



Kia'i Moku

guarding the island

WHAT'S

INSIDE?

VOLUME I  ISSUE 2

A PUBLICATION OF THE KAUA'I INVASIVE SPECIES COMMITTEE

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Invasive Species Affect Our Watersheds

By Matt Roesner, Hanalei Watershed Hui

How do invasive species on land affect coral reef ecosystems in the ocean? The connection is not immediately clear, but we know that changes in vegetation communities throughout our watersheds are causing changes in storm runoff and erosion patterns all over the Hawaiian Islands. In turn, these changes can result in significant impacts to the sensitive coral reefs that are the backbone of many near-shore marine ecosystems around the islands. It is these processes and the factors that affect them that are currently being investigated by the Hanalei Watershed Hui and several partner agencies such as the US Geological Survey (USGS), the

USDA Natural Resources Conservation Service (NRCS), and the University of Hawai'i (UH) in the Hanalei River watershed.

The Hanalei Watershed Hui is a non-profit conservation organization that first started in 1999 with the designation of the Hanalei River as an American Heritage River. With conservation and preservation of the unique natural and cultural resources of the Hanalei ahupua'a as the focus of the program, for five years the Hui has been leading campaigns in the areas of water quality monitoring, watershed restoration, and watershed/ahupua'a education. In 2003, the Hui received an EPA Targeted

Watershed Initiative (TWI) Grant that has made it possible to realize many of the organization's goals; this grant has also provided much of the funding for the work described here.

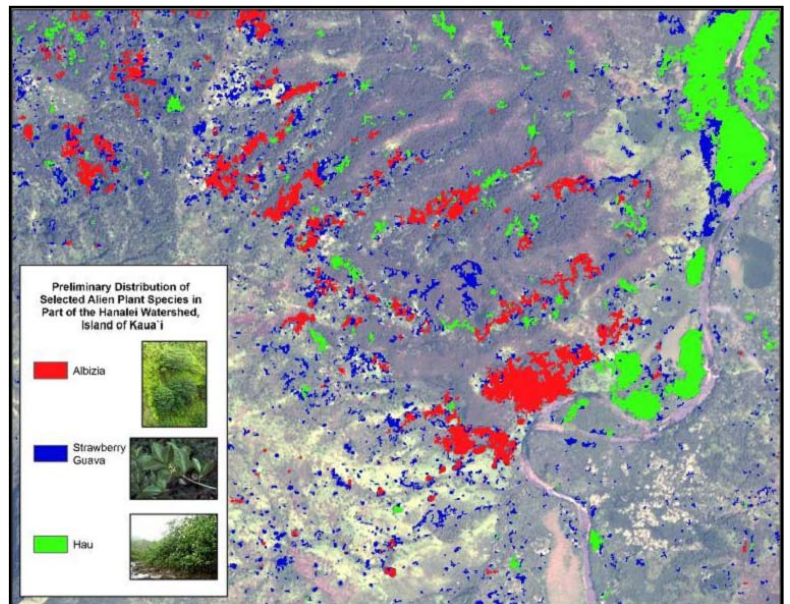
The lower Hanalei River, including the estuary, is listed by the State Department of Health as 'water-quality impaired' due to suspended sediment concentrations in excess of state standards (turbidity is used as a surrogate for suspended sediment since it is much easier to measure).

Left: Kauai's Hanalei River Valley
Right: Portion of HWH & USGS Vegetation Inventory Map, featuring three invasive species

QUOTE OF THE SEASON

"Koke'e is one of Hawai'i's greatest natural treasures... the invasion of alien weeds in the park and forest area is a true natural tragedy"

former DLNR chairperson,
Michael Wilson





A Portrait of Hana Like

KISC crew members lifting each other up



We mean it—they're little!

The tinier of the two above fire ants, known in Hawai'i, is the one that KISC is after. Above is the tropical fire ant.



