	*Verbenaceae*	lantana wildtype	24
Murraya paniculata	*Rutaceae*	mock orange	18
Pittosporum tobira	*Pittosporaceae*	Japanese pittosporum	24
Ligustrum japonicum	*Oleaceae*	Japanese privet	46
Spathodea campanulata	*Bignoniaceae*	African tulip tree	26
Clusia rosea	*Clusiaceae*	autograph tree	?
Acacia confusa	*Fabaceae*	Formosan koa	26
Schefflera actinophylla	*Araliaceae*	octopus tree	54
Melaleuca quinquenervia	*Myrtaceae*	paper bark tree	22
Grevillea banksii	*Proteaceae*	red silk oak	28
Cassia bakeriana	*Leguminosae*	Baker's cassia	28
Cassia fistula	*Leguminosae*	golden shower	28
Cassia javanica	*Leguminosae*	pink-and-white shower	28
Delonix regia	*Leguminosae*	royal poinciana	24, 28
Erythrina spp.	*Leguminosae*	several species	42
Samanea (Albizzia) saman	*Leguminosae*	monkey pod	26

What Else?

Identifying alternative species to replace existing trees, shrubs, and groundcovers that are invasive…





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