Bill Null, KISC's ant guy

Ho'omanawanui (be patient and work with what you have)

By Keren Gundersen, Kaua'i Invasive Species Committee

At a staff meeting to outline a change in supervisory positions, I was trying to get across to everyone that we would all need to make changes and offer support where needed. Joe Kona put it simply: Hāna like, work together. This is an important message not only for us as individuals, but for KISC as a whole. KISC's mission statement states that "KISC is a voluntary partnership..." Finding,

forming, and strengthening these partnerships is essential in achieving like-minded goals. Many partnership projects have ensued during the past few months including enrichment days. KISC was privileged to take part in a project with NTBG at Limahuli working to help remove invasive trees in a beautiful valley setting of native plants. In return, Limahuli's Director, Kawika

Winters, led the crew on an incredible cultural journey through Limahuli's unique history. By working together, common goals were achieved and all parties involved were spiritually enriched and rejuvenated.

Ho'omanawanui. Look around. Take a deep breath. See the beauty.

And hāna like.

No Needles Found in the Haystack

A Thorough Search for Little Fire Ants on Kaua'i

By William Null, Kaua'i Invasive Species Committee

One of the major invasive target species of KISC is *Wasmannia auropunctata*, or the little fire ant (LFA). This ant is a harmful and ecologically destructive pest. Although only 1/16" in size, the sting of the little fire ant is believed to be the most painful compared to the other six small stinging ants already established in Hawai'i. LFA prey on insects and small animals and if left uncontrolled may become a danger to our native insect population. LFA was initially identified on Kaua'i in 1999, and arrived via a shipment of plants from an infested Big Island nursery. This

population has yet to be completely eradicated but it continues to be monitored and treated by the Hawai'i Department of Agriculture with assistance from KISC. In 2005, a grant was received from US Fish and Wildlife Service to survey the extent, if any, of LFA on Kauai. Nurseries, Landscapers, resorts, golf courses, and green-waste transfer stations have all been contacted and surveyed island-wide in an attempt to ascertain any additional infestations. Since the infestations of LFA are increasing on the island of Hawai'i, and plant materials continue to be shipped to

Kaua'i, there is a possibility of further introductions. KISC employee, Bill Null, worked diligently to set up and conduct these interviews and surveys and, to date, no additional LFAs have been detected. Check out the KISC website to find Bill's completed report! www.kauaiisc.org

A partnership



Fighting the fire together



Watershed Invasions cont.



Landslide in Hanalei Valley, surrounded by invasive species, notably the Australian tree fern

Unnaturally high sediment inputs from rivers and other runoff from land can and often do have deleterious effects on the health of offshore coral reef ecosystems. For these reasons, the Hui has embarked on a multi-year study of the river basin that should help determine the most significant sources of these sediments and lead to the implementation of Best Management Practices to keep erosion and sedimentation at background levels.

Vegetation is obviously an important factor in how much water and sediment is delivered from a watershed to its outlet. In the total absence of vegetation, soil erosion is likely to be dramatically high, and sedimentation in downstream receiving waters such as streams, estuaries, lagoons, and bays will be inevitable. Even where vegetation coverage is extensive, soil erosion still occurs. The many forms of erosion are natural processes to some degree, and they have sculpted this island into the amazing landforms that we see today. The amount, type, age, and quality of the vegetation can still cause variations in how much sediment

is eroded from the land surface and in how much of this eroded sediment is transported to sensitive receiving waters.

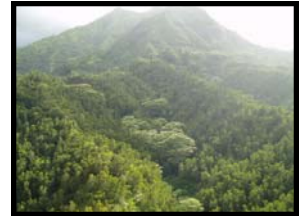
It is highly probable that exotic vegetation species are causing changes in the hydrology of our island watersheds by altering components of the hydrologic budget such as rainfall interception, evaporation, and transpiration. Vegetation type also affects the susceptibility of soils to erosion by raindrop splash, flowing water, or wind. Vegetation generally reduces soil erosion by reducing the energy of raindrops in the canopy, covering the ground surface with fallen leaves (litter), and stabilizing the soil matrix with its root systems. However, not all plants serve these functions as well as others, and it may be the case in general that exotic vegetation does not perform as well as native vegetation when it comes to holding the soil in place. The Hanalei watershed study may provide some local insights into this critical issue, but much more research is needed statewide to determine if this is indeed the case.

The USGS Biological Resources Division, with funding from the Hui's TWI Grant, has developed a methodology to generate detailed vegetation community maps for the Hanalei watershed from high-resolution satellite imagery (Quickbird, at 2.6 meter

res). Dr. Jim Jacobi and Stephen Ambagis, USGS scientists based at Hawai'i Volcanoes National Park, used the spectral information from satellite images to develop algorithms for identifying vegetation types and vegetation communities within the study area. The ground-truthing was performed by making several trips into various parts of the watershed for plant identification, both from the ground and from the air by helicopter.

This powerful new tool provides the ability to quickly map existing vegetation over large areas from satellite images, and it could be used with a time series of images to determine trends in vegetation change. In this way, the Hanalei Watershed Hui intends to track the spread (or decline) of invasive species within the Hanalei watershed in the future, and to use this information to develop cost-effective control strategies. It is possible that this new technology could be transferred from Hanalei to the adjacent North Shore watersheds to provide high-detail vegetation community maps for a much larger area.

The vegetation mapping thus far has shown that the predominantly native vegetation communities are confined to the farthest mauka areas of the watershed, and along the upper slopes on west side of the valley. Most of the valley floor and the terraces above it are dominated



From Mountaintop



To Sea



It's all CONNECTED

Continued on next page

Watershed Invasions cont.



A Warning from Tahiti:

Invasive plants like *Miconia* cause serious erosion

“Coral reefs are the backbone of many near-shore marine ecosystems around the islands.”



Breaking the Backbone:

Sediment from soil erosion on islands can damage coral reefs offshore, as seen here

(Photo: Bill Walsh, Hawaii Dept. of Land and Natural Resources)

by exotic vegetation species, many of which are considered invasive, such as Common Guava, Strawberry Guava, *Clidemia*, Lantana, and *Melestoma*. Also common but less dominant are problem species like *Albezia*, African Tulip, and Australian Tree Ferns. A sample of the vegetation map showing the distribution of *Albezia*, Strawberry Guava, and Hau over a small section of the watershed is included here (page 1).

The vegetation map, derived from satellite imagery, is complemented with information about the vegetation communities that has been collected in the field, such as percent canopy cover, canopy height, litter thickness, etc. This information will be used along with maps detailing spatial variability of soil types, rainfall, and topography to simulate water and sediment yields from the Hanalei River basin using the AnnAGNPS computer model (Annualized Agricultural Non-Point Source Pollution Model). This model uses a conventional method for determining the percentage of rainfall in the watershed that becomes runoff, and soil erosion calculations are based on the Revised Universal Soil Loss Equation (RUSLE).

For the past two years, the USGS has been operating a suspended sediment gaging

station on the Hanalei River where sediment concentrations in the river are measured, as well as streamflow. Collectively, these measurements give us the ability to calculate the total amount of suspended sediment coming down the river to that point in each day, or over the course of a year. In its first year of operation, the calculated sediment yield from the Hanalei River basin upstream of the gage site (a drainage area of 19 square miles) was approximately 9,000 tons. In the second year of measurements, the sediment yield was approximately 31,000 tons. The difference seems quite large, but it is not abnormal considering the variability in weather from year to year.

These measurements of sediment in the river are being used to calibrate the AnnAGNPS computer model for the Hanalei watershed, and once this has been achieved the model should be a useful tool for designing management practices to reduce erosion within the watershed. By simulating erosion in the watershed under potential future management scenarios, we could determine how much of an effect the management practices might have on reducing erosion and sedimentation. This would be useful in setting management priorities when it comes to controlling erosion

in the Hanalei watershed. A good example of this is the potential future management practice of replacing invasive, non-native vegetation with native vegetation communities. Another would be evaluating the effects of reducing feral pig populations in the valley. It would be nice to know how much of a soil erosion reduction could be expected from these actions before they are started, considering the huge effort that these management practices would require.

At the moment, the Hui does not have any programs to control or eradicate invasive species within the Hanalei watershed. It is hoped that through the current efforts of mapping existing vegetation communities and modeling the existing and potential future conditions in the watershed, we will have the necessary information and tools to develop a coordinated plan for dealing with exotic, and especially invasive species, within the Hanalei River watershed. This approach may be an appropriate model for use in developing action plans for other similar watersheds, here on Kaua'i, and on other islands in Hawai'i and throughout the tropical Pacific. If you would like to learn more about the ongoing work of the Hanalei Watershed Hui, please contact us at 826-1985 or at hanaleiriver@hawaiian.net.

What's Up in Koke'e? *Changing Seasons*

By Katie Cassel, Koke'e Resource Conservation Program



If you haven't already heard the news from coconut wireless, Koke'e Resource Conservation Program (KRCP), Kauai's innovative forest weeding effort founded and coordinated by Katie Cassel, is now sponsored by Garden Island Resource Conservation & Development, Inc. (GIRC&D). KRCP finished its inaugural eight years of volunteer efforts in the forests under the sponsorship of Hui o Laka, which has operated Koke'e Natural History Museum since 1953.

"KRCP's new status under GIRC&D's wing will allow both KRCP and Hui o Laka to respond to growth opportunities consistent with their individual visions and missions," said Marsha Erickson, Hui o Laka Executive Director.

While KRCP's many fruitful partnerships and conservation interests have expanded to include the entire bio-region of Waimea-uka, Hui o Laka found that its on-the-ground interests are instead concentrated in Waimea Canyon and Koke'e State Parks, the ongoing support of which are included in the organization's by-laws. As a complement to KRCP's systemic

Katie Cassel, Koke'e Weed Warrior commitments focusing on selected forest reserve areas as well as on incipient weed species, Hui o Laka will instead

continue its volunteer efforts on grooming park trails and overlooks, and other areas used regularly by the public. And, it will turn its focus to the development of new exhibits and even a new museum building.

"We're confident that KRCP will continue to thrive and grow," said Erickson. "It's a remarkably vigorous program that is ready for a new leap of growth under new sponsorship." According to Erickson, all current funders have approved the new sponsorship, and KRCP staff and volunteers have not missed a beat in the transfer.

According to Program Coordinator Katie Cassel, a great group of five student interns were on the mountain for the summer: Kanoe Arinaga, Marissa Speery, Mathew Stoltz, Brooke Hodge, and Jennifer Canale. She expressed gratitude to this year's sponsors of the internship program, including Aloha Beach Resort, Aqua Engineers, Crane Eye Care, First Hawaiian Bank, Inter-Island Helicopters, Kekaha Federal Credit Union, Kiahuna Plantation, Kikiaola Land Company, Na Pali Explorer, Pioneer Hi-bred, Pua Kea Golf Course, Syngenta, UAP, Unlimited Construction, and Will

Squyers Helicopter.

As she looks back over the first 8 and a half years of the program, she's deeply grateful for all the volunteer and financial support for the year-round program.

Approximately 2,000 volunteers per year, putting in about 10,000 hours of volunteer time per year, have removed over 6 million weeds in over 4,000 acres in the Koke'e region (these figures include repeat volunteers and repeat

acres). These accomplishments reflect the recognition world-wide of the value of the diverse and unique forests of Kaua'i, since people from all over the world come to help conserve them, and come back.

The new contact information for KRCP is:
P.O. Box 1108
Waimea, HI 96796
(808) - 335- 0045
rcp@aloha.net



Garden Island RC&D

Approximately 2,000 volunteers per year, putting in about 10,000 hours of volunteer time, have removed over 6 million weeds in over 4,000 acres in the Koke'e region

KISC at Koke'e





EARLY DETECTION OF INVASIVE SPECIES

YOU CAN HELP BY BEING THE EYES AND EARS OF MAUI COUNTY

MISC's Early Detection Handbook

“If [miconia] had been controlled in its earliest stage, it’s estimated to have cost about \$50 to eradicate the original plant...[Now] costs have escalated to approximately \$900,000 per year for Maui County!”

A sample page from the handbook with descriptions of target species

Detecting Invasive Species Before They Spread

By Joylynn Paman (MISC) & Elizabeth Spieth (PBIN)

The State of Hawai'i is in the midst of an alien species invasion that threatens the islands' environment, economy, and quality of life. Non-native plants such as miconia, also known as the velvet tree, grow out of control producing millions of seeds per tree annually, threatening to take over natural areas and watersheds. Non-native animals such as the coqui frog jeopardize tourist revenue and residents' property values. Containing and removing these unwanted visitors costs the state millions of dollars a year.

With the increase of traffic to and from the islands, this influx is not likely to stop. In fact, 20 to 50 new non-native species arrive every single year. Early detection of and rapid response to new

invasive threats entering the islands will reduce the overall impact of these species before they become out of control. To combat the problem, the Maui Invasive Species Committee (MISC) and the Pacific Basin Information Node (PBIN) have designed an early detection program for Maui County. The goal is to educate the community about how to detect and report species that pose a high threat to our environment, economy and quality of life. This program can also be replicated on other islands to achieve the same goal.

Early detection is extremely important in protecting Hawai'i. The sooner these species are detected, the easier and cheaper it is to control the problem. For

example, miconia was intentionally brought into Maui in the early 1960's as an ornamental plant. If it had been controlled in its earliest stage, it's estimated to have cost about \$50 to eradicate

the original plant. That would've been the end of the problem. Decades later, the costs have escalated to approximately \$900,000 per year for Maui County! Now, there is a full-time MISC crew dedicated to the Hāna area to survey and control thousands of acres of miconia. This program will need to continue for at least ten more years to cover areas that may still contain seeds. Tons of resources are being put into an invasive plant that could've easily been prevented.

You can help by educating yourself about these invasive species and reporting them. Visit www.reportapest.org. Here, you will find a complete list of invasive plants and animals that are on our radar in Maui County. The site also contains several easy ways to report a pest if found. This pilot project has been successful on Maui and hopefully it will come to Kaua'i in the near future. Until then, remain up-to-date with species that are affecting Kaua'i by visiting, www.kauaiisc.org.

Investigate it! Inspect it! Report it!

AUSTRALIAN TREE FERN

Cyathea cooperi

Invasiveness:

Australian tree fern was planted in residential areas but escaped into natural areas via lightweight wind blown spores. This tall fern is established in the wild on Maui, but can be prevented from escape on Moloka'i.

Don't mistake this plant for these look-alikes:

Hāpu'u
Cibotium species

The native Hawaiian tree fern, Hāpu'u, has blond to red colored hairs along the base of the trunk, rather than scales like the Australian tree fern. The sori (clusters of spores) are powdery white and found on the edge of the leaflet division.

Characteristics:

Height

- 40 ft (12 m)

Leaves

- Grouped at top of trunk rather than spread along the length

Stem

- Covered by cleancut oval scars

Scales

- Long white and short red-brown scales found at base of fronds

Sori (cluster of spores)

- Located on middle of fern leaflet division

Oval Ring Scale

REPORT IT!
643-PEST



Mallard Ducks are Threatening our Native Koloa Duck

By Jayme Patrick, United States Department of Agriculture



Photo by Eric VanderWerf

Mallard Male (front) and female. Note the “teal” blue speculum, white tail, and curled black tail coverts. This female has a darker, less orange bill than most and may be a domestic hybrid.

The native and endangered Koloa duck is threatened with extinction due to hybridization with mallard and mallard-type domestic ducks. In a collaborative project to address this concern, Hawai'i Department of Land and Natural Resources (DLNR) Division of Forestry and Wildlife (DOFAW) and United States Department of Agriculture (USDA) Wildlife Services are requesting public assistance to locate mallards and mallard hybrids in Kaua'i streams and lakes. Mallard ducks are most easily identified by the green heads of the males. Mallard females look similar to Koloa

duck although they are larger in size. Hybrid drakes (male ducks)

may have brown or green heads, and may have curled black tail feathers.

If you have observed mallards or mallard hybrids on Kauai waterways, please call Jayme Patrick, Wildlife Biologist with USDA Wildlife Services, at 828-0539, or Thomas Kaiakapu, Wildlife Biologist with DLNR Division of Forestry and Wildlife, at 274-3433. Please provide a description of the ducks you've observed, how many ducks you observed, the date, time, and location that you observed them. This information will be used to formulate management plans to

protect Koloa ducks from further hybridization.

Observers are encouraged to photograph mallards and suspected mallard-koloa hybrids. Photos can be emailed to jpatrick@aphis.usda.gov or mailed to USDA APHIS Wildlife Services Kauai, 3901 Mokulele Loop, Box 20, Lihue, HI 96766. Photographs will be used to develop references on the identification of hybrids. Photographer credits will be given.

USDA Wildlife Services is a cooperative service agency dedicated to assisting public and private entities with wildlife damages and conflicts caused by wildlife. On Kaua'i, USDA Wildlife Services is active in the management of introduced birds and mammals that threaten native species or cause damage to native habitats or to property. These efforts are conducted through cooperative agreements with land owners, and through collaborative projects with DLNR and other local agencies.

“Hybridization, or cross-breeding, of introduced species with natives is an even subtler impact (no lineage goes extinct), but it is insidious because it leads gradually to the extinction of many native species, as their gene pools inevitably evolve to become those of the invader. Introduced mallards, for instance, are driving the native Hawaiian duck to a sort of genetic extinction by breeding with them”

From *Introduced Species: The Threat to Biodiversity & What Can Be Done* by Daniel Zimmerloff

Of 26 animal species that have gone extinct since being listed under the Endangered Species Act, at least three were wholly or partly lost because of hybridization



Photo by Eric VanderWerf

A pair of native Koloa ducks. Hanalei, Kaua'i. Notice the difference of color.

Additional photos and information on species identification can be found on DLNR's website at http://www.state.hi.us/dlnr/dofaw/pubs/WaterbirdCount_photoguide.pdf

Attack of the Invasive Ants



By Priscilla Billig, Hawai'i Invasive Species Council



A heartbreaking close-up of a red-tailed tropicbird that as lost its eye to an invasive species
Photo by Brenda Zaun

At least 47 ant species have invaded Hawai'i in the past 200 years, with several species becoming problems and all capable of causing damage to seabirds.

Center: The same red-tailed tropicbird chick at Kilauea Point Wildlife Refuge exhibits poor condition, likely caused by the invasive long-legged ant (*Anoplolepis gracilipes*)
Photo by Brenda Zaun

With thousands of seabirds soaring on the trade winds overhead, the rocky cliffs of Kilauea Point National Wildlife Refuge on Kaua'i host the largest colony and one of the most significant sanctuaries

on the inhabited Hawaiian Islands. Included in the community are seven native Hawaiian seabirds, some who make the north-facing sea bluffs their annual breeding and nesting site.

Among the colony found at the Refuge are the Laysan albatross, red-footed booby, great frigatebird, wedge-tailed shearwater, and the red- and white-tailed tropicbird. Throughout the year, seabirds come

ashore to court, copulate, and nest in the cozy burrows, or roost along the rugged 568-foot ocean cliffs. The Refuge is considered one of the best places in Hawai'i to view seabirds.

Fences and control methods protect the isolated 203-acre Refuge from the usual threats of habitat loss and human disturbance, and keep it safe from most

predators and scavenging animals. However, one of the greatest risks to the colony's fledging chicks is one of the smallest creatures in nature—the ant.

Brenda Zaun, U.S. Fish and Wildlife Service biologist, has seen the damage done to red-tailed tropicbird chicks by the invasive long-legged ant, also known as the yellow crazy ant, in plots she monitors at the Refuge. At least 47 ant species have invaded Hawai'i in the past 200 years, with several species becoming problems



and all capable of causing damage to seabirds.

Sheldon Plentovich, a University of Hawai'i doctoral candidate in zoology, has spent five field seasons studying the ecology of coastal communities. Her current research project on the big-headed ant and the tropical fire ant is funded by a grant from the Governor's Hawai'i

Invasive Species Council whose mission is to stop the introduction and spread of invasive species in the islands.

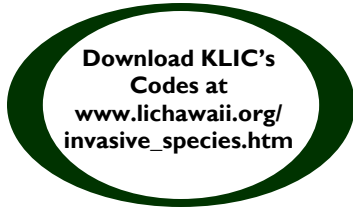
Plentovich conducts her research investigations on islets offshore of O'ahu where large populations of wedge-tailed shearwaters are subject to stinging ant attacks that can devour 80 percent of a fledging chick's foot webbing. Ants can also lower chicks' hatching success.

"Invasive ants can affect all aspects of an ecosystem," Plentovich said. "The public doesn't realize that ants can not only kill seabird chicks, but can also disrupt plant and insect communities." She hopes her investigations will result in a better understanding of

how we can control invasive ants in seabird colonies and ensure the future growth rate and fledging success of seabird chicks.

On Kaua'i, Zaun warns that "The ants seem to be spreading west, so if we can stop invasions into the rest of the Refuge, we want to do that." Optimistically, she adds that "If you want to view seabirds, this is the place to go."

Most Valuable Partner: Kaua`i Landscaping Industry Council



“The exotic vegetation that replaces indigenous plant communities in urbanizing regions, disassociates us from the rhythms and diversity of the native landscape and a sense of the place; and we are the poorer because of it.”

Michael Hough,
Professor of Landscape Architecture, York University

KISC would like to recognize the Kaua`i Landscaping Industry Council (KLIC) as a Most Valuable Partner. KLIC became the second horticultural association in Hawai`i to sign the Voluntary Codes of Conduct (VCC). The VCC is a national program of The Nature Conservancy that was inspired by the proceedings from the 2001

workshop, “*Linking Ecology and Horticulture to Prevent Plant Invasions*,” at the Missouri Botanical Garden. The goal of the program is to unite gardeners, landscape professionals, the nursery industry, scientists and botanical gardens with a collaborative, proactive, and educational approach towards invasive species.

Since KLIC took the lead this summer, various articles have been written, raising public awareness about the issue, as well as encouraging the participation of big box garden centers, such as Home Depot, to cease the sale of the species identified in code #4. [below]
It was a bold step in the right direction, and we commend them.

Invasive Plant Identity Match-Up

Figure out which 12 common ornamentals KLIC pledged to stop selling because of their invasive behavior...

1



2



3



4



- A. Fountain Grass (*Pennisetum setaceum*)
- B. Smokebush (*Buddleia madagascariensis* & *C. grandiflora*)
- C. Fiddlewood (*Citharexylum spinosum* & *C. caudatum*)

5



6



7



8



- D. Glorybush (*Tibouchina urvilleana*)
- E. Rubbervine (*Cryptostegia* sp.)
- F. Common St. John's Wort (*Hypericum perforatum*)

9



10



11



12



- G. Australian Tree Fern (*Cyathea cooperi*)
- H. Indian Rhododendron (*Melastoma candidum*)
- I. Hiptage (*Hiptage benghalensis*)
- J. Kahili Ginger (*Hedychium gardnerianum*)

Answers: 1-G, 2-D, 3-F, 4-I, 5-K, 6-E, 7-A, 8-J, 9-B, 10-L, 11-C, 12-H

Photos by Forest & Kim Starr, except for 1, 4, & 11 which are from Australian Institute of Landscape Architects, The Global Invasive Species Initiative, & UH Botany

Think this is hard?

Try tracking them down once they have escaped the garden into the forest!

- K. Butterfly Bush (*Buddleia davidii*)
- L. Pampas Grass (*Cortaderia selloana* & *C. jubata*)

☑ Kia`i Moku New Year's Resolutions

1. Buy more local stuffs so less pests get imported in cargo
2. Call 643-PEST if I hear a coqui frog or see something unusual like a mongoose, miconia plant, or a snake
3. Choose native and non-invasive species for my garden
4. Clean off my boots and dive gear so that I don't spread invasive seeds or algae to the forests and reefs
5. Call 211 if I see a dead bird to help prevent West Nile Virus in Hawai`i
6. Donate my aquarium to the Humane Society or pet shop instead of dumping it in our waters
7. Volunteer to malama Hawai`i with a local organization



Why we do what we do...
The KISC crew puts some of the native species that we try to protect back into the ground where they belong

The Kaua`i Invasive Species Committee (KISC) is a voluntary partnership of government, private and non-profit organizations, and concerned individuals working to prevent, control, or eliminate the most threatening invasive plant and animal species in order to preserve Kauai's native biodiversity and minimize adverse ecological, economic and social impacts.



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KAUAI INVASIVE SPECIES COMMITTEE

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